

Continued breastfeeding in the second year of life versus no breastfeeding after 12 months for child development, growth, morbidity and mortality, and maternal health

Review information

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Citation example: Gera T, Shah D, Meena RK, Sachdev HS. Continued breastfeeding in the second year of life versus no breastfeeding after 12 months for child development, growth, morbidity and mortality, and maternal health. Cochrane Database of Systematic Reviews [Year], Issue [Issue].

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[Empty name]

Dates

Date of Search:	29 December 2020
Protocol First Published:	Not specified
Review First Published:	Not specified
Last Citation Issue:	Not specified

What's new

Date / Event	Description

History

Date / Event	Description

Abstract

Background

Benefits of exclusive breastfeeding for first six months in terms of child survival and health are well known. Regarding the optimal duration of breastfeeding beyond this period of exclusive breastfeeding for six months is somewhat unclear, Continuing breastfeeding for a period of 2 years or more may provide some nutritional, developmental and health benefits for children and their mothers; however, the evidence in support of sustained breastfeeding beyond one year is equivocal with some studies reporting its association with

childhood undernutrition and poor oral health.

Objectives

To evaluate the beneficial and harmful effects of continued breastfeeding in the second year of life in comparison to no breastfeeding beyond one year on health-related outcomes in children and their mothers.

Search methods

We searched the following databases in December 2020: Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, LILACS, African index medicis, CINAHL and CINAHL plus. We also searched clinical trial registries (clinicaltrials.gov and WHO-ICTRP), and reference lists of included studies.

Selection criteria

We included prospective and retrospective cohort studies (with a concurrent control group), population-representative cross-sectional cohorts (and nested case-control studies within such cross-sectional cohorts) and Controlled before-after (CBA) studies. We intended to include all randomised controlled trials, randomised at the level of the individual child or cluster (such as village or district), and non-randomised trials with a concurrent comparison group; but did not find any such study fulfilling our inclusion criteria. Other types of case-control studies, studies without a control group, and systematic/narrative reviews were excluded. Eligible studies were included irrespective of language of publication or publication status. Participants were: young children, 12-23 months of age, breastfed for a minimum duration of first nine months or with a minimum mean/median duration of nine months (if duration is stated only as summary statistics) or for minimum range of 6-12 months (if duration is stated only as a range), and their mothers. Intervention or Exposure was defined as continued breastfeeding in the second year of life (beyond 12 months of age) or with a minimum mean/median duration of 15 months (if duration is stated only as summary statistics), and reference/comparison group was no breastfeeding after 12 months of age with a minimum/mean/median duration of first nine months or 6-12 months (if duration was stated only as a range).

Data collection and analysis

Two review authors independently assessed the eligibility of studies for inclusion, extracted data from included studies, and assessed the risk of bias of the included studies. Risk of bias was assessed with Risk of Bias for Nutrition Observational Studies (RoB-NObs) tool. The outcomes recorded were: Child outcomes (child development, growth and body composition, infections and non-infectious morbidity, nutritional status, bone health, oral health and allergy/asthma); and Maternal outcomes (cancer, diabetes, cardiovascular health, bone health and mental health)

Main results

We included 170 records providing data from 146 studies, and excluded 412 full-text records extracted after screening 19211 de-duplicated records. Out of 146 included studies, 93 provided data on outcomes in children whereas 54 provided information related to outcomes in breastfeeding mothers. Majority of the included studies had moderate to severe risk of bias due to confounding (106 moderate, 38 severe); selection of participants (98 moderate, 4 severe), classification of exposure (79 moderate, 4 severe), departure from the intended exposure (91 moderate, 29 severe), and missing data (75 moderate, 8 severe), whereas a large majority of the studies had low risk of bias in the measurement of the outcome (143, 98%), and selection of reported result (130, 89%).

There was no evidence of any reduced or increased risk of developmental delay with breastfeeding being continued into second year (OR 1.15, 95% CI 0.54 to 2.43; 2 studies, 1872 participants; $I^2 = 67\%$; very low certainty evidence), and there was no significant difference between the mean IQ scores (SMD 0.01, 95% CI -0.06 to 0.08; 6 studies, 5079 participants; $I^2 = 0\%$; very low certainty evidence) or highest school grades (MD 0.02, 95% CI -0.19 to 0.23; participants = 1445; studies = 3; very low certainty evidence) of children breastfed for >12 months and those who discontinued breastfeeding before one year of age. The cumulative odds of

being underweight (OR 1.25, 95% CI 1.08 to 1.46; 15441 participants, 7 studies; $I^2 = 0\%$; very low certainty evidence) or wasted (OR 2.16, 95% CI 1.18 to 3.98; participants = 342; $I^2 = 0\%$; very low certainty evidence) was slightly higher with continued breastfeeding in reference to the control group; there was no evidence of significant increase in odds of stunting (OR 1.87, 95% CI 0.95 to 3.68; participants = 1299; studies = 3; very low certainty evidence) with continued breastfeeding. There was no significant association of continued breastfeeding into second year with overweight/obesity (OR 0.94, 95% CI 0.79 to 1.12; 37715 participants; 25 studies; $I^2 = 68\%$); though, the BMI was slightly lower in children and adolescents (MD -0.10, 95% CI -0.17 to -0.03; 12356 participants; $I^2 = 0\%$) who received continued breastfeeding into second year. There was no significant association of continued breastfeeding into second year with childhood morbidity (infectious and non-infectious). Continuation of breastfeeding during 2nd year of life was associated with higher odds of dental caries (OR 1.52, 95% CI 1.24 to 1.88; participants = 11286; studies = 20; $I^2 = 70\%$; very low certainty evidence), but it had no significant effect on cardiometabolic parameters, bone health, or allergies/asthma. Subgroup analyses documented that in low- and middle-income countries (LMIC), continued breastfeeding was associated with lower odds of overweight/obesity (LMIC OR 0.64, 95% CI 0.44 to 0.95; participants = 1196; studies = 4 vs. Others OR 0.99, 95% CI 0.83 to 1.19; participants = 36519; studies = 21), whereas underweight was associated with continued breastfeeding in only non-LMIC setting (LMIC OR 0.79, 95% CI 0.36 to 1.74; participants = 776; studies = 3; Others OR 1.27, 95% CI 1.09 to 1.49; participants = 14665; studies = 4).

There was no significant association of breast cancer in mothers who breastfed their children individually (OR 0.83, 95% CI 0.61 to 1.14; participants = 24695; studies = 4; $I^2 = 0\%$) or cumulatively (OR 1.07, 95% CI 0.95 to 1.20; participants = 218966; studies = 6; $I^2 = 0\%$) for >12 months compared to those who breastfed for <12 months. Similarly, there was no evidence of any significant association of continued breastfeeding with ovarian or uterine/cervical cancer, type-2 diabetes (individual child duration OR 0.93, 95% CI 0.62 to 1.39; participants = 42987; studies = 5; $I^2 = 54\%$; cumulative duration OR 0.96, 95% CI 0.91 to 1.02; participants = 345094; studies = 11), maternal hypertension (individual child duration OR 0.94, 95% CI 0.83 to 1.06; participants = 262129; studies = 5; cumulative duration OR 0.99, 95% CI 0.95 to 1.03; participants = 172366; studies = 9), cardiometabolic parameters, bone health or mental health. The level of evidence for all the outcomes was 'very low' suggesting uncertainty about the benefits (or harms) of continued breastfeeding into second year in terms of maternal or child health.

Authors' conclusions

Continuing breastfeeding into second year of life may not offer much advantages or disadvantages in terms of child or maternal health over subsequent years in comparison to when it is stopped before one year of age. In LMIC settings, there may be an association of continued breastfeeding into second year with lower odds of overweight/obesity without any concurrent association with undernutrition. There seems to be an association of prolonged breastfeeding with childhood caries, and oral and dental hygiene should be maintained in children who are continued to be breastfed beyond one year. However, in view of very low certainty of evidence, further investigation of these outcomes is required in form of well-controlled interventional studies.

Plain language summary

Continuation of breastfeeding for more than one year for improving child health or maternal health

Background

Breastfeeding for first 6 months of life has tremendous positive influence on children's health. Though continuation of breastfeeding into second year, in addition to other semi-solid and family foods, provides essential nutrients to the growing child, it is uncertain whether it offers any advantages in term of improving the child's growth and development or reducing the risk of cardiovascular and allergic diseases. Similarly, the evidence is inconsistent regarding the benefit of continued breastfeeding for improving maternal health by reducing risk of cardiovascular diseases and cancer.

Review question

We evaluated the effects of continued breastfeeding into second year on health-related outcomes in the subsequent years for children and their mothers.

Study characteristics

We included 170 publications from 146 observational studies conducted on children who were breastfed during first year of life with or without continuing it into second year of life, and their mothers.

Key results and certainty of the evidence

The effect of continued breastfeeding into second year of life is uncertain in terms of child development, growth, cardiac health or allergies in subsequent years of life. Similarly, it is uncertain whether it provides any advantages to the mothers in terms of reducing the risk of cancer, cardiovascular diseases or bone diseases. In view of the uncertainty of evidence of any advantage or harm, the practice of continuing breastfeeding children beyond one year may be continued based on the feasibility and desirability of the mothers and families.

Background

Description of the intervention

Breast milk is the first natural food for a newborn. There is a large body of evidence supporting the benefits of breastfeeding, especially exclusive breastfeeding. The optimal duration of breastfeeding is somewhat unclear, with different recommendations emanating from various organizations. The World Health Organization (WHO) since 2001 has recommended breastfeeding for a period of 2 years or more ([WHO 2009](#)). It provides all the caloric and nutritional requirement for the child for the first six months of life, up to half in the next six months, and one-third in the second year of life ([Victora 2015](#)). However, a large proportion of mothers stop breastfeeding after the first year itself. Breastfeeding beyond the first year of life has been labelled as 'continued', 'sustained', 'extended', 'long-term' or 'prolonged' ([Mortensen 2013](#), [Victora 2016](#)). Mothers practicing continued breastfeeding are 50-60% in low- and middle-income countries (LMICs) and even <1% in some developed countries ([Victora 2016](#)).

How the intervention might work

Breastfeeding till one year of age and beyond has been associated with multiple health and economic benefits to children as well as to their mothers and families ([Black 2008](#)). Various studies have documented the benefits of breastfeeding in reducing the risk of diarrhea and respiratory tract infections and related mortality ([Black 2008](#), [Dieterich 2013](#), [Belfort 2013](#)). This is largely because of the presence in human milk of many bioactive compounds that may improve immunity. These include cytokines, growth factors, hormones, digestive enzymes, transporters, and antimicrobial factors like glycans and human milk oligosaccharides (HMOs). In addition, human milk contains probiotics, which reside in the microbiota of the breast tissue and may also have a role in neonatal immunity ([Musilova 2014](#)). Some studies have shown a link between continued breastfeeding and lesser risk of allergic disorders such as atopic dermatitis and asthma in children. This benefit is attributed to its probiotic effect in early infancy and the presence of immunologic factors like IgA antibodies in breast milk ([Matheson 2012](#)). An earlier systematic review has shown that children breastfed longer have lower risk of asthma and this benefit may last till school age ([Dogaru 2014](#)). Moreover, studies have also reported an association between breastfeeding and language skills, intelligence and memory in children ([Kramer 2008](#), [Daniels 2005](#)). Some of them have also established a link between the duration of breastfeeding and mental development ([Bernard 2013](#)). The cognitive effect of breast milk may be related to the presence of long-chain polyunsaturated fatty acids (LC-PUFAs), which are important for myelination and neuronal growth ([Cockburn 2003](#)). Myelination mainly occurs in the first 18 to 24 months of life. Breastfeeding beyond the first year may, therefore, also be important for brain development of the child ([Isaacs 2010](#)). Similarly, presence of oxytocin in human milk may facilitate social perception, reduced antisocial behavior and decreased risk of autism spectrum

disorder in infants ([Krol 2015](#)).

Also, a large body of evidence is available documenting benefits of breastfeeding on maternal health. A systematic review has shown that the risk of breast cancer risk decreases by almost 4% in mothers who breastfeed ([CGHFBC 2002](#)). The benefit is much larger in mothers carrying the BRCA1 mutation that increases the risk of breast cancer. In such mothers who breastfeed for up to one year, the risk of breast cancer decreases by 37% ([Pan 2014](#)). There is emerging data that breastfeeding decreases the risk of ovarian cancer ([Luan 2013](#)). Breastfeeding also improves the maternal metabolic health. Breast milk production utilizes up to 500 kcal per day in a lactating mother leading to better postpartum weight loss, and a reduced risk of obesity, diabetes and metabolic syndrome ([Bobrow 2013](#), [McClure 2011](#), [Jager 2014](#)). These benefits in some studies are associated with the duration of breastfeeding ([Stuebe 2010](#)). Breast milk production is associated with increased production of prolactin and oxytocin, which may have a beneficial effect on blood pressure and cardiovascular disease. These benefits may also have a dose-response relationship; the longer the duration of lactation, more are the benefits ([Schwarz 2009](#), [Stuebe 2011](#)). Breastfeeding is also associated with improved mood, reduced cortisol response to stress, better sleep quality and reduced incidence of postpartum depression. This could be related to anxiolytic effect of oxytocin, secreted during lactation ([Heinrichs 2002](#)).

Why it is important to do this review

Despite the various studies showing benefits of sustained breastfeeding in mothers and children alike, it has not been universally accepted as a health practice. The American Academy of Family Physicians still recommend breastfeeding only for the first 12 months of life ([AAFP 2020](#)). This situation possibly emanates from paucity of updated, unequivocal evidence demonstrating that benefits of sustained breastfeeding substantially outweigh potential harms.

An important concern is the observation in LMICs of a positive association of sustained breastfeeding with malnutrition, especially stunting ([Ngandua 1990](#), [Brennan 2004](#), [Caulfield 1996](#)). This is an important factor to quantify in terms of both positive or negative effect because stunting is associated with adverse consequences to child health and development both in short- and long-term ([Briend 2015](#), [Grantham 1997](#)). Potential explanations for this negative association include decreased consumption of weaning foods with continued breastfeeding affecting the total caloric intake, poor health of the child, and reverse causality. Moreover, some studies have reported no or little impact of prolonged breastfeeding on social behavior and autism spectrum disorder ([Husk 2015](#)). The effect of sustained breastfeeding on childhood asthma is also controversial.

A large number of reports with positive association between duration of breastfeeding and maternal and child health outcomes, few reports of negative association between breastfeeding beyond the first year and child growth, and controversial evidence regarding few health benefits have important public policy implications. Formulation of universally acceptable guidelines on duration of breastfeeding by the WHO necessitates updated, systematically reviewed evidence with GRADE classification on the benefits and harms of sustained breastfeeding for the mother-child dyad.

Objectives

To evaluate the beneficial and harmful effects of continued breastfeeding in the second year of life in comparison to no breastfeeding beyond one year on health-related outcomes in children and their mothers.

Methods

Criteria for considering studies for this review

Types of studies

We intended to include all randomised controlled trials, randomised at the level of the individual child or cluster (such as village or district); non-randomised trials at the level of individual or cluster with a concurrent comparison group that is adjusted for baseline characteristics and confounders;

Controlled before-after (CBA) studies where allocation to the different comparison groups were not made by the investigators; and prospective and retrospective cohort studies (with a concurrent control group) were also included. Population-representative cross-sectional cohorts (and nested case-control studies within such cross-sectional cohorts) in whom information has been collected in a uniform manner on the outcome and the exposure data detailed through retrospective history recall were included. Other types of case-control studies, studies without a control group, and systematic/narrative reviews were excluded.

Studies published since the inception of the databases till the date of search were included. Eligible studies were included irrespective of language of publication or publication status. For those studies published in a language other than English or Hindi, we used Google Translate for translation into English language. If studies appeared to be relevant but questions remain about the translation, we commissioned their translation into English.

Types of participants

Young children, 12-23 months of age, breastfed for a minimum duration of first nine months or with a minimum mean/median duration of nine months (if duration is stated only as summary statistics) or for minimum range of 6-12 months (if duration is stated only as a range), and their mothers.

Types of interventions

Intervention/Exposure

Continued breastfeeding in the second year of life (beyond 12 months of age) or with a minimum mean/median duration of 15 months (if duration is stated only as summary statistics).

Comparison

No breastfeeding after 12 months of age with a minimum duration of first nine months. When the breastfeeding duration was stated only as a summary statistics, a minimum mean/median duration of nine months was considered for comparison group, and if duration was stated only as a range, minimum of 6-12 months was considered for comparison group. In case data are presented separately for breastfeeding duration of 9-12 months and 6-9 months or/and 6-12 months, the data of 9-12 months were preferred as a comparison group.

Studies employing simultaneous co-interventions like health education, micronutrient supplementation, etc. were included if the only difference between the intervention/exposure and comparison arms pertained to duration of breastfeeding.

Types of outcome measures

Child

Critical:

- a) Child development (any instrument, assessed at any age beyond 23 months)
- b) Growth and body composition (e.g.height-for-age, weight-for-age, weight-for-height, or BMI-for-age as continuous absolute measures or SD scores, stunting, wasting, overweight and obesity) (assessed at any age beyond 23 months)
- c) Morbidity and infections (including leukaemia, diabetes) (assessed at any age beyond 12 months)
- d) Nutritional status (micronutrients) (assessed at any age beyond 23 months)
- e) Mortality (assessed at any age beyond 12 months)

Important:

- f) Gut health and microbiome

- g) Bone health
- h) Oral health (dental caries)
- i) Allergy, asthma

Maternal

Critical:

- a) Breast, ovarian, endometrial cancer
- b) Type 2 diabetes
- c) Hypertension, stroke, cardiovascular disease
- d) Bone health

Important:

- e) Mental health
- f) Birth spacing/maternal fertility

Search methods for identification of studies

Electronic searches

Electronic searches

We searched the following electronic databases for primary studies:

- Medline
- The Cochrane Controlled Trials Register
- LILACS
- Embase
- African Index Medicus
- CINAHL
- ClinicalTrial.gov
- WHO International Clinical Trials Registry Platform (WHO-ICTRP)

The search strategy for the main databases is presented in [Appendix 2](#).

Searching other resources

Reference lists of all included papers and relevant reviews were scanned to identify citations that could have been missed in the primary search. Authors of other relevant reviews in the field, and those identified from the primary search were contacted for information regarding relevant studies, of which they may be aware.

Data collection and analysis

Selection of studies

The title and abstract of the studies identified in the search were scanned independently by two authors (TG and DS) to exclude literature that is obviously not relevant. With the remainder, we examined the full text articles against the eligibility criteria. Any uncertainty about inclusion was resolved by discussion and consensus between all authors.

Data extraction and management

Two authors (TG and RKM) independently extracted relevant data, including details of methods, participants, setting, context, interventions, outcomes and results, publications and investigators. We attempted to contact the study authors where reported information is unclear or contradictory, or where important data were missing. The abstracted data were independently evaluated by the other author. Any discrepancies were resolved by consensus and mutual discussion.

Assessment of risk of bias in included studies

Two review authors (TG and RKM) independently assessed the risk of bias for each included study using the criteria outlined in the Cochrane Handbook for Systematic Reviews of Interventions ([Cochrane 2021](#)). For randomised controlled trials and quasi-randomised controlled trials, the standard criteria for assessment of risk of bias to be considered were:

- (i) sequence generation (selection bias);
- (ii) allocation sequence concealment (selection bias);
- (iii) blinding of participants and personnel (performance bias);
- (iv) blinding of outcome assessment (detection bias);
- (v) incomplete outcome data (attrition bias);
- (vi) selective outcome reporting (reporting bias)

The judgment for each entry involved assessing the risk of bias as 'low risk', as 'high risk, or as 'unclear risk', with the last category indicating either lack of information or uncertainty over the potential for bias. Plots of 'Risk of bias' assessments were to be created in RevMan. Any disagreements were resolved by mutual discussion or group discussion, if required.

For observational studies, the most potential threat to the validity of the results was presence of confounding variables that can affect the outcome of interest beyond the exposure (in this case sustained breastfeeding) under study. For such studies we used the Risk of Bias for Nutrition Observational Studies tool (RoB-NObs) which was created by making modifications to the Risk of Bias in Non randomised Studies of Interventions (ROBINS-I) tool ([Sternie 2016](#), [CRSDA 2016](#)) to make it more suitable for observational studies of food, nutrition, and public health. The potentially important confounders identified for continued feeding for these studies included mother's age, mother's education (high school/vocational or some/completed university); socioeconomic status of family; age of child when mother returned to work (before 12 months or not by 12 months); parity; mother's pre-pregnancy weight, height and body mass index (BMI); partner's feeding preference (prefers breastfeeding or prefers formula /ambivalent); infant's gender; birth weight; age of introduction of solid food and age when formula was introduced. We collected information about the possible confounders and what researchers did about confounding to determine the quality of evidence generated. The bias domains assessed were

1. Bias due to confounding
2. Bias in selection of participants into the study
3. Bias in classification of exposure
4. Bias due to departures from intended exposure
5. Bias due to missing data
6. Bias in measurement of outcome
7. Bias in selection of reported result

The categories for risk of bias judgements were "Low risk", "Moderate risk", "Serious risk" and "Critical risk" or 'No Information' of bias. The assessment of risk of bias for each study and outcome was performed using a

model template ([Dietary Guidelines Advisory Committee 2020](#)). The overall risk of bias assessment and its justification is presented in a table, and also in a graph constructed in Microsoft Excel worksheet.

Measures of treatment effect

Risk ratio (RR) or Odds ratio (OR) estimations with 95% confidence intervals (CI) were used for binary outcomes. Data on continuous outcomes were analysed using either mean differences (MD) or standardized mean differences (SMD) if continuous outcomes were measured with similar, but not identical, instruments across studies. In order to maximize the data input for the pooled outcome measures, we utilized the values at the end of the study period (means and standard deviations (SDs) in preference to the changes from baseline, which also was not reported in all studies. For observational studies presenting data for various durations of breastfeeding against a different reference group as intended in this review, the values of the adjusted/unadjusted estimates (OR, MD, SMD) were calculated with the help of statistical equations. For example, if a study estimated the odds ratios of different outcomes for breastfeeding durations of 6-12 months and 12-24 months against the reference duration of 0-6 months, the odds ratio and 95% CI for breastfeeding duration of 12-24 months against reference of 6-12 months were calculated.

Unit of analysis issues

For cluster-randomised trials, the stated cluster adjusted RR and 95% CI was to be used, irrespective of the method employed. If the analyses had not been adjusted for cluster design effect, we intended to use the intra-cluster correlation co-efficient (ICC) or design effect from external sources (other trials included in the review) to inflate the standard error so as to account for clustering ([Cochrane 2021](#)). In the event that the value of ICC could not be derived from external sources, we intended to present the results using three 'assumed' ICC values of 0.01, 0.05 and 0.10.

In factorial trials and in multi-arm designs yielding two or more intervention groups (e.g. breastfeeding up to 18 months, and breastfeeding beyond 18 months) and a single control group, the data in the intervention groups, including the variation in the intervention characteristic, were pooled and compared against the single control group to prevent unit-of-analysis error.

Dealing with missing data

We intended to prefer intention-to-treat (ITT) analyses (author reported) if a per protocol analysis has also been reported. If the author had not reported an ITT analysis, we were to request the study author to undertake a re-analysis. In case of missing data, we contacted study authors for information wherever possible. Where this could not be done, or the authors did not respond, the missing values were imputed where feasible with the help of a statistician. Where assumptions were made for such imputations, they were recorded and presented with the final results.

Assessment of heterogeneity

We intended to assess contextual heterogeneity for variability in the participants, interventions or exposure and outcomes studied to identify clinical heterogeneity, and for variability in study design to describe methodological diversity.

Statistical heterogeneity was identified and measured as recommended by the Cochrane Handbook for Systematic Reviews of Interventions (section 9.5.2) ([Cochrane 2021](#)). A rough guide used for interpretation was:

- 0% to 40%: might not be important;
- 30% to 60%: may represent moderate heterogeneity;
- 50% to 90%: may represent substantial heterogeneity;
- 75% to 100%: considerable heterogeneity.

Assessment of reporting biases

The presence of reporting bias in the extracted data was to be evaluated quasi-statistically using a funnel plot, if a sufficient number of studies were available.

Data synthesis

We performed statistical analysis using the Review Manager software (RevMan 5.4.1). In concordance with the current recommendations ([Cochrane 2021](#)), we intended to conduct the meta-analysis of included randomised controlled trials, non-randomized controlled trials and observational studies separately. Pooled estimates (RR with 95% CIs) of the evaluated outcome measures were calculated by the generic inverse variance method. Results were not depicted as 'not statistically significant' or 'nonsignificant', but were report as CI together with the exact P value. We expected variation in studies with respect to populations, interventions, comparators, outcomes and settings. Thus, the true effect was likely to be related, but not the same for all studies. We therefore chose the random-effects model or chose not to perform a meta-analysis (if the populations, settings, etc. differed too much). If it was not possible to synthesize the data from the included studies for some outcomes, we provided a narrative synthesis of the results.

The data were eventually synthesized using a 'Summary of findings' table that provided key information concerning the quality of evidence, the magnitude of effect of the interventions/ exposure examined, and the sum of available data on all primary outcomes for a given comparison. For each primary outcome, quality assessment of the results was also carried out using the GRADE approach, which specifies four levels of certainty (high, moderate, low and very low). The highest certainty rating is for a body of evidence based on randomised trials, which is downgraded for risk of bias, inconsistency, indirectness, imprecision and publication bias. In observational studies, the certainty of evidence starting from low is upgraded for methodologically strong studies with large effect, dose response, and if plausible confounding changes the effect, and downgraded for risk of bias, inconsistency, indirectness or imprecision, Quality was assessed separately for each outcome.

Subgroup analysis and investigation of heterogeneity

We performed subgroup analysis for child development and growth (for Intelligence Quotient, Underweight and Obesity and Overweight):

1. Duration of breast feeding in the second year (12-18 mo, 18-24 mo). This was not done for studies reporting only summary statistics for duration of breastfeeding.
2. Development status of the study population (High Income Countries vs. Low-and-Middle-Income-Countries as per the World Bank categorization)
3. Area of residence (Rural/Urban)
4. Year of publication of study

Sensitivity analysis

We undertook sensitivity analyses with respect to the risk of bias parameters.

Results

Description of studies

Results of the search

We screened 19214 studies after removing duplicates from 33193 records identified through our search strategy. After title and abstract screening, 585 studies were shortlisted for full text retrieval for assessing

eligibility for inclusion. We included 170 records providing data from 146 studies, and excluded 415 records after reading the full-text. [Figure 1](#) outlines the outcome of search strategy.

Included studies

Out of 146 included studies, 93 provided data on outcomes in children whereas 54 provided information related to outcomes in breastfeeding mothers (one study [Lima 2019](#) fed data for both maternal and child outcomes). Among the studies evaluating outcomes in children, 13 provided information about child development and behaviour, whereas eight provided data related to child growth and/or anthropometry. Obesity or/and overweight was the most common outcome studied (28 studies), whereas cardiometabolic outcomes and diabetes mellitus were studied in 5 and 1 study, respectively. Six studies provided data on infections, and two each were related to iron deficiency/anemia and bone health. Oral health (dental caries) was another commonly studied outcome (20 studies) whereas asthma/atopy were outcomes in eight studies.

Out of 54 studies providing data related to maternal outcomes, 33 considered cumulative breastfeeding duration in all pregnancies whereas 24 studies considered breastfeeding duration in one child or average duration per child (three studies fed data to cumulative as well as per child breastfeeding duration). Outcome data were related to maternal cancer (11 and 3 studies, respectively, for cumulative and per child duration), cardiometabolic parameters (19 and 7), and bone health (3 and 6), Maternal anthropometry, cognitive impairment and diabetes were evaluated in five, two and one study, respectively; all of these were related to breastfeeding duration during one pregnancy.

The details of study location, details of exposure and outcomes studied are summarized in Supplementary Table 1 (not included in Revman file). The details of the individual studies are described in [Characteristics of included studies](#).

Excluded studies

Reasons for the exclusion of each of the 415 studies are listed in the section [Characteristics of excluded studies](#). The most common reason for exclusion (285 studies) was that the study did not evaluate the exposure of continued breastfeeding beyond one year, and thus did not fulfill our objective of comparing outcomes in those breastfeeding beyond one year with those who were breastfed for less than one year of duration. The next most common reason for exclusion was that the study followed a Case-control design (90 studies) which was not population representative. There was no comparison (control) group in 12 studies whereas seven studies did not provide data on outcomes of interest for this review. In seven studies, there were other co-interventions along with breastfeeding, and the only difference between the two comparison groups was not the duration of breastfeeding alone. In four of the studies, the participants were not healthy. They either had a disease condition or were at-risk of developing the disease before the exposure (breastfeeding). In four studies, the breastfeeding durations in exposure and/or control group did not meet our definitions, and in two studies breastfeeding exposure co-existed with bottle/formula feeding. One article provided only review of literature related to prolonged breastfeeding beyond one year, and in one study detailed data relevant to our objectives were not available.

Risk of bias in included studies

[Figure 2](#) depicts summary of risk of bias for the included studies whereas [Table 1](#) and [Figure 3](#) describe risk of bias of individual studies.

All 146 included studies were assessed for seven types of risk of bias using the Risk of Bias for Nutrition Observational studies (RoB-NObs) Tool ([CRSDA 2016](#)). The severity of risk of bias has been classified as low, moderate, severe, critical and unclear.

1. Bias due to confounding

All included studies had some risk of bias due to confounding. Out of 146 included studies assessed, 106 studies (72.6%) had moderate risk for bias due to confounding, whereas about one-fourth (26%, n=38) were

classified to be having serious risk of bias. In two studies ([Danial 2017](#); [Rajaei 2016](#)), information regarding the confounding was not provided, and these were thus classified as having unclear risk of bias.

2. Bias in selection of Participants

Of the included studies, 43 (29.4%) were placed at low risk of bias in selection of participants as majority of them were cohort studies, while 98 studies were at moderate risk of bias. Four studies ([Derakhshan 2017](#); [Fredriksson 2007](#); [Helderman 2006](#); [Trygvadottir 2001](#)) were classified as having severe risk of bias as the selection of participants in the study were possibly related to the exposure or outcome and the start of exposure and start of follow up did not coincided for most of the participants. One study ([Fonseca 2010](#)) was placed at unclear risk of bias in selection of participants as sufficient information was not available.

3. Bias in Classification of exposure

Almost half (48%, n=70) of the studies were classified at having low risk of bias in classification of exposure, while 79 were placed at moderate risk of bias. Four studies ([Butt 2014](#); [Danial 2017](#); [Fonseca 2010](#); [Hansstein 2016](#)) were assessed to be having serious risk of bias as the methods used to define exposure were not reliable or were likely to result in some degree of random or systematic exposure misclassification.

4. Bias due to departure from the intended exposure

Among the 146 included studies, 22 studies were placed at low risk and 91 studies were placed at moderate risk of bias due to departure from the intended exposure. About 20% (n=29) studies were classified as having serious risk of bias, and 4 studies ([Danial 2017](#); [Intusoma 2016](#); [Rajaei 2016](#); [Sichieri 2003](#)) had unclear risk of bias as sufficient information was not available from the published studies regarding this domain.

5. Bias due to missing data

One-third (33.6%, n=49) and half (51.4%, n=75) of the studies were classified as having low and moderate risk of bias, respectively due to missing exposure / outcome data. Eight studies ([Ardic 2018](#); [Butt 2014](#); [Chetwynd 2017](#); [Girard 2019](#); [Helderman 2006](#); [Li 2020](#); [Oddy 2010](#); [Tanaka 2012](#)) were placed at serious risk of bias as analysis did not was not adjusted to remove the risk of bias or the missing data was addressed inappropriately in the analysis. About 10% (n=14) studies had unclear risk due to missing data due to insufficient information in the published manuscripts.

6. Bias in the measurement of outcome

Almost all (98%, n=143) were classified as having low risk for measurement of outcome, while one study each were placed at moderate risk ([Fonseca 2010](#); outcome measures were minimally influenced by the knowledge of exposure received), serious risk ([Hansstein 2016](#); outcome measures were subjective) and critical risk ([Chetwynd 2017](#); the methods of outcome assessment were different across the groups) of bias.

7. Bias in selection of reported result

A large majority (89%, n=130) of the studies were classified as having low risk of bias; 12 studies had moderate and four ([Chetwynd 2017](#); [Fagerhaug 2013](#); [Liese 2001](#); [Lee 2016](#);) had a serious risk of reporting bias due to cohort or subgroup being selected from a larger study for analysis and appeared to be selected on the basis of the results.

Effects of interventions

1. Child Outcomes

1.1 Child development, behaviour, cognition and intelligence (assessed at any age beyond 23 months)

Fourteen cohort studies from different settings (2 India, 2 Korea, 2 Phillipines, 2 United States, and one each from Australia, Brazil, Chile, China, New Zealand and Thailand) provided data related to impact of

breastfeeding into 2nd year on child development, intelligence, cognition or/and behaviours. The age of children at which development was assessed ranged from 32 months to 18 years; one study (Lima 2019) evaluated intelligence (by Wechlers Intelligence Scale for Adults) in adults at 30 years of age. There was substantial clinical heterogeneity in terms of the age at assessment, definition of the outcome, and type of scale used to measure the outcome.

1.1.1 Developmental delay

Two prospective cohort studies ([Kim 2020a](#) and [Oddy 2010](#)) from high-income countries (Korea and Australia) provided quantitative data related to developmental delay in children who were continued to breastfed into second year in comparison to those who discontinued breastfeeding before one year. The outcome was assessed at 8.25 years and 14 years, respectively. [Kim 2020a](#) assessed development of the included subjects at multiple time points. The last assessment done at 99 months was used for quantitative analysis. There was no evidence of any reduced or increased risk of developmental delay with breastfeeding being continued into second year ([Analysis 1.1](#) OR 1.15, 95% CI 0.54 to 2.43; participants = 1872) with significant heterogeneity between the two studies ($I^2 = 67\%$, $P = 0.08$) ([Figure 4](#)). The certainty of evidence was graded to be very low ([Summary of findings table 1](#)) suggesting that it is uncertain whether prolonged breastfeeding provides any benefit (or harm) in terms of preventing development delay in children.

[Kim 2020a](#) provided segregated data for the exposure group according to the duration of breastfeeding (12-18 mo or 18-24 mo). The odds of developmental delay was not significantly higher or lower in those who continued breastfeeding for 12-18 mo (OR 1.19, 95% CI 0.50 to 2.86) in reference to children who did not continue breastfeeding into second year whereas the odds of developmental delay was significantly higher (OR 2.87, 95% CI 1.17 to 7.06) in those who continued breastfeeding for 18-24 mo.

1.1.2 Intelligence/Development quotient/scores

Pooled estimate from six studies (5079 participants) documented no significant difference (SMD 0.01, 95% CI -0.06 to 0.08) between the mean IQ scores of children breastfed for >12 months and those who discontinued breastfeeding before one year of age ([Figure 5](#), [Analysis 1.4](#)). There was no heterogeneity between the studies ($I^2 = 0\%$; $P = 0.66$), but the certainty of evidence was rated to be very low ([Summary of findings table 1](#)). Three studies provided segregated data for subgroup analysis of duration of breastfeeding in the continued breastfeeding group (12-18 mo and 18-24 mo). There was no significant difference in test scores between two comparison groups for each of the subgroup (12-18 mo subgroup: SMD -0.01, 95% CI -0.12 to 0.09; 2452 participants; [Analysis 1.5](#); 18-24 mo subgroup: SMD -0.08, 95% CI -0.32 to 0.17; 1700 participants; [Analysis 1.6](#)). There was no significant difference in the IQ scores between two subgroups by development status of the country (Lower Middle Income Countries (LMIC) versus Others) (LMIC SMD 0.03, 95% CI -0.09, 0.15; Others SMD 0.00; 95% CI -0.09, 0.09; [Analysis 9.1](#)); or area of residence (Rural SMD -0.03, 95% CI -0.17, 0.11, 2 studies; Urban SMD 0.03, 95% CI -0.08, 0.14, 2 studies; Mixed SMD 0.11, 95% CI -0.16, 0.39 2 studies; [Analysis 9.2](#)); or year of publication of the study (2001-2010 SMD 0.04, 95% CI -0.06, 0.15, 3 studies; 2011 or later SMD -0.01; 95% CI -0.12, 0.10, 3 studies; [Analysis 9.3](#)). Sensitivity analysis after excluding study evaluating intelligence score in adults ([Lima 2019](#)) and the study providing unadjusted data ([Lee 2016](#)) did not result in any change in direction or magnitude of results (mean difference -0.00; 95% CI -0.09 to 0.09; no heterogeneity [$I^2 = 0\%$; $P = 0.46$]).

[Lee 2016](#) assessed the effect of various durations of breastfeeding on the Korean version of Bayley Scale of Infant development. The published paper displays the Mental Development Index only, at 1, 2 and 3 year follow up. The data at 3 years is used for quantitative analysis.. However even at 1 and 2 years there was no significant difference in children breastfed for 9-11 months and ≥ 12 months. At the 1-year follow-up who were breastfed for 9-11 months had a mean MDI score of 103.3, those breastfed for ≥ 12 months had a mean score of 104.7. Infants at the 2-year follow-up who were breastfed for 9-11 months had a mean MDI score of 99.3, those breastfed for ≥ 12 months had a mean score of 99.6. The authors also mention that no significant differences in the PDI scores were observed although the scores showed an increasing trend at the 1- and 3-year follow-up periods for those breastfed.

[Slykerman 2005](#) used Stanford Binet Scale to assess the overall intelligence at 3.5-4 years of life. The authors did not provide analysable data for the subtests (verbal reasoning, quantitative reasoning, abstract visual reasoning and short-term memory) but they reported that the subtest scores were not significantly associated with breastfeeding.

[Jiang 2011](#) estimated the effect of breastfeeding duration on Woodcock Johnson Psycho-Educational Battery-Revised (WJ-R) test score (letter word, passage comprehension, applied problem, and broad reading), and Wechsler Intelligence Scale for Children-Revised (WISC-R) test score. The authors provided the means but not the standard deviations, and thus these results could not be included in the quantitative analyses. The mean scores for 12+ month duration of breastfeeding were slightly lower as compared to 7-12 month duration for Passage Comprehension (96.66 vs 100.67), applied problem (102.2 vs 103.06), broad reading (98.88 vs 101.22) and WISC-digit span test (14.42 vs 14.63) while it was slightly higher for Letter word (105.01 vs 103.9). The authors also commented that "longer spells of breastfeeding are uncorrelated with increases in the measures of achievement".

[Belfort 2013](#) studied the effect of duration of breastfeeding on various intelligence scores at 3 and 7 years of age. Authors used regression analyses to study the impact on IQ points per month of breastfeeding. However a figure in the published study shows the adjusted age 7 Kaufman Brief Intelligence Scale, 2nd edition (KBIT-II) verbal score by category of breastfeeding duration. Estimates after adjusting for child variables (age, sex, fetal growth, gestational age, race/ethnicity, primary language), maternal variables (age, parity, smoking status, IQ, depression, employment, child care at 6 months post-partum) and family variables (parental education level, annual household income), HOME-SF score were higher for 10-11 month duration breastfeeding (6.0) as compared to breastfeeding for more than 12 months (4.1).

[Intusoma 2016](#) studied the effect of duration of breastfeeding on IQ but did not give the number of subjects in the two groups. The adjusted mean IQ was 2.93 points lower (95% CI -5.14, 0.71) in the continued breastfeeding group as compared to those fed for 5-11 months.

1.1.3 Other Cognitive Functions

[Analysis 1.7](#) to [Analysis 1.27](#) present the individual or pooled estimates from the studies evaluating parameters such as learning ability, problem solving, working memory, reasoning, processing speed. There was no evidence of any significant benefit or harm of prolonged breastfeeding in any of these functions, except reasoning which was slightly worse in children who were continued to be breastfed beyond 2 years of age ([Analysis 1.22](#); SMD -0.13, 95% CI -0.22 to -0.03; participants = 1936; studies = 3). The overall certainty of evidence was rated to be very low ([Summary of findings table 1](#)) suggesting that it is uncertain whether prolonged breastfeeding leads to any benefit or harm in terms of cognitive functions in later childhood.

[Veena 2010](#) assessed cognitive Function (Atlantis, Word Order, Pattern Reasoning, Verbal Fluency, Kohs Block Design, Coding-WISC III) in children from Mysore, India at 9-10 years who were breastfed for various durations. The results of quantitative analysis in children who continued breastfeeding into second year in reference to those breastfed for 9-12 mo are presented in [Analysis 1.7](#); [Analysis 1.8](#); [Analysis 1.9](#); [Analysis 1.11](#); [Analysis 1.12](#); [Analysis 1.10](#).

1.1.4 School Performance

[Analysis 1.28](#) presents pooled estimates of differences in highest school grades between children who were continued to be breastfed beyond one year of age and those who discontinued breastfeeding before one year of age. There were no significant differences between the school grades (MD 0.02, 95% CI -0.19 to 0.23; participants = 1445; studies = 3). [Analysis 1.29](#) presents result of the study comparing school test scores between these two groups, and there was no evidence of any significant difference between the two comparison groups.

[Nandi 2017 b](#) studied the effect of duration of breastfeeding on educational attainment in years in children 6-11 years of age, and Reading Score, Writing Score and Mathematics Score in 8-11 year old children. The reference group was 0-6 month duration of breastfeeding. The data could not be used for quantitative

analyses as the number of subjects in the two groups was not available to calculate the values considering 6-12 months as reference group. Educational attainment was higher in the continued breastfeeding group (0.12 (0.01, 0.22)) compared to >6-12 month group (0.05 (0.04, 0.14)). The Reading Score, Writing Score and Mathematics Scores in the longer duration feeding group was similar (-0.13 (-0.27, 0.02); -0.14 (-0.42, 0.15); -0.11 (-0.23, 0.00)) to the shorter duration group (-0.08 (-0.22, 0.05) -0.12 (-0.41, 0.18) -0.13 (-0.24, 0.01))

1.1.5 Behaviour

[Girard 2019](#) studied various behavioural problems (e.g. emotional reactivity, withdrawn behaviour, attention problems, mood, aggression, sleep problems) in 1992 children in relation to duration of breastfeeding, and prolonged breastfeeding was not significantly associated with any of these behaviours ([Analysis 1.30](#) to [Analysis 1.36](#)).

1.2 Growth and body composition (e.g. height-for-age, weight-for-age, weight-for-height, or BMI-for-age as continuous absolute measures or SD scores, stunting, wasting, overweight and obesity) (assessed at any age beyond 23 months)

1.2.1 Nutritional anthropometry of under-5

Eight studies (7 cross-sectional and one retrospective cohort) reported anthropometric parameters in children who continued breastfeeding beyond one year in reference to those who did not breastfeed beyond one year. Four of the studies were from low-income countries (Ghana, Rwanda, Zambia, Uganda) whereas three and one, respectively were from upper middle income (Brazil, China, Turkey) and high income (UK) countries. In seven studies, the parameters were measured in under-5 age children, and in one study (Martin 2002), the growth parameters were measured between 2 and 14.7 years of age.

Underweight

Seven studies (five population-based cross sectional studies and two cohort) studies provided data about odds of being underweight in children who were exposed to continued breastfeeding. The cumulative odds of being underweight was slightly higher with continued breastfeeding in reference to the control group ([Analysis 2.1](#); OR 1.25, 95% CI 1.08 to 1.46; participants = 15441; studies = 7) with no significant heterogeneity ($I^2 = 0\%$; $P = 0.85$). The odds were not significantly different from reference population when cross-sectional were pooled separately (OR 1.18, 95% CI 0.93 to 1.51; participants = 3715; studies = 5; $I^2 = 0\%$) but were higher (OR 1.30, 95% CI 1.07 to 1.57; participants = 11726; studies = 2; $I^2 = 0\%$) when only cohort studies (both provided unadjusted data) were pooled together. The certainty of evidence was, however, very low ([Summary of findings table 2](#)) indicating that it is uncertain whether continued breastfeeding leads to higher risk of underweight in under-5 children. Sensitivity analysis by excluding studies providing unadjusted estimates showed no significantly low or high risk of being underweight in children who continued breastfeeding into second year (AOR 1.24, 95% CI 0.96 to 1.60; 3177 participants studies = 3; $I^2 = 0\%$). Only two studies with small sample sizes (cumulative sample size 229) provided data according to the duration of continued breastfeeding into second year, and the odds did not significantly differ from reference population either in children who were breastfed for 12-18 mo ([Analysis 2.2](#); OR 1.21, 95% CI 0.37 to 4.02) or 18-24 mo ([Analysis 2.3](#); OR 1.49, 95% CI 0.48 to 4.62). Subgroup analysis by development status of the country showed no increased odds of being underweight in LMIC countries (OR 0.79; 95% CI 0.36, 1.74; 3 studies, n=780) but higher odds in countries with higher income (OR 1.27; 95% CI 1.09, 1.49; 4 studies, n=14665) ([Analysis 9.4](#)) with continued breastfeeding. The difference between the subgroups was statistically not significant ($p=0.24$). There was no difference in the odds of being underweight by the area of residence (Urban OR 1.16, 95% CI 0.88, 1.54, 3 studies, n=3406; Mixed OR 1.30; 95% CI 1.08, 1.57, 3 studies, n=12035; [Analysis 9.4](#)) or the year of publication of the study (Before 2000 OR 1.38, 95% CI 0.50, 3.81, 2 studies, n=209; 2001-2010 OR 1.30, 95% CI 1.07, 1.57, 2 studies, n=11726; 2011-2020 OR 1.16; 95% CI 0.88, 1.54, 2 studies, n=3406; [Analysis 9.6](#)).

[Hanssstein 2016](#) estimated the likelihood of being underweight in 8207 children aged 2-5 year from U.S NCHS 2003. Exact proportion of underweight children according to the duration of breastfeeding was not provided.

The data were analysed by partial proportional odds model and given as BMI class coefficients with P value. Breastfeeding duration between 6-12 months and >12 months were analyzed against breastfeeding for <3 months as reference [BMI class coefficient Values given as -0.214 (0.029 and -0.257 (0.018)). 29.1% children were never breastfed, 34% and 23.9% children were breastfed for 6-12 months and >12 months, respectively. Analysis showed that longer the duration of breastfeeding, lower was the probability of being underweight.

Stunting

Three cross-sectional studies provided data (one adjusted and two unadjusted) for quantitative synthesis for odds of stunting in children who continued to breastfeed beyond one year in reference to those who discontinued before one year. The pooled results ([Analysis 2.4](#)) did not suggest any evidence of significant increase in odds of stunting with continued breastfeeding (OR 1.87, 95% CI 0.95 to 3.68; participants = 1299; studies = 3). However, in the adjusted analysis, Nsereko 2018 from Rwanda showed significantly increased odds of stunting at 2 years in children who were continued to be breastfed beyond one year of age (OR 2.77, 95% CI 1.91 to 4.02). The certainty of evidence for pooled analysis as well as from single study providing adjusted estimates were rated to be very low ([Summary of findings table 2](#)) indicating that it is uncertain whether continued breastfeeding in second year of life influences risk of stunting in under-5 children.

In the two studies which provided segregated analysis for duration of breastfeeding into 2nd year, the odds of stunting was not significantly different with continued breastfeeding for duration of breastfeeding 12-18 mo (OR 1.02, 95% CI 0.45 to 2.35) or 18-24 mo (OR 1.23, 95% CI 0.52 to 2.95; participants = 229; $I^2 = 0\%$) ([Analysis 2.5](#) and [Analysis 2.6](#)).

Wasting

Two cross-sectional studies with small sample size reported outcome of wasting in children exposed to continued breastfeeding. The pooled odds of wasting was higher with continued breastfeeding in reference to the children whose mothers discontinued breastfeeding before one year ([Analysis 2.7](#); OR 2.16, 95% CI 1.18 to 3.98; participants = 342; $I^2 = 0\%$). However, the odds were not significantly high or low when duration of continued breastfeeding was analyzed separately (12-18 mo: [Analysis 2.8](#); OR 1.84, 95% CI 0.95 to 3.58; participants = 283; $I^2 = 0\%$; 18-24 mo: [Analysis 2.9](#); OR 4.47, 95% CI 0.66 to 30.41; participants = 203; $I^2 = 63\%$). The certainty of evidence for this increased odds of wasting among children continued to be breastfed during second year was rated to be 'very low'.

Z-scores

[Taren 1993](#) evaluated weight-for-age, height-for-age and weight-for-height z-scores in 1799 children villages of economically disadvantaged counties in China, who were continued to be breastfed into second year of life in reference to those who discontinued breastfeeding between 7-12 months. The adjusted WAZ ([Analysis 2.11](#)) and HAZ ([Analysis 2.15](#)) were higher in children who were continued to be breastfed into second year; and the gains were apparently higher with duration of breastfeeding into 2nd year being more than 18 months ([Analysis 2.12](#); [Analysis 2.13](#); [Analysis 2.16](#); [Analysis 2.17](#)). For WHZ, the adjusted mean difference between children breastfed beyond one year and those breastfed for 7-12 months was not statistically significant ([Analysis 2.18](#)). However when duration of breastfeeding into second year was considered, the WHZ was slightly but significantly higher in children who were continued to breastfed beyond 18 months in comparison to those breastfed for 7-12 months; the mean difference was not significant when breastfeeding duration was between 12 to 18 months ([Analysis 2.19](#); [Analysis 2.20](#)).

[Ngandu 1990](#) studied the association between WAZ, HAZ and WHZ scores and the duration of breastfeeding (<12 months, 12-17 months and 18-23 months). In children more than 2 years, no pattern existed in adjusted effects by duration of breastfeeding for all the three nutritional indices, and there were no statistically significant associations between duration of breast feeding and any of the three nutritional indices.

1.2.2 Overweight and Obesity

Twenty-eight studies provided data related to overweight/obesity or related parameters in children and adolescents (age range 2-18 years) in association with continued breastfeeding into second year. The design of sixteen studies was cross-sectional, 10 were prospective cohort, and two were retrospective cohort studies. Fourteen studies were from high-income countries, whereas 14 were from middle-income (10 upper-middle, 4 lower-middle) countries. The pooled analyses from 25 studies that provided quantitative data in terms of odds ratio showed no association of continued breast feeding into second year with obesity ([Analysis 2.23](#); OR 0.94, 95% CI 0.79 to 1.12; participants = 37715; studies = 25). There was substantial statistical heterogeneity ($P < 0.001$; $I^2 = 68\%$) as well as clinical heterogeneity in terms of age at assessment, type of study and study settings. Cohort studies that provided adjusted data showed no lower odds with continued breastfeeding (OR 0.99, 95% CI 0.90 to 1.09; participants = 23806; studies = 8, very low certainty evidence) whereas those providing unadjusted estimates documented slightly lesser but statistically insignificant odds of overweight or obesity with continued breastfeeding into second year (OR 0.81, 95% CI 0.52 to 1.27). Among cross-sectional studies, those providing adjusted data showed slightly lower (but not statistically significant) odds of overweight/obesity with continued breastfeeding (OR 0.85, 95% CI 0.68 to 1.05; participants = 6408; studies = 7), whereas those providing unadjusted data showed almost negligible association (OR 1.01, 95% CI 0.60 to 1.69; participants = 5847; studies = 7). Only two studies provided segregated data according to duration of breastfeeding into second year, and children who were breastfed for 12-18 mo had lower odds of being overweight/obese ([Analysis 2.24](#); OR 0.51, 95% CI 0.29 to 0.91; participants = 394; studies = 2) in reference to those who discontinued breastfeeding below one year of age. The odds of obesity were not lower with duration of breastfeeding being 18-24 mo ([Analysis 2.25](#); OR 0.73, 95% CI 0.39 to 1.36; participants = 251; studies = 2). Sensitivity analyses by including only those studies which provided adjusted estimates also did not show any significant association of overweight/obesity with continued breastfeeding into second year (OR 0.96, 95% CI 0.88 to 1.05) with no significant heterogeneity ($P = 0.86$; $I^2 = 0\%$). Subgroup analysis by development status of the country showed significantly lower odds ($p=0.05$) of obesity in children from LMIC (OR 0.64, 95% CI 0.44, 0.95, 4 studies, $n=1196$) as compared to higher income countries (OR 0.99; 95% CI 0.83, 1.19, 21 studies, $n=36519$) ([Analysis 9.7](#)). There was no difference in the odds of overweight or obesity in the subgroup analysis by area of residence of the population (Rural OR 0.82, 95% CI 0.61, 1.09, 2 studies, $n=3708$; Urban OR 0.90, 95% CI 0.68, 1.19, 17 studies, $n=10350$; Mixed OR 0.99, 95% CI 0.87, 1.13, 6 studies, $n=23657$; [Analysis 9.8](#)) or by year of publication of the study (2011 or later OR 1.03, 95% CI 0.77, 1.37, 13 studies, $n=21936$; 2001-2010 OR 0.94 95% CI 0.83, 1.05, 11 studies, $n=14795$; 1991-2000 OR 0.64, 95% CI 0.25, 1.68, 1 study, $n=884$; [Analysis 9.9](#)).

[Hansstein 2016](#) estimated the likelihood of obesity and overweight in 8207 children aged 2-5 year from U.S NCHS 2003. Exact proportion of obese children according to the duration of breastfeeding was not provided. The data were analysed by partial proportional odds model and given as BMI class coefficients with P value. Breastfeeding duration between 6-12 months and >12 months were analyzed against breastfeeding for <3 months as reference [BMI class coefficient Values given as -0.214 (0.029 and -0.257 (0.018)). 29.1% children were never breastfed, 34% and 23.9% children were breastfed for 6-12 months and >12 months, respectively. Analysis showed that longer the duration of breastfeeding, lower was the probability of being obese.

[von Kries 1999](#) estimated the effect of duration of breastfeeding on overweight and obesity in 5-6 year old German school children. The data for overweight has been used for quantitative analyses in [Analysis 2.23](#). The odds ratio for obesity in continued breastfeeding group when compared to shorter duration feeding (6-12 months) was 0.49 with 95% CI being 0.06 to 3.86.

[Izadi 2013](#) estimated the effect of duration of breastfeeding on overweight, obesity and abdominal adiposity in 10-18 year old children. The data for overweight has been used for quantitative analyses in [Analysis 2.23](#). The odds ratio for obesity in continued breastfeeding group when compared to shorter duration feeding (6-12 months) was 0.67 with 95%CI being 0.16 to 2.74.

[Jing 2014](#) compared duration of breastfeeding ≥ 12 vs <12 months for excessive weight (which includes overweight and obesity) and obesity alone (BMI >95th percentile for age). Excessive weight has been used in quantitative analyses in [Analysis 2.23](#). Odds ratio for obesity alone in continued breastfeeding group was 1.04

(95% CI 0.82 to 1.32; $p=0.75$) in reference to shorter (6-12 mo) of breastfeeding.

[Neutzling 2009](#) estimated the effect of duration of breastfeeding on overweight and obesity in 11-year-old children of the Pelotas birth cohort. Overweight was defined as body mass index at or above the 85th centile of the sex- and age-specific value and obesity as body mass index at or above the 85th centile plus subscapular and triceps skinfolds at or above the 90th centile. The data for overweight has been used for quantitative analyses in [Analysis 2.23](#). The odds ratio for obesity in continued breastfeeding group when compared to shorter duration feeding (9-12 months) was 0.88 (95% CI 0.48 to 1.61).

[Victora 2006](#) estimated the effect of duration of breastfeeding on overweight and obesity in 18-year-old boys of the Pelotas birth cohort. Overweight was defined as body mass index at or above the 85th centile of the sex- and age-specific value and obesity as body mass index at or above the 85th centile plus subscapular and triceps skinfolds at or above the 90th centile. The data for overweight has been used for quantitative analyses in [Analysis 2.23](#). The odds ratio for obesity in continued breastfeeding group when compared to shorter duration feeding (9-12 months) was 0.95 (95% CI 0.41 to 2.17).

Pooled estimates from five studies documented slightly lower BMI in children and adolescents ([Analysis 2.21](#); MD -0.10, 95% CI -0.17 to -0.03; participants = 12356; $I^2 = 0\%$) who received continued breastfeeding into second year. The level of evidence was rated to be 'very low' ([Summary of findings table 2](#)).

1.2.3 Body Composition

Two studies ([Robinson 2009](#) and [Victora 2006](#)) assessed body composition of children who were breastfed into 2nd year in reference to those who were breastfed for shorter durations. Measures of body fat [Fat mass ([Analysis 2.28](#)), fat mass/height² ([Analysis 2.29](#))] and lean body mass [lean mass/height² ([Analysis 2.30](#)), lean mass ([Analysis 2.32](#))] were not significantly different in children who were continued to be breastfed beyond one year of life in reference to those who were breastfed for shorter durations within first year of life ([Summary of findings table 2](#)).

[Taveras 2006](#) compared skinfold thicknesses in children according to the duration of breastfeeding, and there was no significant difference between children breastfed for >1 year vs those breastfed for shorter durations ([Analysis 2.27](#)). [Caleyachetty 2013](#) assessed skinfold thickness in children aged 5 years as per different durations of breastfeeding. Authors provided the sum of skinfold thickness (mm) as geometric mean with SD for the unadjusted data according to duration of breastfeeding categorized as 6-12 months, 12-17 months and >18 months having 141, 253 and 110 cases respectively in these categories. The values of sum of skinfold thickness were 13.9 (10.8, 17.8) 13.6 (11.0, 16.8) and 13.7 (10.8, 17.3) respectively for the above 3 categories.

1.3 Morbidity and infections (assessed at any age beyond 12 months)

1.3.1 Infections

Six prospective cohort studies provided information about association of infections in children with continued breastfeeding into second year in reference to shorter duration of breastfeeding. Five of the studies were from high-income countries and one from upper-middle income country. The infections included in the analyses were: gastrointestinal infections, respiratory tract infections, acute otitis media, and urinary tract infections.

[Christensen 2020](#) and [Stordal 2017](#) documented risk of hospitalization due to any infection (gastrointestinal, respiratory, urinary tract) in children who received continued breastfeeding beyond one year of age in reference to those breastfed for shorter durations. There was no significant increase or decrease in the risk of hospitalization with continued breastfeeding ([Analysis 3.1](#); RR 1.08, 95% CI 1.00 to 1.16; participants = 46156) with the certainty of evidence being very low ([Summary of findings table 3](#)).

[Ferguson 1981](#) and [Stordal 2017](#) assessed risk of gastrointestinal infections (acute gastroenteritis) in children with different durations of breastfeeding, and there was no significant change in risk of acute gastroenteritis with continued breastfeeding ([Analysis 3.2](#); OR 1.00, 95% CI 0.96 to 1.04; participants = 43018). [Ardic 2018](#)

compared number of episodes of gastroenteritis in relation to duration of breastfeeding. The mean (SD) number of episodes of acute gastroenteritis till 5 years of age were significantly lower in children with continued breastfeeding in comparison to those breastfed for <12 months (MD -2.23, 95% CI -2.55 to -1.91).

Four studies provided data related to risk of respiratory tract infections in children with continued breastfeeding in reference to shorter durations. Pooled analysis from three studies documented no significant increase or decrease in the risk of respiratory tract infections with continued breastfeeding into second year ([Analysis 3.5](#); OR 1.00, 95% CI 0.94 to 1.06; participants = 45968). However, [Ardic 2018](#) documented significantly lesser episodes of respiratory tract infections with continued breastfeeding (MD -2.43, 95% CI -3.99 to -0.87; participants = 270).

Four cohort studies assessed risk of acute otitis media with continued breastfeeding in reference to shorter durations of breastfeeding. Pooled analyses from 3 studies showed no significant increase or decrease in risk of acute otitis media with continued breastfeeding ([Analysis 3.7](#); OR 0.99, 95% CI 0.95 to 1.03; participants = 47089) with certainty of evidence being very low ([Summary of findings table 3](#)). However, [Ardic 2018](#) documented lesser number of episodes of acute otitis media till 5 years of age in children who received continued breastfeeding beyond one year (MD -1.40, 95% CI -1.80 to -1.00; participants = 270; very low certainty evidence).

[Ardic 2018](#) documented no significant difference in number of episodes of urinary tract infections in children till 5 years of age between those who were breastfed beyond one year in comparison to those who stopped breastfeeding before one year ([Analysis 3.8](#); MD -0.02, 95% CI -0.25 to 0.21; participants = 270; very low certainty evidence).

1.3.2 Diabetes

Three studies ([Fall 2011](#), [Izadi 2013](#), [Blix 2017](#)) provided outcomes related to diabetes in children and adolescents in relation to their breastfeeding status during second year of life in reference to those breastfed for 9-12 months. Additionally, [Wong 2018](#) reported blood glucose levels in 3-6 year-olds in relation to their breastfeeding status (12-23 mo vs 6-12 mo). There was no evidence of significantly lesser or higher risk of diabetes among children who were continued to be breastfed beyond first year of life ([Summary of findings table 3](#)) with the certainty of evidence being very low.

[Fall 2011](#) reported pooled data from five prospective birth-cohort studies in LMIC (Brazil, Guatemala, India, Philippines and South Africa), and did not find any significant association of diabetes in adolescents and adults (16-32 y) with continued breastfeeding into second year of life ([Analysis 3.9](#); OR 0.62, 95% CI 0.29 to 1.29; participants = 2090; very low certainty evidence).

Pooled estimate from two studies ([Fall 2011](#), [Izadi 2013](#)) did not suggest any significant association of high fasting blood sugar in adolescents and adolescents with their breastfeeding status into second year of life ([Analysis 3.12](#); OR 1.33, 95% CI 0.95 to 1.87; participants = 7348; studies = 2; very low certainty evidence).

One large prospective cohort study ([Blix 2017](#)) assessed the risk of type 1 diabetes in children and adolescents (age 7-19 y) in relation to duration of breastfeeding during early years. The hazard ratio of type-1 diabetes with continued breastfeeding was not significantly high or low in reference to breastfeeding for 9-12 months ([Analysis 3.16](#); OR 0.98, 95% CI 0.73 to 1.32; participants = 67803; studies = 1). The certainty of evidence was rated to be very low because of serious risk of indirectness and moderate risk of bias due to confounding, departure from intended exposure and missing data.

[Wong 2018](#) reported no significant difference in blood glucose levels in children breastfed for 12-23 mo vs those breastfed for 6-12 mo.

Subgroup analyses for exposure group breastfeeding durations 12-18 mo and 18-24 did not reveal any significant association of parameters related to diabetes with continued breastfeeding into second year.

1.3.3 Cardiometabolic health

Eight studies reported cardiometabolic outcomes in children, adolescent and adults (age ranges 3-32 y) in relation to their breastfeeding status into second year in reference to shorter duration of breastfeeding. There was no evidence of any significant association of Systolic BP, Diastolic BP, Prehypertension, Carotid Intima Media Thickness, Total Cholesterol, LDL-Cholesterol, HDL-Cholesterol, LDL/HDL Ratio, Serum Triglyceride, VLDL or Cardiometabolic Risk z score with continued breastfeeding into second year in reference to shorter durations of breastfeeding ([Analysis 3.17](#); [Analysis 3.18](#); [Analysis 3.19](#); [Analysis 3.20](#); [Analysis 3.21](#); [Analysis 3.22](#); [Analysis 3.23](#); [Analysis 3.24](#); [Analysis 3.25](#); [Analysis 3.26](#); [Analysis 3.27](#); [Analysis 3.28](#); [Analysis 3.29](#); [Analysis 3.30](#); [Analysis 3.31](#); [Analysis 3.32](#); [Analysis 3.33](#); [Analysis 3.34](#); [Analysis 3.35](#); [Analysis 3.36](#); [Analysis 3.37](#); [Analysis 3.38](#); [Analysis 3.39](#); [Analysis 3.40](#); [Analysis 3.41](#); [Analysis 3.42](#); [Analysis 3.43](#); [Analysis 3.44](#); [Analysis 3.45](#); [Analysis 3.46](#)). The certainty of evidence for all these parameters was assessed to be very low, indicating uncertainty about benefit (or harm) of continued breastfeeding on cardiovascular health of children, adolescents and adults ([Summary of findings table 3](#))

1.4 Nutritional status (micronutrients) (assessed at any age beyond 23 months)

1.4.1 Anemia and iron deficiency

Two cross sectional studies ([Maguire 2013](#); [Villamor 2000](#)) provided data regarding the effect of continuation of breast feeding during 2nd year on iron deficiency and anemia in children aged upto 5-6 years. There was clinical heterogeneity as one was from Canada (High income) and another from Tanzania (Low income), enrolling children from health centers and hospital, respectively.

[Maguire 2013](#) documented that continuation of breastfeeding during 2nd year was associated with increased odds of Iron deficiency ([Analysis 3.50](#); OR 1.71, 95% CI 1.05 to 2.78; participants = 1509; very low certainty evidence) in reference to children with breastfeeding till the end of 1st year. [Villamor 2000](#), on the other hand, reported lower odds of severe anemia (Hb <7 g/dL) in children breastfed during 2nd year of life ([Analysis 3.47](#); OR 0.21, 95% CI 0.05 to 0.88; participants = 139) in reference to 7-12 mo of breastfeeding. The data regarding the prevalence of anemia for variable duration of breastfeeding into second year in reference to breastfeeding for 7-12 mo was also provided (12-18 months:OR 0.26, 95% CI 0.04 to 1.63; 18-24 months: OR 0.16, 95% CI 0.02 to 1.36).

1.5 Mortality (assessed at any age beyond 12 months)

No included study provided information about child mortality in relation to continuation of breastfeeding beyond one year.

1.6 Gut health and microbiome

No included study provided information about child mortality gut health and microbiome in relation to the breastfeeding status beyond one year.

1.7 Bone health

Two cohort studies (one each from United Kingdom and Brazil; [Harvey 2009](#); [Muniz 2015](#)) provided data regarding the effects of continuation of breast feeding during the 2nd year of life on the bone health. [Harvey 2009](#) studied the effects at 4 years of age, while [Muniz 2015](#) followed two separate birth cohorts and assessed one at 18 years of age and another at 30 years of age (data of 30 years age group included for this review). Both studies were conducted in the urban setting. The certainty of evidence was rated to be very low ([Summary of findings table 4](#)).

The pooled estimate from these two studies showed no significant difference in the bone mineral density between the continued breastfeeding vs 6-12 mo breastfeeding groups ([Analysis 4.1](#); MD -0.01, 95% CI -0.01 to 0.00; participants = 985; studies = 2) with no statistical heterogeneity between the studies ($I^2 = 8\%$; $P = 0.30$). Clinical heterogeneity was evident because of the marked difference in age at assessment between the two studies.

The pooled analysis also showed no significant differences in the bone mineral content between children who

continued breast feeding during 2nd year of life in comparison to children who stopped breast feeding during 1st year ([Analysis 4.2](#); MD -12.27, 95% CI -25.75 to 1.20; participants = 985; studies = 2) with no significant statistical heterogeneity ($I^2 = 0\%$; $P = 0.50$).

1.8 Oral health (dental caries)

Thirteen cross sectional studies and eight (2 were retrospective) cohort studies from different settings (5 Brazil, 3 India, 2 Nigeria, 2 Japan, 2 Australia and one each from Canada, Finland, Mexico, Myanmar, Tanzania, Thailand, and United states) provided data regarding the effect of breastfeeding continuation during 2nd year of life on the oral health assessed in terms of development of dental caries. The age of the children at the time of assessment ranged from 6 months to 12 years. There was a substantial heterogeneity of the studied population in terms of age at assessment, definitions of outcome, place of residence and economic developmental status.

Pooled estimates from twenty studies showed that the continuation of breastfeeding during 2nd year of life was associated with higher odds of dental caries ([Analysis 4.3](#); [Figure 15](#); OR 1.52, 95% CI 1.24 to 1.88; participants = 11286; studies = 20) with significant heterogeneity between the studies ($I^2 = 70\%$; $P < 0.00001$). The level of evidence was rated to be very low indicating the uncertainty of association of childhood dental caries with prolonged breastfeeding ([Summary of findings table 4](#)). The analysis of thirteen cross sectional studies showed that continuing breastfeeding during 2nd year of life was associated with increased odds of dental caries in reference to breastfeeding till 12 months age only (OR 1.63, 95% CI 1.24 to 2.14; participants = 9437) with significant heterogeneity ($I^2 = 77\%$; $P < 0.00001$); the results were similar, though of lesser magnitude, on analysing only cohort studies (OR 1.25, 95% CI 1.02 to 1.53; participants = 1849) with no heterogeneity between the studies ($I^2 = 0\%$; $P = 0.42$). The sensitivity analysis after removing the unadjusted data of 8 cross sectional studies ([Azevedo 2005](#); [Helderman 2006](#); [Iida 2007](#); [Retnakumari 2012](#); [Sankeshwari 2012](#); [Mwakayoka 2017](#); [Shrutha 2013](#); [Sowole 2006](#)) showed no change in the direction of results (OR 1.54, 95% CI 1.15 to 2.06; participants = 6776) without much change in the heterogeneity of the studies ($I^2 = 73\%$; $P < 0.00001$).

Six studies ([Helderman 2006](#); [Shrutha 2013](#); [Sowole 2006](#); [Nirunsittirat 2016](#); [Tanaka 2012](#); [Tanaka 2013](#)) provided data for subgroup analysis according to the duration of breastfeeding (12-18 months or 18-24 months) during 2nd year. The analysis showed that the odds for the development of dental caries was only slightly higher for those breastfed for 12-18 months ([Analysis 4.4](#); OR 1.29, 95% CI 1.09 to 1.53; participants = 3216; studies = 6; $I^2 = 0\%$; $P = 0.47$; [Figure 16](#)) in reference to those breastfed till end of first year only, whereas odds were moderately high in children breastfed for 18-24 months ([Analysis 4.5](#); OR 1.94, 95% CI 1.50 to 2.51; participants = 2550; studies = 6; $I^2 = 30\%$; $P = 0.21$; [Figure 17](#)) compared to the reference group.

[Ollila 2007](#) evaluated the effect of prolonged breastfeeding on dental caries by applying a survival analysis method, and the survival curves were presented separately for selected teeth. Prolonged breastfeeding (≥ 12 months) had no effect on caries onset in terms of survival estimates for the primary second molar or the permanent first molar.

1.9 Allergy, asthma

Nine (7 cross-sectional and 2 cohort) studies provided data regarding the effect of continuation of breastfeeding during 2nd year of life on asthma and other allergies. One study each were from Finland, Japan, Korea, Norway, Poland, Portugal, Saudi Arabia, South Africa and United States. The age of the children in which assessment was done ranged from 2 to 15 years. All except one (South Africa – upper middle income) studies were from high-income countries. There was clinical heterogeneity in terms of the age at assessment, definition of the outcome, and type of scale used to measure the outcome.

1.9.1 Asthma

Eight studies (6 cross sectional and 2 cohort; 2 with unadjusted data) provided data related to asthma in children who were continued to be breastfed during second year in reference to those who discontinued breastfeeding. Pooled estimates of 8 studies for quantitative synthesis for odds of asthma in children who

continued to breastfeed beyond one year in reference to those who discontinued before one year did not suggest any evidence of significant increase in odds of asthma with continued breastfeeding. ([Analysis 4.6](#); [Figure 18](#); OR 1.04, 95% CI 0.95 to 1.13; participants = 42521; studies = 8) with no significant heterogeneity between the studies ($I^2 = 0\%$; $P = 0.56$), and very low certainty of evidence ([Summary of findings table 4](#)). Sensitivity analysis by removing unadjusted data also did not suggest any significant association (OR 1.03, 95% CI 0.94 to 1.12; participants = 41551; $I^2 = 0\%$; $P = 0.76$) with minimal heterogeneity among the studies.

[Abarca 2019](#) estimated the effect of duration of breastfeeding on both lifetime asthma prevalence and current asthma prevalence. The imputed data for lifetime asthma prevalence for continued breastfeeding versus shorter duration (6-12 months) is displayed in [Analysis 4.6](#). The risk for current asthma prevalence was similar in the two groups (RR 1.15, 95% CI 0.65 to 2.04).

1.9.2 Allergies

Four studies provided data regarding the association of continuation of breastfeeding during 2nd year of life with the development of allergies, eczema and hay fever in reference to children who stopped breastfeeding during first year.

Allergy: Two cross sectional studies ([Miyake 2007](#) and [Obihara 2005](#)) one each from high-income and upper-middle income country, assessed children aged 6-15 years age and provided data about the association of allergy with continuation of breastfeeding during 2nd year. Pooled analysis showed that the odds of having allergy were not significantly high or low with the continued breast feeding during 2nd year in reference to those who stopped breastfeeding during first year ([Analysis 4.7](#); OR 0.88, 95% CI 0.40 to 1.95; participants = 9824; studies = 2) with substantial heterogeneity among the studies ($I^2 = 66\%$; $P = 0.09$).

Eczema: Four cross sectional studies ([Al-Makoshi 2013](#); [Hong 2014](#), [Miyake 2007](#) and [Obihara 2005](#)), 3 and 1 from high-income and upper-middle income countries respectively (Saudi Arabia, Japan, Korea, and South Africa) provided data for Eczema in children (upto 15 y) in relation to their breastfeeding duration. Pooled estimate showed no significant increase or decrease in odds of eczema in children who were continued to be breastfed into second year in reference to those who did not continue breast feeding beyond first year ([Analysis 4.8](#); OR 1.09, 95% CI 0.94 to 1.27; participants = 13360; studies = 4; [Figure 19](#)) with no significant heterogeneity between the analysed studies ($I^2 = 0\%$; $P = 0.40$).

Hay fever: [Obihara 2005](#) provided data regarding hay fever in children with continued breastfeeding during the 2nd year and did not observe any significant association ([Analysis 4.9](#); OR 0.30, 95% CI 0.07 to 1.21; participants = 381).

2. Maternal Outcomes

2.1 Cancer (Breast, ovarian, endometrial)

2.1.1 Breast cancer

Eight studies (7 cohort studies and 1 case control study) provided data regarding the association of breast cancer in women who continued breastfeeding during child's 2nd year in reference to the women who stopped at the end of 1st year. All the studies were from high-income countries (4 from United states, one each from Iceland, Norway, Sweden and United Kingdom). Majority of the enrolled participants were part of Nurses Health Study Cohort or from cancer screening clinics, aged 20 - 81 years belonging to either urban or mixed background. There was clinical heterogeneity among the studied participants and the definitions used.

Three studies - two cohort ([Kvale 1987](#); [London 1990](#)) and one population based case-control ([Trygvadottir 2001](#)) provided data regarding the association of continuation of breast feeding during 2nd year with the incidence of breast cancer compared to women who breastfed till the end of 1st year only, duration of breast feeding was reported as months per child. Pooled analysis did not find any significant decrease or increase in odds of breast cancer in mothers who breastfed for >12 months compared to those who breastfed for <12 months ([Analysis 6.1](#); OR 0.83, 95% CI 0.61 to 1.14; participants = 24695; studies = 4) with no significant

heterogeneity among the three studies ($I^2 = 0\%$; $P = 0.86$). The certainty of evidence was rated to be very low ([Summary of findings table 6](#)).

[Stuebe 2009a](#) analysed the data according to the variation in the duration of breastfeeding during 2nd year (12-18 months and 18-24 months); there was no significant association of breast cancer with continued breastfeeding for each subgroup (12-18 months: OR 1.04, 95% CI 0.33 to 3.27; participants = 11204; 18-24 months: OR 1.08, 95% CI 0.32 to 3.68; participants = 8710).

Six studies ([Butt 2014](#); [Danial 2017](#); [London 1990](#); [Michels 1996](#); [Stendel-Hollis 2013](#) and [Stuebe 2009a](#)) from high-income countries (4 from US, one each from Sweden, UK) included outcomes in females aged 25-79 years, and provided data regarding the association of cumulative breastfeeding duration with the breast cancer.

There was no significant increase or decrease in odds of breast cancer with breastfeeding duration of >12 months in reference to shorter duration of breastfeeding ([Analysis 8.1](#); OR 1.07, 95% CI 0.95 to 1.20; participants = 218966; studies = 6) with no significant heterogeneity between the analysed studies ($I^2 = 0\%$; $P = 0.59$) [Figure 45](#). The certainty of evidence was rated to be very low ([Summary of findings table 8](#)).

2.1.2 Ovarian cancer

Three cohort ([Danforth 2007](#); [Gay 2015](#); [Kvale 1987](#)) studies provided data regarding the incidence of ovarian cancer among women who continued breastfeeding during 2nd year compared to those who stopped before one year after childbirth. The participants were women aged 20-69 years from Norway, Singapore, United States residing in Urban areas.

[Kvale 1987](#) studied the association of duration of breastfeeding per child with ovarian cancer and observed no significant association of continued breastfeeding during 2nd year with ovarian cancer in reference to women who stopped breastfeeding before the end of first year (OR 1.04, 95% CI 0.46 to 2.36; participants = 5480).

[Danforth 2007](#) and [Gay 2015](#) studied the association of cumulative breastfeeding duration with ovarian cancer, and observed no significant increase or decrease in the risk of ovarian cancer with breastfeeding duration >12 months in reference to those who had breastfed for <12 months ([Analysis 8.2](#); RR 1.12, 95% CI 0.69 to 1.83; participants = 270147; studies = 2) with no significant heterogeneity between the studies ($I^2 = 0\%$; $P = 0.94$).

[Danforth 2007](#) provided data to examine this association in the subgroups of breastfeeding duration, and did not observe any increase or decrease in the risk of ovarian cancer in either subgroup (12-18 months: RR 1.08, 95% CI 0.62 to 1.89; 18-24 months: RR 0.87, 95% CI 0.60 to 1.26).

2.1.3 Cervix cancer

[Kvale 1987](#) provided unadjusted data regarding the occurrence of cervical cancer in women who continued breastfeeding during 2nd year in reference to women who breastfed till 12 months only per child. There was no significant association of cervical cancer with prolonged breastfeeding ([Analysis 6.5](#); OR 1.87, 95% CI 0.93 to 3.77; participants = 5480).

2.1.4 Uterine cancer

[Kvale 1987](#) provided data regarding the association of Uterine cancer in women according to the duration of Breast feeding per child. The odds of uterine cancer were not significantly higher or lower in women who continued breastfeeding for >12 months in reference to those who stopped breastfeeding during first year after childbirth ([Analysis 6.6](#); OR 1.29, 95% CI 0.52 to 3.20; participants = 5480).

2.1.5 Lung cancer

Two cohort studies ([Jeon 2020](#); [Tan 2015](#)), one prospective and one retrospective, from high-income countries (Korea and Singapore) provided data regarding the association of cumulative breastfeeding with the occurrence of lung cancer in women aged 40- 64 years. Pooled analysis documented no significant increase or decrease in risk of lung cancer among women who continued breast feeding during 2nd year in reference to those who stopped feeding during first year after birth ([Analysis 8.5](#); OR 0.99, 95% CI 0.89 to 1.10; participants = 3977897; studies = 2) with no significant heterogeneity among the two studies ($I^2 = 0\%$; $P = 0.40$).

[Tan 2015](#) also provided data regarding the occurrence of lung cancer in women for subgroups of the duration of cumulative breast feeding (12-18 months vs 18-24 months), and there was no significant association in either of the subgroup (12-18 months: OR 0.43, 95% CI 0.17 to 1.07; 18-24 months: OR 0.88, 95% CI 0.52 to 1.49 ([Analysis 8.6](#); [Analysis 8.7](#)).

[Jeon 2020](#) showed no significant relationship between newly diagnosed lung cancer and lifetime duration of breastfeeding (Hazard ratio 0.91, 95% CI 0.82–1.00 for breastfeeding duration <6 mo; 0.95 (95% CI 0.87 to 1.03) for breastfeeding duration 0.5 to <1 y; and 0.95 (0.88 to 1.02) for duration ≥ 1 year; when compared with no breastfeeding.

2.1.6 Cancer all sites

[Kvale 1987](#) provided data regarding the cancer at all sites, and all types of cancer except breast/genitalia. There was no significant association of continuation of breastfeeding during 2nd year of life either with cancer all sites (OR 0.84, 95% CI 0.67 to 1.06) or with all cancers except breast/genitalia (OR 0.79, 95% CI 0.60 to 1.05) in reference to women who stopped feeding during 1st year ([Analysis 6.7](#); [Analysis 6.8](#)).

2.2 Type 2 Diabetes / Blood Glucose

Sixteen (8 cohort and 8 cross sectional) studies provided data regarding the risk/association of duration of breastfeeding with the maternal diabetes / blood sugar levels/ HbA1C/fasting insulin levels. Among these studies, 6 were from United States, 4 from Korea, 2 China, one each from Brazil, Iran, Norway and Poland. Majority of the participants were the women of urban/ mixed residential areas from high income / upper middle income countries. Age of the participants ranged from 19 years to 81 years. Clinical heterogeneity was apparent among the studies in terms of age at outcome assessment, outcome definitions, and parameters adjusted during analysis.

Diabetes

Five studies (two cohort - [Bajaj 2017](#); [Villegas 2008](#) and three cross sectional - [Nam 2019](#); [Suliga 2020](#); [Zhang 2015](#)) provided data about the association of duration of breastfeeding per child with diabetes. Pooled results showed that the odds of diabetes were not lower or higher for women continuing breastfeeding during second year after birth in reference to women who stopped feeding during first year ([Analysis 5.1](#); OR 0.93, 95% CI 0.62 to 1.39; participants = 42987; studies = 5; [Figure 20](#)). There was moderate statistical heterogeneity between the studies ($I^2 = 54\%$; $P = 0.07$), and the certainty of the evidence was rated to be very low ([Summary of findings table 5](#)).

Two studies ([Nam 2019](#); [Suliga 2020](#)) provided data for subgroup analysis of the duration of breastfeeding (12-18 months and 18-24 months) during second year. There was no significant association of maternal diabetes either with breastfeeding for 12-18 months (OR 1.41, 95% CI 0.50 to 4.03; participants = 3450) or for 18-24 months (OR 1.09, 95% CI 0.66 to 1.78; participants = 4910) in reference to women breastfeeding for <12 months.

Eleven studies (5 cohort - [Gunderson 2018](#); [Luo 2019](#); [Stuebe 2009](#); [Tehrani 2014](#); [Villegas 2008](#) and 6 cross-sectional - [Choi 2017](#); [Nam 2019](#); [Natland 2012](#); [Ra 2020](#); [Schwarz 2009](#); [Suliga 2020](#)) provided data regarding association of cumulative duration of breastfeeding with maternal diabetes. Women with cumulative breastfeeding for > 12 months did not have higher or lower odds of diabetes ([Analysis 7.1](#); OR 0.96, 95% CI 0.91 to 1.02; participants = 345094; studies = 11; [Figure 32](#)) than women with breastfeeding duration < 12 months. There was no significant heterogeneity between the studies ($I^2 = 0\%$; $P = 0.55$), and the certainty of evidence was very low ([Summary of findings table 7](#)).

[Suliga 2020](#) provided segregated data for cumulative breastfeeding duration during second year. There was no significant association of breastfeeding >12 months with maternal diabetes either for the subgroup of breastfeeding for 12-18 months (OR 1.12, 95% CI 0.81 to 1.53; participants = 2443) or 18-24 months (OR 1.05, 95% CI 0.78 to 1.42; participants = 3156) in reference to women who breastfed for <12 months ([Analysis 7.2](#); [Analysis 7.3](#)).

Blood Glucose

Pooled analysis of data from three studies (2 cohort - [Lima 2019](#); [Stuebe 2010](#) and 1 cross sectional - [Ki 2017](#)) showed no significant difference in the blood glucose levels in women with breastfeeding duration of >12 months per child in comparison to women with breastfeeding duration of <12 months ([Analysis 5.4](#); MD 0.35, 95% CI -3.85 to 4.55; participants = 5646; studies = 3; [Figure 21](#)) with significant heterogeneity between the studies ($I^2 = 61\%$; $P = 0.08$). Sensitivity analysis after removing the unadjusted data ([Ki 2017](#)) also showed no significant difference in blood glucose levels of women with breastfeeding duration of >12 months per child in reference to those with cumulative breastfeeding duration of breastfeeding ≤ 12 months (MD -2.37, 95% CI -6.60 to 1.86) with no heterogeneity ($I^2 = 0\%$; $P = 0.74$).

[Ki 2017](#) analysed the subgroups according to the duration of breastfeeding during 2nd year and results showed that women breastfeeding for 18 - 24 months per child had slightly higher blood glucose level (MD 3.60, 95% CI 1.48 to 5.72; participants = 4356; [Analysis 5.6](#)) than those who had breastfed for <12 months whereas no significant difference of blood glucose level was seen between women breastfeeding for 12-18 months and <12 months (MD 1.30, 95% CI -0.99 to 3.59; participants = 3292; [Analysis 5.5](#)).

Three studies (two cross-sectional - [Choi 2017](#); [Natland 2012](#) and one cohort study - [Lima 2019](#)) analysed the relationship of cumulative breast feeding duration with maternal blood glucose levels. On pooled analysis, there was no difference in the blood glucose levels of women who breastfed for >12 months vs those who breastfed for ≤ 12 months ([Analysis 7.4](#); MD 0.46, 95% CI -1.70 to 2.62; participants = 14296; studies = 3; [Figure 33](#)). There was substantial heterogeneity between the studies ($I^2 = 70\%$; $P = 0.03$), and the certainty of evidence was rated to be very low.

[Stuebe 2010](#) analysed the effect of duration of breastfeeding per child on the HbA1C and insulin levels. There were no significant differences in women who continued breast feeding beyond 12 months and those who breast fed for ≤ 12 months either for HbA1C levels ([Analysis 5.7](#); MD -0.01, 95% CI -0.09 to 0.07) or maternal fasting insulin levels ([Analysis 5.8](#); MD -0.10, 95% CI -2.03 to 1.83; participants = 89).

2.3 Cardiovascular Health

2.3.1 Hypertension and blood pressure

Thirteen (5 cohort and 8 cross-sectional) studies provided data regarding the association of duration of breastfeeding with maternal hypertension / systolic BP / Diastolic BP. Eleven studies were from high-income countries (4 Korea, 3 United States and one each from Australia, China, Norway and Poland), and one study each was from upper-middle income (Brazil) and lower middle income (Iran) country. The age at assessment of outcome ranged from 15 years to 81 years. There was clinical heterogeneity in the studies in terms of age and ethnicity of participants, parameters studied, outcome definitions used and place of residence (Urban / mixed).

Five (2 cohort - [Lee 2005](#); [Stuebe 2009](#) and 3 cross sectional - [Lupton 2013](#); [Suliga 2020](#); [Zhang 2015](#)) studies analysed the association of duration of breastfeeding per child and maternal hypertension. Pooled results showed that the mothers continuing breastfeeding during 2nd year after childbirth did not have higher or lower odds of hypertension in reference to women who breastfed for < 12 months ([Analysis 5.9](#); OR 0.94, 95% CI 0.83 to 1.06; participants = 262129; studies = 5; [Figure 22](#)). There was substantial statistical heterogeneity between the studies ($I^2 = 77\%$; $P = 0.002$), and the certainty of evidence was very low ([Summary of findings table 5](#)).

[Lupton 2013](#); [Suliga 2020](#) analysed the subgroups of 12-18 months and 18-24 months of breastfeeding during 2nd year, and documented lower odds of maternal hypertension with breastfeeding both for 12-18 months (OR 0.86, 95% CI 0.78 to 0.95) and 18-24 months (OR 0.71, 95% CI 0.63 to 0.80) in reference to women who stopped breastfeeding during first year after birth. ([Analysis 5.10](#); [Analysis 5.11](#)).

Nine (3 cohort - [Chetwynd 2017](#); [Lee 2005](#); [Tehrani 2014](#) and 6 cross sectional - [Choi 2017](#); [Lupton 2013](#); [Natland 2012](#); [Ra 2020](#); [Schwarz 2009](#); [Suliga 2020](#)) studies provided data regarding the association of

cumulative breastfeeding duration with maternal hypertension. Pooled estimate revealed no lower or higher odds of hypertension in women with cumulative breastfeeding >12 months in reference to cumulative breastfeeding duration of ≤ 12 months ([Analysis 7.5](#); OR 0.99, 95% CI 0.95 to 1.03; participants = 172366; studies = 9; [Figure 34](#)) with no significant heterogeneity between the studies ($I^2 = 0\%$; $P = 0.49$), and the certainty of evidence was rated to be very low ([Summary of findings table 7](#)).

Four (2 cohort - [Chetwynd 2017](#); [Lee 2005](#) and 2 cross sectional - [Lupton 2013](#); [Suliga 2020](#)) studies provided data for subgroup analyses for breastfeeding duration 12-18 months and 18-24 months of cumulative breastfeeding during 2nd year of life and risk of hypertension in mother. There was no significant increase or decrease in risk of maternal hypertension with continued breastfeeding either for 18-24 months or 12-18 months in reference to breastfeeding of ≤ 12 months duration ([Analysis 7.6](#); [Analysis 7.7](#)).

Two studies (one cohort - [Lima 2019](#) and one cross sectional - [Ki 2017](#)) provided data regarding the effect of duration of per child breast feeding on the maternal systolic and diastolic BP. Pooled results did not suggest any significant difference in the mean systolic or diastolic blood pressures between women who had breastfed for >12 months vs those who breastfed their child for <12 months ([Analysis 5.12](#) and [Analysis 5.15](#)). Ki 2017 provided data for subgroup analyses for breastfeeding durations (12-18 months and 18-24 months during second year, and reported slightly higher systolic blood pressure both in the subgroup of women breastfeeding for 18-24 months (MD 5.50, 95% CI 4.11 to 6.89; participants = 4356) and women feeding for 12-18 months (MD 2.50 mmHg, 95% CI 0.81 to 4.19; participants = 3292) in comparison to women who breastfed their child for ≤ 12 months. For diastolic blood pressure, women with breastfeeding duration of 18-24 months per child had slightly lower diastolic BP (MD -1.20, 95% CI -2.03 to -0.37; participants = 4356) in comparison to women breastfeeding for ≤ 12 months per child, whereas there was no significant difference for the subgroup of women who breastfed for 12-18 months (MD 0.40, 95% CI -0.58 to 1.38; participants = 3292).

[Lima 2019](#) also analysed the effect of duration of cumulative breastfeeding on systolic and diastolic BP. There were no significant differences in the systolic or diastolic blood pressures of women who breastfed for >12 months in total vs those who breastfed cumulatively for <12 months (systolic BP: [Analysis 7.8](#); MD 0.53, 95% CI -1.80 to 2.86; participants = 782 and Diastolic BP: [Analysis 7.9](#); MD 0.64, 95% CI -1.00 to 2.28; participants = 782).

2.3.2 Stroke

[Peters 2017](#), in a large prospective cohort study from China provided data regarding the association of duration of breastfeeding per child with stroke in parous women aged 35-75 years from urban and rural areas. There was no significant association of continued breastfeeding into second year with occurrence of stroke ([Analysis 5.18](#); HR 1.02, 95% CI 1.00 to 1.05; participants = 239959). The association was not seen in both the subgroups of breastfeeding (12-18 mo and 18-24 mo) ([Analysis 5.19](#); [Analysis 5.20](#)). Results were similar on considering the cumulative breastfeeding duration into analysis ([Analysis 7.10](#); HR 1.00, 95% CI 0.95 to 1.05).

2.3.3 Cardiometabolic health and cardiovascular Mortality

Fourteen (6 cohort and 8 cross-sectional) studies from United states (4), Korea (3), Norway (2), one each from Australia, Brazil, China, Iran and Poland; reported other outcomes of cardiometabolic health and cardiovascular mortality in women (aged 18-85 years) in relation to their breastfeeding status into second year in reference to shorter duration of breastfeeding.

There was no evidence of any significant association of all cardiovascular disease, cardiovascular mortality, hyperlipidemia, Low LDL, Metabolic syndrome, Homa IR, Intima media thickness, Pulse wave velocity with continued breastfeeding per child into second year in reference to shorter durations of breastfeeding ([Analysis 5.21](#); [Analysis 5.22](#); [Analysis 5.23](#); [Analysis 5.24](#); [Analysis 5.25](#); [Analysis 5.26](#); [Analysis 5.27](#); [Analysis 5.28](#); [Analysis 5.29](#); [Analysis 5.39](#); [Analysis 5.40](#); [Analysis 5.41](#); [Analysis 5.43](#); [Analysis 5.44](#); [Analysis 5.45](#); [Analysis 5.46](#); [Analysis 5.47](#); [Analysis 5.48](#)).

Pooled estimates showed that breastfeeding for >12 months per child was associated with slightly lower serum levels of Cholesterol, LDL, HDL and Triglycerides in reference to shorter durations (≤ 12 months) of

breastfeeding. The differences were not significant when cross-sectional and cohort studies were analyzed separately. ([Analysis 5.30](#); [Analysis 5.31](#); [Analysis 5.32](#); [Analysis 5.33](#); [Analysis 5.34](#); [Analysis 5.35](#); [Analysis 5.36](#); [Analysis 5.37](#); [Analysis 5.38](#); [Analysis 5.42](#). [Figure 23](#); [Figure 24](#); [Figure 25](#)). The certainty of evidence was rated to be very low for all these outcomes ([Summary of findings table 5](#)).

There was no evidence of any significant association of all cardiovascular disease, cardiovascular mortality, hyperlipidemia, Cholesterol, LDL, HDL, Low LDL, Triglycerides, Metabolic syndrome, Homa IR, Intima media thickness and Pulse wave velocity with cumulative breastfeeding duration > 12 months in reference to shorter cumulative duration of breastfeeding (≤ 12 months) [Analysis 7.11](#); [Analysis 7.12](#); [Analysis 7.13](#); [Analysis 7.14](#); [Analysis 7.15](#); [Analysis 7.16](#); [Analysis 7.17](#); [Analysis 7.18](#); [Analysis 7.19](#); [Analysis 7.20](#); [Analysis 7.21](#); [Analysis 7.22](#); [Analysis 7.23](#); [Analysis 7.24](#); [Analysis 7.25](#); [Analysis 7.26](#). [Analysis 7.34](#); [Analysis 7.35](#) ([Summary of findings table 7](#)).

2.3.4 Maternal anthropometry

Fifteen studies (7 - cohort and 8 - cross sectional) from United States (5), Korea (3), one each from Brazil, Finland, Iran, Norway, Philippines, Poland, and Turkey; provided data regarding the maternal anthropometric outcomes in women aged 18-79 years in relation to duration of breastfeeding during second year in reference to shorter duration of breastfeeding.

There was no evidence of any significant association of overweight and obesity, BMI, BMI gain, weight gain, Waist circumference, waist circumference > 85cm, waist hip ratio, skin fold thickness, percentage fat mass, arm fat index, subcapsular triceps skin fold thickness with continued breastfeeding per child into second year in reference to shorter durations of breastfeeding was observed. [Analysis 5.49](#); [Analysis 5.50](#); [Analysis 5.51](#); [Analysis 5.52](#); [Analysis 5.53](#); [Analysis 5.54](#); [Analysis 5.55](#); [Analysis 5.56](#); [Analysis 5.57](#); [Analysis 5.58](#); [Analysis 5.59](#); [Analysis 5.60](#); [Analysis 5.61](#); [Analysis 5.62](#); [Analysis 5.63](#); [Analysis 5.64](#); [Analysis 5.65](#); [Analysis 5.66](#); [Analysis 5.67](#)

Similarly, there was no evidence of any significant association of obesity, body mass index, waist circumference, total lean mass and total fat mass with cumulative breastfeeding duration > 12 months in reference to shorter durations of breastfeeding (≤ 12 months) [Analysis 7.27](#); [Analysis 7.28](#); [Analysis 7.29](#); [Analysis 7.30](#); [Analysis 7.31](#); [Analysis 7.32](#); [Analysis 7.33](#)

[Adair 1992](#) estimated the effect of duration of lactation on maternal weight during 24 months. The predicted probability of being in weight loss group for women who weaned between 12 to 24 months was 0.58, compared with 0.48 if they weaned before 12 months. The probability of being in recovery group were 0.24 and 0.27, while being in weight gain group were 0.18 and 0.25 for those weaned between 12 to 24 months and before 12 months. respectively. The change in weight with breastfeeding duration < 12 months was 0.26 kg (SE 0.11; % change in wt 0.6), and that with breastfeeding till end of 12-18 months was -0.18 (0.08; % change in wt -0.3).

2.4 Bone Health

Seven (5 cross sectional and 2 retrospective) studies provided data regarding the association of continuation of breast feeding during second year after childbirth with the maternal bone health in reference to those who breastfed till the end of 1st year only. Four of these studies were from high-income countries (2 from South Korea, one each from Finland and United States), two were from upper-middle income country (Turkey) and one from lower-middle income country (Iran). The age of the enrolled participants ranged from 40 years to 93 years. Data regarding the participants enrolled was taken from the perimenopausal/post menopausal women coming to follow up clinics or from the National nutrition and health surveys. There was clinical heterogeneity among the studies regarding the age of the participants, economic status, definitions used adjusted parameters.

2.4.1 Osteoporosis

Three cross-sectional studies ([Dursun 2006](#); [Kim 2015](#); [Okuyay 2013](#)) from high / upper middle income countries provided data regarding osteoporosis in women who continued breast feeding during second year

after birth in comparison to those who continued till the end of the first year only.

[Kim 2015](#); [Okuyay 2013](#) showed no significant association of duration of breast feeding per child >12 months with osteoporosis ([Analysis 6.9](#); OR 3.37, 95% CI 0.30 to 38.07; participants = 1790; studies = 2) in reference to women who continued breastfeeding only till the end of first year, with considerable heterogeneity between the two studies ($I^2 = 92\%$; $P = 0.0006$).

[Dursun 2006](#) provided unadjusted data and showed that cumulative duration of breastfeeding > 12 months was associated with higher odds for osteoporosis ([Analysis 8.8](#) OR 1.66, 95% CI 1.21 to 2.26) in reference to breastfeeding duration of ≤ 12 months.

2.4.2 Bone Mineral Density

Five (3 cross sectional - [Dursun 2006](#); [Feldblum 1992](#); [Yeo 2016](#) and 2 cohort - [Wiklund 2012a](#); [Derakhshan 2017](#)) studies provided data regarding the association of duration of breastfeeding with the bone mineral density of various bones.

Total Femur BMD :

[Yeo 2016](#) provided data regarding the association of duration of breastfeeding per child on total femur BMD and showed slightly lower total femur BMD among women with continuation of BF during 2nd year after birth in reference to women who stopped feeding during 1st year ([Analysis 6.10](#); MD -0.06, 95% CI -0.07 to -0.06; participants = 1113). Subgroup analysis showed that breastfeeding for 18-24 months (MD -0.09, 95% CI -0.09 to -0.08) as well as for 12-18 months (MD -0.04, 95% CI -0.05 to -0.04) were associated with slightly less total femur BMD than women who discontinued breastfeeding before one year of age.

[Wiklund 2012a](#) showed no difference in the total femur BMD between women with of cumulative breastfeeding duration > 12 months vs those with breastfeeding duration of ≤ 12 months ([Analysis 8.9](#) (MD -0.02, 95% CI -0.07 to 0.03).

Femoral Neck BMD :

Two studies ([Derakhshan 2017](#); [Yeo 2016](#)) provided data regarding the effect of duration of breastfeeding per child on Femoral Neck BMD. Pooled results showed slightly lower femoral neck BMD in women who breastfed their children for > 12 months than those who breastfed for ≤ 12 months ([Analysis 6.13](#); MD -0.06 g/cm², 95% CI -0.07 to -0.05). There was considerable heterogeneity between the two studies ($I^2 = 96\%$; $P < 0.00001$).

Two studies ([Dursun 2006](#); [Wiklund 2012a](#)) analysed the femoral neck BMD in relation with cumulative breastfeeding duration, and observed slightly lower BMD values with cumulative breastfeeding duration > 12 months vs breastfeeding duration of ≤ 12 months ([Analysis 8.10](#); MD -0.03 g/cm², 95% CI -0.05 to -0.01; participants = 796; studies = 2; $I^2 = 7\%$; $p=0.30$).

Lumbar Vertebrae BMD :

Three ([Derakhshan 2017](#); [Feldblum 1992](#); [Yeo 2016](#)) studies analysed the effect of duration of BF per child on the Lumbar vertebrae BMD and the pooled results showed that breastfeeding duration of >12 months is associated with lower lumbar vertebral BMD ([Analysis 6.16](#); MD -0.10 g/cm², 95% CI -0.11 to -0.09; participants = 1948; studies = 3; $I^2 = 98\%$; $P = 0.00001$) in comparison to women with breastfeeding duration < 12 months/ child, with significant heterogeneity among the studies. These minor differences were not rendered significant when subgroup analyses for 12-18 months and 18-24 months were carried out.

[Dursun 2006](#) reported that cumulative duration of breastfeeding (>12 months vs ≤ 12 months) did not affect the lumbar vertebral BMD.

[Feldblum 1992](#) analysed the effect of duration of breastfeeding per child (>12 months vs ≤ 12 months) on the BMD of mid radius and distal radius and found no difference in BMD according to the duration of breastfeeding ([Analysis 6.19](#); [Analysis 6.20](#))

[Wiklund 2012a](#) analysed the effect of cumulative duration of breastfeeding (>12 months vs ≤ 12 months) on the BMD of distal tibia and found no significant difference ([Analysis 8.13](#)). However, women with cumulative duration of breastfeeding >12 months had higher bone mineral content ([Analysis 8.14](#) MD 40.00 gm, 95% CI -130.98 to 210.98; participants = 75; studies = 1) and bone area ([Analysis 8.15](#) (MD 39.00, 95% CI -52.01 to 130.01; participants = 75; studies = 1) in comparison to the women with cumulative breastfeeding < 12 months.

2.4.3 Rheumatoid Arthritis

[Karlson 2004](#), in a cohort study from United States, enrolled urban females aged 50-64 years and provided data regarding the relationship of cumulative BF duration with risk of rheumatoid arthritis. There was no significant increase or decrease in the risk of rheumatoid arthritis with cumulative breastfeeding of >12 months ([Analysis 8.16](#); RR 1.14, 95% CI 0.67 to 1.96).

2.5 Mental Health

[Li 2020](#), in a cross-sectional study from China evaluated the association of duration of breastfeeding per child (>12 months vs ≤ 12 months) with the cognitive function of postmenopausal urban Chinese women aged >60 years. Overall, there was no significant association of continued breastfeeding with cognitive impairment ([Analysis 6.21](#); OR 1.04, 95% CI 0.81 to 1.35; participants = 2987). Subgroup analyses for 12-18 months and 18-24 months also did not find any significant association of continued breastfeeding during 2nd year with cognitive impairment ([Analysis 6.23](#) and [Analysis 6.22](#)).

2.6 Birth Spacing/Maternal Fertility

No included study provided data about the outcome of birth spacing or maternal fertility.

Discussion

Summary of main results

In this systematic review evaluating health outcomes of continued breastfeeding in the second year of life in comparison to no breastfeeding beyond one year in children and their mothers, we included 146 observational studies; 93 studies provided data on outcomes in children whereas 54 studies provided information related to outcomes in breastfeeding mothers.

Fourteen studies, mostly from the high income or upper middle income countries studied the impact of breastfeeding into 2nd year on child development, intelligence/ development quotient, school performance, cognition or/and behaviors. In view of very low certainty of evidence, and little or no difference between the two comparison groups, it is uncertain whether continuation of breastfeeding into second year provides any additional benefit (or harm) in terms of preventing development delay in children or improving their intelligence / school performance / cognition or/and behaviors.

The cumulative odds of being underweight was slightly higher with continued breastfeeding in reference to the control group, but this was apparent only in children from high-income countries. The odds of being wasted was also slightly higher but there was no evidence of significant increase in odds of stunting. Overall, there was no significant association of continued breastfeeding into second year with overweight/obesity, but in LMIC settings, the odds of obesity/overweight was lower with continued breastfeeding. The BMI was also slightly lower in children and adolescents who received continued breastfeeding into second year. Thus, continued breastfeeding seemed to offer some benefits in terms of prevention of obesity in LMICs, but the certainty of the evidence was rated to be very low.

There was no significant association of continued breastfeeding into second year with childhood morbidity (infectious and non-infectious). Continuation of breastfeeding during 2nd year of life was associated with higher odds of dental caries, but it had no significant effect on cardiometabolic parameters, bone health, or

allergies/asthma. We found no studies documenting the effects of continuation of breastfeeding into 2nd year in reference to no breastfeeding beyond one year on children's gut health, microbiome or mortality.

There was no significant association of breast cancer in mothers who breastfed their children individually or cumulatively for >12 months compared to those who breastfed for <12 months. Similarly, there was no evidence of any significant association of continued breastfeeding with ovarian or uterine/cervical cancer, type-2 diabetes, maternal hypertension, cardiometabolic parameters, bone health or mental health. We found no studies documenting the effects of continuation of breastfeeding into 2nd year in reference to no breastfeeding beyond one year on maternal fertility or birth spacing.

The certainty of evidence for all these outcomes was rated to be 'very low' suggesting uncertainty about the benefits (or harms) of continued breastfeeding into second year in terms of maternal or child health.

Overall completeness and applicability of evidence

The benefits of exclusive breastfeeding for first six months of life on children's health are well known. Besides recommending early initiation of breastfeeding within 1 hour of birth and exclusive breastfeeding for the first 6 months of life, WHO and UNICEF recommend continued breastfeeding up to 2 years of age or beyond along with introduction of nutritionally adequate and safe complementary foods at 6 months of age. While guidelines of exclusive breastfeeding for first six months, and need of optimal complementary foods soon after completing six months of age are based on relatively firm evidence ([WHO 2001](#)), guidelines for longer breastfeeding durations (along with complementary feeding) are based mainly on the basis of breast-milk being an important source of energy and nutrients, especially during illness, and possible maternal benefits in term of reduction in risk of cancers and prolongation of lactational amenorrhea.

In this review, we included studies which provided data on maternal or child outcomes in children who were continued to breastfed beyond one year in comparison to those stopping breastfeeding before one year after continuing it for at least 9 months (or 6-12 months when described as a range). We did not include studies that reported outcomes of breastfeeding into second year in comparison/reference to never breastfeeding or breastfeeding for shorter durations (<6 months) unless the data permitted calculation of estimates in these two groups (>12 mo vs 6-12 or 9-12 mo). Inclusion of such studies would have precluded the estimation of any benefit or harm of breastfeeding into second year as different from the benefits already accrued due to earlier breastfeeding (before one year).

The included studies in the review had over-representation of high-income countries for many outcomes. Even amongst LMIC, most studies were done in upper middle income countries and very few in lower middle and low-income countries. For example, five out of six reporting data related to infectious morbidity in children were conducted in high-income countries, and only one ([Ardic 2018](#)) was from LMIC setting (Turkey, upper-middle income). The cumulative quantitative analysis of infections ([Figure 11](#), [Analysis 3.1](#)) were from Denmark and Norway where the risk of morbidity from not breastfeeding may be lower than the risk in LMIC. Similarly, seven out of eight studies reporting data on atopy or asthma were from high-income countries. For maternal outcomes, all studies reporting cancer as outcome, whether considering cumulative duration of breastfeeding or per child duration of breastfeeding, were performed in high-income countries. The findings related to all these outcomes are to be interpreted with caution while formulating any recommendation. For child outcomes of development, growth & anthropometry, overweight/obesity, cardiometabolic health and oral health, there was fair representation of LMIC, and we could perform subgroup analyses wherever number of studies were sufficient. We observed a trend towards benefit of continued breastfeeding into second year in LMIC in terms of lesser risk of overweight/obesity without increase in risk of growth failure as observed in high-income countries.

Quality of the evidence

All evidence analyzed in this review is based on observational data with all studies having moderate to serious risk of bias due to confounding, about 70% having moderate to serious risk of bias in selection of participants, 81% moderate to serious risk of bias in departure from intended exposure, and more than half having moderate to serious risk of bias in classification of exposure or missing data. In cross-sectional studies, the

exposure of breastfeeding duration was recorded by recall which further could have introduced recall bias. Because of these biases, the certainty of evidence was rated to be very low for all reported outcomes, and further research is very likely to change the direction and estimate of the effect.

As all the studies included in this review were observational studies, it is difficult to comment on the cause and effect, and it may be the reverse: Infection or poor health may be the cause of continued breastfeeding as sick infants often continue to feed on breastmilk despite being unwell. In such situations presence of infection or disease state may have been attributed to the breastfeeding; though there could be reverse causality; i.e. outcome is a predictor of the exposure ([Kramer 2011](#)). Similarly, a negative association between growth and breastfeeding may reflect reverse causality as smaller and slowly growing children are often satisfied with breastfeeding whereas rapidly growing children may demand more food and are likely to be weaned off early from the breast. [Marquis 1997](#) demonstrated that increased breastfeeding was associated with a decrease in length, implying that breastfeeding may be harmful. However, the logistic analysis considering weight-for-age and diarrheal morbidity in this group suggested that the negative association between breastfeeding and linear growth reflected reverse causality; i.e. increased breastfeeding did not lead to poor growth; children's poor growth and health led to increased breastfeeding.

Thus, children's health or disease status should be considered when evaluating the association of breastfeeding with outcomes related to growth and infectious morbidity. In absence of handling of reverse causality issues, such associations of prolonged breastfeeding and poor growth should be interpreted with caution.

Potential biases in the review process

Two review authors independently assessed eligibility for inclusion, carried out data extraction, and assessed risk of bias. As the process of assessing risk of bias includes many personal judgements, especially in the absence of precise details in published papers, we settled the issue by mutual discussion. If any of the author was unable to comment on the risk of bias due to insufficient information, the risk was rated as uncertain. Due to large number of studies included in the review, and the long duration between the conduct of most studies and this review, it was practically difficult to contact study authors for further information. The risk of publication bias was minimised by searching for grey literature, trial registries and back references from included studies and other systematic reviews. However, it is still possible to miss unpublished data present in files or electronic records of government and non-government agencies, which may not be available in public domain in form of a document. Though we used a very broad search strategy, it is still possible to miss studies where these exposures and outcomes may be reported in the full text of a paper not dealing mainly with breastfeeding and thus the search terms might be missing from the title/abstract of the paper. Language bias was minimised by not limiting the searches to any language and by obtaining translations of the abstracts/full texts to English where required.

Agreements and disagreements with other studies or reviews

Our review mainly focussed on the continued breastfeeding beyond one year in comparison to breastfeeding continued for at least 6-12 months (median of 9 months or range of 6-12 months). As our objective was to report on the benefits/harms of breastfeeding continued into second year as against when it is stopped before one year, the studies not reporting the comparative data were excluded as against some other systematic reviews where breastfeeding into second year was assessed against no breastfeeding or shorter (<6 months) duration of breastfeeding. However, many studies provided estimates of breastfeeding into second year in reference to a shorter duration (no breastfeeding or <6 mo of breastfeeding) and also provided similar estimate for our control group (6-12 mo or 9-12 mo of breastfeeding in reference to a shorter duration), we could calculate summary estimates relevant to our objectives.

Child outcomes

In a systematic review evaluating the association between duration of breastfeeding and risk of overweight (BMI > 97th percentile) in children aged >3years ([Dewey 2003](#)), of the 11 included studies, two studies provided

data regarding dose response relationship. One cross sectional survey ([von Kries 1999](#)) from Bavaria, southern Germany, also included in the current review, reported lower risk of obesity with breastfeeding for >12 months (AOR 0.28) than those fed for 6-12 months (AOR 0.57) in reference to never breastfed group. The other study included in this review observed slightly higher association of overweight with breastfeeding for >10 months (AOR 1.05) than those breastfed for <10 months (AOR 0.90) in relation to those never breastfed. Our findings based on a much larger study base also suggested a trend towards lesser overweight/obesity with prolonged breastfeeding beyond one year, especially in LMIC.

The review by [Zeng 2020](#) summarizes the evidence documenting association between breastfeeding and the occurrence of attention deficit/ hyperactivity disorder (ADHD) in children. The review included 12 studies (cohort studies, case-control studies, and cross-sectional studies) including 3,686 ADHD cases among 106,907 children, of which four studies provided a comparison of the prevalence rate of ADHD in children who were breastfed for over 12 months and those who were breastfed for less than 12 months (number of ADHD children = 503 among 856 children). The authors reported a lower incidence of ADHD in children breastfed for >12 months (OR: 0.55; 95% CI: 0.37-0.81) in reference to children breastfed for <12 months, with no heterogeneity in the studies ($I^2 = 21\%$; $P = 0.284$). On sensitivity analysis, exclusion of two studies with possible high risk of bias resulted in a lack of significance.

In a systematic review evaluating the effects of breastfeeding on all cause and infection related mortality in children aged 6-23 months, authors compared effects of any breastfeeding against no breastfeeding ([Sankar 2015](#)). Of the 13 studies (9 prospective cohort studies, 2 case-control studies, and 2 secondary analyses from RCTs) included in this review, 2 each were from Bangladesh, India and Ghana, and one each from Gambia, Senegal, Pakistan, Guinea-Bissau, Brazil, and Philippines, while one study reported data from three regions (Ghana, India and Peru). Among the children aged 6-23 months, those who were not breastfed had about 1.8 (RR 1.76, 95% CI 1.28 - 2.41) and 2 (RR 1.97, 95% CI 1.45 - 2.67) fold higher risk of all cause mortality in 6-11 months and 12-23 months of age, respectively compared to children breastfed for any duration. While evaluating the infection related mortality in children aged 6-23 months, those who were not breastfed had 2.1-fold increase in the risk of mortality compared to breastfed children (RR 2.09, 95% CI 1.68-2.60). The pooled effect did not differ when studies in which the infection-related mortality was derived from all-cause mortality were excluded (RR 2.26, 95% CI 1.71-3.0 vs. RR 1.85, 95% CI 1.31-2.62). The quality of evidence of the studies was very low to low for the comparison of no vs. any breastfeeding at 6-23 months of age with respect to all-cause and infection related mortality. While this review suggested association of breastfeeding and child mortality (for both 6-12 mo age and 12-23 age groups), this review did not pertain to selective impact of breastfeeding beyond one year in comparison to shorter durations of breastfeeding. All the studies included in this review were not eligible for inclusion in our review as none of them provided the estimate of mortality for comparison of breastfeeding durations >1 year vs. <1 year.

In a meta-analysis of observational studies published from China, authors evaluated the association between duration of breastfeeding and early childhood caries ([Cui 2017](#)). This review included 35 (cohort, cross sectional and case control) studies involving 73, 401 participants aged 0-71 months, of which 15 studies focused on the association of different duration of breastfeeding and ECC including 5 birth cohorts and 10 cross-sectional studies containing 23,696 participants aged 8-71 months, with substantial heterogeneity among the studies ($I^2 = 90.5\%$, $p < 0.001$). The authors reported that children breastfed ≥ 12 months have significantly increased ECC risk compared with those breastfed < 12 months (OR=1.86, 95% CI: 1.37-2.52, $p < 0.001$). Authors concluded that ever breastfeeding may protect against ECC, but breastfeeding ≥ 12 months could increase the risk of ECC compared with breastfeeding < 12 months with high heterogeneity. Majority of the included studies were rated to be of low quality. The results of our review also suggested a slightly higher association of prolonged breastfeeding with caries; however, the estimates are not comparable as this review ([Cui 2017](#)) considered any shorter duration of breastfeeding as the comparison group, and not necessarily beyond six months. As exclusive breastfeeding for first six months of life has definite child health benefits, it is important to analyze the outcomes excluding this period from the control group to evaluate the benefits/harms of prolonged breastfeeding beyond one year to answer the question whether such feeding has additional

advantages or harms in terms of child health.

Maternal outcomes

A review published by the Collaborative Group on Hormonal Factors in Breast Cancer ([Collaborative Group on Hormonal factors 2002](#)) brought together worldwide data of 47 (45 published and two unpublished) epidemiological studies from 30 countries to describe the association between breast cancer and various reproductive, hormonal, and other aspects of childbearing, for 50 302 women with invasive breast cancer and 96 973 controls. The authors reported that relative risk of breast cancer decreased by 4.3% (95% CI 2.9% to 5.8%; $p < 0.0001$) for every 12 months of breastfeeding, concluding that the longer the duration of breastfeeding more is the protection against breast cancer. But there remains some uncertainty about the magnitude of the protective effect of breastfeeding on the risk of breast cancer in the review, as the reported lifetime duration of breastfeeding was not very accurate, with values often rounded to multiples of 6 or 12 months, especially for women who breastfed for long periods.

In a pooled analysis of 13 case-control studies ([Babic 2020](#)), association between duration of breastfeeding and overall ovarian cancer risk by histotype was analyzed. A total of 9973 women with ovarian cancer (mean [SD] age 57.4 [11.1] years) and 13 843 controls (mean [SD] age 56.4 [11.7] years) were included. Authors reported that ever breastfeeding was associated with a 24% lower risk of invasive ovarian cancer (OR, 0.76; 95% CI, 0.71 to 0.80) compared to no breastfeeding. For a single breastfeeding episode, mean breastfeeding duration for 12 or more months was associated with a 34% lower risk (OR 0.66; 95% CI, 0.58 to 0.75) in comparison to no breastfeeding. Authors concluded that breastfeeding >12 months is associated with significant reduction in risk of all invasive ovarian cancer ($p < 0.001$). Selection bias may be there in the study as population based controls were used which may differ from the cases, and in the study population predominantly white women were included. Details of less common racial and ethnic groups (like black women, Asian women) were not available in sufficient amount to make conclusion generalizable.

In a systematic review of observational (35 case-control studies and 5 cohort; 19 from North America, 10 from Asia, 9 from Europe and 2 from Australia) studies ([Li 2014](#)), association between breastfeeding and the risk of ovarian cancer was evaluated and the pooled relative risk ratios were calculated using random-effect models. Pooled results of 17,139 women (aged 15-79 years) with ovarian cancer showed a 30% reduced risk of ovarian cancer when comparing the women who had breastfed with those who had never breastfed (pooled RR = 0.70, 95% CI: 0.64 to 0.76; $p < 0.001$), with significant heterogeneity in the studies ($p < 0.001$; $I^2 = 76.29\%$). For total breastfeeding duration, the pooled RRs in > 12 months of breastfeeding subgroups were 0.64 (95%CI: 0.56 to 0.73). Meta-regression of total breastfeeding duration indicated an increasing linear trend of risk reduction of ovarian cancer with the increasing total breastfeeding duration ($p < 0.001$). On sensitivity analysis, results did not change. Authors concluded that longer breastfeeding duration is protective against ovarian cancer, but the comparison pertained to no breastfeeding, and not directly comparable to our estimates and objectives.

In a systematic review and dose-response meta-analysis of prospective studies for the association of breastfeeding with maternal risk of type 2 diabetes ([Aune 2014](#)), six cohort studies including 10,842 cases among 273,961 participants were included. Four studies reported the dose response analysis of pooled RR for type 2 diabetes mellitus in mothers breastfeeding was 0.91 (95% CI: 0.86-0.96, $I^2 = 81\%$, $P = 0.001$, $n = 4$) per 12 months increase in lifetime duration of breastfeeding. Authors concluded that in linear dose-response analyses there was a 9% reduction in relative risk for each 12 month increase in lifetime duration of breastfeeding. Study quality scores were relatively high and quite homogenous. But the population is quite heterogeneous as, in this review one of the studies was conducted among women with gestational diabetes mellitus, two of the studies among American nurses and three studies among women from the general population. Also, five studies assessed breastfeeding retrospectively by questionnaire at baseline while one study assessed breastfeeding prospectively. The study quality scores ranged from 6 to 8 stars out of 9 possible. Three studies were from the US, and one each from Germany, Australia, and China.

In a systematic review evaluating the association of duration of breastfeeding with maternal blood pressure and hypertension ([Bonifacino 2018](#)) out of nineteen included studies (10 were prospective cohort studies, 4 were

retrospective cohort studies, 4 were case-control studies, and 1 study was cross-sectional) 15 studies with longer follow up (3 to 35 years) were stratified by outcome assessed. Sixty-seven percent of the studies that evaluated for elevated blood pressure and 100% of the studies evaluating for an outcome of hypertension showed a protective association. Authors concluding that the longer duration of lactation is associated with a beneficial effect on maternal blood pressure.

In the systematic review and meta-analysis on association between lactation and the development and prevalence of MetS in women ([Torris 2020](#)), out of the ten included studies (two prospective and eight cross-sectional), seven studies (two prospective and five cross-sectional) revealed associations between duration of lactation and MetS, suggesting that breastfeeding might prevent or improve metabolic health and have a protective role in MetS prevention. This protective role might be related to the duration of lactation; however, the pooled effect was non-conclusive. The methodological quality (i.e., risk of bias) assessment was performed using the Joanna Briggs Institute (JBI) checklist for cross-sectional studies and cohort studies. The duration of lactation and the definition of MetS in different studies were not similar. Most of the included studies were limited by design (80% cross-sectional design), and the overall methodological quality was moderate.

A systematic review analyzed the association between breastfeeding on maternal weight ([Fraser 2003](#)) from 28 included studies (15 prospective cohort studies, 1 retrospective cohort study, 1 cross-sectional study, and 11 case-series reports). The methods used in these studies varied widely, thus precluding aggregation of results. Authors reported a slight decline in weight with increasing periods of lactation between 3 and 12 months postpartum (N 37); however, these differences were negligible by 24 months. All women lost weight during the postpartum period irrespective of the duration of breast-feeding (mean loss 1 kg). Among these studies according to the U.S. Preventive Services Task Force rating scale, Seventeen studies qualified as Level II-2 evidence and 11 as Level III. Only one study (McKeown and Record) involving 694 lactating women described the postpartum weight changes. Participants, followed for 24 months post-partum.

In a meta-analysis to investigate the association between breastfeeding and osteoporotic hip fractures ([Xiao 2020](#)), seven studies were included (two cohort studies and five case-control studies) covering a total of 103,898 subjects. Pooled results suggested that breastfeeding can decrease the incidence of osteoporotic hip fracture (RR = 0.64 (95% CI 0.43, 0.95), P = 0.027), while dose-response analysis demonstrated that the incidence of osteoporotic hip fracture decreased with the increase of breastfeeding time. (RR [95% CI] for 6 months and 12 months were 0.87[0.79, 0.96] and 0.79[0.67, 0.92] respectively. Authors concluded that the incidence of osteoporotic hip fracture decreased with the extension of breastfeeding time. All the studies were of moderate or high quality with no significant heterogeneity among the studies.

Authors' conclusions

Implications for practice

Exclusive breastfeeding for first six months is already an established effective and safe child survival intervention, and universal efforts to promote the same are ongoing. This review suggests that continued breastfeeding into second year, may not offer any advantage or disadvantage in terms of child health (neurodevelopment, anthropometry, infectious morbidity, cardiometabolic health) or maternal health (cancer, cardiometabolic health, bone health) over subsequent years in comparison to when it is stopped before one year of age. In LMIC settings, there may be an association of continued breastfeeding into second year with lower odds of obesity/overweight without any change in risk of undernutrition. As most of these countries are transitioning towards higher development status, and are facing the double burden of malnutrition (undernutrition and obesity), the current recommendations of continued breastfeeding upto 2 years of age may serve to prevent obesity/overweight and associated risk of non-communicable diseases in the later life. There seems to be a slightly higher risk of dental caries in children who are continued to be breastfed beyond one year, and oral hygiene measures should be ensured while following these recommendations. However, in view of very low certainty of evidence, further research is very likely to change the direction and magnitude of the estimates.

We are unable to provide any evidence related to benefits or harms of prolonged breastfeeding beyond one year in comparison to shorter duration (6-12 mo) on mortality, non-infectious morbidity (e.g. leukemia), gut microbiome or micronutrient deficiency in children, and fertility and reproductive health in mothers due to the absence of any study assessing these outcomes.

Implications for research

As there was very low certainty evidence for most outcomes related to child and maternal health, we have identified many research gaps. The following areas merit further research.

1. National level population-based breastfeeding duration data registries need to be developed to generate sound observational evidence related to relevant maternal and child outcomes that happen in future to preclude analyses of these retrospective cohorts. The data related to potential confounders and mediators also need to be fed to such registries to allow for adjusted analyses.
2. Large scale cluster randomized trials to evaluate impact of promoting breastfeeding beyond one year on short- to medium-term outcomes such as infectious morbidity, anthropometry, neurodevelopment and under-five mortality.
3. As most data related to child outcomes such as infectious morbidity and asthma/atopy, and maternal outcomes such as cancer, cardiometabolic health and bone health are not available from LMIC, data from national level registries need to undergo secondary analyses to evaluate for association between breastfeeding duration and parameters representing these outcomes.
4. Cancer and chronic non-communicable disease registries need to capture data related to breastfeeding duration, especially in LMIC where prolonged breastfeeding beyond one year is common.
5. To address the issue of reverse causality, well designed cohort studies controlling for reverse causality by methods such as panel modeling are required to evaluate short- and medium-term benefits of breastfeeding beyond one year. Reasons for any recent change in breastfeeding behaviour also need to be captured in studies evaluating association between breastfeeding duration and health outcomes.

Acknowledgements

Members of the Guideline Development Group (GDG), World Health Organization for critical analysis of the manuscript, and comments for revision

World Health Organization for translation of non-English language manuscripts

Contributions of authors

Review conceptualization, design and methods: HPS, DS, TG; Literature search, data extraction and entry: TG, RKM; Data interpretation: DS, TG, RKM; Data analysis: HPS, TG, DS, RKM; Manuscript writing: DS, TG, RKM; Critical inputs into manuscript writing and interpretation of data: HPS; Final approval: All authors

Declarations of interest

All authors declare no conflict of interest.

Differences between protocol and review

Protocol	Final Version
<u><i>Types of Participants</i></u> Young children, 12-23 months of age, breastfed for a minimum duration of first nine months or with a minimum mean/median duration of 9 months (if duration is stated only as summary statistics), and their mothers.	In the included studies, we observed that for the shorter duration of breastfeeding, most mentioned a range of duration of feeding (mostly 6-12 months). In such studies where duration was stated as a range, we used a minimum of 6-12 months as the comparison group. In case data were presented

	separately for breastfeeding duration of 9-12 months and 6-9 months or/and 6-12 months, the data of 9-12 months were preferred as a comparison group.
We will perform subgroup analysis for child development and growth, if stratified data is so reported: 1. Duration of breast feeding in the second year (12-15 mo, 15-18 mo, 18-21 mo, 21-24 mo). This will not be done for studies reporting only summary statistics for duration of breastfeeding. 2. Development status of the study population (High Income Countries vs. Low-and-Middle-Income-Countries as per the World Bank categorization) 3. Area of residence (Rural/Urban) 4. Year of publication of study	Most studies that provide stratified data did so for 12-18 mo and 18-24 mo duration of breastfeeding. Hence we altered the stratified analysis to these two subgroups. We performed subgroup analysis for IQ scores, underweight and overweight/obesity in children. We couldnot perform subgroup analyses for other parameters because of lack of adequate number of studies in the various subgroups for each outcome.

Published notes

Characteristics of studies

Characteristics of included studies

Abarca 2019

Methods	Cross Sectional Study
Participants	Data for this study were from the 2011–2012 National Survey of Children's Health (NSCH). This is a nationally representative cross-sectional telephone survey of U.S. households with at least one resident child under the age of 18. The NSCH was designed to collect information from parents or guardians on a range of factors that impact the health and well-being of children. <u>Inclusion Criteria:</u> 1. Children 3 to 5 years of age 2. Parent (primarily mothers) responded to questions about the child's asthma, exposure to adverse childhood experiences, and the duration and supplementation of breastfeeding
Interventions	The primary exposures were breastfeeding duration and supplementation. Breastfeeding was categorized as a nominal variable with four categories: (1) exclusive breastfeeding for up to 6 months of age; (2) supplemental breastfeeding for up to 6 months of age; (3) supplemental breastfeeding for >6 months to <12 months; and (4) supplemental breastfeeding for 12 months or longer. Supplemental breastfeeding was defined as a primary caloric source other than breast milk. Children who were never breastfed served as the reference group.
Outcomes	Physician diagnosed asthma prevalence (based on the survey questions about lifetime asthma ("Has a doctor or other health care provider ever told you that [sample child] had asthma?") and current

	asthma ("Does [sample child] still have asthma?").
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
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Selective reporting (reporting bias)	Unclear risk	

Adair 1992

Methods	Cohort
Participants	Women who were residents of 33 randomly selected baiangays (administrative units) of Metro Cebu (Philippines) were followed from the third trimester of pregnancy through 24 postpartum months. Inclusion criteria: Those who delivered single live infants (n = 3080) were interviewed and assessed bimonthly, beginning 3 to 6 d after giving birth and continuing for 24 mo. Excluded from analysis: if they were identified as being pregnant or if they missed more than two consecutive longitudinal surveys.
Interventions	Weaned before 12 months (includes those fed <6 mo) Weaned between 12-24 months Still breastfeeding at 24 months
Outcomes	Net postpartum weight gain (21%), Net postpartum weight loss (55%), and net changes amounting to <1 kg (24%) between 2 to 24 mo postpartum.
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Selective reporting (reporting bias)	Unclear risk	

Alho 1990

Methods	Cohort study
Participants	Children from 10 local government districts were enrolled by block randomization from a prospective birth cohort born in northern Finland between July 1st 1985 and June 30th 1986 and studied regarding the AOM, RTI and wheezy bronchitis upto 2 years of age. <u>Inclusion criteria:</u> 2512 children were enrolled from and studied from antenatal period to 2 years, a questionnaire sent to parents regarding postnatal factors 1.AOM & AOME: Presence of both acute symptoms and pneumo-otoscopic signs, 'otitis-prone' if 3 or more episodes. 2.Respiratory Infections: All from common cold to pneumonia, necessitating consultation with a physician 3.Wheezy Bronchitis: Any expiratory wheezing during respiratory infections diagnosed and treated by a physician
Interventions	Among the factors concerning child includes 1. Duration of breastfeeding: < 3months, 3-6 months, 7-11months and 12months or more

	2. Position of the child during breastfeeding: supine, semi-supine or upright
Outcomes	Risk factors to acute otitis media, respiratory infection and wheezy bronchitis from fetal period to 2 years age
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Al-Makoshi 2013

Methods	Cross-sectional study
Participants	1–3-year-old children (721) attending routine “well-baby” outpatient clinics of the three government hospitals (King Fahad National Guard, King Khalid, and King Fahad Medical City) in Riyadh, between April and May 2009. Interviewer administered a questionnaire to all the mothers to obtain information.(622) No exclusion criteria.
Interventions	Duration of Breast Feeding is categorized into never, 0–3 months, 3–6 months, 6–12 months, and > 12 months.
Outcomes	Prevalence of breastfeeding and its association with wheezing/asthma and atopic disease in 1–3-year-old children
Notes	

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Selective reporting (reporting bias)	Unclear risk	

Araujo 2006

Methods	Cohort study
Participants	All hospital-delivered newborns during 1993 were enrolled from Pelotas city in Southern Brazil, their mothers were interviewed. Followup visits were done and questionnaire were used for data collection at the ages of 6, 12 and 48 months. <u>Inclusion</u> : out of 1460 enrolled children at birth 1273 (n) were located and analysed at 4 years. Overweight was defined as a WHZ >2 using the National Center for Health Statistics (NCHS) reference curve
Interventions	Breastfeeding patterns were classified as: Total duration; predominant breastfeeding; everbreast fed Earliest available information on full weaning was used in order to minimize recall bias.
Outcomes	Effect of Duration of breast feeding on the (a) prevalence of overweight (b) mean weight for height z-score (WHZ); at 4 years.
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Selective reporting (reporting bias)	Unclear risk	

Ardic 2018

Methods	Prospective Cohort Study
Participants	This prospective-cohort study included 411 children who were born in Rize, Turkey between January 2011 and December 2011 and had regular monitoring by family practitioners. The mothers and the infants enrolled into the study were those who were registered to family practitioners working in Rize. Inclusion Criteria: Born between Jan to Dec 2011, registered in family practice system in Rize, maternal consent given, pregnancy follow up done by the same practitioner Exclusion Criteria: Congenital Immune system deficiency, congenital heart disease, low birth weight, diagnosed with early rupture of membranes, diagnosed with asthma before 5 years of age, no follow up visits
Interventions	The participants were divided into two groups as those who were breastfed for more and less than 12 months
Outcomes	Incidence of infections till the age of 5 years Mothers of all participants were told to keep records of all diagnoses on their children and these records were noted by physicians according to International Statistical Classification of Diseases and Related Health Problems (ICD10) code system. These diagnoses were categorized under four main groups: acute urinary system infections, respiratory tract infections, acute otitis media, and acute gastroenteritis
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Selective reporting (reporting bias)	Unclear risk	

Azevedo 2005

Methods	Cross-sectional study
Participants	Preschool children, aged 36 to 71 months, randomly selected from public health centers located in a low-income population area in Brazil. A total of 369 children were enrolled. A prevalidated questionnaire guided interview was conducted with the parents and a 24-hour recall diary was used to assess data about infant feeding practices and dietary habits. Data about infant feeding practices, including patterns and duration of bottle-feeding and breast-feeding was gathered, after completion of all the questionnaires oral examination was done. Children with 1 or more cavitated, filled, or missing (due to caries) smooth surfaces in primary maxillary anterior teeth were classified as having SECC. Exclusion criteria: 1. Children with medical illnesses 2. Infants with exfoliated upper incisors
Interventions	duration of breast feeding was defined into two categories <12months and >12months
Outcomes	Severe Early childhood caries in relation to the breast feeding
Notes	

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Selective reporting (reporting bias)	Unclear risk	

Bajaj 2017

Methods	Prospective Cohort Study
Participants	This analysis was conducted within an ongoing prospective observational cohort study evaluating the relationship between glucose tolerance status in pregnancy and metabolic function in the years after delivery at Mount Sinai Medical School, Canada. For the pregnancy cohort, women are recruited either before or after the GCT, and all participants undergo a 3-h, 100-g OGTT for determination of glucose tolerance status (regardless of the GCT).
Interventions	At each of the study visits at 3 mo, 1 yr, and 3 yr postpartum, participants completed interviewer administered questionnaires, physical examination, and an OGTT, as described previously. The duration of any breastfeeding and exclusive breastfeeding was determined from interviewer-administered questionnaires. The study population was stratified into three groups according to duration of lactation exposure at 1 yr postpartum: ≤ 3 mo, 3–12 mo, and ≥ 12 mo.
Outcomes	Dysglycemia (prediabetes (impaired glucose tolerance, impaired fasting glucose, or both) and diabetes after OGTT)
Notes	

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Selective reporting (reporting bias)	Unclear risk	

Belfort 2013

Methods	Prospective Cohort Study
Participants	The participants were part of Project Viva, a prospective, longitudinal cohort study designed to examine prenatal factors in relation to pregnancy and child health. From 1999-2002, Project Viva enrolled pregnant women attending prenatal care at 8 obstetrical offices of a multispecialty group practice in eastern Massachusetts. <u>Exclusion criteria:</u> multiple gestation; inability to answer questions in English; gestational age ≥ 22 weeks at initial prenatal care appointment; and plans to move away from the area prior to delivery; born at <34 weeks' gestation; missing breastfeeding status at 6 months and breastfeeding duration; and missing cognitive measures at 3 and 7 years.
Interventions	When the participating child was 6 and 12 months old, the investigators asked the mother the questions regarding breastfeeding
Outcomes	1. At 3 years Peabody Picture Vocabulary Test, 3rd edition (PPVT-III), (a test of receptive language); Wide Range Assessment of Visual Motor Abilities (WRAVMA) pegboard (fine motor), matching (visual spatial), and drawing (visual motor) subtests. Subtest scores are reported individually and combined as a visual motor composite score. 2. At age 7 years, the WRAVMA drawing scale and the Kaufman Brief Intelligence Test, 2nd edition (KBIT-II), which (measures verbal and non-verbal intelligence); the Wide Range Assessment of Memory and Learning (WRAML) (memory and learning)
Notes	

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Selective reporting (reporting bias)	Unclear risk	

Blix 2017

Methods	Propsective Cohort Study
Participants	The authors used information from two population-based pregnancy cohorts, the Norwegian Mother and Child Cohort Study (MoBa) (16) and the Danish National Birth Cohort (DNBC) (17). MoBa participants were recruited across Norway from 1999 to 2008, and DNBC participants were recruited across Denmark from 1996 to 2003.
Interventions	Information about infant feeding was derived from mailed questionnaires administered to the mothers in MoBa and from structured telephone interviews of the mothers in DNBC; questionnaires and interviews were administered when the children were 6 and 18 months old.
Outcomes	Type 1 Diabetes
Notes	

Risk of bias table

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Blinding of outcome assessment (detection bias)	Unclear risk	

Selective reporting (reporting bias)	Unclear risk	

Brakohiapa 1988

Methods	Cross Sectional Study
Participants	Inclusion Criteria: 202 children aged between 12 and 24 months who visited Princess Marie Louise Hospital in Accra, Ghana
Interventions	Mothers were interviewed about the weaning time and eating habits of their children.
Outcomes	Malnutrition (weight for age was 90% and below or length for age 95% and below, 7 and weight for length 80% and below).
Notes	

Risk of bias table

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Selective reporting (reporting bias)	Unclear risk	

Burdette 2006

Methods	Propective Cohort study
Participants	372 children aged 3 years, were enrolled in this study and followed prospectively. Body adiposity was measured in 313 children at age 5 y by using DXA. Overweight and BMI were assessed. <u>Inclusion criteria:</u> To be eligible, children had to be born after full-term gestation (37 wk), to be free of chronic health problems affecting growth and development, and to have parents who were either both black or both white.

	<u>Exclusion criteria</u> : Not meeting inclusion criteria.
Interventions	Duration of breast feeding divided as never, < 3months, 3–5 months, 6 mo–1 y, or > 1 y
Outcomes	Outcome: BMI Z scores and Overweight (BMI more than or equal to 85th) at age 5 years.
Notes	

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Selective reporting (reporting bias)	Unclear risk	

Burke 2005

Methods	Cohort study
Participants	Participants in the Western Australian Pregnancy Cohort Study (N=2860) were serially recruited between 16 and 20 weeks gestation from the public antenatal clinic at King Edward Memorial Hospital or from nearby private practices in Perth, Western Australia, between 1989 and 1992. Baseline data was collected about pregnancy, breast feeding and repeated surveys done at 1,3,6 and 8 years of age for enrolled children (n=2087) using WFH and BMI. Overweight was defined according to the sex-specific 95th percentiles of the National Center for Health Statistics/Centers for Disease Control growth charts for weight-for-length in infants and for BMI in older children Exclusion criteria: Multiple pregnancies, congenital abnormalities, and children born before 37 weeks of gestation,

Interventions	Categories of breastfeeding were defined as: never breastfed, breastfed < 4 months, 5 to 8 months, 9 to 12 months, and >12 months.
Outcomes	Adiposity in relation to duration of breastfeeding - overweight and BMI Z score
Notes	

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Selective reporting (reporting bias)	Unclear risk	

Butt 2014

Methods	Prospective Cohort study
Participants	Malmö Diet and Cancer Study (MDCS), 17 035 women participated between 1991 and 1996. Socio-demographic and reproductive details were collected through questionnaires. 14092 parous women were followed for 10 years, Finally 424 cases of breast cancer were analysed to assess the duration of BF in relation to different subgroups of breast cancer. Information on birth years of the children and duration of breast-feeding was retrieved for the first seven children. Mean duration of breastfeeding per child was calculated as the sum of the months of breastfeeding divided by the number of children with information on breastfeeding. Exclusion Criteria: 1. Diagnosed with breast cancer prior to inclusion in the study. 2. Nulliparous women. 3. No information on parity. 4. Women with cancer in situ (CIS) 5. B/L breast cancer 6. women with insufficient tissue for analyses.

	5&6 were excluded from further subanalyses.
Interventions	Duration of BF assessed as Total time of BF = mean time of BF multiplied with parity. BF categorized in quartiles using the lowest as the reference group (<4.0, ≥4.0- < 8.0, ≥8.0- < 13.0 and ≥13.0 months).
Outcomes	Risk of Breast cancer subgroups in relation to duration of BF
Notes	

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Selective reporting (reporting bias)	Unclear risk	

Caleyachetty 2013

Methods	Prospective birth cohort study
Participants	Participants were from Mysore Parthenon Study (initiated 1997–1998), a prospective birth cohort study of pregnancy-related maternal risk factors and later infant and child health. 830 Eligible pregnant females living in Mysore city or surrounding rural villages booked consecutively into ANC of Holdsworth Memorial Hospital (HMH) and satisfying recruitment criteria were enrolled into the study. These children were followed yearly till 5 years of age which was completed by 585 children out of 636 live-borns delivered at HMH. BF data was available for 568 children and 484 were finally analyzed. High BMI was defined as a sex-specific BMI greater than the within-cohort 90th percentile. Exclusion Criteria: 1. Not willing to participate, 2. gestational age >30 weeks

	3.history of diabetes prior to the pregnancy
Interventions	BF duration was categorized as follows: 1–4, 5–8, 9–12, 13–16, 17–20 and 21 months.
Outcomes	Presence of High BMI and sum of skin fold thickness at 5 years
Notes	

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Selective reporting (reporting bias)	Unclear risk	

Camurdan 2011

Methods	Retrospective Cohort Study
Participants	Study conducted in well child clinic of Gazi University School of Medicine Hospital in Ankara. All recruited infants were examined beginning from birth until the end of 4 years. The growth data of 1999 cohort (the infants who were born at Gazi University Hospital and followed up in the same institution until the end of 4 years of age) was screened retrospectively.
Interventions	In these visits, the relevant information about the duration of exclusive breastfeeding (EBF) and total breastfeeding period were obtained.
Outcomes	Body Mass Index (BMI) at 15 mo, 18 mo, 24 mo, 3 years and 4 years.
Notes	BMI at 4 years used for quantitative analyses

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Chaffee 2014

Methods	Prospective cohort study
Participants	The authors followed a birth cohort nested in a cluster-randomized trial in Porto Alegre, Brazil. In 2008, 715 of 736 eligible pregnant women with appointments at participating clinics agreed to enroll their children in a cohort to track health outcomes
Interventions	At each visit, mothers were asked whether they had ever breastfed and whether they were currently breastfeeding. Breastfeeding duration represented the age to which any breastfeeding continued, regardless of complementary feeding. Breastfeeding mothers were asked how frequently they nursed daily (0, 1, 2–3, or “many times,” separately for day and night). Mothers no longer breastfeeding were asked at what age (in months) breastfeeding ceased.
Outcomes	Dental status was evaluated at 38 months following WHO protocol, with non-cavitated (white-spot) lesions also recorded. Assessments took place in participants' homes, aided by a lighted intraoral mirror.
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Selective reporting (reporting bias)	Unclear risk	

Cheraghi 2013

Methods	Cross Sectional Study
Participants	This is a descriptive-correlational study whereby 385 children of the age group of 3 to 6 years from pre-school centers of the city of Urmia were selected through the multiple random sampling. Exclusion Criteria: 1. chronic and/or metabolic or congenital diseases with the record of long-term hospitalization 2. Reception of special drugs for chronic diseases and/or nutritional problems
Interventions	The data on the breastfeeding information of the subjects was collected through a researcher-made questionnaire including some items about demographic features and necessary information about the breastfeeding. These questionnaires were filled out by mothers.
Outcomes	1. Underweight (with the BMI at the 5th percentile and below) 2. The normal weight (with the BMI between the 5th and 85th percentiles) 3. The overweight (with the BMI between the 85th and 95th percentiles) and Obesity (with the BMI more than the 95th percentile).
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Selective reporting (reporting bias)	Unclear risk	

Chetwynd 2017

Methods	Prospective Cohort study
Participants	Black Women's Health Study, a longitudinal cohort study of 59,001 black women aged 21-69 years (38 years) enrolled in 1995. Health and demographic data were collected at baseline, and participants complete follow-up questionnaires every 2 years. Hypertension was defined as a report of antihypertensive medication use or a report of physician-diagnosed hypertension together with use of diuretics in the same questionnaire cycle. Data has been analysed as a NESTED CASE CONTROL STUDY for the incidence of hypertension in black women 2011, 12513 new cases of hypertension were detected among 33257 women aged 40-65years, Exclusion Criteria: 1.Parous women responding to the questionnaire 2.Onset of hypertension before 40 years age 3. Age ≥ 40 years at the birth of last child 4.Age > 65years at the diagnosis of hypertension
Interventions	Cumulative lactation assessed in 2011, categorised as: none (0), 1-3, 4-6, 7-11, 12-17, 18-23, and ≥ 24 months
Outcomes	Incidence of hypertension in black women aged 40-65years
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Choi 2017

Methods	Cross Sectional Study
Participants	Data from the Korean National Health and Nutrition Examination Survey (KNHANES) 2010–2013 were analyzed in this study. KNHANES is a cross-sectional, nationally representative survey that was designed using a multistage and stratified sampling method. Inclusion Criteria: 1. Women aged 19-50 years Exclusion Criteria: 1. Currently pregnant women 2. Women with no history of labour 3. Subjects who had incomplete analytic data
Interventions	The duration of breast feeding was defined as the total period of breast feeding in a woman's life. This information was obtained from an open-ended question: "How long did you feed your children with breast milk?" Participants were divided into four groups according to the duration of breast feeding: £5, 6–11, 12–23, or ≥24 months groups.
Outcomes	Metabolic Syndrome (presence of any 3 of the following five criteria) (i) central obesity (WC >80 cm) using the International Obesity Task Force criteria for Asian-Pacific populations to determine waist circumference) (ii) SBP >130 mmHg, DBP >85 mmHg, or treated with anti-hypertensive medication

	(iii) fasting glucose >100 mg/dL or previously diagnosed with T2DM, (iv) HDLC <50 mg/dL in women or medication use (v) TG $\pm$ 150 mg/ dL or medication use.
Notes	

Risk of bias table

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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Christensen 2020

Methods	Cohort Study
Participants	This study was based on the prospective birth cohort, the Odense Child Cohort (OCC). Inclusion Criteria: 1. Mothers giving birth between June 2010 and October 2013 Exclusion Criteria: 1. Twins 2. Gestation less than 32 weeks
Interventions	Data on breastfeeding were collected by using SMS questionnaires once every week. The women were asked if they were breastfeeding, if they were using infant formula, and if they had introduced complementary foods. The duration of any breastfeeding was categorized into 5 groups: breastfed for 0 to 3 months (including mothers who did not breastfeed), breastfed for 4 to 6 months, breastfed for 7 to 9 months, breastfed for 10 to 12 months, and breastfed for $\geq$13 months.

Outcomes	Hospitalization due to any infection (retrieved from the Danish National Patient Registry)
Notes	

Risk of bias table

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Bias due to departures from intended exposures	Unclear risk	
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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Cohen 2009

Methods	Cross Sectional Study
Participants	The SCCS is an on-going prospective epidemiologic cohort study in the southeastern United States focused on racial disparities in cancer incidence and mortality. Participants were enrolled from Community Health Centers (CHCs) in the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia, as well as via mailed recruitment activities in the same geographical area. CHCs are government-funded health care facilities that provide basic health services primarily to low-income individuals. Inclusion Criteria 1. Age 40- 79 years 2. Know how to speak English 3. Not have undergone treatment for cancer (excluding non-melanoma skin cancer) within the past year 4. For the present cross-sectional analysis, considered all females who enrolled in-person at one of 48 CHCs between March 2002 and December 2006, and self-reported their race as either white or black

Interventions	Women who reported ever being pregnant were asked how many times they had been pregnant, how many pregnancies resulted in a live birth, and the total number of months (counting all pregnancies) that they breastfed. Primary exposures of interest included parity (treated both continuously and categorized as nulliparous, 1, 2, 3, 4, and 5p) and total months of breastfeeding (treated both continuously and categorized as none, 1-3, 4-6, 7-12, and >12).
Outcomes	1. Obesity (BMI $\geq$ 30 kg/m ²)
Notes	

Risk of bias table

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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Danforth 2007

Methods	Prospective cohort study
Participants	Participants pooled from the Nurses' Health Study (NHS) 1976 (121,701 female nurses age 30-55 years registered in 11 US states completed a self-administered, mailed questionnaire) and Nurses' Health Study II (NHS II) 1989, (116,671 female nurses aged 25-42 years). Parous women (149,693) were enrolled to see the effect of BF on ovarian cancer Exclusion Criteria: women with 1. cancer diagnosis 2. death prior to study baseline 3. having a bilateral oophorectomy 4. nulliparity

Interventions	Cummulative duration of breast feeding in months - did not breastfeed, BF analyzed as categorical indicators in six-month increments (0, 1-6, 7-11, 12-17, 18+ months). and cannot remember.
Outcomes	risk of ovarian cancer
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Danial 2017

Methods	Prospective cohort study
Participants	In the UK Women's Cohort Study (UKWCS), includes questionnaire based data collection in two phases 1995-98 (61000 women responded at baseline) and 1999-2002 (12453 completed this phase). 9 different substudies were planned. Risk of breast cancer in relation to lifetime duration of BF was analyzed. Detecting 1762 incident breast cancer cases. Mean age at recruitment was 54 years. Women with cancer at enrolment were excluded.
Interventions	Cummulative duration of BF categorized as (< 3months, 3-6 months, 6-12months, > 12months)
Outcomes	Risks of breast cancer
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Daniels 2005

Methods	Prospective Cohort Study
Participants	The Cebu Longitudinal Health and Nutrition Survey collected data on all pregnant women in 33 randomly selected barangays (administrative units) of Metropolitan Cebu, who gave birth between May 1, 1983 and April 30, 1984. The survey was designed to assess infant feeding patterns including the sequencing of feeding events, factors affecting feeding decisions, and the implications of these feeding decisions for health and nutrition as well as demographic and economic outcomes.
Interventions	Trained study personnel collected BF data at birth and every 2 mo until 24 mo. Any BF was a continuous measure defined as the age when the infant stopped breast-feeding, or (when breast-feeding > 24 mo) was last known to breast-feed.
Outcomes	Cognitive ability (using the Philippines nonverbal intelligence test of fluid abilities) at age 8.5 and 11.5 years
Notes	

Risk of bias table

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Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Derakhshan 2017

Methods	Retrospective Cohort Study
Participants	Inclusion Criteria Post-menopausal women referred for measuring BMD in Kurdistan nuclear medicine center – Kordestan province, Iran- by DXA method between 2012 and 2015 Exclusion Criteria Nulliparity, no breast-feeding, premature ovarian failure (menopause < 40 years of old), smoking, history of inflammatory arthritis, type I diabetes mellitus, chronic gastrointestinal or liver disease, chronic renal disease, cancer, hematological disorders, endocrine disorders and taking alcohol or drugs known to affect bone mass (estrogen, thyroxin, corticosteroids, anticoagulants and phenytoin).
Interventions	Duration of breast feeding for each child was obtained from a detailed questionnaire being filled by interviewing each women.
Outcomes	Bone mineral density (BMD) (g/cm ²) (measured at anterior-posterior projection of the lumbar spine (L2-L4) and nondominant (left) proximal femur (femoral neck) using a Norland XR46 densitometer machine (Norland Corp., Ford Atkinson, WI, USA) by DXA method)
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

de Siqueira 2007

Methods	Cross sectional study
Participants	The study evaluated all children and adolescents aged six to 14 years enrolled in elementary school (first to eighth grades) in a private institution located in an upper middle-class neighborhood in the municipality of Sao Paulo, Brazil.
Interventions	The second stage consisted of the completion, by student's mothers, of a structured questionnaire comprising 66 questions. Explanatory variables in the study refer to the occurrence and duration of breastfeeding. Breastfeeding duration was categorized as never breastfed, < 3 mo, 3-5 mo, 6-11 mo and ≥12 months.
Outcomes	Obesity in children and adolescents. (Body mass indexes (BMI) > percentile 8 5and tricipital and subscapular skinfolds higher than percentile 90, using as a reference the National Center for Health Statistics distribution)
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Devenish 2020

Methods	Cross Sectional Study nested in a cohort study
Participants	The Study of Mothers' and Infants' Life Events affecting oral health (SMILE) is a birth cohort study of 2147 mothers and 2181 children, including 34 sets of twins. Participants were recruited from the major maternity hospitals in Adelaide, South Australia, between July 2013 and August 2014 and will be followed until at least 2022. A paper-based questionnaire was completed at recruitment, and subsequent questionnaires were administered via the participant's choice of paper, online, or telephone interview when the child was 3 mo, 6 mo, 1 y, and 2 y of age. A 24-h recall and 2-d food record were completed at 1 y, a food frequency questionnaire at 2 y, and a dental examination was conducted between 2 and 3 y of age (median: 29 mo; IQR: 27–32 mo).
Interventions	In each questionnaire, participants were asked whether their child was currently receiving any breastmilk. If they reported "no," they were asked at what age (in weeks and/or months) their child stopped receiving breastmilk. The first reported age of cessation was used, with results reported in weeks divided by 4.33, to determine breastfeeding duration in months.
Outcomes	The presence of early childhood caries (dmfs score ≥ 1), including any noncavitated lesions
Notes	

Risk of bias table

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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Duazo 2010

Methods	Prospective Cohort Study
Participants	The sample consists of children aged 5–6 years who were measured in 2004 as part of the Philippine government's Early Childhood Development Project. The program was initiated in three regions with a focus on relatively disadvantaged municipalities, measured by child and maternal characteristics. At baseline, the study enrolled children representative of 0- to 4-year-old infants and children in project areas. Follow-ups were conducted at yearly intervals. For the present study, sample was limited to children who were followed since baseline and who were 5–6 years in Study Year 4. Exclusion Criteria: 1. Children with physical and neurological abnormalities that could influence test performance, such as esotropia, autism, or cerebral palsy 2. Those with incomplete data
Interventions	Main exposure was duration of any BF, which was evaluated through maternal recall at each of the yearly follow-up surveys. Individuals were assigned to one of five categories representing duration of BF: 0–5 months (comparison group), 6–11, 12–17, 18–23, and 24+ months of BF.
Outcomes	Psychosocial development (assessed using the Philippines Revised Early Childhood Development Checklist)
Notes	

Risk of bias table

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Bias in Classification of Exposures	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Dursun 2006

Methods	Cross Sectional Study
Participants	Postmenopausal women over the age of 40 in Turkey <u>Inclusion Criteria</u> Postmenopausal women who applied to the Osteoporosis Outpatient Clinic of Physical Medicine and the Rehabilitation Department of Kocaeli University (located in Kocaeli, Turkey) or the Medical Center of the Middle East Technical University (located in Ankara, Turkey) <u>Exclusion Criteria</u> Active gastrointestinal or liver disease, renal failure, renal calculi, malignancy, rheumatoid arthritis, and other inflammatory rheumatic diseases or lumbar vertebra abnormalities preventing the evaluation of BMD, women on drugs like prednisone, phenytoin, thyroxine, and heparin, which are known to affect bone metabolism
Interventions	A research physician administered a questionnaire to all participants on a face-to-face basis. Participants were divided into five groups with respect to the duration of their breast-feeding as never, 1–12 months, 12–24 months, 24–60 months, or >60 months.
Outcomes	1. BMD Lumbar Spine and Femoral Neck 2. Osteoporosis
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Fagerhaug 2013

Methods	Cohort Study
Participants	The Nord-Trøndelag Health Study (HUNT) is a population based health study aiming at the total adult population ≥ 20 years of age in the county of Nord-Trøndelag, Norway. Exclusion Criteria 1. Nonresponse to the second questionnaire 2. Current pregnancy 3. Age above 85 years 4. Age below 30 years 5. Non-attendance at the clinical examination 6. Self-report of myocardial infarction, stroke, angina pectoris or diabetes prior to the first birth 7. Unknown parity 8. Less than one year since their last child birth 9. Unknown lactation history.
Interventions	Females were asked to provide data on reproductive history including number of births and corresponding lactation duration, as well as diseases and ailments, medical treatment, lifestyle, and socio-economic factors. For each birth, the women reported year of birth and corresponding lactation duration in whole months. Lifetime duration of lactation was the sum of lactation duration for all births and was categorised into five levels (none, 1-6, 7-12, 13-23, and ≥ 24 months).

Outcomes	Cardiovascular Mortality (by linkage of data from the HUNT2 survey with information from the Cause of Death Registry at Statistics Norway)
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Fall 2011

Methods	Prospective Cohort Study
Participants	Data were pooled from 10 912 subjects in the age range of 15–41 years from five prospective birth-cohort studies in low-/middle-income countries (Brazil, Guatemala, India, Philippines and South Africa). The Guatemala cohort was based on a randomized controlled trial of protein-energy supplementation for the pregnant mothers of the cohort members, and for the cohort themselves as young children; the others were observational studies.
Interventions	The methods used to collect infant-feeding data varied among the cohorts (Table 1). Variables used in the analysis were total duration of breastfeeding (nine categories from 0 to 24 months), available for all cohorts except India
Outcomes	1. Diabetes 2. Impaired Fasting Glucose 3. Hypertension 4. Prehypertension 5. Systolic BP
Notes	

Risk of bias table

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Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Feldblum 1992

Methods	Cross Sectional Study
Participants	In 1987 and 1988, women were recruited into a study of osteoporosis by means of newspaper advertisements and flyers in work places, stores, and doctors' offices in central North Carolina. Inclusion Criteria 1. 40-54 years of age 2. Caucasian 3. At least one intact ovary 4. No physical impairment from exercise Exclusion Criteria 1. Pregnant 2. On estrogen replacement therapy 3. Smoked within the past 5 years 4. Poor English comprehension 5. Self reported history of Endocrine or other chronic disease
Interventions	The women received by mail a packet that included an informed consent form, a self-administered questionnaire, and a simple life events calendar. The questionnaire included questions on lactation. Women answered questions on how many months each of their children was breastfed and the time since that breastfeeding; months were summed to create total lifetime months of lactation.
Outcomes	Bone Density
Notes	The breastfeeding durations were divided into 0, 1-11 and 12+ months. Only data for women with parity=1 used for analyses.

Risk of bias table

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Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Ferguson 1981

Methods	Prospective Cohort Study
Participants	The data were collected during the first four stages of the Christchurch Child Development Study. A cohort of infants born in the Christchurch (New Zealand) urban region during the middle of 1977 has been studied at birth, four months, one year and two years. At each stage of the study information about the child, his/her health history and family situation was collected from a structured interview with the mother supplemented by information from other sources.
Interventions	For the period from 13-24 months breast-feeding was classified as: totally bottle-fed; breast-fed for less than four months; breast-fed for at least four but less than eight months; breast-fed for at least eight but less than 12 months; breast-fed for 12 months or longer.
Outcomes	Gastrointestinal Illness Lower Respiratory Illness (Data collected from Diary Records, Maternal Recall and Hospital Records)
Notes	Study period of 13-24 months age of the infant was used for quantitative analyses

Risk of bias table

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Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Fonseca 2010

Methods	Cross sectional study
Participants	Children aged 5 -10 years, randomly selected from elementary schools, Porto (Portugal). 3327 parents consented to participate. Anthropometric measurements were taken and parents answered a questionnaire on sociodemographic characteristics, asthma, and breastfeeding. 2462 questionnaires were returned and 486 children were excluded, leaving a final sample of 1976 children. Asthma was defined as self-reported and physician-diagnosed. Data grouped as boys Vs girls
Interventions	BF duration grouped as never, 1 month, 1-3 months, 3-6months, 6-12months and >12months
Outcomes	Risk of Asthma in relation to the duration of BF
Notes	

Risk of bias table

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Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Fredriksson 2007

Methods	Prospective cohort study
Participants	All children (2568) aged 1-7 years in the Espoo city of Finland. Baseline data collected through questionnaires. After 6 years a follow up survey was done (1933) children and incidence of current Asthma was analyzed - defined as doctor diagnosed asthma at the end of follow up Exclusion:
Interventions	Duration of Breastfeeding - 0-3 months, 4-6 months, 7-9 months and 10-12 months and 12 months or longer.
Outcomes	Current asthma
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	

Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Gay 2015

Methods	Retrospective Cohort Study
Participants	Subjects from this study were from the Singapore Breast Cancer Screening Project (SBCSP), which was a population-based mammography screening project conducted between October 1994 and February 1997. The cohort consisted of 28,234 women aged 50–64 at the point of recruitment.
Interventions	Women who participated in the mammography project answered a detailed questionnaire on reproductive factors, as well as breastfeeding and oral contraceptive use. Participants in the study were also asked whether every child was breastfed, and if so, the duration of breastfeeding for each child. The total duration of breastfeeding was calculated as the sum of all individual breastfeeding duration across all deliveries for which there was available information. The average duration of breastfeeding was calculated as the total duration of breastfeeding divided by the total number of deliveries.
Outcomes	Ovarian Cancer (In 2012, data from these women were matched with the Singapore Cancer Registry (SCR) to identify incident epithelial ovarian cancers and histological subtypes from the date of recruitment until 30 December 2011)
Notes	

Risk of bias table

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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Gigante 2001

Methods	Prospective Cohort Study
Participants	In 1993, 5304 children were born in the five maternity hospitals in Pelotas, southern Brazil (population 300,000). Hospital interviews were carried out with all mothers. Inclusion criteria: 1. Having delivered a baby with a birth weight ≥ 2500 g 2. Not smoking 3. Not having been pregnant since the delivery of the index child
Interventions	Information on breast-feeding duration were collected at 6 mo (for children weaned before this age) and 12 mo (for the remaining children).
Outcomes	Anthropometry measured 5 years after delivery 1. Waisthip ratio 2. Waist circumference 3. Arm fat index 4. BMI (kg/m ²) 5. The percentage of body fat (measured through bioimpedance) 6. Skinfold Thickness 7. BMI gain 8. Weight Gain
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Girard 2019

Methods	Mixed Cohort Study
Participants	Participants included families enrolled in the Encuesta Longitudinal de la Primera Infancia cohort (ELPI), recruited in Chile in 2010 and 2012. The cohort is representative of children born between January 2006 and August 2009 in urban and rural areas, across all regions of Chile. Inclusion criteria in this study were children aged 7 to 24 months, who had complete data on all confounders at wave 1 (2010), and who were born full term (n=4375).
Interventions	Breastfeeding information was collected at wave 1, both retrospectively and prospectively, given the unique sampling approach of recruitment of families with children between the ages of 7 and 58 months. Due to potential recall bias and in an attempt to create more homogeneity within mother's duration of recall, we included only families with children between 7 and 24 months. Mothers were asked two questions: 'was the newborn breast fed by his/her biological mother?' and 'until what month was the child breast fed by his/her biological mother?' Based on the WHO recommendations, we grouped children into one of four categories of duration: never breast fed (n=140), breast fed up to 6 complete months (n=1277), breast fed between 7 and 12 complete months (n=1234), and breast fed ≥ 13 months (n=1282).
Outcomes	Children behaviours were assessed using the Child Behaviour Checklist 1½–5 (CBCL). ³⁰ The CBCL 1½–5 is a parent report used to identify behavioural problems in children between the ages of one-and-a-half and 5 years. It comprises 99 items divided into subscales. The seven subscales include: emotionally reactive (nine items), anxious/depressed (eight items), somatic complaints (11 items), withdrawn (eight items), sleep problems (seven items), attention problems (five items) and aggression (19 items). Parents rate each individual behavioural item on three-point Likert scale ranging from 0 (not true) to 2 (very true or often true), with higher scores indicative of more problematic behaviour. The CBCL was collected at wave 2, in 2012, when children were between the ages of 32 and 48 months.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	

Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Grummer-Strawn 2004

Methods	Cohort study
Participants	Data were drawn from the Centers for Disease Control and Prevention (CDC) Pediatric Nutrition Surveillance System (System aggregates data on growth and anemia from low-income children who attend public health clinics across the USA. the United States. Children are seen at a clinic an average of twice a year and have their height and weight measured each time.) Children born between 1988 - 1992, having atleast 1 visit for each single year upto the age of 5 years were included i.e. 1988-1997. A total of 246 371 children were examined and 177 304 were included in analysis. Overweight among 4-year-old children was defined as : BMI-for-age > 95th percentile based on the 2000 CDC growth reference. Underweight, defined as a BMI-for-age < 5th percentile. In another subanalysis 12 587 mother-child pairs were included depending on the availability of pregnancy records. Exclusion criteria: 1. Children for whom breastfeeding duration was not assessed 2. Children for whom reported duration of breastfeeding was inconsistent from one visit to the next 3. Children who did not have data on height, weight, gender, race/ethnicity, and birth weight
Interventions	BF duration was categorized into 6 categories: never, 1 month, 1 to 2 months, 3 to 5 months, 6 to 11 months, and 12 months.
Outcomes	Risk of overweight in relation to duration of BF in among 4 years old children from a low-income population
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	

Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Gunderson 2018

Methods	Prospective Cohort Study
Participants	The US multicenter CARDIA study examines the trends and correlates of cardiovascular disease risk in young black and white men and women. The authors used community-based sampling from 4 geographic areas in the United States: Birmingham, Alabama; Chicago, Illinois; Minneapolis, Minnesota; and Oakland, California. For this study: Exclusion Criteria: 1. Diabetes at baseline 2. Hysterectomy or oophorectomy at baseline 3. Pregnant or lactating at baseline 4. Developed diabetes before first birth 5. Women lost to follow up 6. Without post baseline births 7. Missing lactation duration data
Interventions	Women reported lactation duration at year 7 for all previous birth(s) and for each birth at subsequent examinations. For a “yes” that they had breastfed the child, women selected 1 of these categories: less than 6 weeks, 6 to 11 weeks, 3 to 6 months, or 6 months or more. To calculate duration, the women were assigned the midpoint of each lactation category to each birth: 21 days for less than 6 weeks; 66 days for 6 to 11 weeks; 135 days for 3 to 6 months; and 210 days as the upper limit for 6 months or more (except women currently lactating, who were assigned a maximum of 650 days). Then, lactation duration (days) was summed across all births. Time-dependent lactation categories were updated at each examination year as births occurred. Women were assigned into relevant categories: none (n = 322 [26.0%]); more than 0 to 6 months (n = 418 [33.8%]); more than 6 months to less than 12 months (n = 268 [21.6%]); and 12 months or more (n = 230 [18.6%]) across examinations through the end of follow-up.

Outcomes	Incident Diabetes (self-report of diabetes with medication treatment or elevated fasting or 2-hour postload serum glucose from the 75 g oral glucose tolerance tests and/or glycated hemoglobin consistent based on the American Diabetes Association diagnostic criteria for diabetes)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
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Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
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Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Haag 2019

Methods	Cross Sectional Study (Population from a RCT conducted earlier in pregnant women)
Participants	The current study comprises a secondary analysis using data from an early childhood caries intervention that involved 448 women who identified as being pregnant with an Aboriginal and/or Torres Strait Islander child between February 2010 and May 2011. Recruitment was mainly through the antenatal clinics at South Australian hospitals and through Aboriginal Community Controlled Health Organizations. The study was a 2-arm parallel, outcome assessor-blinded, randomized controlled trial that aimed to assess if an intervention involving dental care to mothers during pregnancy, application of fluoride varnish to the teeth of children, anticipatory guidance, and motivational interviewing reduced prevalence of dental disease among Aboriginal children in South Australia at follow-up ages of 24 and 36 months. Three-year follow-up data were collected from November 2014 to February 2016. All information was collected at participants' households or at their ACCHO. Children with any information collected at baseline, 2,- and 3-year-old follow-up were included in the study (n = 307).

Interventions	Breastfeeding duration was divided into four categories including children who were never breastfed, breastfed for <12 months, breastfed for 12–23 months, and breastfed for 24 months or longer.
Outcomes	The primary outcome was the prevalence of Early Childhood Caries (ECC), which is the proportion of children with 1 decayed teeth (with or without a break in the tooth surface), 1 missing teeth due to dental caries, and 1 filled teeth) at 3 years of age (% dmft>0). The authors also assessed the severity of ECC by assessing the mean number of tooth surfaces with decayed, missing, and filled surfaces (mean dmfs).
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Hansstein 2016

Methods	Cross sectional study
Participants	Participants were from early childhood subsample of cross-sectional data of the 2003 National Survey of Children's Health (NSCH), a survey that is taken every 4 years and targets U.S. children and adolescents aged 0 to 17. 8207 households with one member between 2-5 years of age were selected through a random-digit-dial sample of households with at least one child below 18 years of age (among the 50 states and the District of Columbia). Interviews were conducted using the Computer-Assisted Telephone Interviewing system, and the respondent was the adult most knowledgeable about the sampled child's health and health care. Child's height and weight were parent reported from which BMI was calculated and categorized as Underweight (BMI for age <= 5th percentile),

	Normal weight (BMI for age > 5th and < 85th percentile), At risk of overweight (BMI for age $\geq$ 85th and < 95th percentile), and Overweight (BMI $\geq$ 95th percentile).
Interventions	Breast feeding duration was split into four time periods (< 3 months, 3- 6 months, 6 to 12 months, and >12months),
Outcomes	Likelihood of Obesity and overweight in children aged 2-5 years in relation to BF duration
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Hartwig 2019

Methods	Retrospective Cohort Study
Participants	Data were obtained from all the attendants of the Federal University of Pelotas Prenatal Oral Health Program, a spinoff of a program promoting oral health in infants, in which the dental treatment is focused on expectant mothers as well. During the dental visits, the mothers received oral health guidance with the help of an interactive discussion. Children who had their first dental appointment before the first year of life and at least one visit per year during their first 3 years of life were included. Children for whom information about breastfeeding duration was not available were excluded.
Interventions	Breastfeeding duration was categorized into <6 months, 6–11 months, 12–23 months, and $\geq$ 24 months.

Outcomes	Caries incidence recorded between the first and the last dental examination during the child's third year of life. (Defined as the presence of one or more decayed (noncavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces (dmfs) in any primary tooth in a child under the age of six years)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Harvey 2009

Methods	Prospective Cohort Study
Participants	The Southampton Women's Survey (SWS) is a study of a population sample of non-pregnant women aged 20–34 years, resident in the city of Southampton (Hants, UK). Children born to women in the SWS were followed-up at 6 months of age (within 2 weeks of their 6-month birthday) and again at 12 months (within a period 2 weeks before and 3 weeks after their 12-month birthday).
Interventions	Diet was assessed at 6 months and at 12 months using administered FFQ that were developed for the SWS. Trained research nurses administered the FFQ. At both of these time-points, details of the milk-feeding history for the preceding 6 months were recorded; the duration of breast-feeding was defined according to the date of the last breast-feed.
Outcomes	Bone Mass at 4 years
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Helderman 2006

Methods	Retrospective Cohort Study
Participants	The study was performed in a semi-urban and rural community in the township of Daik-U, 87 miles north of the capital of Myanmar (Burma), Yangon (Rangoon). Data were collected in all urban wards (n = 9), and randomly from 2 of 5 rural health centers and from 11 of 28 rural sub-centers. The sample was comprised of mothers with 25- to 30-month-old children who were randomly chosen from the collection of children's immunization cards and invited by local health personnel to participate. Twenty-five children who were bottle-fed and breastfed from the age of 5 mos onward, of whom 28% had ECC, were excluded from further analysis. Among the remaining 173 children, 10 children who had consumed 'jaggery', a caramel sugar from the palm tree and mixed with food, and who all experienced ECC, were also excluded from further analysis.
Interventions	The time between birth of the child and the day of participation in this study was divided into the following periods: 1st year, 2nd year, and 3rd year of life. For each of these periods, a health assistant who was familiar with the people collected information on nursing, dietary, and toothbrushing habits through a structured interview on a questionnaire form. The questionnaire was pre-tested for clarity of the questions.

Outcomes	Dental Caries The children's teeth were examined by a dentist who was unaware of the outcome of the mothers' interview with the health assistant. Oral examination was conducted under natural light with a mouth mirror. Caries was recorded when a carious cavity was visible. In cases of doubt, the cavity was carefully investigated with a sharp probe. The decisive criterion—a detectable softened floor and/or wall of the cavity—was applied for the diagnosis of caries. ECC in this study was defined as the presence of caries in at least one tooth.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Hong 2014

Methods	Cross sectional study
Participants	Children aged 0-13 years were enrolled from elementary schools and 73 preschools selected from 5 areas of Seoul, Korea. Parents of 15515 children responded to the questionnaire regarding current Atopic Dermatitis, family history and environmental factors. Current AD was defined as "yes" when all of following three questions were positively marked: (1) Has your child ever had an itchy rash that was coming and going for at least 6 months? (2) Has your child had this itchy rash at any time in the last 12 months? (3) Has this itchy rash at any time affected any of the following places: the folds of the elbows, behind the knees, in front of the ankles, under the buttocks, or around the neck, ears, or eyes? 10383 children were finally included for analysis

	Children with missing data were excluded
Interventions	Duartion of BF categorised as <6 months, 6-12months and >12months
Outcomes	Effect of duartion BF on current Atopic dermatitis
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Horta 2006

Methods	Prospective Cohort Study
Participants	Follow up of Pelotas Birth Cohort All 5914 hospital births occurring in Pelotas in 1982 (over 99% of all deliveries) were studied prospectively. Detailed information on feeding practices was prospectively collected during childhood. In 1997 and 2001 a sample of the cohort was traced. In 2000 the male subjects were identified when presenting for the army recruitment exam. Blood pressure measurements were taken in 1997 for both sexes, males in 2000 and females in 2001.
Interventions	Information on breastfeeding collected between 1983 and 1986
Outcomes	Systolic Blood Pressure Diastolic BP
Notes	The 2000 and 2001 data used for quantitative analysis

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

lida 2007

Methods	Cross Sectional
Participants	Data from the 1999–2002 National Health and Nutrition Examination Survey (NHANES), a cross-sectional survey conducted by the National Center for Health Statistics, Centers for Disease Control and Prevention, were analyzed for 1576 children 2 to 5 years of age with information on both infant feeding and oral health. The NHANES includes a household interview with information regarding numerous aspects of children's diet, nutrition and oral health behavior, and family socioeconomic characteristics completed by the person most knowledgeable about the child, usually the mother. Results of dental examinations also are included as part of this survey.
Interventions	Breastfeeding and its duration (overall, full, and exclusive) were examined by using the following criteria: whether the child was ever breastfed (history of breastfeeding), the age when the child completely stopped breastfeeding or being fed breast milk (overall breastfeeding duration), the age when the child was first fed something other than breast milk or water (exclusive breastfeeding duration), and the age when the child was first fed formula, milk, or solid foods on a daily basis (full breastfeeding duration).
Outcomes	Early Childhood Caries (Based on a dental examination performed for children aged 2-5 years by a trained and calibrated dentist)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Intusoma 2016

Methods	Prospective Cohort Study
Participants	Secondary data from a Thai birth cohort in a rural community were analyzed.
Interventions	Breastfeeding information were collected at birth, 1, 3, 6, 12, 18 and 24 months
Outcomes	Intelligence quotients at 8.5 years of age (using the Test of Nonverbal Intelligence 3rd Edition)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	

Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Izadi 2013

Methods	Cross Sectional Study
Participants	The data of this study were collected as a part of the “national survey of school student high risk behaviors” (2009–2010) as the third survey of the school-based surveillance system titled CASPIAN-III (Childhood and Adolescence Surveillance and Prevention of Adult Non-communicable disease Study). This school-based nationwide health survey was conducted in 27 provinces in Iran. The present survey included 5528 students ages 10 to 18 y who were recruited by multistage random cluster sampling from urban and rural areas of 27 provincial counties in Iran. Eligible schools for the study were stratified according to the information bank of the Ministry of Education and then were selected randomly. In selected schools, students were also chosen randomly. Those students with chronic disease and those taking medications were not included in the survey.
Interventions	The questions concerning the sociodemographic characteristics, the child's birth weight, BF duration, and so on, were included in the “parents’ questionnaire. Duration of BF was divided in five categories from 0 mo to 24 mo: 0 mo, <6 mo, 6 to 12 mo, 12 to 18 mo, and 18 to 24 mo.
Outcomes	1. Overweight 2. Obesity 3. Abdominal adiposity 4. High LDL 5. High Total Cholesterol 6. High Triglyceride 7. High Fasting Blood Sugar 8. Elevated BP 9. Low HDL
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
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Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Jeon 2020

Methods	Prospective Cohort Study
Participants	The Korean National Health Insurance Service (NHIS) provides national health check-up programmes for all citizens aged 40 and above, and all employees regardless of age. From the NHIS database, the authors collected data for women older than 40 who had undergone both a cardiovascular health screening and an NCSP (breast/cervical cancer) screening between 1 January 2009 and 31 December 2014. Among 4,775,398 postmenopausal women who qualified, those who had previously been diagnosed with cancer (n = 167,910), participants diagnosed with any cancer within 1 year after the date of examination (n = 55,937), individuals who had previously undergone a hysterectomy (n = 17,667), participants who died within 1 year after examination (n = 4565) and those missing data in a key variable (n = 4116) were excluded. The primary endpoint of this study was newly diagnosed lung cancer, defined as new claims for inpatient or outpatient care with the ICD-10 diagnosis code of C34 (malignant neoplasm of lung and bronchus). The cohort was followed from 1 year after the health check-up date to the date of incident lung cancer, death or the end of the study period (31 December 2016), whichever came first.
Interventions	Information about health-related behaviours, and the menstrual and reproductive histories of participants, was obtained using a self-administered questionnaire. Information on total lifetime breastfeeding history was collected categorically: (never, <6 months, 6–12 months and ≥12 total months),
Outcomes	Newly Diagnosed Case of Lung Cancer
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Jiang 2011

Methods	Prospective Cohort Study
Participants	The Panel Study of Income Dynamics (PSID) includes extensive data on the income and well-being of a representative sample of U.S. families over nearly four decades. The Child Development Supplement (CDS) is a special component of PSID. In 1997, PSID randomly selected 3,563 children from 2,394 PSID families and collected information on a broad aspect of their lives, from cognitive, behavioral, and health status to family and neighborhood environment. In 2002–2003, these families were re-interviewed and data were successfully collected on 2,907 children. This study is based on data from 3,271 CDS children and their families. <u>Exclusion Criteria:</u> (1) did not live with their biological mother at the time of the 1997 interview (2) missing information on breastfeeding status (3) missing information on race and ethnicity (4) missing information on date of birth
Interventions	Breastfeeding duration is grouped into four categories: never breastfed; less than 6 months, 7–12 months, and more than 12 months.
Outcomes	1. Woodcock Johnson Psycho-Educational Battery-Revised (WJ-R) (measures achievement in several domains of intellectual ability, including current developmental status, degree of mastery in reading and mathematics, and group

	standing (either age or grade group)) 2. Wechsler Intelligence Scale for Children-Revised (WISC-R) (measures the short-term working memory)
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Jing 2014

Methods	Prospective Cohort Study
Participants	CFPS is a comprehensive longitudinal social survey to collect individual, family, and community data to reveal the extensive changes that China has been undergoing. In 2010 it was implemented in 25 provinces/directly governed municipalities.
Interventions	Parents were asked to recall the number of months that the children were on breastfeeding.
Outcomes	Overweight $\geq$ 85th but $<$ 95th percentile of BMI Obesity $\geq$ 95th percentile of BMI
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Karlson 2004

Methods	Prospective cohort study
Participants	Cohort of Female nurses (121,700) aged 30-35 years enrolled in the Nurses' Health Study (NHS), 1976. 104,642 women, Followed up through biennial questionnaires self reporting a diagnosis of RA or connective tissue disorders., confirmed through medical record review and connective tissue disease screening questionnaire (CSQ), pertaining to symptoms of RA. Finally 674 cases of RA confirmed between 1976 and 2002. For the prospective association between BF & risk of RA in women, 338 patients in whom RA was diagnosed after 1986 when BF history was reported, were only analysed. Exclusion criteria: for analysis 1. Women with RA as of June 1976 2. women who reported RA but in whom the diagnosis was not confirmed by medical record review, 3. Nonresponders to the supplementary questionnaire on RA 4. Women reporting any cancer (except nonmelanomatous skin cancer) at baseline or during followup.
Interventions	lifetime duration of breast-feeding categorized as 3 months, 4-11 months, 12-23 months, and 24 total months.
Outcomes	development of rheumatoid arthritis
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Kersey 2005

Methods	Cross Sectional Study
Participants	Children ages 2–5 years in an outpatient clinic waiting room. The survey was conducted at an inner city community health center in Chicago.
Interventions	Breast-feeding history was determined with the following questions: 1) “Was (child’s name) breast-fed?” 2) (If yes): “For how many months?” 3) “Is s/he still breastfeeding”?
Outcomes	Overweight ($\geq 95\%$ BMI)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	

Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Ki 2017

Methods	Cross Sectional Study
Participants	This cross-sectional study was based on data from the Korea National Health and Nutrition Examination Survey (KNHANES) 2010-2012 conducted by the Korea Centers for Disease Control. Exclusion Criteria 1. Nulliparous women 2. Premenopausal women 3. Women with missing data
Interventions	Breast-feeding history was assessed by the questions that "Did you breast-feed any children for at least 1 month?" and "How many children were breast fed?". The breast-feeding duration per child was calculated by dividing the total period of breast-feeding by the number of breast-fed children. Study subjects were divided into 4 groups : non-breast feeders, women with breast feeding for 1-6months per child, those with breast-feeding for 7-12months per child, those with breast-feeding for 13-18months per child, and those with breast-feeding for >18months per child.
Outcomes	1. BMI 2. Waist Circumference 3. Blood Glucose 4. Lipid profile 5. Overweight and obesity
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	

Bias due to departures from intended exposures	Unclear risk	
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Bias in Measurement of outcomes	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Kikafunda 1998

Methods	Cross Sectional Study
Participants	Study participants were infants and young children, age 0 to 30 months, from Busimbi subcounty in Mityana county, Mubende district, Central Uganda. Stratified multistage random sampling was used to select the primary sampling units—the households. Eighteen villages (clusters) were randomly selected from 5 parishes in Busimbi subcounty and all the households with a child <30 months of age had an equal chance of participating. A total of 261 children, 183 (70%) from rural areas and 78 (30%) from semi-urban environments, was studied.
Interventions	A comprehensive, precoded questionnaire was validated by the jury method and piloted before the study in a similar setting. The questionnaires were administered to the respondents, preferably the mothers of the children, in their home settings by the principal researcher and assistants who trained following published guidelines.
Outcomes	Underweight Stunting
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Kim 2015

Methods	Cross Sectional Study
Participants	Data for this retrospective cross-sectional study were collected through the KNHANES V, a nationwide cross-sectional survey conducted in South Korea from 2010 to 2012. Exclusion Criteria: 1. Premenopausal women 2. women with no childbirth history 3. To exclude any effects of secondary causes of osteoporosis, women with rheumatic arthritis, thyroid disease, or chronic renal failure were also excluded 4. Those with missing data
Interventions	Breastfeeding duration data were collected by survey
Outcomes	Osteopenia or Osteoporosis (Low BMD)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	

Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Kim 2020a

Methods	Prospective Cohort Study
Participants	The present study utilized data collected from the Panel Study on Korean Children (PSKC). The participants in PSKC were invited by stratified multistage sampling using resident registration data to represent all nationwide household populations. A total of 2150 children born between 2008 and 2009 in Korea were enrolled in the study from the fetal period and evaluated prospectively for breastfeeding and cognitive development at 5.5 (T1), 14.1 (T2), 26.2 (T3), 38.7 (T4), and 99.2 (T9) months of age. Breastfeeding data from T1 (5.5 months) to T4 (38.7 months) was prospectively collected by computer assisted personal interviews.
Interventions	Participants were grouped by the breastfeeding durations "never," "up to 1 month," "1-3months," "3-6months," "6-12 months," "12-18 months" and "over 18 months."
Outcomes	Cognitive Development To assess early cognitive development at T1 (5.5 months), T2 (14.1 months), and T3 (26.2 months), the participants were assessed using the Korean Ages and Stages Questionnaires (K-ASQ) and the Korean version of Denver II. Language abilities at T4 (38.7 months) were assessed by the Receptive and Expressive Vocabulary Test (REVT). The cognitive function of school-age children at T9 (99.2 months) was assessed in terms of intelligence assessed using the multifactorial intelligence test (M-FIT), and academic performance.
Notes	The various components of MFIT used for quantitative analysis

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Incomplete outcome data (attrition bias)	Unclear risk	
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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	

Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Kondolot 2017

Methods	Cross Sectional Study
Participants	In this study, data of children aged 2–6 years were obtained from the Anthropometry of Turkish Children Aged 0–6 Years (ATCA-06) database. Data had been collected from September 2009 to May 2010 in an Anatolian/Turkey city, Kayseri. A total of 21 Family Health Centers representing various socioeconomic levels (low, medium, high) of the city were chosen. Then children were randomly selected according to the families' income level from the list of district midwives. Exclusion Criteria: Low birth weight infants, premature infants, multiple births and children who had any known chronic or serious diseases or malnutrition, children with a BMI <5 percentiles and those with incomplete records in terms of independent variables
Interventions	Declarations of the parents and medical records were used to complete the questionnaires. Breastfeeding duration was categorized as <12 months, 12-24 months and >24 months
Outcomes	Overweight/Obesity (BMI ≥ 85th percentile)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	

Selective reporting (reporting bias)	Unclear risk	

Krenz-Niedbala 2015

Methods	Cross Sectional Study
Participants	The participants were pupils of 31 randomly selected primary schools in Poznan', a relatively large city in the western part of Poland. Exclusion Criteria: posture defect, gross measurement error, and one twin from each of same-sex pairs
Interventions	The crucial question for this study was about breastfeeding duration: "How long was the child breastfed?" Duration of total breastfeeding was categorized as less than 3 months, 3-6 months, 7-12 months, and over 12 months.
Outcomes	Asthma Obesity
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Kvale 1987

Methods	Prospective Cohort Study
Participants	In 1956-59, all women aged 20-69 years by 1 January 1956 in four counties in Norway were invited to attend a screening programme for early diagnosis of breast cancer. The subjects were followed up till 1980.

Interventions	Lactation experience for each of the three first births as well as total duration of breast feeding for all births were recorded. Categories used for mean duration of lactation per birth were no lactation, durations of 0.1-2.0 months, 2.1-4.0 months, 4.1-6.0 months, 6.1-8.0 months, 8.1-10.0 months, 10.1-12.0 months, and more than 12 months.
Outcomes	Breast Cancer Cervical Cancer Carcinoma Corpus Uteri Ovarian Cancer Cancer all sites Cancer all sites except breast and genital organs
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Lee 2003

Methods	Prospective cohort study
Participants	1297833 korean goverment workers were participated in biennial health maintenance physicals performed by Korea Medical Insurance Corporation (KMIC) in 1992. In 1994, out of this premenopausal women aged 20 years and older (199,521 women) were enrolled in the Korean Women's Cohort (KWC) Study - prospective cohort study designed to assess the effects of gender-related variables on chronic diseases in Korean women. 110,604 women were followed up till DEC, 2000 for morbidity and mortality due to breast cancer. Exclusion criteria:

	1. nulliparous women 2. women with no information concerning lactation 3. women who had any cancer diagnosis in 1994
Interventions	Lifetime duration of BF (no lactation, periods of lactation of 1–12 months or 13–24 months)
Outcomes	Effect of lifetime lactation on breast cancer risk
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Lee 2005

Methods	Propsective Cohort Study
Participants	Cohort consisted of a subsample of those insured by Korea Medical Insurance Corporation (KMIC), which is the largest insurance group provider for government employees, teachers and their family members. Inclusion Criteria: 1. Premenopausal women aged 20 or above Exclusion Criteria: 1. No information available concerning lactation 2. Hypertension at baseline Subjects followed up for six years
Interventions	In the 1994 data collection, a standardized, structured questionnaire was used to obtain information on past and present illness and menstrual and reproductive factors. A series of questions regarding participants' reproductive history were asked by the interviewer: whether they had ever been pregnant,

	how many live births they had had, at what age they had given birth to each child, whether they had breast-fed any or all of their children (lactation records of up to a maximum five children per mother recorded), and whether they had ever taken oral contraceptives. Duration of breast-feeding was the summation of lactation duration for each child per mother.
Outcomes	Essential Hypertension (defined as systolic blood pressure of 140 mm Hg or above, diastolic blood pressure of 90 mm Hg or above, or current use of antihypertension treatment). Blood pressure measured as part of 1996 and 1998 medical examination, questionnaire surveys also conducted to identify those taking hypertension medications.
Notes	

Risk of bias table

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Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Lee 2016

Methods	Prospective Cohort Study
Participants	The present investigation is a component of the MOCEH study, a multi-center prospective birth cohort study
Interventions	Each mother was asked at the 6- and 12-month follow-ups whether she was breastfeeding her infant, breastfeeding duration, and whether formula was being used. Then, each woman was placed into one of six categories: 1) formula feeding only, 2) breastfeeding for < 3 months, 3) breastfeeding for 3-5 months, 4) breastfeeding for 6-8 months, 5) breastfeeding for 9-11 months, and 6) breastfeeding for ≥ 12 months.

Outcomes	Korean version of the Bayley Scales of Infant Development II at 12, 24, and 36 months after recruitment.
Notes	The scores at 36 months used for quantitative analyses. Only MDI scores were provided

Risk of bias table

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Bias Due to Confounding	Unclear risk	
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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Li 2020

Methods	Cross Sectional Study
Participants	This study analyzes the data from Zhejiang Ageing and Health Cohort Study including 5487 postmenopausal women.
Interventions	Data on breastfeeding duration was collected in the reproductive history section within the questionnaire. Mean breastfeeding duration was the ratio between total months spent on breastfeeding and number of full-term pregnancies
Outcomes	Cognitive impairment was assessed via the Mini-Mental State Examination. The widely accepted cut-off score of cognitive impairment in China is education-specific ²⁷ : 17/18 for illiteracy, 20/21 for people with primary education level, 24/25 for people with higher than primary education level.
Notes	

Risk of bias table

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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Liese 2001

Methods	Cross sectional study
Participants	As part of the International Study of Asthma and Allergies in Childhood (ISAAC), two surveys were conducted between September 1995 and December 1996, one in the city of Dresden, state of Saxony in the south of former East Germany, and one in Munich, state of Bavaria in the south of former West Germany. In each city community based random samples of children were studied using schools as sampling units. The main purpose of ISAAC was to study the prevalence and determinants of asthma and allergies in children in united Germany
Interventions	A parental questionnaire was distributed through the schools, self-administered by the parents and returned to study personnel via the children. Information on infant nutrition was ascertained with three questions on breast feeding behavior. The first question simply asked whether the child was ever breast fed (yes=no). If answered positively, the next two questions queried the duration of breast feeding (less than 6 months=6 - 12 months=longer than 1 y) and the duration of exclusive breast feeding (less than 2 months=2-4 months=5 - 6 months=longer than 6 months).
Outcomes	Overweight Body mass index (BMI) was calculated as $\text{weight}=\text{height}^2$ ($\text{kg}=\text{m}^2$). Overweight was defined using the 90th age and sex-specific percentile of the German BMI-for-age reference values
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Lima 2019

Methods	Prospective Cohort Study
Participants	Follow up of women in Pelotas, Brazil born in 1982, This study is based on data from the 1982 Pelotas Birth Cohort Study. In 1982, all the maternity hospitals located in Pelotas, a southern Brazilian city, were visited daily and all births identified Inclusion Criteria: 1. Delivered at least one live birth 2. Not pregnant when interviewed 3. Information on breastfeeding duration and at least one cardiovascular risk factors was available
Interventions	Cumulative lifetime duration of breastfeeding (in months) was obtained by summing the duration of lactation of all offspring. Data given for mothers with parity=1 (analysed separately). For IQ at 30 years (Victora 2015) breastfeeding duration for each child was considered
Outcomes	1. Systolic Blood Pressure 2. Diastolic Blood Pressure 3. Intima Media Thickness 4. Pulse Wave Velocity 5. Random Blood Glucose 6. HDL 7. LDL 8. Total Cholesterol 9. Triglycerides

	10. Non HDL
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
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Bias due to departures from intended exposures	Unclear risk	
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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Linhares 2015

Methods	Prospective Cohort Study
Participants	In 1982, the three maternity hospitals in Pelotas, a southern Brazilian city, were visited daily and the births were identified. Those liveborns (n = 5,914) whose family lived in the urban area of the city were examined and their mothers interviewed. In the perinatal study, information on maternal and child health, family socioeconomic conditions, and pregnancy complications were collected. These subjects have been followed-up for several times. In 2012-13, the cohort members, were invited to visit the study clinic.
Interventions	Information on feeding was collected at various time points during follow up
Outcomes	Carotid Intima Media Thickness
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

London 1990

Methods	Cohort study
Participants	Nurses' Health Study (121,700) in 1976. Female nurses aged 30-55 years and residing in 11 larger US states. Enrolled on the basis of questionnaire, biennial questionnaires based follow up until 1986, on risk factors for breast cancer, occurrence of breast cancer and other major illnesses. 89413 parous women were analysed finally. Exclusion Criteria: 1. Women with a prior history of cancer (other than nonmelanoma skin cancer) 2. Women who did not report lactation history 3. Nulliparous women and those with missing parity information 4. Any woman with a child under 4 years of age at enrolment, as well as any woman with a later birth, or women with missing such information unless - age 45 or older, history of tubal ligation, or menopause (eliminating the possibility of a bias due to reduced breast feeding after a diagnosis of breast cancer.)
Interventions	Total number of months of breast feeding for all births combined using the following categories: never, <1 month, 1-3 months, 4-6 months, 7-11 months, 12-17 months, 18-23 months, 24-35 months, 36-47 months, >48 months, and unknown.
Outcomes	duration of lactation as a risk factor of breast cancer
Notes	

Risk of bias table

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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Lossius 2018

Methods	Prospective Cohort Study
Participants	Data taken from Norwegian Mother and Child Cohort Study Pregnant women were recruited from all over Norway at 18 gestational weeks
Interventions	From 6 to 18 months of age, the mothers reported whether they were breastfeeding in four intervals (6-8, 9-11, 12-14, and 15-18 months). The median value of each interval was used as a fixed value in calculations of breastfeeding duration. For the regression analyses, duration of any breastfeeding was divided in 3 categories (0-6, 6.1-11.9, and ≥ 12 months). Breastfeeding was defined as any breastfeeding regardless of whether the child had solids and/or formula.
Outcomes	1. Primary outcome: Current asthma at 7 years (based on prescriptions in NorPD, children with one defined prescription in one year at the age of 7, and a second prescription within 12 months of the first) 2. Secondary Outcome: Maternal reported asthma at age 3 and 7 years
Notes	For the puprose of analysis asthma at 7 years based on data from NorPD was included

Risk of bias table

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Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Luo 2019

Methods	Prospective Cohort Study
Participants	Participants were from the Women's Health Initiative, a large prospective study addressing the major causes of morbidity and mortality among postmenopausal women. The following participants were excluded: 12,655 women who had a history of cancer (except nonmelanoma skin cancer) at baseline; 792 who joined but provided no follow-up information; 8,569 women with prevalent self-reported diabetes at baseline; and 3,140 women with missing data for the main exposures (including parity and breastfeeding). This yielded a final analytic sample of 136,652 women
Interventions	Information on parity and breastfeeding characteristics in the Women's Health Initiative was collected at baseline by self-administered questionnaires. Measures included number of pregnancies, number of term pregnancies, age at first term pregnancy, whether breastfed a child for at least 1 month, number of children breastfed, age when first breastfed a child, age when last breastfed a child, and total months breastfed.
Outcomes	The primary outcome was incidence of diabetes during follow-up, determined via self-report by a new diagnosis of diabetes treated with insulin or oral hypoglycemic medications during follow-up.
Notes	

Risk of bias table

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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Lupton 2013

Methods	Cross Sectional Study
Participants	This study obtained data from women participating in the 45 and Up Study. Participants were randomly selected from Australian Medicare Database, and a baseline questionnaire was completed. Inclusion Criteria 1. Age 45 years or more 2. Had never given birth or had given birth after 18 years of age and before 45 years of age 3. Had not had a hysterectomy or both ovaries removed 4. No past history of gestational hypertension (had responded "No" to the question "Has a doctor ever told you that you have: high blood pressure-when pregnant?") 5. No prior history of hypertension ("Has a doctor ever told you that you have: high blood pressure - when not pregnant?" and the "Age when condition was first found" was younger than, the age reported on the question "How old were you when you gave birth to your FIRST child?")
Interventions	Total breastfeeding duration was obtained from the response to the question "For how many months, in total, have you breastfed?". Average breastfeeding duration was obtained by dividing the total breastfeeding duration by the reported number of children for each woman.

Outcomes	Women were defined as having high blood pressure if they answered "Yes" to the question "In the last month have you been treated for: high blood pressure"
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Maguire 2013

Methods	Cross Sectional Study
Participants	This was a cross-sectional study of healthy urban children seen for routine primary healthcare at a TARGet Kids! participating pediatric or family medicine primary care practice in Toronto, Canada between December 2008 and June 2011. Study participants were recruited by research personnel embedded in 7 participating pediatric and family medicine practices. Inclusion Criteria: healthy children 1 to 6 years of age attending routine primary health care Exclusion Criteria: any chronic health condition (with the exception of asthma) and laboratory evidence of inflammation (C-reactive protein [CRP] ≥ 10 mg/L), which could falsely elevate serum ferritin
Interventions	Data were collected prospectively through: a standardized parent completed survey instrument based on the Canadian Community Health Survey. Main predictor variable, total breastfeeding duration, was determined from the response to the question, "For how long has your child been breastfed?" Those who had never breastfed were classified as having a total breastfeeding duration of 0 months. Those currently breastfeeding were classified as having a total breastfeeding duration equal to the child's current age.

Outcomes	Iron Deficiency (serum ferritin <14 mcg/L)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Martin 2002

Methods	Cross Sectional Study
Participants	The Carnegie survey was a cross sectional study of diet, social circumstances, and health carried out in 16 urban and rural districts in Britain between 1937 and 1939. The survey records have been retrieved from archives at the Rowett Research Institute, Aberdeen, and individuals have been traced using the National Health Service Central Register. Cross sectional data on childhood anthropometry and infant feeding methods were recorded for 2995 subjects (60%) from 1072 families.
Interventions	Details of the method of infant feeding and duration of breast feeding were obtained from the mother at the time of the survey for each child aged 0–19 years. For breast fed infants, breast feeding duration was categorized as: two weeks to <two months; >two to < six months; > six to < 12 months; > 12 months; and unknown.
Outcomes	Mean differences in z scores for 1. Height 2. Trunk Length 3. Leg Length 4. BMI

Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Michels 1996

Methods	Prospective cohort study
Participants	Out of 121700 participants of Nurses' Health Study cohort 1976. Women (89 887) were biennially followed-up from the return of the 1986 questionnaire to a diagnosis of breast cancer, death, or June 1, 1992, whichever occurred first. Exclusion criteria: 1. Those died before 1986 2. reported any type of cancer (other than non-melanoma skin cancer) between 1978 and 1986 3. Were nulliparous in 1984 or their parity status was unknown; or did not report their breastfeeding history. 4. Women with in-situ breast cancer.
Interventions	Cummulative Breast feeding in months (ie, never, <1 month-48 months, and unknown).
Outcomes	Incidence of breast cancer among breastfeeding women
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Miyake 2007

Methods	Cross sectional study
Participants	All school Children (38212) aged 6-15 years from all public elementary schools and junior high schools in Naha and in Nago Cities of Okinawa Prefecture, Japan, participated in the Ryukyus Child Health Study (RYUCHS) during September 2004 to January 2005. Health data was collected through questionnaires answered by parents/ students themselves and finally 24,077 students were analysed about the prevalence of allergic disorders during the past 12 months. Wheeze was considered - if had wheezing or whistling in the chest in the last 12 months. Atopic eczema- presence of an itchy relapsing skin rash that had affected their skin creases in the past 12 months Rhinoconjunctivitis - child had sneezing or a runny or blocked nose, when you (he or she) did not have a cold or the flu? and In the past 12 months, has this nose problem been accompanied by itchy watery eyes? Exclusion: missing or illogical data on the factors under investigation.
Interventions	BF duration regardless of exclusivity into divided into four categories (<4, 4-6, 7-12, and 13+ months),
Outcomes	Prevalence of wheeze, atopic eczema and allergic rhinoconjunctivitis in last 12 months
Notes	

Risk of bias table

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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Muniz 2015

Methods	Prospective Cohort Study
Participants	All live births from 1982 and 1993 of residents in the city of Pelotas, Rio Grande do Sul, Brazil, were considered eligible for two birth cohort studies. In the present analysis, all participants of the 1982 birth cohort and young adults from a subsample of the 1993 cohort who had complete data on breastfeeding in the first four years of life were included. The subsample from the 1993 cohort included all low birth weight children (<2500g), plus a random sample of 20% of the remaining original cohort
Interventions	Breastfeeding information was obtained prospectively during the first four years of life, by home interviews with mothers. In analysis, breastfeeding was included as a dichotomous variable (yes/no); and as an ordinal variable, in which the total duration of breastfeeding, whether exclusive, predominant or partial, was categorized in months (never; 0.01–1.00; 1.01 to 3.00; 3.01–6.00; 6.01 to 12.00; and > 12.00).
Outcomes	Whole body BMC (g) and BMD (g/cm ²) at ages 30 in the 1982 birth cohorts
Notes	The data from 1993 cohort not included as it consisted of largely low birth weight children

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Mwakayoka 2017

Methods	Cross Sectional Study
Participants	Conducted in Mbeya city, Tanzania. Quota sampling technique based on the rural-urban strata and age distribution of 2-4 years old children as per 2012 census was used to get study subjects. To facilitate the examination and interview, the local government leader requested mothers and children to assemble at suitable places in each street.
Interventions	Mothers/caregivers were interviewed on demographic characteristics, breastfeeding, and weaning practices. Duration of breast feeding was recorded as 1 year, >1 year up to two years and >2 years, it was dichotomized into 1 years and >1 years and dummy coded as 0=1 years; 1= >1 years.
Outcomes	Dental Caries
Notes	

Risk of bias table

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Other bias	Unclear risk	
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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

N'gandu 1990

Methods	Cross Sectional Study
Participants	Survey of randomly selected clusters of households in an urban township in Lusaka, the capital city of Zambia.
Interventions	The child's mother (93% of interviews) or a close relative answered questions on the duration of breast feeding and other matters relating to the child. Duration of breast feeding was defined as the age reached when breast feeding completely stopped.
Outcomes	HAZ WAZ WHZ
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	

Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Nam 2019

Methods	Cross Sectional Study
Participants	This study analyzed data from the Korea National Health and Nutritional Examination Survey (KNHANES) from 2010 to 2013. Of the 25,712 individuals who participated in the 2010 to 2013 KNHANES, 11,121 male individuals, 1,806 individuals aged <30 years, 1,750 individuals who were nulliparous, 1,048 individuals who had any missing data, and 27 individuals who were diagnosed with diabetes by a physician before their first delivery were excluded. Finally, data from 9,960 parous women were analyzed.
Interventions	Subjects were asked about their breastfeeding history, total duration of breastfeeding, and the number of children breastfed. The average breastfeeding duration per child was calculated by dividing the total breastfeeding duration by the number of children breastfed. Subjects were divided into five groups based on the total breastfeeding duration (none, 1 to 12, 13 to 24, 25 to 36, and >36 months) and average breastfeeding duration per child (none, 1 to 6, 7 to 12, 13 to 18, and >18 months).
Outcomes	Type 2 Diabetes Mellitus (defined as a FPG level ≥ 126 mg/dL, current treatment with hypoglycemic agents, or a diagnosis by a physician)
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Nambiar 2013

Methods	Cross Sectional Study
Participants	Data on early feeding behaviour and anthropometry from year 1 participants of the Healthy Kids Queensland Physical Activity and Nutrition Survey (2006) were used in this analysis. Predominantly Caucasian boys and girls aged between 5.00 and 7.99 years could provide all the required information regarding early feeding behaviour and anthropometry for this analysis.
Interventions	The following direct questions about early feeding behaviours were used to obtain information on BF from parents: 1 Was your child ever breastfed? (Response options: no/don't know/yes.) 2 How long was this child fully breastfed, i.e. receiving breast milk only, and no infant formula or other milk as their main drink? (Response options: did not breastfeed/<4 months/4–6 months/7–12 months/>12 months.) 3 How old was this child when he/she first started eating solid foods? (Response options: <4 months/4–6 months/>6 months.)
Outcomes	Abdominal Adiposity (Wt Height Ratio > 95% confidence interval)
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Nandi 2017 a

Methods	Cohort Study
Participants	The authors used 2 data sources of breastfeeding and future academic outcomes. One set of data came from the Andhra Pradesh Children and Parents Study (APCAPS), a community-based trial of nutritional supplementation integrated with other public health programs and its follow-up surveys. For the current study, the authors used data from the 2003 to 2005 follow-up survey of the APCAPS cohort.
Interventions	Retrospective data on breastfeeding was collected from the mothers by the 2003 to 2005 survey, when the children were 13 to 18 years. The breastfeeding duration in APCAPS was categorized into the following groups: (1) up to 12 months of breastfeeding, (2) more than 12 but less than 24 months of breastfeeding, (3) more than 24 but less than 36 months of breastfeeding, and (4) over 36 months of breastfeeding.
Outcomes	Schooling Grade School Test Score
Notes	0-12 month duration compared with 12-24 months

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Nandi 2017 b

Methods	Cross Sectional Study
Participants	The authors used 2 data sources of breastfeeding and future academic outcomes. The second set of data came from nationally representative India Human Development Surveys (IHDS) of 2004 to 2005 and 2011 to 2012 (IHDS-2) data.
Interventions	The IHDS breastfeeding information collected for the 2 youngest children born to each mother was used. In IHDS, breastfeeding duration was categorized into the following groups: (1) up to 6 months of breastfeeding, (2) more than 6 but less than 12 months of breastfeeding, (3) more than 12 but less 24 months of breastfeeding, and (4) over 24 months of breastfeeding.
Outcomes	Schooling Grade (Educational Attainment) School Test Score (Reading, Writing and Mathematics)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Natland 2012

Methods	Cross Sectional
Participants	The Nord-Trøndelag Health Study (HUNT) is a population-based health survey aiming at the total adult population >19 years of age in the county of Nord-Trøndelag, Norway. This study is a part of HUNT 2 study and included two self-administered questionnaires and a clinical examination. <u>Exclusion Criteria</u> 1. Non-response to the second questionnaire 2. Current pregnancy 3. Age > 85 years 4. Non-attendance at the clinical examination 5. Self-report of infarction, stroke, angina, diabetes prior to the first live birth 6. Less than one year since last child birth 7. Unknown lactation history 8. For the analyses of blood pressure data: those who reported current or previous antihypertensive medication 9. For the analyses of low density lipoprotein cholesterol: those with triglyceride concentrations of 4.5 mmol/L or more
Interventions	Lactation history was self-reported by the women in the second questionnaire. For each live birth, the women reported the year of birth and corresponding lactation duration in whole months ("How many months did you breastfeed?"). Lifetime duration of lactation was calculated as the sum of lactation duration for all live births and categorised into five levels (none, 1-6, 7-12, 13-23, and ≥24 months).
Outcomes	1. Body Mass Index 2. Waist Circumference 3. Triglycerides 4. HDL 5. LDL 6. Cholesterol 7. Hypertension 8. Obesity 9. Diabetes
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Neutzling 2009

Methods	Prospective Cohort Study
Participants	Follow up of Pelotas Birth Cohort. In 1993, all hospital deliveries were identified and children have been contacted on several occasions. In 2004-5, all cohort participants were eligible for a follow-up visit, except the 141 who were known to have died.
Interventions	The following exposures were considered: total breastfeeding (BF) duration in months; predominant breastfeeding (PBF) duration in months (water, teas or juice were incorporated in addition to breast milk, but solid or semi-solid foods were not), ever breastfed (yes/no), introduction of solid or semi-solid foods (for example, fruit, vegetables, beans, rice, eggs, yogurts, etc) before four months of age (yes/no).
Outcomes	1. Overweight (BMI $\geq$ 85th percentile) 2. Obesity (BMI $\geq$ 85th percentile, and triceps and subscapular skinfolds $\geq$ 90th percentile, using the National Center for Health Statistics (NCHS) curves.
Notes	Overweight and duration of total breastfeeding used for quantitative analyses

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Nguyen 2019

Methods	Prospective Cohort Study
Participants	The Sax Institute's 45 and Up Study is a large-scale, prospective cohort study of 123 815 men and 143 073 women aged ≥ 45 years residing in the state of New South Wales (NSW), Australia. <u>Inclusion Criteria</u> All women who completed a baseline questionnaire. <u>Exclusion Criteria</u> 1. Diagnosed with or recently treated for CVD (self-reported heart disease, stroke, or blood clot: n=21 797) or with a hospital admission in the 6 years preceding study entry (with a CVD diagnosis code in any diagnostic field or a CVD-related procedure code in any procedure code field) 2. Nulliparous (never given birth) or with unknown parity at baseline 3. Unknown breastfeeding duration
Interventions	Women were asked to report the number of children they had given birth to and also the cumulative amount of time spent breastfeeding across all pregnancies, based on the question: "For how many months, in total, have you breastfed?" The average breastfeeding duration per child was derived from answers to these questions and categorized as never breastfed, >0 to 6 (<6) months, >6 to 12 months, or >12 months.
Outcomes	CVD hospitalizations and deaths Baseline questionnaire data were linked to hospital data from the NSW Admitted Patient Data Collection (APDC; until June 2014), mortality data from the NSW Registry of Births, Deaths, and Marriages (until June 2014), and data on causes of death from the Cause of Death Unit Record File (until December 2013) by the Centre for Health Record Linkage (CHeReL, NSW, Australia) using probabilistic record linkage methods and a commercially available software (ChoiceMaker; ChoiceMaker Technologies Inc., New York, NY).
Notes	

Risk of bias table

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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Nirunsittirat 2016

Methods	Cohort Study
Participants	This study was conducted in children who participated in the Prospective Cohort Study of Thai Children (PCTC). The PCTC was a population-based birth cohort study aimed to evaluate the effects of pre and perinatal factors, child rearing practices, and early environment on child health and development in later life. The project, started in 2000, recruited pregnant women at 23–38 weeks of gestation from five districts in different regions of Thailand. The project intended to follow the children until 24 years of age. However, this project stopped in 2005 due to lack of funding and for administrative reasons. This cohort study followed 860 children who participated in the PCTC in Kranuan district of Khon Kaen province in northeast Thailand. The cohort consisted of all children born in the district between January 20, 2001, and January 20, 2002, excluding those whose mothers planned to move from the area.
Interventions	The authors used a series of structured questionnaires to interview the mothers or caregivers eight times: during the second trimester of pregnancy and after birth at 21 days and at 3, 6, 12, 18, 24, and 36 months. Breastfeeding was determined as: (1) exclusive breastfeeding (giving an infant only breast milk, with no water or other liquids); (2) full breastfeeding (giving an infant breast milk, with or without water, other liquids, or foods, but not formula), and (3) any breastfeeding (giving an infant breast milk, with or without formula or foods). Information on breastfeeding duration was extracted from the questions asking about breast milk feeding, formula feeding, age of weaning, and timing of food and liquid introduction, gathered at each survey throughout the 36-month period. Breastfeeding duration was categorized into four groups: <6, 6–11, 12–17, and ≥ 18 months.
Outcomes	Dental caries (when the children were 3–4 years of age) using a decayed, missing, and filled surfaces (dmfs) index following the WHO criteria
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Novaes 2012

Methods	Cross Sectional Study
Participants	Children between 6-10 years enrolled in public and private schools from Vicosia, Minas Gerais, Brazil
Interventions	A questionnaire was applied preferably to the mothers during the consultation. The questionnaire evaluated family characteristics, conditions of the mother during pregnancy, child's birth, duration of breastfeeding and practice of physical activities by the children.
Outcomes	Obesity (body mass index above the +2 standard deviations score using sex and age specific standards of World Health Organization)
Notes	

Risk of bias table

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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Nsereko 2018

Methods	Cross Sectional Study
Participants	Data obtained from 2010 Rwanda Demographic and Health Survey. 492 villages were randomly selected for survey. 26 households from each village were selected. Data of children ≤ 2 years of age was done to assess the prevalence of stunting.
Interventions	The main predictors of interest, which were based on the WHO Infant and Young Child Feeding indicators, included early initiation of breastfeeding; exclusive breastfeeding under 6 months; continued breastfeeding at 1 year; and introduction of solid, semi-solid, or soft foods.
Outcomes	Stunting
Notes	

Risk of bias table

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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	

Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Nunes 2012

Methods	Cohort Study
Participants	A retrospective cohort study was conducted in a low-income population in Brazil, in which both breast-feeding after the age of 1 year and ECC are frequent. Preschool children were selected from four community day-care centers located in peripheral neighborhoods of the municipality of Sao Luis, Maranhao, Brazil. This population has no fluoridated public water supply, and public dental care to children in this age group is scarce. The participants came from families earning up to two Brazilian minimum wages (corresponding to US\$ 208,00/year). Children were qualified for the study if they were aged between 18 and 42 months and had their parents consent to participate in the study. Children who were breast-fed for <12 months (nonexposed group) and who were still breastfed at the time of examination (exposed group) were selected for inclusion. Exclusion criteria were the presence of debilitating systemic diseases as reported by their parents and having been administered antibiotics in the last 30 days, which could interfere with colonization of mutans streptococci. A validated questionnaire was applied to the mother/guardian for the collection of demographic data, and a 24-h food recall interview was used for assessing dietary information. The application of the questionnaire and the clinical examination were performed on different occasions, so that information on risk factors obtained by the questionnaire did not influence the clinical diagnosis of caries lesions.
Interventions	Children who were breast-fed for <12 months (nonexposed group) and who were still breastfed at the time of examination (exposed group) were selected for inclusion.
Outcomes	A single calibrated professional evaluated clinically the carious lesions. dmft (number of decayed, missed, and filled teeth) scores for each child was calculated.
Notes	Uses Incidence density ratio, combined with prevalence ratio in analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	

Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Obihara 2005

Methods	Cross Sectional Study
Participants	The current study was conducted in two suburbs (total population 38,565 in 1996) of Cape Town, South Africa, with poor socio-economic conditions (average household income US\$ 98.77). A 15% sample of household addresses was randomly selected. Trained fieldworkers enumerated the people at each selected household, and all children aged 6–14 yrs were invited to participate in the study.
Interventions	Parents completed a questionnaire for each child under the supervision of a trained fieldworker. Data on breastfeeding duration were collected as a categorical variable as follows: breastfed ,6 months, 6–12 months or >12 months.
Outcomes	Allergies Asthma Eczema Hay Fever
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	

Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Oddy 2010

Methods	Cohort Study
Participants	The Western Australian Pregnancy Cohort (Raine) Study recruited 2900 pregnant women and followed the live births for 14 years. Inclusion Criteria Gestational age between 16 and 20 weeks, sufficient proficiency in English to understand the implications of participation, an expectation to deliver at the hospital, and an intention to remain in Western Australia for long-term follow-up.
Interventions	Breastfeeding duration was defined as the age at which breastfeeding was stopped in months
Outcomes	Parent-report Child Behaviour Checklist (CBCL/4-18)12 at the 5-, 8-, 10-, and 14-year follow-ups
Notes	14 year follow up used for quantitative analysis

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
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Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Okuyay 2013

Methods	Cross Sectional Study
Participants	The study was conducted in the Department of Obstetrics and Gynecology at Dokuz Eylul University Faculty of Medicine, Izmir, and the Department of Obstetrics and Gynecology in Aegean Maternity and Women's Health Hospital, Izmir, Turkey. <u>Inclusion Criteria</u> Postmenopausal women admitted to both centers for dual energy x-ray absorptiometry (DXA) scan between November 2010 and July 2011 between the age of 45-75 years <u>Exclusion Criteria</u> A history of drug abuse or alcohol consumption (to drink at least ≥ 2 days per week), and a high intake of caffeinated coffee (>2 cups per day), laboratory tests or radiography of any bone metabolism disorder or any other disease or drugs that effect bone metabolism
Interventions	Questions were interviewed on a face-to-face basis by using a detailed investigator-administered questionnaire. The questionnaire consisted of questions regarding prior pregnancy, BF and the medical history of the woman as well as demographic information. BF duration was analyzed in two categories as total BF duration in a woman's life-time and the average duration of BF for each child of the woman.
Outcomes	Osteoporosis (defined as a T score of -2.5 or lower in the results of DXA scan of cases obtained from one of three radiologic body regions)
Notes	

Risk of bias table

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Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	

Selective reporting (reporting bias)	Unclear risk	

Olatosi 2014

Methods	Cross Sectional Study
Participants	Children of preschool age attending immunisation and Well baby clinics at the Lagos University Teaching Hospital (LUTH). A table of random numbers was used to select children attending immunization and Well baby clinics at LUTH into the study.
Interventions	A pre-tested structured questionnaire was used to collect information about infant feeding practices from the mothers of the children during an in-person interview. The questionnaire consisted of demographic information of the child, feeding practices, which included the type of infant feeding method (breastfeeding, bottle feeding or mixed), frequency of breastfeeding and nocturnal breastfeeding; nocturnal bottlefeeding; and duration of breast and bottle feeding.
Outcomes	Early Childhood Caries (ECC) (Children having one or more decayed (non-cavitated or cavitated), missing (due to caries), or filled tooth surfaces (dmfs) in any primary tooth up to 71 months of age or younger were considered to have ECC. Two trained examiners were calibrated to carry out the clinical examination of the children according to the WHO oral health survey methods.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Ollila 2007

Methods	Cohort Study
Participants	Preschool children (aged 1-4 years) were entered in the study, which was conducted at 11 daycare centers in the town of Oulu, Finland. The information on the development of caries during the follow-up was collected from the children's dental health records in the files of dental health-care clinics in Oulu. The data on 183 children were collected first at baseline, when the children in the study cohort were 2.5 years of age (range 0.7-4.3 years), and then after about 7 follow-up years (range 2.0-8.9 years), when the mean age of the children was 9.6 years (range 3.1-12.7 years).
Interventions	Information collected from questionnaires filled in by the parents at the baseline of this cohort study and also from the children's dental health records in the files of dental health centers in Oulu. Breastfeeding was defined as prolonged when lasting for 1 year or more.
Outcomes	Dental Caries (development of caries was examined annually as long as this was possible for each individual)
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Owen 2002

Methods	Cross Sectional Study
Participants	The study was the third phase of the School Heart Health Study, a survey of cardiovascular risk factors in childhood in 10 British towns. Pupils who had previously taken part were invited (average 45 pupils per school), together with a random sample of new participants (average 13 pupils per school).
Interventions	A parental questionnaire sent immediately after examination provided information on infant feeding practices in the first 3 months of life (breastfed only, bottle-fed only, and mixed feeding) and on the duration of breastfeeding. Breastfeeding duration was grouped (3- or 6-month intervals) to minimize the effects of imprecise recall.
Outcomes	Total Cholesterol LDL
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Palmer 2015

Methods	Prospective Cohort Study
Participants	The Black Women's Health Study (BWHS) is a prospective cohort study of 59,000 black women from all regions of the mainland United States. Participants, aged 21–69 years at baseline, enrolled in 1995 by completing mailed health questionnaires. They have been followed every 2 years since 1995 by means of mailed questionnaires. From among the 59,001 BWHS participants, there were 4,072 women who gave birth for the first time (singleton births only) during the period from 1995 through 2003. Exclusions were as follows: women with missing data on prepregnancy weight, women who had missing data on weight 4 years and 8 years after the birth; women with missing data on lactation; and women who were outliers (bottom first percentile and top 99th percentile of 4- or 8-year weight change).
Interventions	1999 and 2001 questionnaires asked, “Did you breastfeed the baby? If yes, how long did you breastfeed?”. Response options were “less than 3months,” “3–5months,” and “6months or more.” If a woman checked “6months or more” on the 1999 or 2001 questionnaire, we used data from the 2011 questionnaire to classify the duration of lactation for that birth as 6–11 months or ≥ 12 months. The 2011 questionnaire asked all BWHS participants about their entire lactation experience with the following questions: “How many months in total have you breastfed your children (total for all)?” and “What is the longest you breastfed any child?”. An online supplement to the 2011 questionnaire also asked about duration of lactation for each birth. The 2003 and 2005 questionnaires asked, “Did you breastfeed the baby? If yes, how many months?,” with boxes provided to fill in the exact number of months. Lactation data for women who gave birth during the 2-year interval from 1995 to 1997 were obtained from the 2011 questionnaire.
Outcomes	Post Pregnancy Weight Gain at 4 years and 8 years after child birth
Notes	Weight gain at 8 years used for quantitative analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Incomplete outcome data (attrition bias)	Unclear risk	
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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	

Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Peres 2017

Methods	Cross sectional study nested in a prospective cohort study
Participants	A population-based birth cohort of 4231 live births in Pelotas, Brazil started in 2004. Infants were examined within 24 hours of birth (99%), and follow-up occurred at 3 months (96%), at 12 months (94.2%), and 4 years of age (93.5%). During these follow-ups, mothers were interviewed face to face, and anthropometric measures were collected from mothers and children. All children who were born between September and December 2004 and who had participated in the 4-year-old follow-up (n = 1303) were eligible to participate in the 2009 oral health assessment.
Interventions	Information about breastfeeding was collected immediately after the participant's birth and at 3, 12, and 24 months and 4 years of age. 3 categories were created as follows: (1) Breastfeeding up to and including 12 months; (2) breastfeeding for 13 to 23 months; and (3) breastfeeding ≥ 24 months.
Outcomes	Dental caries (investigated by using the decayed, missing, or filled primary tooth surfaces (dmfs) index according to World Health Organization criteria)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	

Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Peters 2017

Methods	Prospective Cohort Study
Participants	Between 2004 and 2008, 302 669 women and 210 222 men aged 35 to 79 years were recruited from 5 urban and 5 rural areas of China. At the baseline study assessment clinics, trained health workers administered a laptop-based questionnaire that covered demographic and socioeconomic status, lifestyle factors, and medical history. <u>Exclusion Criteria:</u> Women with a self-reported history of CHD or stroke at baseline
Interventions	Detailed information on women's reproductive factors was also collected, including age at menarche; the number of pregnancies, abortions, and live births; and the total duration of any breastfeeding for each live birth. From this, the mean duration of breastfeeding per child and cumulative lifetime duration of any breastfeeding for all children were calculated for parous women.
Outcomes	Study participants were followed for cause-specific morbidity and mortality through linkage with regional disease and death registers and with the national health insurance system. The end points for this study were 1. Incident CVD 2. CHD 3. Cerebrovascular disease (henceforth, "stroke") including hemorrhagic stroke and ischemic stroke 4. Major CVDs 5. Fatal CVDs (I00–I99).
Notes	

Risk of bias table

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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Procter 2008

Methods	Retrospective Cohort Study
Participants	The authors linked data on Kansas families from the Pediatric Nutrition Surveillance System and Pregnancy Nutrition Surveillance System, 1998 to 2002, to determine breastfeeding duration and weight status at age 4 years. The PedNSS contains information on birthweight, breastfeeding (including duration), and race/ethnicity, as well as height and weight data recorded during each visit to public health programs. The data captured information for all children born in 1998 and each of their subsequent visits to the WIC program through 2002.
Interventions	Breastfeeding duration was categorized as less than 4, 4 to 11, 12 to 23, 24 to 51, or 52 weeks or more.
Outcomes	
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Pudla 2015

Methods	Cross Sectional Study
Participants	A random sample of schoolchildren aged 7-14 years enrolled in public and private elementary schools in Florianópolis (SC). The study used a two-stage probabilistic sampling design. The first stage involved grouping the schools in the municipality of Florianópolis into four strata, by geographical area (center/mainland or beaches) and by school type (public or private). Within each stratum, schools were selected at random. Of the total of 87 schools (33 private and 54 public), approximately 20% were selected (17 schools: 11 public and 6 private). At the second stage, from each school selected, 30% of the pupils were drawn at random to attain the required sample of 3,100 schoolchildren. All schoolchildren aged from 7 to 14 years, enrolled in public and private schools in Florianópolis and residing in the municipality were considered eligible.
Interventions	Data related to BF and other information used for the control variables were obtained through a questionnaire sent to students' parents/guardians. BF data were obtained based on the following question to the parents or guardians, "How long was the student breastfed?" This question was divided into breastfeeding time categories, which were then grouped for data analysis. It was categorized according to the duration of breastfeeding, "never received breast-milk/received breastmilk for <1 month," "from 1 to 5months", "from 6 to 12 months" and "for >12 months."
Outcomes	Obesity The schoolchildren's nutritional status (outcome variable) was categorized as without obesity ($\leq$ z-score +2) or obese ($>$ z-score +2), based on body mass index (BMI) curves for age and gender, according to the WHO reference curves
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	

Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Putra 2015

Methods	Retrospective Cohort Study
Participants	Adolescents aged 15-18 years old recruited from a senior high school (SMAN 1 Budi Utomo) in Jakarta, Indonesia Only adolescents whose mothers were able to recall the breastfeeding duration were enrolled. Subjects who had an acute fever or illness during examination were excluded.
Interventions	A questionnaire was applied to parents to inquire for breastfeeding duration, which was further categorised into 0-<2, 2-<4, 4-<6, 6-<12, and >12 months.
Outcomes	Weight, Height, BMI, Systolic BP, Diastolic BP, Carotid Intima Media Thickness
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Ra 2020

Methods	Cross Sectional Study
Participants	A cross-sectional study with secondary data analysis was conducted using the cohort in the Korean Genome and Epidemiology Study. The KoGES was conducted in 2001 to collect genetic and lifestyle data associated with the development of chronic diseases such as T2DM, hypertension, obesity, MetS, and cardiovascular disease in Korean adults aged 40 years and older. In particular, a Multi-Rural Communities Cohort Study of the KoGES has collected data since 2004, with a fourth follow-up survey conducted in 2014-2016. Meanwhile, data were available from the initial investigation and second follow-up survey in 2008-2016.
Interventions	Breastfeeding duration was measured with a single question asking for total breastfeeding duration for each child. Responses were categorized as follows: none of breastfeeding experience; >0 and < 3 months; 3 and < 6 months; 6 and < 12 months; and ≥ 12 months.
Outcomes	1. Metabolic Syndrome 2. Abdominal Obesity 3. Elevated Triglyceride 4. Low HDL 5. Elevated BP 6. Impaired fasting glucose
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Rajaei 2016

Methods	Cross Sectional Study
Participants	Women (40-65 years) at Stanford University Hospital. . Baseline characteristics were obtained from medical records.
Interventions	The subjects completed a reproductive/lactation history electronic survey
Outcomes	Cardiovascular Disease
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Retnakumari 2012

Methods	Cross Sectional Study
Participants	This descriptive study was carried out among children attending the immunization clinic of Sree AvittamThirunal Hospital, Medical College, Trivandrum and children attending the randomly selected Anganwadies and Day care centres in Trivandrum, the capital of Kerala. Children aged 12-36 months and their mothers were examined and interviewed for the study. Exclusion Criteria: Children with any systemic disease or any congenital syndromes or suffering from any skeletal and dental developmental disorders
Interventions	Data were obtained using a structured interview schedule to assess the demographic characteristics
Outcomes	Dental Caries

Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
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Bias in Selection of Participants	Unclear risk	
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Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Robinson 2009

Methods	Prospective Cohort Study
Participants	Between 1998 and 2002, all nonpregnant women in Southampton, UK, aged 20–34 yr, who were registered with a general practitioner were invited to take part in a large prospective study, the Southampton Women's Survey (SWS). Women in the SWS who became pregnant were studied throughout their pregnancy; their children are being followed up in infancy and in early childhood.
Interventions	The infants were visited within 2 wk of their 6-month birthday and within a period 2 wk before and 3 wk after their 12-month birthday. Details of the milk feeding history over the preceding 6 months were recorded for all infants at the 6- and 12-month visits. Duration of breastfeeding was defined according to the date of the last breastfeed.
Outcomes	BMI Lean Mass Lean Mass Index Fat Mass Fat Mass Index
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Sankeshwari 2012

Methods	Cross Sectional Study
Participants	Children 3-5 years of age in Belgaum, India Selected from preschools and Anganwadis in Belgaum district Exclusion Criteria: Gross Orofacial defects like cleft lip or palate, debilitating conditions or physical or mental handicaps
Interventions	Feeding information collected using a questionnaire which was prepared in English and then translated to Marathi and Kanadda
Outcomes	Dental Caries (WHO criteria)
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Schwarz 2009

Methods	Cohort and Cross Sectional Study
Participants	Postmenopausal women ranging in age from 50 to 79 are enrolled at one of 40 WHI clinical centers nationwide into either a clinical trial (CT) that will include about 64,500 women or an observational study (OS) that will include about 100,000 women. Other eligibility criteria include the ability and willingness to provide written informed consent for the pertinent program components and an expectation of being resident in the study recruitment area for at least 3 years following enrollment. Study subjects were excluded from the CT and OS if they had medical conditions predictive of a survival time of less than 3 years; if they were known to have conditions or characteristics inconsistent with study participation and adherence (alcoholism, drug dependency, mental illness, dementia); or if they were active participants in another randomized controlled clinical trial. The median duration of follow-up was 7.9 years
Interventions	At a baseline clinic visit, each woman completed questionnaires regarding medical, reproductive, and family history, medication use, and lifestyle. Participants were then sent annual medical update forms to report any hospitalizations. Lactation history was assessed when women enrolled in the WHI by asking women who reported ≥ 1 live birth, "Did you breastfeed or nurse any children for at least one month?" Women who responded "yes," were then asked "Thinking about all the children you breastfed, how many months total did you breastfeed? (your best guess)." These responses were then recorded as a categorical variable (none, 1–6 months, 7–12 months, 13–23 months, and ≥ 24 months) indicating cumulative lifetime duration of lactation.
Outcomes	The occurrence of a wide variety of other outcomes, including myocardial infarction, was also assessed with annual questionnaires. Confirmation of hospitalization and other reported outcomes was based on medical record review. All deaths caused by coronary disease were adjudicated using death certificates, available medical records, and descriptions of events. 1. Cardiovascular disease (prospectively studied) 2. Hypertension, Diabetes, Hyperlipidemia, Obesity (Cross Sectional Data)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Shrutha 2013

Methods	Cross Sectional Study
Participants	Children aged 3–5 years from a random sample of preschools in Kanpur district, India Study sample was recruited by a two-stage cluster sampling technique. For study purpose, Kanpur district was arbitrarily divided into 4 geographical regions and schools from each region were randomly selected to obtain the desired sample size, such that there was an equal representation from each of the four zones. Out of the total number of public (39) and private schools (77), fifteen public and thirty five private schools were randomly selected. In the second stage, eligible schoolchildren were stratified, according to gender, and randomly selected in proportion to the total number of students enrolled in each school to reach the sample of around 2000.
Interventions	A pretested questionnaire consisting of 9 questions, designed in local language (Hindi), was used for collecting all the required and relevant information regarding personal data, mothers' practices regarding feeding, and oral hygiene practices. The questions had 3–5 alternatives and mothers were asked to tick one among them.
Outcomes	Dental Caries
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Sichieri 2003

Methods	Prospective Cohort Study
Participants	The Nurses' Health Study II was established in 1989 when 116 671 female registered nurses responded to a mailed questionnaire about their parity, medical history, and lifestyle. Since then the cohort has been followed up every 2 y to ascertain incident diseases and exposures including parity and body weight. For the present study, the sample was restricted to women aged 24–40 y in 1989, who were not pregnant at baseline, had a history of no more than one full-term pregnancy in 1989, and who gave birth to one child in 1990 or 1991, and had no other pregnancies during the 1989–1993 followup. Those who reported use of insulin, hypoglycemic drugs, or thyroid disease at baseline or follow-up were excluded from analysis
Interventions	Individual breastfeeding data were collected retrospectively in the 1997 follow-up. In 1997, women were asked to recall their lifetime breastfeeding history. For each birth, women were asked if they had breastfed for at least a month and if so they were asked to report the month in which they introduced the formula. If the answer to the question 'Did you breastfeed at least one month?' was 'no, not at all', the duration was considered as zero. Otherwise, breastfeeding duration for each pregnancy was defined by combining these two questions and parity data from 1991 and 1993 questionnaires. Introduction of daily formula/milk was assumed to represent the

	end of exclusive breastfeeding period. Duration of exclusive breastfeeding was categorized into 0, 1-3, 4-7, 8-11, and 12 months or more.
Outcomes	Weight Change
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Slykerman 2005

Methods	Prospective Cohort Study
Participants	Subjects for this study had been enrolled at birth in the Auckland Birthweight Collaborative Study (ABC Study). Inclusion Criteria: 37 completed weeks of gestation or later, born in the Waitemata Healthcare and Auckland Healthcare areas between 16 October 1995 and 12 August 1996 and in the Auckland Healthcare area between 12 August 1996 and 30 November 1997 Exclusion Criteria: - Multiple birth - Congenital anomaly likely to affect their growth or development - If the mothers had chosen to deliver at home
Interventions	At phase two, when the child was 12 mo of age, information was collected using a postal questionnaire, about the child's physical home environment (e.g. heating, floor coverings and bedding), feeding practices and health during the first year of life. Children were assessed again at the age of 3.5 y (phase three), when information about breastfeeding during infancy and the child's diet, health

	and illness during the early years of life was collected during maternal interview. During the maternal interview conducted at phase three, mothers were asked to identify how long they had breastfed their child by choosing from the following categories: not at all, less than 6 mo, 6 to 12 mo or longer than 12 mo.
Outcomes	Overall Intelligence using Stanford Binet Intelligence Scale at 3.5-4 years Four subtest scores, verbal reasoning, quantitative reasoning, abstract visual reasoning and short-term memory.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
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Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Song 2020

Methods	Cross Sectional Study
Participants	This research was based on data from a cross-sectional survey of the UNICEF-China's "Integrated Maternal and Child Health and Development (IMCHD) Project". The survey was conducted in 20 counties of 10 provinces in central and western China. A three-stage sampling procedure was used for selecting subjects. Firstly, 15 administrative villages in each selected county were selected using the probability proportionate to size (PPS) sampling method. Secondly, 2 natural villages were randomly selected with the PPS sampling method in each administrative village. Thirdly, from each natural village, 8 households with children under 5 years old were randomly selected. 4488 children were surveyed.

Interventions	Indicators for assessing breastfeeding (including children ever breastfed, duration of breastfeeding, exclusive breastfeeding, predominant breastfeeding, continued breastfeeding until 1 and 2 years old) were extracted for all children
Outcomes	Obesity in children under 5 years of age (Overweight and obesity were defined as weight-for-height greater than 2 and 3 standard deviations above the WHO Child Growth Standards median. Normal weight is defined as z-score of weight-for-height between -2 and 2, and underweight is defined as z-score of weight-for-height less than -2).
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
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Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Sowole 2006

Methods	Cross Sectional Study
Participants	Two urban (Ikeja, Surulere) and one rural (Badagry) areas in Nigeria were randomly selected and used. All the children aged 6 mo-5 years presenting at the Paediatric Outpatient Clinics of the two urban hospitals and at the Town hall in the rural area on the days of visit were included.
Interventions	Mothers of the children were interviewed using a structured questionnaire consisting of demographic information on the child, feeding practices, practices related to oral health and the socioeconomic status (SES)
Outcomes	Dental Caries (WHO criteria)

Notes**Risk of bias table**

Bias	Authors' judgement	Support for judgement
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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Stendel-Hollis 2013

Methods	Cohort Study
Participants	The Women's Health Initiative (WHI) is a large, randomized, controlled study that consists of both a clinical trial (CT) and observational study (OS) of over 168,000 postmenopausal women. Eligibility required women to be postmenopausal, between 50–79 yr of age, free of conditions inconsistent with study adherence and have estimated survival of ≥ 3 yr. The clinical trials excluded women with prior breast cancer. If a woman was unwilling to be randomized to an intervention, or was ineligible for the clinical components of the study, enrollment into the OS component was offered. General exclusion criteria for a CT or OS component included: diagnosis of a medical condition predictive of survival time of less than 3 yr; known conditions or characteristics inconsistent with study participation and adherence (alcoholism, drug dependency, mental illness, dementia); or active participation in another randomized clinical trial. Additional exclusion criteria for a clinical trial component included breast cancer at any time or suspicion of breast cancer at baseline screening, acute myocardial infarction, stroke, transient ischemic attack within the previous 6mo, chronic active hepatitis or severe cirrhosis, blood counts indicative of disease, severe hypertension, current use of oral corticosteroids, or unwillingness or inability to complete baseline study requirements. Women enrolled into the hormone trial (HT) component were required to undergo a 3-mo washout period prior to

	randomization; those individuals with a previous hysterectomy were potentially eligible for daily 0.625 mg CEE or matched placebo; whereas women with a uterus were potentially eligible for the estrogen dose + daily 2.5 mg CEE/MPA or matched placebo. Those in the OS had no restrictions on hormone use.
Interventions	Lactation history was assessed via the WHI Reproductive History Questionnaire and classified based on the number of children breastfed (1–2, 3–5, and >5); age of first and last breastfeeding (<20 yr, 20–24 yr, 25–29 yr, 30–34 yr, and ≥35 yr); and the cumulative lifetime duration of lactation (1–3 mo, 4–12 mo, 13–23 mo, and ≥24 mo). If a woman reported breastfeeding for <1 mo, she was designated as having no breastfeeding history.
Outcomes	
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
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Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Stordal 2017

Methods	Prospective Cohort Study
Participants	The Norwegian Mother and Child study (MoBa) is a prospective birth cohort which recruited expecting mothers giving birth from 2000–2009. Participants were recruited from all over Norway (rural/urban) from 1999–2008. Only singletons whose parents returned questionnaires at 6 and 18 months of age were included. Children with missing data for any of the study variables were excluded from the analysis.

Interventions	From 6 to 18 months of age, the mothers reported whether they were breastfeeding in four intervals (6–8, 9–11, 12–14 and 15–18 months). For the regression analyses, duration of any breastfeeding was categorized into 6 intervals (no breastfeeding, 0.1–3, 4–6, 6.1–8, 9–11 and ≥ 12 months).
Outcomes	Relative risks for infections (6-18 months) 1. Acute Gastroenteritis 2. Acute Otitis Media 3. Respiratory Tract Infections 4. All Infections
Notes	

Risk of bias table

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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Stuebe 2009

Methods	Prospective Cohort Study
Participants	The Nurses' Health Study (NHS) began in 1976, enrolling 121,700 women from 11 states for a longitudinal, prospective study of women's health. At baseline, participants were between 30 and 55 years of age, and each woman completed a detailed questionnaire regarding medical diagnoses, lifestyle, reproductive and other variables. Every 2 years, participants completed follow-up questionnaires regarding medical diagnoses and health related topics. Women in the NHS reported baseline parity in 1976 and incident pregnancies on biennial questionnaires. In 1976, women also reported the number of pregnancies lasting six months or more that ended in a stillbirth.

Interventions	Lactation history was assessed once, in 1986, when women reported total duration of lactation for all pregnancies as a categorical variable. At that time, the youngest women in the cohort were 40 years of age, and only 75 births were reported after 1986. Lifetime lactation history among parous women was stratified into six groups: none (referent), >0–3 months, >3–6 months, >6–11 months, >11–23 months, and >23 months. For hypertension in a different publication (Stuebe 2011) duration of breastfeeding for the first child was the exposure.
Outcomes	1. Incidence of non fatal myocardial infarction 2. Mortality due to coronary heart disease 3. Type 2 diabetes ((1) 1 or more classic symptoms (ie, excessive thirst, polyuria, weight loss, or hunger) plus either a fasting glucose level of 140 mg/dL (7.8 mmol/L) or more or random plasma glucose level of 200 mg/dL (11.1 mmol/L) or more; (2) at least 2 instances of elevated plasma glucose concentration (fasting glucose 140 mg/dL, random plasma glucose 200 mg/dL, or oral glucose tolerance test 200 mg/dL after 2 hours) on different occasions in the absence of symptoms; or (3) treatment with insulin or an oral hypoglycemic medication. 4. Hypertension
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Stuebe 2009a

Methods	Cohort Study
Participants	The Nurses' Health Study II began in 1989, enrolling 116,608 women from 14 U. S. states. Participants were between 25 and 42 years of age at baseline, and 90 percent reported their primary ancestry as Caucasian. All participants were registered nurses. This study was restricted to women who had reported at least one pregnancy in 1997, when breastfeeding was assessed in detail. Exclusion Criteria: Women who were nulliparous, missing data on parity in 1997 (n=41,882); did not report breastfeeding history (n=841); women who were postmenopausal (N=6,962) or whose menopausal status was unknown (N=3,479); those with prevalent breast cancer (N=505), carcinoma in situ (N=118), or other malignancies (N=2451), missing year of first birth (N=670) or missing height (N=89).
Interventions	In 1997, participants completed a detailed questionnaire on breastfeeding and use of medication to suppress lactation for each of their first four children. Women with more than four children reported total months of breastfeeding across all additional pregnancies. All durations were reported as categorical variables. For assessment of total duration, women were asked, "If you breastfed, at what month did you stop breastfeeding altogether?" For each definition, contributions from all pregnancies were summed to determine lifetime duration.
Outcomes	Incident cases of invasive breast cancer between 1997 and 2005.
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Stuebe 2010

Methods	Prospective Cohort Study
Participants	Women were recruited for Project Viva at their first prenatal visit at one of eight urban and suburban obstetrical offices of a multispecialty group practice in Eastern Massachusetts. To be eligible for the study, potential participants were required to be fluent in English, be <22 weeks' gestation at study entry, and have a singleton pregnancy. Women with missing data on breastfeeding duration, gestational weight gain, or gestational diabetes were excluded.
Interventions	At approximately 28 weeks' gestation, study participants provided information on intention to breastfeed. Shortly after delivery, participants again reported intention to breastfeed and initiation of breastfeeding. At the 6-month follow-up visit, we asked women if they were breastfeeding and if they had introduced formula or solid foods. Women reported timing of weaning and introduction of supplemental foods in months, weeks, or days. We similarly assessed breastfeeding at 12 months postpartum. For our analysis, we coded duration of lactation categorically as 0 months, >0-<3, 3-<6, 6-<12, and ≥12 months.
Outcomes	1. Hb A1C 2. HOMA IR 3. Fasting Insulin 4. Fasting Glucose 5. BMI 6. Postpartum Weight Retention 7. Subscapular Triceps Skinfold Ratio 8. Waist Circumference 9. Total Cholesterol 10. LDL 11. HDL 12. Triglyceride
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
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Bias in Measurement of outcomes	Unclear risk	

Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Suliga 2020

Methods	Cross Sectional Study
Participants	Data from female participants enrolled in the Polish-Norwegian Study (PONS) project, were obtained. The PONS project was a longitudinal observational regional research on the health status and prevalence of chronic non-communicable diseases in south-eastern Poland. In this study, cross-sectional data from the first edition of the PONS project was used. Study subjects were volunteers from the city of Kielce and surrounding rural area ('Świętokrzyskie Province) in Poland, aged 37–66 years. Exclusion Criteria: 1. Women diagnosed with cancer 2. Women with missing data
Interventions	Information on breastfeeding, total (lifetime) duration of breastfeeding were gathered in the survey. The division into breastfeeding categories was made on the basis of full months of feeding (never, 1–6, 7–12, 13–18, >18 months).
Outcomes	1. Metabolic Syndrome 2. Abdominal Obesity 3. Increased Glucose Concentration 4. Elevated BP 5. Increased Triglyceride 6. Decreased HDL
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	

Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Tan 2015

Methods	Retrospective Cohort Study
Participants	SBCSP is a population-based randomized controlled trial of mammography screening for breast cancer conducted between October 1994 and February 1997. The authors used the cohort of women enrolled in the screening mammography arm to evaluate retrospectively the association between reproductive factors and lung cancer incidence. Exclusion Criteria: 1. History of lung cancer during the initial screen 2. Transcription errors in the records
Interventions	Prior to mammography, participants completed a structured questionnaire that gathered information on demographic characteristics, lifestyle factors, and reproductive history. Reproductive history collected included ages at menarche and menopause, pregnancy and delivery histories, ages at first and last delivery, breastfeeding history, and the use of exogenous hormones.
Outcomes	Incident lung cancer cases from the date of baseline interview until 31 December 2011
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	

Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Tanaka 2012

Methods	Cross Sectional Study
Participants	Data for the present study came from the Fukuoka Child Health Study (FCHS), a cross-sectional study of the association between various selected factors and child health problems, such as dental caries and allergic disorders. Eligible subjects for the present study were children aged 3 years who received this physical examination at any of the 7 public health centers offering it in Fukuoka City, a metropolitan area on Kyushu Island in southern Japan.
Interventions	Information on breastfeeding duration in months was obtained from the structured self-administered questionnaire described above. Breastfeeding duration was the period during which the infants received breast milk, regardless of exclusivity. Breastfeeding duration was classified into 4 categories (<6 months, 6–11 months, 12–17 months, and ≥18 months).
Outcomes	Dental Caries (at 3 years)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	

Selective reporting (reporting bias)	Unclear risk	

Tanaka 2013

Methods	Prospective Cohort Study
Participants	For the baseline survey of the OMCHS, the authors recruited pregnant women who lived in Neyagawa City, one of the 43 municipalities in Osaka Prefecture, a metropolis in Japan with a total population of approximately 8.8 million. Women who gave their consent were enrolled in the study. The current study was restricted to responders who provided complete information on the variables under study, leaving data on 315 children available for analysis.
Interventions	The third survey consisted of a self-administered questionnaire that included questions about breast-feeding duration and the age in months at which solid foods were introduced. Breastfeeding duration was defined as the length of the period during which infants had received breast milk, regardless of exclusivity. Breast-feeding duration was classified into four categories: (1) less than six months; (2) six to 11 months; (3) 12 to 17 months; and (4) 18 months or more.
Outcomes	Early Childhood Caries (Based on oral examinations between 41 and 50 months old performed by dental hygienists)
Notes	

Risk of bias table

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Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Taren 1993

Methods	Cross Sectional Study
Participants	Children 12-47mo of age who participated in a cross-sectional nutritional surveillance survey in June 1990 in Hubei Province were used for the current analysis. Only children who were initially breast-fed for > 10 d were included. The children were recruited in 1989 from four of the more economically disadvantaged counties in the province with an annual per capita income between \$40 and \$100 in 1989. At least 95% of the children aged < 6 y were recruited and participated in the survey in each of the selected villages.
Interventions	Socioeconomic and medical information (entailing 36 questions) were obtained for each child from a parent. The parents' education and occupation; child's birth order, birth weight, history of acute or chronic diseases, and duration breast-fed; and the timing and type of food that were introduced into the child's diet were recorded. The age when breast-feeding completely stopped was recorded to the nearest month and then categorized into four age groups: < 12 mo, 12-17 mo, 18-23 mo, and 24 mo.
Outcomes	WA, HA, and WH Z-score values (based on the standards of the National Center for Health Statistics/Centers for Disease Control and Prevention (CDC)/World Health Organization)
Notes	

Risk of bias table

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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Taveras 2006

Methods	Prospective Cohort Study
Participants	The subjects for this study were participants in Project Viva, a prospective observational cohort study of gestational diet, pregnancy outcomes, and offspring health. Women were recruited at their initial prenatal visit at 8 urban and suburban obstetrical offices of a multi-specialty group practice located in eastern Massachusetts. Inclusion Criteria: Fluency in English, gestational age <22 weeks at the initial prenatal clinical appointment, and singleton pregnancy.
Interventions	In-person study visits were made with the mothers at the end of their first and second trimesters of pregnancy and with both the mother and their infants immediately after delivery and at 6 months' and 3 years' postpartum. At each in-person visit, the authors measured the infant's height and weight; at 3 years of age, they also measured the child's skinfold thicknesses. The participating mothers completed mailed questionnaires 1 year postpartum, on which they updated the information on their infant feeding practices. "During the 1-year assessment, we asked mothers, "Are you still breastfeeding?" Mothers could have completed the 1-year assessment any time after their child turned 12 months old. Of the mothers who reported that they had breastfed their infants for any length of time, we asked the following question at the 1-year assessment, "How old was your child when you stopped breastfeeding?" Response options included months, weeks, and days. If mothers were still breastfeeding or reported stopping after 12 months, we coded their response as "≥12 months."
Outcomes	BMI z score (US National reference data) Subscapular plus triceps skinfold thickness Overweight (BMI for age and gender ≥95th percentile)
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	

Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Teele 1989

Methods	Prospective Cohort Study
Participants	Children < 3 months old visiting two health centres one in East Boston and the other in suburban Holliston were enrolled. Children were observed till 7 years of age
Interventions	The physicians obtained complete demographic information and information about characteristics potentially related to risk for middle ear disease. At every visit to the pediatrician, regardless of its primary purpose, participants completed a fourpage encounter form that detailed purpose of visit, interval medical history, current diagnoses, and outcome of visit. The authors defined duration of breast feeding as the time from birth that the child was at least partly breast fed, regardless of supplementation with bottle.
Outcomes	Acute otitis media (effusion in one or both middle ears accompanied by one or more signs of acute illness including earache, otorrhea, ear tugging, fever, irritability, lethargy, anorexia, vomiting, or diarrhea)
Notes	

Risk of bias table

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Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Tehrani 2014

Methods	Prospective Cohort Study
Participants	The participants of the present study were selected from the TLGS. The TLGS is an ongoing prospective study in Tehran, initiated in 1998, with the aim of determining the prevalence of non-communicable disease risk factors. There were 4028 women aged 15–50 years in the TLGS without Metabolic Syndrome at the initiation of this study, 925 of whom were randomly selected. The subjects were followed up for 9 years.
Interventions	The selected subjects were asked to fill out the lactation questionnaire. They were further subdivided into five groups according to their lifetime duration of lactation as: none, 1–6 months, 7–12 months, 13–23 months and 24 months or more.
Outcomes	Metabolic Syndrome was defined using clinical diagnostic criteria for Iranian adult MetS as the presence of three of five following characteristics: (i) waist girth of 95 cm or more; (ii) fasting TG of 150 mg/dL or more or drug treatment for elevated TG; (3) HDL cholesterol [HDL-C] of less than 50 mg/dL or drug treatment for reduced HDL-C; (iv) systolic blood pressure of 130 or more or diastolic blood pressure of 85 mmHg or more, or treatment with antihypertensive medication; (v) fasting glucose of 100 mg/dL or more or treatment with diabetes medication
Notes	

Risk of bias table

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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	

Selective reporting (reporting bias)	Unclear risk	

Trygvadottir 2001

Methods	Case Control Study
Participants	This is a case-control study nested in a cohort of 80,219 women who attended the nationwide screening program of the Cancer Detection Clinic of the Icelandic Cancer Society in the years 1979–1995 and gave answers to questions on reproductive and menstrual factors. The women were at ages 20–81 years when attending the Clinic. All Icelandic women diagnosed with first invasive breast cancer in the years 1979–1995 were identified from the population-based Cancer Registry of Iceland. Only women who had given information at the Clinic in the years 1979–1995 were included. Only answers given before diagnosis of a first breast cancer were used. For women who had attended repeatedly, the data recorded at the last applicable visit were used. From the Databank of the Cancer Detection Clinic, the authors sought 10 controls for each of the 993 cases, individually matched on birth year and age when giving information at the Clinic. They had to have been alive at least until the diagnosis-year of their matched case.
Interventions	The following variables from the Databank were used: average number of weeks spent breastfeeding each child. The categories of lactation duration used in analyses were 0–4, 5–26, 27–52, 53–104 and ≥ 105 weeks.
Outcomes	Breast Cancer
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
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Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	

Selective reporting (reporting bias)	Unclear risk	

Vafa 2012

Methods	Cross Sectional Study
Participants	Conducted on children aged 7 years in Tehran, the capital city of Iran, in 2008. Two schools from each of the 19 educational districts of Tehran (one for girls and the other for boys) were selected at random, except a district from where 4 schools were chosen. Thus, 40 schools were enrolled in this study. In the second stage, first grade students were selected randomly from each of the 40 schools. Exclusion Criteria 1. Twins 2. Children with specific diseases
Interventions	Infant-feeding variables, birthweight and birth order, and parental characteristics were obtained from the mothers, using a questionnaire. Mothers were first asked what type of feeding—BF, formulafeeding, or both (categorized as mixed feeding)— had been chosen. They were asked up to what age the child was exclusively breastfed and when the child completely stopped BF
Outcomes	1. Underweight 2. Overweight The 2007 World Health Organization (WHO) growth reference was used for determining child's weight status.
Notes	

Risk of bias table

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Blinding of outcome assessment (detection bias)	Unclear risk	

Selective reporting (reporting bias)	Unclear risk	

Vazquez-Nava 2008

Methods	Cross Sectional Study
Participants	The study took place in the area of Tampico-Madero-Altamira, Mexico, located 542 km northwest of Mexico City. The children who participated in this study were part of a population included in another major multidisciplinary research project. The children attended nursery school as required by the Scheme of Ordinary Participation and Unique Communitarian Neighborhood Program organized by the Mexican Institute of Social Security and the preschool education school (kindergarten) of the area. Physical examinations were performed as part of the nurseries' healthcare activities
Interventions	The authors collected information on feeding type during or after the first year of life using validated questionnaire. Comparative analysis was done for breastfeeding duration more than 1 year with less than 1 year
Outcomes	Dental Caries (established by direct examination of the mouth under natural light by 2 calibrated dentists)
Notes	

Risk of bias table

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Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Veena 2010

Methods	Prospective Cohort Study
Participants	The Mysore Parthenon study, a prospective birth cohort study, was initiated in 1997-1998. The current analysis is restricted to 514 children (249-boys and 265-girls) with complete breast-feeding data and cognitive outcomes
Interventions	At one, two and three years of follow-up, information on infant feeding was obtained by asking mothers the same set of questions: How was the baby fed from birth (breast, bottle, breast+bottle or other)?; If breast-fed, was the baby still being breast-fed?; If no longer breast-fed, what was the age (months) at which breast-feeding stopped? Breast-feeding duration was split into 6 categories (<3, 3-5, 6-8, 9-11, 12-17 and 18+ months)
Outcomes	Cognitive Function (Atlantis, Word Order, Pattern Reasoning, Verbal Fluency, Kohs Block Design, Coding-WISC III)
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Vehapoglu 2017

Methods	Cross Sectional Study
Participants	A total of 5000 Turkish children aged 2-14 years were recruited from June 2012 to July 2014 in Istanbul, the largest city in Turkey. The sample was selected from all incoming appointments at an outpatient clinic. The study sample was fairly homogeneous in terms of ethnicity and socioeconomic status. Children with secondary obesity, metabolic disease, diseases of the digestive system,

	cardiovascular diseases, or endocrine diseases were excluded from the study. We excluded the children who were born before 38 weeks of gestational age, with low birth weight (<2600 g, 10th percentile for 38-41 weeks) and who had birth defects or congenital long-term diseases. Preterm babies or babies with fetal growth retardation were excluded from the study since they were too immature at birth to initiate breastfeeding and this could have an impact on the results.
Interventions	Questions regarding infant feeding practices included whether children were breastfed, the age at which children completely stopped breastfeeding, and the ages when they were first fed a formula or solid foods daily. Feeding groups were classified as breastfed for 6 months or less, for 7-12 months, and for 13-24 months.
Outcomes	1. Underweight (<18.5th percentile) 2. Normal weight (BMI for age and gender 18.5th-85th percentile) 3. overweight (BMI for age and gender 85th-94th percentile) 4. obese (BMI for age and gender ≥95th percentile).
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Victoria 1984

Methods	Cross Sectional Study
Participants	The survey was conducted in two neighboring districts, each with approximately 140,000 inhabitants, in the State of Rio Grande do Sul, one of the most developed agricultural areas of Brazil. Five municipalities were initially selected in each district and then 10 clusters were randomly selected in each municipality, covering both urban and rural areas. The authors attempted to see all children between 12 and 35.9 months living in these clusters by visiting every household.
Interventions	The child's mother (91 % of interviews) or a close relative answered questions on the duration of breastfeeding. Duration of breast-feeding, was the age reached when breastfeeding completely stopped and was grouped into five categories: not started, 0 to 2.9, 3 to 5.9, 6 to 11.9, 12 to 17.9, and 18+ months.
Outcomes	Underweight Wasting Stunting
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Victoria 2006

Methods	
Participants	
Interventions	
Outcomes	
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Villamor 2000

Methods	Cross Sectional Study
Participants	The participants were enrolled in the Tanzania Vitamin A Study which was a randomized, doubleblind, placebo-controlled trial conducted between April 1993 and March 1997 among 687 children 6 to 60 months of age who were admitted with pneumonia to Muhimbili Medical Center in Dar es Salaam. Children were followed for at least one year after discharge from hospital for survival, health, and growth endpoints. In a cross-sectional analysis of 161 children in whom a full blood picture was obtained at recruitment and at follow up after 1 year, the authors studied the relationships between anemia and baseline hemoglobin concentration and socioeconomic status, malaria and HIV diagnoses, breastfeeding, and nutritional status.
Interventions	Information collected at baseline included feeding practices
Outcomes	Anemia (hemoglobin < 7.0 g/dL).

Notes**Risk of bias table**

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Villegas 2008

Methods	Prospective Cohort Study
Participants	The study was conducted in seven urban communities in Shanghai with incidence rates of major cancers as well as distributions of age, sex, educational level, and occupation similar to those in the general population of urban Shanghai. A roster of all women aged 40–70 years was obtained from the resident offices in the study communities. Reasons for non-participation were refusal (3.0%), absence during the enrolment period (2.6%) and other reasons (health, hearing, speaking problems; 1.6%).
Interventions	Each eligible woman was approached by a trained interviewer and a local community health worker. After obtaining informed consent, the interviewer then provided instruction to the subject to complete a self-administered questionnaire. At the second visit, before the start of the in-person interview, the interviewer reviewed the completed self-administered questionnaire and asked a set of questions to evaluate its quality and completeness. Information on each pregnancy was obtained during the in-person interview. This included date and outcome of each pregnancy and whether and for how long the participant breastfed each child. Based on this information, the authors calculated the duration of breast-feeding (months and years) and duration of breastfeeding per live birth (years).

Outcomes	Incident type 2 diabetes mellitus through follow-up surveys (the participants reported having been diagnosed with type 2 diabetes mellitus and met at least one of the following criteria: fasting glucose level ≥ 7 mmol/l on at least two separate occasions or an oral glucose tolerance test with a value ≥ 11.1 mmol/l and/or use of hypoglycaemic medication (i.e. insulin or oral hypoglycaemic drugs)
Notes	

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

von Kries 1999

Methods	Cross Sectional Study
Participants	The 1997 obligatory health examination before school entry evaluated 134 577 children in Bavaria, southern Germany. At the examination, the parents of 13 345 children seen in two rural regions were asked to complete a questionnaire about risk factors for atopic diseases. Data collected by this questionnaire were linked with the data from the school health examination. This analysis was confined to children aged 5 and 6 who had German nationality.
Interventions	Parents were asked: "Was your child breast fed?" If they answered yes they were then asked: "For how long was your child exclusively breast fed: (a) 2 months or less, (b) 3 to 5 months, (c) 6 to 12 months or (d) more than a year?"

Outcomes	Overweight (defined as body mass index above the 90th centile) Obesity (defined as body mass index above the 97th centile) The age specific and sex specific distribution of the body mass index among all children with German nationality in Bavaria, which had been investigated during the 1997 school health examination, was used as the reference because these centiles were higher than other European reference values
Notes	

Risk of bias table

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Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Walby 2016

Methods	Retrospective Cohort Study
Participants	Infants born during 2002–2007 from the databases of the Preventive Child Health Services in two Swedish counties and from national registers were studied. The study population was limited to children with growth information at 4 years measured within ± 2 months from birth date and with height and weight within -3 SD. Children lacking growth information, with growth information out of limits, or lacking information on breastfeeding from their first year of life were excluded.
Interventions	Data on breastfeeding status at child's age 1 week, 2, 4, 6, 9, and 12 months was collected from the databases of statistics of the Preventive Child Health Care Services in Uppsala and Orebro County Councils.
Outcomes	Obesity at 4 years of age

Notes	

Risk of bias table

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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Wiklund 2012a

Methods	Retrospective Cohort Study
Participants	This study was a part of the Calex family study conducted in the city of Jyväskylä and its surroundings in central Finland. The original study subjects were 1367 girls in the 61 61 schools in the city of Jyväskylä and its surroundings in central Finland in 1999-2001. Of these mothers from the later recruitment period were included in this study. Exclusion Criteria: 1. Twin Pregnancy 2. Mothers who did not have prepregnancy anthropometric data
Interventions	Information on breastfeeding was collected using a self-administered questionnaire. Duration of breastfeeding represents cumulative total duration of lactation experienced by the mother throughout her reproductive life. The 145 participants were divided into quartiles according to the total months of breastfeeding they reported: shortduration breastfeeding (≤ 12 months), medial duration breastfeeding (>12 months but <21 months), long duration of breastfeeding (≥ 21 months but <33 months), and very long duration breastfeeding (≥ 33 months).
Outcomes	BMI, Total Fat Mass, Total Lean Mass, Total Bone Mineral Density, Bone Area, Bone Mineral Content, BMD Femur Neck, BMD Total Femur, BMD Tibial Shaft
Notes	

Risk of bias table

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Bias in Selection of Participants	Unclear risk	
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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Wong 2017

Methods	Cross Sectional Study
Participants	Healthy urban children aged 1 to 6 years who attended routine primary health care visits at The Applied Research Group for Kids (TARGet Kids!) participating pediatric or family medicine primary care practice in Toronto, Canada, between September 2011 and August 2013 Exclusion Criteria: a condition affecting growth (eg, failure to thrive, cystic fibrosis), a chronic illness (excluding asthma), or severe developmental delay
Interventions	The primary exposure variable was total breast-feeding duration, which was determined from the response to the question, "For how long has your child been breast-fed?" Total breast-feeding duration was modeled as a continuous variable and as a categorical variable (0–5 months, 6–11 months, 12–23 months, and >24 months).
Outcomes	Dental Caries (Parent reported)
Notes	

Risk of bias table

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Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Wong 2018

Methods	Cross Sectional Study
Participants	Participants were healthy urban children aged 3-6 years who attended scheduled healthcare visits at pediatric and family practices affiliated with The Applied Research Group for Kids (TARGetKids!) in Toronto, Canada. Children were excluded if they had chronic conditions except asthma, severe developmental delay, failure to thrive, and gestational age of less than 32 weeks. In addition, families who were not fluent in English were excluded. Children with missing data on exposure or outcome variables were also excluded.
Interventions	The primary exposure variable was breastfeeding duration which was determined from response to the questions (1) "Has your child ever been breastfed?"; (2) "Is your child currently breastfeeding?"; and (3) "At what age did you stop breastfeeding?" Breastfeeding duration was modeled as a categorical variable, defined as 0-6, >6-12, >12-23, and ≥24 months, to assess the effects of lower and upper ranges on cardiometabolic risk .
Outcomes	1. Cardiometabolic Risk z score 2. Waist Circumference 3. Systolic BP 4. HDL 5. Triglyceride 6. Glucose

Notes**Risk of bias table**

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Yang 2017

Methods	Cross Sectional Study
Participants	The baseline survey took place in 10 geographically defined areas in China during 2004–08. There were 512 891 participants (30% of those invited responded), including 302 632 (59%) women aged 30–79 years. Exclusion Criteria: 1. Prior major chronic diseases (i.e. CVD, cancer, COPD), hysterectomy or oophorectomy 2. Inconsistent or implausible data for reproductive history or adiposity
Interventions	Trained health workers collected information on general demographic characteristics, socio-economic status, lifestyle habits, women's reproductive history and medical history using a laptop-based questionnaire; took physical measurements; and collected blood samples for long-term storage. For each live birth, data on age at birth and breastfeeding duration were collected. Breastfeeding duration per child used for analyses.
Outcomes	1. BMI 2. % FAT 3. Waist Circumference 4. Waist Hip Ratio

Notes

Risk of bias table

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Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Yeo 2016

Methods	Cross Sectional Study
Participants	This study is based on data gathered from the Korea National Health and Nutrition Examination Survey (KNHANES), a nationwide representative survey administered in 2010. Exclusion Criteria 1. Individuals with a clinical diagnosis of thyroid disease 2. Chronic hepatitis B or C, liver cirrhosis 3. Chronic kidney disease 4. Rheumatic diseases 5. Diabetes mellitus 6. Malignancy 7. Chronic obstructive pulmonary disease, or pulmonary and extrapulmonary tuberculosis 8. History of osteoporosis treatment, hormone replacement therapy, oral contraceptive use, or double oophorectomy 9. Those who did not respond to questions about medical history 10. Women who delivered in the previous two years
Interventions	Trained interviewers conducted face-to-face interviews using a structured questionnaire. Breast-feeding history was assessed for women enrolled in the KNHANES by asking, "Did you breast-feed any children for at least 1 month?" Women who responded with "yes" were then asked, "Thinking about the total period of breast-feeding, how many children were breastfed?" Breast-feeding

	duration per child was calculated by dividing the total breast-feeding period by the number of breast-fed children. Participants were divided into four groups on the basis of the duration of breast-feeding per child to investigate the relationship between breast-feeding duration per child and BMD. The categories were nonbreast-feeders and women who breast-fed for 1–5 months, 6–11 months, 12–17 months, and 18 months or more per child.
Outcomes	Bone Mineral Density of Total Femur, Femur Neck and Lumbar Spine
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Zhang 2015

Methods	Cross Sectional Study
Participants	Parous women aged 40-81 years Resident of four urban communities of Shijingshan District in Beijing, China Parous women who had one lifetime birth
Interventions	Each participant completed a detailed survey by in-person interviewing. Information about each participant's reproductive history was collected during the in-person interview. This included age of child-bearing, contraceptive use, age of menarche, menopause status, and postpartum BMI, as well as whether and for how long the participant breastfed her child. The

	collected information of breastfeeding was then recorded as a categorical variable (none, > 0 to 6 months, > 6 to 12 months, and > 12 months) indicating duration of breastfeeding.
Outcomes	1. Hypertension (Systolic blood pressure of ≥ 140 mm Hg and/or diastolic blood pressure of ≥ 90 mm Hg, a confirmed previous physician diagnosis of hypertension, or use of antihypertensive drugs was diagnosed as hypertension). 2. Diabetes (a fasting glucose level of ≥ 7.0 mmol/L or an oral glucose tolerance test with a value of ≥ 11.1 mmol/L, a confirmed previous physician diagnosis of diabetes, or use of antidiabetic medication). At baseline, each participant reported whether or not she had ever had a physician diagnosis of hypertension or diabetes.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Zhu 2020

Methods	Prospective cohort study
Participants	The present study was a prospective birth cohort study of the offspring born to women who participated in a trial of antenatal micronutrient supplementation. A total of 4604 singleton live births were obtained from the trial, but only 1400 births after 2004 were registered for further follow-up. At the adolescence follow up stage, 643 of these children were lost to follow-up as they had moved away from the study area, and thus there were 745 adolescents aged 10–12 years who were enrolled and had been followed from birth through infancy into early adolescence.

Interventions	Detailed information about each infant's feeding was prospectively collected by interviewer-administered questionnaires with mothers during the infant follow-up stage from birth to 30 months of age
Outcomes	Cognitive development at age 10-12 years 1. Verbal Comprehension 2. Perceptual Reasoning 3. Working Memory (WMI) 4. Processing Speed 5. Full-scale intelligence quotient (FSIQ),
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Bias Due to Confounding	Unclear risk	
Bias in Selection of Participants	Unclear risk	
Bias in Classification of Exposures	Unclear risk	
Bias due to departures from intended exposures	Unclear risk	
Incomplete outcome data (attrition bias)	Unclear risk	
Bias in Measurement of outcomes	Unclear risk	
Bias in selection of reported result	Unclear risk	
Other bias	Unclear risk	
Random sequence generation (selection bias)	Unclear risk	
Allocation concealment (selection bias)	Unclear risk	
Blinding of participants and personnel (performance bias)	Unclear risk	
Blinding of outcome assessment (detection bias)	Unclear risk	
Selective reporting (reporting bias)	Unclear risk	

Footnotes

Characteristics of excluded studies

Abdulmoniem 2001

Reason for exclusion	Continued breastfeeding not studied. Duration of lactation used as a continuous variable in regression analyses

Acosta 2008

Reason for exclusion	Continued breastfeeding not studied. Studies the impact of exclusive breastfeeding for less than and greater than 4 months on overweight in later life.

Adami 1990

Reason for exclusion	Case control study with cases picked up from cancer registries in sweden and Norway

Agras 1987

Reason for exclusion	Continued breastfeeding not studied. Studies the impact of feeding style on adiposity in later life.

Agras 1990

Reason for exclusion	Continued breastfeeding not studied. Studies the impact of duration of breastfeeding > 5 mo on adiposity in later life.

Akbari 2011

Reason for exclusion	Case control study in hospital setting

Akkus 2005

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding or its duration was not one of the studied variables.

Al-Kubaisy 2005

Reason for exclusion	Continued breastfeeding not studied. Duration of lactation used for analyses were <6 months and >= 6 months.

Almeida 2004

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were less than 2 months, 2 to 6 months, or more than 6 months.

Al-Othaimen 1988

Reason for exclusion	Continued breastfeeding not studied. Agewise data regarding breastfeeding and antropometry given seperately, but no data comparing anthropometry with different feeding patterns at different age groups provided.

Altinkanayak 2006

Reason for exclusion	Case control study

Alzate-Meza 2011

Reason for exclusion	Continued breastfeeding not studied. Studies the prevalence of infection in children who were breastfed versus those who were not

Amore 2003

Reason for exclusion	Case control study, hospital based

Anderson 2014

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration was categorized by investigators in months as never breastfed, \1, 1-2, 3-5, and 6 months or more breastfed.

Arif 2017

Reason for exclusion	Case control study conducted in hospital setting (not population representative)

Awaterf 2011

Reason for exclusion	Case control study in hospital setting

Bahreynian 2017

Reason for exclusion	Continued breastfeeding not studied. Analyses the effect of parental weight on obesity in children

Baranowski 1990

Reason for exclusion	Continued breastfeeding not studied. Duration of lactation analysed as a continuous variable in regression analyses.

Barone 2006

Reason for exclusion	Case control study

Becher 2003

Reason for exclusion	Case control study

Bener 2008

Reason for exclusion	Continued breastfeeding not studied. Prolonged breastfeeding defined as duration > 6 months

Bergmann 2002

Reason for exclusion	Continued breastfeeding not studied. Duration of BF iused as a continous variable in regression analyses and upto 9 months duration

Bernard 2013

Reason for exclusion	Continued breastfeeding not studied. Reports the effect of duration of breastfeeding as a continous variable using regression analyses

Berning 1993

Reason for exclusion	Continued breastfeeding not studied. Analysis of duration of lactation was done by dividing the study population according to a) 0, >2 weeks; b) <=24 and >24 weeks

Bjertnaes 2020

Reason for exclusion	Continued breastfeeding not studied. Compares exclusive breastfeeding durations of less than and more than four months and has done regression analysis for duration of partial breastfeeding without any data on feeding more than 12 months

Bloss 2004

Reason for exclusion	Continued breastfeeding not studied. Uses introduction of complementary foods before 6 months as a risk factor for analyses

Bobrow 2013

Reason for exclusion	Continued breastfeeding not studied as defined. Breastfeeding durations studied were < 6 months, 6-9 months and ≥ 10 months

Boucher 2017

Reason for exclusion	Continued breastfeeding not studied. Does not compare continued breastfeeding with shorter durations of feeding. Analyses the duration of breastfeeding's effect on child development, ADHD and autism by regression anayles.

Bravo 1997

Reason for exclusion	Continued breastfeeding not studied. Compares exclusive breastfeeding <4 mo with >4 mo

Briend 1989

Reason for exclusion	No control group. Compares breastfed versus not breastfed children between the ages of 12-35 months. No details of breastfeeding duration of weaned children available

Brinton 1995

Reason for exclusion	Case control study with cases picked from hospital admission and registry, not population representative

Brion 2011

Reason for exclusion	Continued breastfeeding not studied. Compares breastfeeding durations of duration < 1 month, 1-3, 3-5 and ≥ 6 months

Brun 1995

Reason for exclusion	Continued breastfeeding not studied. Data not presented in case and control group to satisfy the inclusion criteria. The duration of lactation used were 1-9, 10-19, >20

Bulbul 2008

Reason for exclusion	Continued breastfeeding not studied. Feeding habits analysed for each month in the first six months (1. Exclusive breastfeeding, 2. BF+Formula milk (FS), 3. BF+Cow's milk (IS), 4. BF+Additional food(EG), 5. Formula milk only, 6. Additional food without BF)

Buyken 2008

Reason for exclusion	Continued breastfeeding not studied. Long breastfeeding was defined as full breast-feeding for >17 weeks (e.g., >4 months). This cutoff was used because it was the lower limit of the German recommendation for the introduction of complementary food

Byrne 2018

Reason for exclusion	Continued breastfeeding not studied. Studies duration of breastfeeding as a continuous variable and its impact on adolescent obesity in conjunction with maternal behaviour and socioeconomic status

Camayo 2008

Reason for exclusion	Case control study conducted in hospital setting (not population representative)

Cando 2019

Reason for exclusion	Continued breastfeeding not studied . Studies the effect of exclusive breastfeeding for durations less and more than 6 months

Caulfield 1996

Reason for exclusion	Continued breastfeeding versus shorter duration breastfeeding not studied. The data on breastfeeding at various ages was collected as still breastfeeding or not being breastfed at the time of the survey.

Chaiffarino 2005

Reason for exclusion	Case control study, hospital based

Chang-Claude 2000

Reason for exclusion	Case control study, cases identified from hospitals

Chantry 2004

Reason for exclusion	Continued breastfeeding not studied. Compares lactation with no lactation

Chantry 2007

Reason for exclusion	Continued breastfeeding not studied. Anemia and iron status (serum ferritin) were compared for five groups: formula fed only "NoBF"(n 1142), or full breastfeeding for: 1 month "FullBF1" (n 425), 1 month to 4 mos "FullBF1-3" (n 343), 4 to 6 months "FullBF4-5" (n 222), and 6 months "FullBF6" (n 136).

Chiu 2011

Reason for exclusion	Continued BF not studied. Duration of breast feeding was categorised as 'never breast-fed' (or only formula-fed), 'breast-fed for less than 1 month', 'breast-fed for 1 to 2.9 months', 'breast-fed for 3 to 5.9 months' and 'breast-fed for 6 months'.

Chowdhury 2002

Reason for exclusion	Continued breastfeeding not studied. Duration of cumulative lactation studied was 0-60 months, 60-120 and >120 months

Clark 2006

Reason for exclusion	Continued breastfeeding not studied. "We categorized the duration of breastfeeding as the sole milk source into 3 groups: 0–61 days, "< 2 months" (n = 275; 35%); 62–243 days, "2–8 months" (n = 421; 54%); and > 243 days, "> 8 months" (n = 88; 11%)."

Coogan 1999

Reason for exclusion	Case control study, hospital based

Cooke-Hubley 2019

Reason for exclusion	Data not available for continued breastfeeding. Provides data on breastfeeding duration ≤ 1 month, 1-6 months and > 6 months, and also has performed multivariate regression with duration of lactation as a covariate.

Cruz 2017

Reason for exclusion	Case control study not representative of the entire population

Cumming 1993

Reason for exclusion	Continued breastfeeding not studied. Duration of lactation used for analyses are 0, 0.5-3, 3-6, 6-9 and >9 months.

Dahlquist 1991

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration < 3 months analysed as a risk factor for diabetes in regression analyses.

Daniels 2002

Reason for exclusion	Case control study, hospital based

Darmawikarta 2016

Reason for exclusion	Continued breastfeeding not studied. Studies the duration of breastfeeding as a continuous variable using regression analysis

Darsene 2017

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of breastfeeding for more than 2 years versus less than 2 years on undernutrition

Dasanayake 2002

Reason for exclusion	Continued breastfeeding not studied. No data on discrete groups with different durations of BF reported

Davis-Paturet 2020

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of breastfeeding for durations < 1 month, 1 to 4 months and ≥ 4 months

Delgado 2017

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration was categorized as <24 (n = 2559); 24–35 (n = 543); and ≥36 months (n = 275).

de Matos 2011

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of breastfeeding duration < 2 months and ≥ 2 months

den Dekker 2016

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding was categorized into four groups: '<2 months', '2–4 months', '4–6 months', and '≥6 months'.

De Silva 2010

Reason for exclusion	Case control study in hospital setting

Dewey 1991

Reason for exclusion	No control group. Studies the growth pattern of infants who were breastfed for at least 12 months.

Dewey 1993

Reason for exclusion	Control group formula fed babies. Compares mothers who breastfed for > 12 months with those who did for <3 months and using formula feed thereafter

Dieu 2007

Reason for exclusion	Continued breastfeeding not studied. Analyzes duration of breastfeeding as a continuous variable using regression analyses

Dini 2000

Reason for exclusion	Data not available for continued breastfeeding. Compares effect of breastfeeding less than 2 years and more than 2 years and no breastfeeding on dental caries

Donkor 2017

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of exclusive breastfeeding less and more than 4 months on obesity.

Durmus 2012

Reason for exclusion	Continued breastfeeding studied. Duration of BF studied were less than and more than 4 months

Egan 1998

Reason for exclusion	Case control study with subjects having a family history of cancer

Ehlayel 2008

Reason for exclusion	Continued breastfeeding not studied. Prolonged breastfeeding as > 6 months duration

Elliot 1997

Reason for exclusion	Continued breastfeeding not studied. Studies exclusive breastfeeding for more and less than 2 months

Elliott 2008

Reason for exclusion	Controlled breastfeeding not studied. We were able to assign breastfeeding duration (never, <1 month, 1 to <3 months, 3 to <6 months and 6+ months)

Elverud 2019

Reason for exclusion	Studies the effect of exclusive breastfeeding on growth; effect of continued breastfeeding not reported

Elwood 2005

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were less than and greater than 3 months

Enger 1997

Reason for exclusion	Case control study with cases picked from cancer surveillance registry, not representative of the population

Enger 1998

Reason for exclusion	Case control study, hospital based

Eriksson 2003

Reason for exclusion	Continued breastfeeding not studied. Reports duration of BF upto 8 months

Fancony 2020

Reason for exclusion	Continued breastfeeding defined as children over 5 month who were both breastfed and complementary fed, and data analysed for the risk of iron deficiency anemia with the same as a covariate in regression analyses

Farajzadeh 2011

Reason for exclusion	Continued breastfeeding not studied. Duration of BF studied as a continuous variable

Fatemi 2019

Reason for exclusion	Compares formula only or breastfeeding less than 18 months with breastfeeding for 18-24 months

Fawzi 1998

Reason for exclusion	Continued breastfeeding not studied. No comparison between prolonged and shorter duration breastfeeding done

Feldens 2010

Reason for exclusion	Continued BF not studied. BF data collected at 6 mo and 1 year and not beyond.

Fikadu 2014

Reason for exclusion	No control group. Compares breastfeeding duration of less and more than 24 months

Flohr 2011

Reason for exclusion	Continued breastfeeding data not presented. Categorized as 'never breastfed', 'breastfed for < 6 months' or 'breastfed for > 6 months'

Folayan 2010

Reason for exclusion	Continued BF not studied. Analyses the duration of BF as a continuous variable

Foroushani 2010

Reason for exclusion	Continued BF not studied. Analyses the duration of BF as a continuous variable

Fox 1993

Reason for exclusion	Continued breastfeeding not studied. Duration of lactation used as a continuous variable in regression analyses.

Fox 2013

Reason for exclusion	Continued BF not studied. Studies duration of breastfeeding as a continuous variable and regression analysis done to study its impact on Alzheimers disease

Francisco 1993

Reason for exclusion	Continued breastfeeding not studied. Does not use duration of lactation at all. Compares mortality risk in breastfed, partially weaned+some vitamin A, partially weaned + no vitamin A, and fully weaned.

Frank 2019

Reason for exclusion	Subjects positive for high risk genes for Type 1 diabetes; not representative of healthy population

Freudenhiem 1997

Reason for exclusion	Case control study with cases identified from two hospitals, not population representative

Furberg 1999

Reason for exclusion	Case control study

Gale 2004

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were <1 month, 1-4 months and >4 months

Gammon 2002

Reason for exclusion	Case control study, institution based

Garden 2012

Reason for exclusion	Continued breastfeeding not studied. Children were classified into three groups of breastfeeding duration: 0 to <3 months, ≥ 3 to <6 months and ≥ 6 months.

Gewa 2012

Reason for exclusion	Continued breastfeeding not studied. Duration of BF analysed as a continuous variable using regression analyses

Ghiasvand 2011

Reason for exclusion	Case control study in hospital setting

Giamba de Lima 2001

Reason for exclusion	Continued breastfeeding not studied. Studies the risk factors for breast cancer in a cohort.

Girma 2019

Reason for exclusion	Continued breastfeeding not studied. Provides risk for underweight in children breastfed for < 24 months versus those for more than 24 months

Goldfield 2006

Reason for exclusion	Continued breastfeeding not studied. Compares breastfed versus not breastfed children

Gomez-Sanchiz 2003

Reason for exclusion	Continued breastfeeding not studied. Infants were classified according to the type of feeding received into : 1) formula-fed since birth; 2) breast-fed (exclusive or partial) for up to 4 months; and 3) breast-fed (exclusive or partial) longer than 4 months.

Gomez-Sanchiz 2004

Reason for exclusion	Continued breastfeeding not studied. Subsequently, infants were classified according to the type of feeding received into the same categories as in the previous study: 1) formula-fed since birth; 2) breast-fed (exclusive or partial) for up to 4 months; and 3) breast-fed (exclusive or partial) longer than 4 months.

Gopalan 1992

Reason for exclusion	Review of breastfeeding impact on maternal and child health

Gopinath 2012

Reason for exclusion	Continued BF not studied. categorized breast-feeding duration into the following: never breast-fed, <1 month, 1-<3 months, 3-<6 months and ≥ 6 months.

Greggi 2000

Reason for exclusion	Case control study, hospital based

Grimshaw 2013

Reason for exclusion	Case control study not representative of entire population

Grijbovski 2008

Reason for exclusion	Continued breastfeeding not studied. Four categories of the duration of breastfeeding were used in all other analyses: < 2 months, 2 – 3 months, 4 – 5 months and ≥ 6 months.

Gunderson 2014

Reason for exclusion	Continued breastfeeding not studied. Compares breastfeeding duration > 9 months with lower durations

Gunderson 2014a

Reason for exclusion	Continued breastfeeding not studied. The women were categorized into four lactation groups according to cumulative duration for all post-baseline births; 0-<1 month (n=262), 1-<6 months (n=210), 6-10 months (n=169) and >10 months (n=205).

Gunderson 2015

Reason for exclusion	Continued breastfeeding not studied. The overall duration (months) of lactation was divided into four categories (n, women) to evenly distribute the analytic sample, as well as represent clinically relevant periods of lactation: 0 to<1 month (n=262), 1 to<6 months (n=210), 6 to<10 months (n=169) and ≥ 10 months (n=205).

Gunther 2013

Reason for exclusion	Continued breastfeeding not studied. In the present analysis, infants who were not fully breastfed for up to 2 weeks were classified as “never fully breastfed”. The remaining “ever fully breastfed” ones were further divided into those breastfed for a “short” duration (i.e. fully breastfed for more than 2 weeks up to a maximum of 17 weeks), and those breastfed for a “long” duration (full breastfeeding for more than 17 weeks (e.g. >4 months))

Guven 2005

Reason for exclusion	Subjects not healthy. All enrolled subjects had type 1 diabetes

Hallonsten 1995

Reason for exclusion	Continued breastfeeding not studied. The children were divided into four groups: group 1: children with caries not being breast-fed; group 2: children with caries being breast-fed; group 3: caries-free children being breast-fed; group 4: caries-free gender- and age-matched reference children not being breast-fed.

Han 2004

Reason for exclusion	Case control study. Cases are from Zhongnan Hospital of Wuhan University, Wuhan University People's Hospital, Primary female breast undergoing surgery or chemotherapy in Hubei Cancer Hospital and controls were patients being treated at the same hospital being treated for non-malignant conditions

Han 2012

Reason for exclusion	Case only analysis. All subjects had rhinitis

Han 2019

Reason for exclusion	All subjects had rhinitis; not a population representative cohort

Harding 2007

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding used for analysis were <1 month, 1-6 months and >6 months

Hassa 2005

Reason for exclusion	Continued breastfeeding not studied. Uses lactation as a binary variable to assess the risk of osteoporosis

Hay 2008

Reason for exclusion	Continued breastfeeding versus shorter duration breastfeeding not studied. Compares children breastfed versus not breastfed at 24 months of age. This includes all children whose breastfeeding was stopped anytime after birth upto 24 months.

Hayosh 2015

Reason for exclusion	Continued breastfeeding not studied. Three groups of lactation duration studied were no breastfeeding, breastfeeding 0–6 months, breastfeeding > 9 months).

Heard-Lipsmeyer 2020

Reason for exclusion	Data not available for continued breastfeeding separately. Breastfeeding duration analysed as a continuous variable using multivariate regression analyses.

Hediger 2001

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding categorized for 2 months or less, 3 to 5 months, 6 to 8 months, and 9 months or more.

Hewat 1986

Reason for exclusion	Continued breastfeeding not studied. Studies womens perceptions of their breastfeeding experiences.

Hosaka 2013

Reason for exclusion	Continued breastfeeding not studied. We divided the study participants and children into two groups according to the median duration of breastfeeding. This approach yielded a short-term breastfeeding (SBF) group (less than 8 months) and a long-term breastfeeding (LBF) group (X8 months).

Houle 2019

Reason for exclusion	Cohort of HIV exposed children both in utero and post birth

Howie 1990

Reason for exclusion	Data given for various breastfeeding groups upto 1 year of age

Hu 1994

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used as a continuous variable in regression analyses

Hu 2020

Reason for exclusion	Data not available for continued breastfeeding separately. Breastfeeding duration studied as part of a risk factor score consisting of 6 modifiable early life risk factors, namely, smoking during pregnancy, gestational weight gain, sugar sweetened beverage consumption during pregnancy, breastfeeding duration, timing of complementary food introduction and infant sleep introduction.

Huang 2017

Reason for exclusion	Continued breastfeeding not studied. Studies breastfeeding duration greater than and less than 6 months

Huang 2018

Reason for exclusion	Continued breastfeeding not studied. Studies breastfeeding duration greater than and less than 6 months

Huo 2003

Reason for exclusion	Case control study, hospital based

Hwang 2016

Reason for exclusion	Continued breastfeeding not studied. Studies effect of cumulative duration of breastfeeding on bone health with data presented for 0–6 months, 7–18 months, 19–36 months, and ≥ 37 months breastfeeding groups

Infante-Rivard 2001

Reason for exclusion	Continued breastfeeding not studied. Analyses duration of BF less and more than 4 months

Iron-Segev 2013

Reason for exclusion	Continued breastfeeding not studied. "Response choices for the duration of breastfeeding on the GUTS questionnaire were: less than one month; one to three months; four to six months; seven to nine months; or over nine months. We created two breastfeeding variables: 1) dichotomous (yes/no); and 2) duration (less than four/four to nine/more than nine months)."

Issa 2019

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of exclusive breastfeeding till 6 months and breastfeeding beyond 6 months; regression analysis done for total duration of breastfeeding with no data provided for continued breastfeeding

Ito 2014

Reason for exclusion	Continued breastfeeding not studied. All infants were also categorized into four groups according to the duration of breastfeeding: never, 1-2, 3-5, or 6+ months.

Jacobson 1999

Reason for exclusion	Continued breastfeeding not studied. Compares never breastfed with breastfed children

Jenkins 2014

Reason for exclusion	Continued breastfeeding not studied. Children were assigned to 1 of 9 mutually exclusive categories: never breastfed, and 8 categories representing zero to 7 or more months of being breastfed exclusively (hereafter BFE).

Jensen 2015

Reason for exclusion	Continued breastfeeding not studied. The association of duration of exclusive breastfeeding and any breastfeeding with the growth curve characteristics were assessed with multiple weighted linear regression, treating it as a continuous variable

Jernström 2004

Reason for exclusion	Case control study.

Jigjid 2009

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of breastfeeding and bottlefeeding on dental caries

Jordan 2010

Reason for exclusion	Case Control Study

Jordan 2012

Reason for exclusion	Case Control Study

Jordan 2013

Reason for exclusion	Case control study in hospital setting, not representative of population

Kadziella-Olech 1995

Reason for exclusion	Case control study.

Kadziella-Olech 2005

Reason for exclusion	Case control study.

Kakanur 2017

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration studied as a continuous variable by regression analysis to observe its effect on dental caries

Kalies 2005

Reason for exclusion	Continued breastfeeding not studied. Durations of exclusive breastfeeding used for analyses were 0-1, 2-3, 4-5 and ≥ 6 months

Kalkar 2013

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding studied as a continuous variable.

Kallio 1992

Reason for exclusion	Continued breastfeeding not studied. Studies effect of exclusive breastfeeding upto 12 months

Katsouyanni 1996

Reason for exclusion	Case control study, with both cases and controls picked from 4 hospitals, not population representative

Kim 2007

Reason for exclusion	Case control study, hospital based

Kim 2019

Reason for exclusion	Studies effect of cumulative duration of breastfeeding on bone health with data presented for 0-18, 19-36, 36-72 and ≥ 72 months breastfeeding groups

Kim 2020

Reason for exclusion	Studies effect of cumulative duration of breastfeeding on bone health with data presented for 1–24, 25–48, and ≥ 49 months breastfeeding groups

Kitsantas 2010

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding analysed as a continuous variable using logistic regression analyses.

Koetting 1988

Reason for exclusion	Continued breastfeeding not studied. The subjects were placed in groups of three in the appropriate lactation category (average total duration of lactation 10 mo/child for 0, 1-2, or 3-4 children).

Kolacek 1993

Reason for exclusion	Continued breastfeeding not studied. No data regarding various duration of feeding given. The authors just mention "Neither the type of milk given in the first three months of life, nor duration of breast feeding and time of weaning had any significant influence on blood pressure in adult subjects of both sexes."

Kolacek 1993a

Reason for exclusion	Continued breastfeeding not studied. Duration of lactation used for analyses were <3, 3-9 and >9 months

Kong 2020

Reason for exclusion	Studies effect of sugar intake on weight gain, breastfeeding a covariate for analyses

Kotsopoulos 2012

Reason for exclusion	Case Control Study

Kowal 2017

Reason for exclusion	Continued breastfeeding not studied. Observes the effect of breastfeeding on obesity as a continuous variable

Kraljevic 2017

Reason for exclusion	Case only analysis. All included subjects had dental caries

Kramer 1981

Reason for exclusion	Continued breastfeeding not studied. Compares ever breastfed with never breastfed children.

Kramer 1986

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding used as a continuous variable in regression analyses

Kramer 2007

Reason for exclusion	Randomized controlled trial with BF promotion as an arm

Kramer 2007a

Reason for exclusion	Randomized controlled trial with BF promotion as an arm

Kramer 2007b

Reason for exclusion	Randomized controlled trial with BF promotion as an arm

Kramer 2007c

Reason for exclusion	Randomized controlled trial with BF promotion as an arm

Kramer 2008

Reason for exclusion	Randomized controlled trial with BF promotion as an arm

Kramer 2008a

Reason for exclusion	Randomized controlled trial with BF promotion as an arm

Kruk 2007

Reason for exclusion	Case Control study

Kubota 2020

Reason for exclusion	Data for breastfeeding presented as less than and greater than 18 months

Kull 2002

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were <6 mo and ≥6mo

Kuru 2002

Reason for exclusion	Case control study, hospital based

Kwan 2005

Reason for exclusion	Case control study

Kyvik 1992

Reason for exclusion	Continued breastfeeding not studied. Studied lactation periods till 5 months

Lamb 2010

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding analysed as a continuous variable using logistic regression analyses.

Lancashire 2003

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were <1 month, 1-6 and ≥ 7 months

Langton 2020

Reason for exclusion	Outcome not of interest Studies risk of early menopause as outcome

Laurenco 2018

Reason for exclusion	Continued breastfeeding not studied. Compares exclusive to predominant breastfeeding and six versus 7 months breastfeeding

Lawlor 2004

Reason for exclusion	Continued breastfeeding not studied. Use breastfeeding durations greater and lesser than 6 months in analyses

Lawlor 2005

Reason for exclusion	Continued breastfeeding not studied. A dose-response effect was examined by assessing levels of outcomes across the categories: never, <1, 1-3, 4-6, >6 months of exclusive breast feeding.

Lawlor 2006

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were <4 months and >4 months

Lawlor 2008

Reason for exclusion	Continued BF not studied. From these data we derived two breast feeding variables: ever versus never breast fed and duration of breast feeding (never, \3 months, 3–6 months and >6 months).

Layde 1989

Reason for exclusion	Case control study. Multicentric case control study with cases identified from various registries

Lee 2004

Reason for exclusion	Case control study, hospital based

Lee 2017

Reason for exclusion	Continued BF not studied. Studies duration of breastfeeding as a continous variable

Leeson 2001

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration analyses as a continous variable and as following groups: Never, 0-1, 2-3, 4-5, 6-7, 8-9, >10 months

Lehocka 2014

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration studied was less and more than 6 months

Lenora 2009

Reason for exclusion	Continued breastfeeding not studied. "Same subjects were subdivided, again, according to the total duration of breast-feeding (0, 1–48, 49–96, and 97 months or more) and similar analysis was carried out."

Leventakou 2015

Reason for exclusion	Continued breastfeeding not studied. Duration of feeding studied were 1-6 months and >6 months

Li 2010

Reason for exclusion

Continued breastfeeding not studied. The breastfeeding duration was categorized as follows:
never breastfed (only formula fed), breastfed for less than 6 months, and breastfed for 6 months or more.

Li 2014**Reason for exclusion**

Continued breastfeeding not studied. Breastfeeding durations studied were 0 to <3, 3 to <6, 6 to <9, and ≥ 9 months.

Li 2019**Reason for exclusion**

No comparison group. Data given on infections at different age groups in children being breastfed and not breastfed. No comparison available for children breastfed for different durations.

Linne 2003**Reason for exclusion**

Continued breastfeeding not studied. Uses lactation score which depends on duration and intensity of breastfeeding

Liu 2005**Reason for exclusion**

Continued BF not studied. Does not study the duration of breastfeeding as a variable.

Liu 2011**Reason for exclusion**

Case control study

Liu 2018**Reason for exclusion**

Continued breastfeeding not studied. Studies the effect of maternal gestational weight gain on infants anthropometry with breastfeeding duration as a covariate.

Lopes 2014**Reason for exclusion**

Outcome not of interest. Studies breathing pattern (oral versus nasal)

Lowe 2006**Reason for exclusion**

Continued breastfeeding not studied. Duration of breastfeeding used as a continuous variable to calculate the HRs for atopy

Lumachi 2002

Reason for exclusion	Case control study, hospital based

Ma 2006

Reason for exclusion	Case control study

Macaluso 1982

Reason for exclusion	Continued breastfeeding not studied. Durations of lactation used for analyses were 0, <3 and ≥3 months.

Malcova 2006

Reason for exclusion	Case control study

Marild 1990

Reason for exclusion	Continued breastfeeding not studied. Studies duration of complete breastfeeding whose median duration was 9 and 16 weeks in cases and controls of UTI

Marild 2004

Reason for exclusion	Case control study, hospital based

Marquis 1997

Reason for exclusion	Continued breastfeeding not studied. Growth of children studied at 15 mo i relation to breastfeeding

Martin 2004

Reason for exclusion	Continued breastfeeding not studied. The duration of any breast-feeding, coded as "never," "3 months," "3 to 6 months," and ">6 months."

Martin 2005

Reason for exclusion	Cotniued breastfeeding not studied. Duration of BF used for analyses were never, <3 months and >3 months

Martin 2017

Reason for exclusion	Continued BF not studied. Studies the effect of a breastfeeding promotion strategy in a randomized controlled trial.

Mastroeni 2017**Reason for exclusion**

Continued BF not studied. BF durations studied were more than 6 months and lesser

Mathur 1993**Reason for exclusion**

Case control study, with both cases and controls identified in two hospitals

Mattison 2015**Reason for exclusion**

Continued breastfeeding not studied. Studies the effect of breastfeeding >24 months as a dichotomous variable on various outcomes

Mayer 1988**Reason for exclusion**

Case control study. IDDM cases identified from identified from two sources: the Colorado IDDM Registry and the Barbara Davis Center for Childhood Diabetes (Denver, CO), a referral treatment center at the University of Colorado Health Sciences Center; not representative of population.

Mayer-Davis 2008**Reason for exclusion**

Continued breastfeeding not studied. Duration of breastfeeding categorized as less than and greater than 6 months

McCredie 1998**Reason for exclusion**

Case control study with cases picked from cancer registry.

McCrory 2011**Reason for exclusion**

Continued BF not studied. BF durations studied were more than 6 months and lesser

Meeske 2004**Reason for exclusion**

Control group breastfed for 10-14 months

Meinzen-Darr 2004**Reason for exclusion**

Continued breastfeeding not studied. For analyses, exclusive breastfeeding was categorized as <4 months, 4 to 6 months and >6 months (179-218 days).

Meylan 2018

Reason for exclusion	Detailed data not available. Conference abstract which just mentions no correlation between duration of breastfeeding and development of atopic dermatitis

Mezzacappa 2002

Reason for exclusion	Continued breastfeeding not studied. Cumulative duration of BF used as a continuous variable .

Miao 2006

Reason for exclusion	Case control study. Hospital based case control study where all subjects were picked from 19 hospitals where they were being treated.

Michaelsson 2001

Reason for exclusion	Case control study

Michels 2007

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were 0-1 week, 1week-3months, 3-6 months, 6-9 months and > 9 months.

Mihrshahi 2007

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding used for analyses was more than and less than 6 months.

Modrek 2017

Reason for exclusion	Continued breastfeeding not studied; regression analysis done to analyse the relation between obesity and lactation period without categorizing into specific durations

Modugno 2019

Reason for exclusion	Case control study with cases picked from physician practise records and hospital cancer registries; not population representative

Mohammadi 2019

Reason for exclusion	Continued breastfeeding not studied; regression analysis done to analyse the relation between bone density and lactation period without categorizing into specific durations

Mohebbi 2008

Reason for exclusion	Data not presented for breastfeeding beyond 12 months. Presented as a binary variable of breastfeeding less and more than 6 months

Molbak 1994

Reason for exclusion	No control group. No data on shorter duration feeding for mortality and malnutrition. Compares 2-15 month feeding with longer duration feeding for diarrhea.

Molbak 1997

Reason for exclusion	No comparison group. This letter to the editor gives limited data on three cohorts which were weaned after one year of age. The authors compare the breastfed versus weaned children but no information is available on the duration of breastfeeding (if any) in the comparison group.

Moradi 2016

Reason for exclusion	Continued breastfeeding not studied. Logistic regression done to study the relation between lactation duration and metabolic syndrome.

Morales 2013

Reason for exclusion	Case control study in clinic setting, not representative of entire population

Morales-Romero 2015

Reason for exclusion	Continued breastfeeding not studied. Prolonged breastfeeding defined as breastfeeding duration more than 6 months, regardless of whether it was exclusive or not.

Moreira 2012

Reason for exclusion	Continued breastfeeding not studied. Duration of BF studied were less than and more than 6 months

Moreno 2006

Reason for exclusion	Continued breastfeeding not studied. The study population was divided into two groups: 1.- breastfeeding as a source of food in exclusive less than three months, and 2.- breastfeeding exclusively for three or more months.

Morgen 2018

Reason for exclusion	Continued breastfeeding not studied. Provides data on breastfeeding duration of 40-95 weeks with lower durations and its impact on BMI and obesity

Morovic 2019

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of breastfeeding less than and greater than 6 months on obesity and lifestyle habits in children

Mortenson 2002

Reason for exclusion	Continued breastfeeding not studied. the subjects in both samples were classified into 5 categories according to duration of breastfeed-ing: (1) 1 month or less (in the 2 samples, 67% and 72% of this category were originally coded 1-2 weeks); (2) 2 to 3 months; (3) 4 to 6 months; (4) 7 to 9 months; and (5) more than 9 months.

Muino 2008

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding status assessed at 12 months and categorized as > 9 mo, 4-8.9, 1-3.9 and < 1 month

Naz 2016

Reason for exclusion	Continued breastfeeding not Studied. Duration of lactation studied as a continuous variable and its effect on osteoporosis

Negri 1996

Reason for exclusion	Case control study, hospital based

Newcomb 1994

Reason for exclusion	Case control study with cases picked from state wide tumor registries

Newcomb 1999

Reason for exclusion	Case control study

Nianogo 2017

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of exclusive breastfeeding more and less than 6 months on adiposity in children.

Niegel 2008

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding observed upto a period of 12-14 months

Nikpour 2012

Reason for exclusion	Case Control study in hospital setting

Nurmukhamedova 2015

Reason for exclusion	Continued breastfeeding (12-24 months) not studied. Subjects were subdivided according to the total duration of breast-feeding (0, 1-48, 49-96, and 97 months or more).

Nzefa 2019

Reason for exclusion	Continued breastfeeding not studied. Studies ongoing breastfeeding in older children as a causative factor for undernutrition

Oddy 2002

Reason for exclusion	Continued breastfeeding not studied. Early infant feeding was measured as the duration of exclusive breastfeeding in the first year and was recorded as an eight-level categorical variable (table 1), but for consistency was included as a dichotomous variable (exclusively breastfed v4 months, exclusively breastfed o4 months) in most of the analyses.

Oddy 2002a

Reason for exclusion	Continued breastfeeding not studied, Infant feeding was measured as the duration of exclusive breastfeeding defined by the age in months that other milk was introduced in the first year of life (exclusively breast-fed <4 months, exclusively breast-fed ≥4 months).

Oddy 2004

Reason for exclusion	Continued breastfeeding not studied. Durations of BF used for analyses were never breastfed, < 4 mo, 4-6mo and >6 mo

Oddy 2004a

Reason for exclusion	Continued breastfeeding not studied. Used as a continuous variable in regression analyses and upto 2, 4 and 6 months duration

Oddy 2006

Reason for exclusion	Continued breastfeeding not studied. Duration of any breastfeeding was defined as the age at which breastfeeding stopped and was expressed as a continuous variable (in months) and as binary variables (having breastfed for less than 2 months compared to having breastfed for 2 or more months, less than 4 months compared to breastfed for 4 months or more, less than 6 months compared to breastfed for 6 months or more).

Oddy 2011

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding categorized as less than 6 versus 6 months or longer.

Oddy 2011a

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding categorized as less than 4 versus 4 months or longer.

Oh 2017

Reason for exclusion	Case only analysis, continued breastfeeding not studied

Ohlendorf 2019

Reason for exclusion	Continued breastfeeding not studied. Mean duration of breastfeeding was 5 weeks with range of 0-40 weeks

Oken 2008

Reason for exclusion	Cotnined breastfeeding not studied. Analyzed breastfeeding duration as the duration of any breastfeeding, not distinguishing between exclusive and supplemented breastfeeding, in categories of ≤ 1 , 2-3, 4-6, 7-9, or ≥ 10 mo.

Oken 2013

Reason for exclusion	Continued breastfeeding not studied. Cluster randomized controlled trial to study the efficacy of a breastfeeding promotion initiative

Onyango 1999

Reason for exclusion	Continued breastfeeding not studied. Exact duration of breastfeeding in different groups not mentioned. Children who were breastfed for 0–49% of the study period were classified as having short-duration breastfeeding, those breastfed for 50–99% as having medium-duration breastfeeding, and those breastfed throughout the study as having long-duration breastfeeding.

Onyango 2000

Reason for exclusion	Continued breastfeeding not studied. No data on continued versus short feeding duration presented.

Oran 2004

Reason for exclusion	Case control study, hospital based

Ortega-Garcia 2018

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of duration of breastfeeding on obesity as a continuous variable with multiple log linear and ordinal regressions done to analyze its effect.

Owen 1993

Reason for exclusion	Continued breastfeeding not studied. Data presented pertained to only feeding in the first six months

Pajuelo-Ramirez 2011

Reason for exclusion	Continued breastfeeding not studied. Studied the effect of breastfeeding (y/n) on obesity

Panpanich 2003

Reason for exclusion	Continued breastfeeding not studied. Compares exclusively breastfed children with partial and no breastfed children as a group

Park 2018

Reason for exclusion	Continued BF across 12–24 months not studied. BF durations studied are 0–17 months, 18–35, 36–52, 54–92 and 96–324 months.

Pasricha 2011

Reason for exclusion	No control group. Compares children being breastfed and not being fed between the ages of 12 to 23 months

Paton 2003

Reason for exclusion	Continued breastfeeding not studied. Compares women who breastfed >1 mo with those who never breastfed

Pattison 2019

Reason for exclusion	Continued breastfeeding not studied. Analyses the effect of never breastfed, breastfed for 0-6 months and <6 months on illnesses and obesity

Perera 2014

Reason for exclusion	Continued breastfeeding not studied. Reports the effect of breastfeeding more than 2 years versus less than 2 years

Perez 2013

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding studied were no breastfeeding, <1 month, 1-3 mo, 3-6 and 6-12 months

Peters 2013

Reason for exclusion	Continued breastfeeding not studied. Children's duration of breastfeeding was divided into six categories: no breastfeeding, less than or equal to 1 month, 2-3 months, 4-6 months, 7-9 months, and more than 9 months.

Pirila 2014

Reason for exclusion	Continued breastfeeding not studied. Studies the duration of breastfeeding as a continuous variable using logistic regression

Portela 2015

Reason for exclusion	Continued breastfeeding versus shorter duration feeding not studied. The sample was stratified by breastfeeding duration, and a descriptive analysis was performed using a hierarchical logistic regression.

Purvis 2005

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were never breastfed, <6 months, >6 months.

Quigley 2018

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of breastfeeding upto 9 months

Ram 2008

Reason for exclusion	Continued breastfeeding not studied. Has performed logistic regression to study the effect of each year of lactation on metabolic syndrome.

Ramon 1996

Reason for exclusion	Case control study, hospital based

Rapp 2005

Reason for exclusion	Continued breastfeeding not studied. Uses duration of exclusive breastfeeding for <2 months, 2-4, 4-6 and >6 months in analyses

Rathnayake 2013

Reason for exclusion	Case control study in school setting, not representative

Richards 2002

Reason for exclusion	Continued breastfeeding not studied. Duration of breast-feeding was classified as never; up to 2 months; 2-7 months or >7 months.

Ridd 2013

Reason for exclusion	Continued breastfeeding not studied. Conference abstract in which no data was provided regarding various durations of lactation

Riman 2001

Reason for exclusion	Case control study, institution based

Riman 2002

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding used as a continuous variable in analyses

Rojano-Mejia 2011

Reason for exclusion	Continued breastfeeding not studied. Durations studied were 24 months, 36 months and more

Romieu 1996

Reason for exclusion	Case control study. Cases, women aged 20-75 years, were identified through six hospitals in Mexico City, not population representative

Romieu 2000

Reason for exclusion	Case control study with cases picked from general or cancer specific hospitals; not population representative

Romieu 2018

Reason for exclusion	Case control study with cases picked from general or cancer specific hospitals; not population representative

Rosenbauer 2007

Reason for exclusion	Case Control Study

Rosenbauer 2008

Reason for exclusion	Continued breastfeeding not studied. History of diet was taken through questions on the duration of overall breastfeeding and age at first introduction of breast milk substitutes (predefined categories: <2 weeks, 2-6 weeks, 7 weeks-4 months, 5-6 months, ≥ 7 month)

Rosenblatt 1995

Reason for exclusion	Case control study. A multinational hospital-based case-control study conducted between 1979 and 1988.

Rosenblatt 2004

Reason for exclusion	Continued breastfeeding not studied. Compares the effect of different kinds of feeding on dental caries

Rothenbacher 2002

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding used for analyses were never, 0-3 months, 3-6 and ≥ 6 months

Rothenbacher 2005

Reason for exclusion	Continued breastfeeding not studied. Uses duration of breastfeeding for <3 months, 3-<6, 6-<9 and >9 months in analyses

Rust 2001

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used as a continuous variable in regression analyses

Ruuska 1992

Reason for exclusion	Continued breastfeeding not studied. Duration of lactation studied were <6 months and ≥6 months

Saarinen 1982

Reason for exclusion	Continued breastfeeding not studied. The subjects were divided into three feeding groups: B1: Long breast-feeding. Babies for whom breast milk was the only source of milk until 6 months of age or longer; B 11: Intermediate breast-feeding. Babies for whom breast milk was the only source of milk up to the age of 2-6 months; C: Cow's milk group; short or no breast-feeding. Babies who were weaned before 2 months of age to the cow's milk-based formulas

Sadauskaite-Kuehne 2004

Reason for exclusion	Case control study, hospital based

Saddlemire 2006

Reason for exclusion	Case control study, hospital based

Sajjad 2015

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration studied upto 10 months and beyond

Sangaramoorthy 2019

Reason for exclusion	Case control study, pooled analyses

Sayegh 2005

Reason for exclusion	Continued breastfeeding not studied. BF durations studied were 0, 0-18 months and > 18 months

Schack-Nielsen 2004

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding was classified as ≤1 month (n=857), 2-3 months (n=833), 4-7 months (n=602), and >7 months (n=309).

Schack-Nielsen 2004a

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding was studied till 9 months and was used as a continuous variable.

Schack-Nielsen 2006

Reason for exclusion	Continued breastfeeding not studied. Duration of BF analyzed as a continuous variable in regression analyses

Scholtens 2008

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration was categorized as "no breastfeeding," "1-16 breastfeeding," and ">16 weeks breastfeeding."

Schuz 2001

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding used for analyses were <1, 1-6 and >6 months.

Sears 2002

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding studied up to 26 weeks

Shahidullah 1994

Reason for exclusion	Continued breastfeeding not studied. No assessment of effect of continued feeding versus shorter duration feeding done.

Sharma 2017

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of duration of exclusive breastfeeding as a continuous variable on asthma

Shehadeh 2006

Reason for exclusion	Outcome not of interest. Studies breastmilk composition

Shema 2007

Reason for exclusion	Case control study, hospital based

Sherwood 2019

Reason for exclusion	Continued breastfeeding not studied. Weeks of breastfeeding recorded as a continuous variable and its association with BMI analysed using regression.

Shields 2006

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding categorized as still breastfeeding, 4–6 months, 7 weeks to 3 months, 3–6 weeks, 2 weeks or less, or not at all.

Shilbayeh 2003

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were 0–<1 mo, 1–6 and >6 mo

Shu 1995

Reason for exclusion	Continued breastfeeding not studied. Duration of lactation used were 0, 1–6, >6 mo

Shu 1995a

Reason for exclusion	Case control study with cases identified from 25 institutions in US and Canada

Shu 1999

Reason for exclusion	Case control study, hospital based

Siltanen 2003

Reason for exclusion	Continued breastfeeding not studied. Reports on exclusive BF more than 3 months duration

Silva 2006

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding used for analyses were Never breastfed, <1 month, >1 and <3 months, ≥3 months

Silvers 2012

Reason for exclusion	Continued breastfeeding not studied. Duration of BF analysed as a continuous variable

Simondon 2001

Reason for exclusion	Continued breastfeeding not studied. Uses duration of breastfeeding as a continuous variable for regression analyses, and by comparing children totally breastfed, partially fed and had stopped feeding at different intervals

Sipila 1988

Reason for exclusion	Continued breastfeeding not studied. Durations of lactation used in analyses are 1-6, 7-9, and ≥ 10 months.

Siskind 1989

Reason for exclusion	Case control study; cases identified from public and private hospitals in Brisbane

Siti-Noor 2006

Reason for exclusion	Continued breastfeeding not studied. Prolonged breastfeeding defined as >6 months

Skau 2019

Reason for exclusion	No control group. Same set of children assessed at 6 months and 15 months

Smulevich 1999

Reason for exclusion	Case control study, hospital based

Snijders 2007

Reason for exclusion	Continued breastfeeding not studied. Breast-feeding was categorized as follows, according to the age at which breast-feeding was stopped: never breast-fed (reference category), 0 to 3 months, 4 to 6 months, 7 to 9 months, and > 9 months.

Soke 2019

Reason for exclusion	Case control study with cases of autism picked from special clinics, special education programs and disability services; not representative of population

Sonnenschein-van der Voort 2012

Reason for exclusion	Continued breastfeeding not studied. "Subsequently, breastfeeding duration was categorised into four groups: never; ≥ 3 months; 3–6 months and ≥ 6 months".

Soto-Ramirez 2012

Reason for exclusion	Continued breastfeeding not studied. Duration of BF studied were <2 mo, 2-3 mo, >4 mo.

Starodubova 2011

Reason for exclusion	Continued breastfeeding not studied. Duration of BF studied were less and more than 6 months

Strom 2018

Reason for exclusion	Continued breastfeeding not studied. BF durations studied are ≥ 10 months and lesser.

Stuebe 2011

Reason for exclusion	Outcome not of interest. Outcomes studied are maternal adipokines

Stuver 1997

Reason for exclusion	Case control study, hospital based

Su 2013

Reason for exclusion	Case control study in hospital inpatient setting; not population representative

Taylor 1984

Reason for exclusion	Continued breastfeeding not studied. Duration of breast feeding was recorded as not breast-fed at all, breast-fed for less than one month, one to three months, or three months or longer.

Taylor 2011

Reason for exclusion	Protocol of a RCT where one arm involves breastfeeding promotion

Tehrani 2010

Reason for exclusion	Case Control Study

Terati 2018

Reason for exclusion	Continued BF not studied. Compares BF duration 0-24 months with less than 24 months

Tessaro 2003

Reason for exclusion	Case control study, hospital based

Thomas 1993

Reason for exclusion	Case control study; both cases and controls picked from hospitals admissions of the participating hospitals; not representative of population

Thomsen 2006

Reason for exclusion	Continued breastfeeding not studied. Duration of exclusive breastfeeding used as a continuous variable in regression analyses

Thorsdottir 2003

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used in analyses were <7 mo, 7-8, 8-9, ≥10 mo

Thwin 2016

Reason for exclusion	Analyses effect of both prolonged bottle and breastfeeding, not breastfeeding alone on dental caries

Titus-Ernstoff 2001

Reason for exclusion	Continued breastfeeding not studied. Durations used for analyses were <3, 3-6 and >6 months

Torris 2013

Reason for exclusion	Continued breastfeeding not studied. Duration reported are less and more than 10 months

Toschke 2007

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding was coded as never, 3, 3-5, and ≥6 mo

Tozzi 2012

Reason for exclusion	Continued breastfeeding not studied. The duration of BF used for analysis were less and more than 6 months of exclusive BF.

Troisi 1995

Reason for exclusion	Continued breastfeeding not studied. Durations of BF used were 0, 1-6 and >6 mo

Tsvetov 2014

Reason for exclusion	Continued breastfeeding not studied. Studies the duration of breastfeeding as a continuous variable using logistic regression

Tung 2003

Reason for exclusion	Case control study

Turton 2016

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of breastfeeding duration more than 2 years on caries.

Tyagi 2008

Reason for exclusion	Data on dental caries not given with reference to varying durations of breastfeeding. Data given pertained to DFS index in caries cases.

Tympan-Psirropoulou 2005

Reason for exclusion	Continued breastfeeding not studied. BF duration studied were Not at all, 3 months, 6 months, 6+ months

Tympan-Psirropoulou 2008

Reason for exclusion	Continued breastfeeding not studied. BF duration studied were Not at all, 3 months, 6 months, 6+ months

United Kingdom National Case Control Study Group

Reason for exclusion	Case control study not nested in a population cohort. Cases identified from 11 health regions of United Kingdom.

Ursin 2004

Reason for exclusion	Case control study, hospital based

Ursin 2005

Reason for exclusion	Case control study, hospital based

Vasquez 2019

Reason for exclusion	Continued breastfeeding not studied. Studies the impact of breastfeeding duration < 7 months and >= 7 months.

Vella 1995

Reason for exclusion	Continued breastfeeding not studied. Not being breastfed studied as a variable in regression analysis for stunting.

Velle-Forbord 2019

Reason for exclusion	Continued breastfeeding not studied. Estimates effects of BF duration (<3, 3–6, >6 months) on mean values of metabolic health parameters from baseline to follow-up.

Victora 1991

Reason for exclusion	No control group. Cohort followed up at three time points and nutritional status compared between breastfed and nonbreastfed children. No comparison available for children with prolonged and shorter duration breastfeeding.

Virtanen 1991

Reason for exclusion	Continued breastfeeding not studied. Lactation duration data presented upto 9 months.

Vogazonos 2007

Reason for exclusion	Subjects not healthy. All included subjects had adenoid hypertrophy.

Vogelezang 2018

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration was categorized into 4 groups: 0–1.9 mo, 2–3.9 mo, 4–5.9 mo, and ≥6 mo.

Waidyatillake 2016

Reason for exclusion	Continued breastfeeding not studied. Logistic regression done for each additional week of breastfeeding's impact on lung function, height and other outcomes

Waka 1995

Reason for exclusion	Case control study, hospital based

Wang 1992

Reason for exclusion	Continued breastfeeding not studied. Duration of cumulative lactation used in analyses were Never, 1–36, 37–72, 73–108, >108 months

Wang 2006

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were <4 months, 4-6 months and > 6 months

Wang 2016

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding categorized in <3 months, 3-5 months or ≥6 months

Wang 2017

Reason for exclusion	Continued breastfeeding not studied. Durations of breastfeeding analyzed were 1 and 6 months.

Wang 2017a

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding categorized in 0-3 months, 4-6 months or >6 months.

Wegienka 2006

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were never, 0-1, 2-3, 4-5, 6-9, >10mo

Wen 2014

Reason for exclusion	Continued breastfeeding not studied. Duration reported are less and more than 6 months

Wetzig 2000

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were 0-5 mo and ≥5 mo.

Weyermann 2006

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used for analyses were <3 months, 3-<6 months, 6-<9 months, and ≥9 months

Whaley 2017

Reason for exclusion	Continued breastfeeding not studied. Logistic regression done for each month of breastfeeding's impact on obesity.

Whitemore 1993

Reason for exclusion	Continued breastfeeding not studied. Compares breastfed with never breastfed and uses duration of lactation as a continuous variable.

Wienfield 2020

Reason for exclusion	Outcome not of interest Studies diet quality as outcome

Wiklund 2012

Reason for exclusion	Continued breastfeeding not studied. Defines prolonged breastfeeding as more than 10 months duration

Woo 2008

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding duration was initially analyzed as an ordinal variable (never breastfed, breastfed 0.5–4 months, or breastfed >4 months)

Wright 2000

Reason for exclusion	Continued breastfeeding not studied. Duration of exclusive breastfeeding, categorized as never, <4 months, or >_ 4 months

Wright 2001

Reason for exclusion	Continued breastfeeding not studied. Studies exclusive breastfeeding duration less and greater than 4 months

Wu 1996

Reason for exclusion	Case control study, with cases picked from various institutions

Yang 2018

Reason for exclusion	Continued breastfeeding not studied. Breastfeeding durations studied were less than and greater than 3 months

Yavari 2005

Reason for exclusion	Case control study, hospital based

Yazdani 2011

Reason for exclusion	Continued BF not studied. Analyses the duration of BF as a continuous variable on maternal osteoporosis

Yazici 2011

Reason for exclusion	Continued BF not studied. Participants were divided into four groups with respect to the duration of their breast-feeding as never (group 1), 1-24 months (group 2), 25-60 months (group 3), or > 60 months (group 4).

Yelverton 2020

Reason for exclusion	Outcome not of interest. Studies child eating behaviour

Yokoi 2020

Reason for exclusion	Prolonged breastfeeding defined as BF > 18 months and compared with no prolonged BF

Yonezu 2006

Reason for exclusion	No comparison group, studies children with continued breastfeeding only

Yuan 1988

Reason for exclusion	Continued breastfeeding not studied. Durations of cumulative lactation used for analyses were 1-36, 37-72, 73-108 and 108+ months

Yun 2016

Reason for exclusion	Continued breastfeeding not studied. Studies duration of breastfeeding < and > 24 months

Zhang 2003

Reason for exclusion	Continued breastfeeding not studied. Duration of BF used as a continuous variable in regression analyses

Zhang 2004

Reason for exclusion	Case control study, hospital based

Zhang 2004a

Reason for exclusion	Case control study, hospital based

Zhang 2017

Reason for exclusion	Continued breastfeeding not studied. Studies duration of exclusive breastfeeding < and > 6 months

Zhao 2020

Reason for exclusion	Data not presented for breastfeeding beyond 12 months. Duration was categorized into ,3, 3 to 5, and <6 months for analyses.

Zheng 2000

Reason for exclusion	Case control study, hospital based

Zheng 2001

Reason for exclusion	Case control study, hospital based

Zheng 2020

Reason for exclusion	Data not presented for breastfeeding beyond 12 months. Presented as a binary variable of breastfeeding less and more than 6 months

Zhong 2019

Reason for exclusion	Continued breastfeeding not studied. Studies the effect of breastfeeding duration on gut microbiome by regression, mean duration of breastfeeding 5.99 $\pm$ 4.31 months, no data on breastfeeding beyond 12 months

Zhou 2007

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding used for analyses was less than and greater than 6 months

Zhou 2012

Reason for exclusion	Continued breastfeeding not studied. Duration defined as 12-15 months which does not meet our inclusion criteria

Ziegler 2003

Reason for exclusion	Continued breastfeeding not studied. Duration of BF studied were None, 0.1-3, 3.1-6 and >6 months

Zielhuis 1989

Reason for exclusion	Continued breastfeeding not studied. Durations of breastfeeding used in analyses were 0-4 weeks, 2-3 mo, 4-7 mo, >=7 mo.

Zive 1992

Reason for exclusion	Continued breastfeeding not studied. Duration of breastfeeding used as a continuous variable in regression analyses

*Footnotes***Characteristics of studies awaiting classification***Footnotes***Characteristics of ongoing studies***Footnotes***Summary of findings tables****1 Summary of Findings Table: Outcomes in Children: Child Development, Intelligence, Cognition and Behaviour**

Outcomes in Children: Child Development, Intelligence, Cognition and Behaviour						
Patient or population: Breastfed children						
Settings: Any						
Exposure: Continued breastfeeding into second year						
Reference: Breastfeeding discontinued before one year						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
		Outcomes in Children 2				
Delayed Development - Cohort Studies	Study population		OR 1.15 (0.54 to 2.43)	1872 (2 studies)	⊕⊕⊕⊕ very low ^{2,3}	
	See comment	See comment				
	Moderate					

	0 per 1000	0 per 1000 (0 to 0)				
IQ - Cohort		The mean IQ - cohort in the intervention groups was 0.01 standard deviations higher (0.06 lower to 0.08 higher)		5416 (6 studies)	⊕⊕⊕⊕ very low ¹	SMD 0.01 (-0.06 to 0.08)
Learning Ability		The mean learning ability in the intervention groups was 0.02 standard deviations lower (0.27 lower to 0.23 higher)		413 (1 study)	⊕⊕⊕⊕ very low ^{2,3}	SMD -0.02 (-0.27 to 0.23)
Coding Wisc III		The mean coding wisc iii in the intervention groups was 0.14 standard deviations higher (0.11 lower to 0.39 higher)		413 (1 study)	⊕⊕⊕⊕ very low ^{2,3}	SMD 0.14 (-0.11 to 0.39)
Visuospatial Problem Solving		The mean visuospatial problem solving in the intervention groups was 0.17 standard deviations lower (0.33 to 0.01 lower)		1403 (2 studies)	⊕⊕⊕⊕ very low ^{2,4}	SMD -0.17 (-0.33 to -0.01)
Verbal Intelligence - Cohort Studies		The mean verbal intelligence - cohort studies in the intervention groups was 0.08 standard deviations lower (0.18 lower to 0.01 higher)		1936 (3 studies)	⊕⊕⊕⊕ very low ^{2,4,5}	SMD -0.08 (-0.18 to 0.01)
Working Memory - Cohort Studies		The mean working memory - cohort studies in the intervention groups was 0.05 standard deviations lower (0.19 lower to 0.1 higher)		946 (2 studies)	⊕⊕⊕⊕ very low ^{2,5}	SMD -0.05 (-0.19 to 0.1)
Reasoning - Cohort Studies		The mean reasoning - cohort studies in the intervention groups was 0.13 standard deviations lower (0.22 to 0.03 lower)		1936 (3 studies)	⊕⊕⊕⊕ very low ^{2,4,5}	SMD -0.13 (-0.22 to -0.03)
Processing Speed - Cohort Studies		The mean processing speed - cohort studies in the intervention groups was 0.07 standard deviations lower (0.24 lower to 0.11 higher)		533 (1 study)	⊕⊕⊕⊕ very low ^{3,5}	SMD -0.07 (-0.24 to 0.11)

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **OR:** Odds ratio;

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

Very low quality: We are very uncertain about the estimate.

¹ Downgraded by 2 for very serious risk of bias. Of the 6 included studies 5 had moderate and 1 serious risk of bias due to confounding and due to departure from intended exposure, 2 had moderate risk of bias in selection of participants, 3 had moderate risk of bias in classification of exposure, and 4 had moderate risk of bias due to missing data

² Downgraded by 1 for serious risk of bias. One included study (Veena 2010) had serious risk of bias due to confounding, classification of exposure, departure from intended exposure and missing data.

³ Downgraded by 2 for very serious risk of indirectness. Evidence from only one study with a small dataset; uncertain about the applicability of the evidence

⁴ One Study (Kim 2020a) had moderate risk of bias due to confounding, missing data and selection of reported results

⁵ One study (Zhu 2020) had moderate risk of bias due to confounding and departure from intended exposure

Footnotes

2 Summary of Findings Table: Outcomes in Children: Growth and Anthropometry

Outcomes in Children: Growth and Anthropometry in Relation to Duration of Breastfeeding						
Patient or population: Breastfed children						
Settings: Any						
Exposure: Continued breastfeeding into second year						
Reference: Breastfeeding discontinued before one year						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Control	Outcomes in Children: Growth and Anthropometry				
Underweight -	Study population		OR	3715	⊕⊕⊕⊕	

Cross Sectional	86 per 1000	100 per 1000 (81 to 125)	1.18 (0.93 to 1.51)	(5 studies)	very low ^{1, 2,3,4,5}	
	Moderate					
	90 per 1000	105 per 1000 (84 to 130)				
Underweight - Cohort Studies Unadjusted	Study population		OR 1.3 (1.07 to 1.57)	11726 (2 studies)	⊕⊕⊕⊕ very low ^{6, 7}	
	35 per 1000	45 per 1000 (37 to 54)				
	Moderate					
	33 per 1000	42 per 1000 (35 to 51)				
Stunting - Cross Sectional Studies	Study population		OR 2.77 (1.91 to 4.02)	990 (1 study)	⊕⊕⊕⊕ very low ^{8, 9}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Stunting - Cross Sectional Studies (Unadjusted)	Study population		OR 1.18 (0.58 to 2.4)	309 (2 studies)	⊕⊕⊕⊕ very low ^{2, 5,10}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Wasting	Study population		OR 2.16 (1.18 to 3.98)	342 (2 studies)	⊕⊕⊕⊕ very low ^{5, 11}	
	167 per 1000	302 per 1000 (191 to 443)				
	Moderate					
	275 per 1000	450 per 1000 (309 to 602)				

Weight		The mean weight in the intervention groups was 3.3 lower (7.39 lower to 0.79 higher)		191 (1 study)	⊕⊕⊕⊕ very low ^{9,10,12}	
WAZ		The mean waz in the intervention groups was 0.25 higher (0.1 to 0.4 higher)		1799 (1 study)	⊕⊕⊕⊕ very low ^{9,13}	
Height		The mean height in the intervention groups was 0.68 lower (2.46 lower to 1.11 higher)		600 (2 studies)	⊕⊕⊕⊕ very low ^{12,14}	
HAZ - Cross Sectional Studies		The mean haz - cross sectional studies in the intervention groups was 0.14 higher (0.07 lower to 0.36 higher)		3050 (2 studies)	⊕⊕⊕⊕ very low ^{13,15}	
WHZ - Cross Sectional Studies		The mean whz - cross sectional studies in the intervention groups was 0.13 higher (0.02 lower to 0.28 higher)		1799 (1 study)	⊕⊕⊕⊕ very low ^{9,13}	
WHZ - cohort studies		The mean whz - cohort studies in the intervention groups was 0.2 lower (0.5 lower to 0.1 higher)		349 (1 study)	⊕⊕⊕⊕ very low ^{9,16}	
BMI		The mean bmi in the intervention groups was 0.1 lower (0.17 to 0.03 lower)		12356 (5 studies)	⊕⊕⊕⊕ very low ^{6,7,14,17,18}	
BMI z score - Cross Sectional Studies		The mean bmi z score - cross sectional studies in the intervention groups was 0.07 higher (0.13 lower to 0.27 higher)		1251 (1 study)	⊕⊕⊕⊕ very low ^{9,15}	
BMI z score - Cohort Studies Unadjusted		The mean bmi z score - cohort studies unadjusted in the intervention groups was 0.02 lower (0.28 lower to 0.24 higher)		356 (1 study)	⊕⊕⊕⊕ very low ^{9,19}	
BMI z score - Cohort studies adjusted		The mean bmi z score - cohort studies adjusted in the intervention groups was 0.26 lower		143 (1 study)	⊕⊕⊕⊕ very low ^{9,10,20}	

		(0.73 lower to 0.21 higher)				
Obesity and Overweight - Cross Sectional Studies OR	Study population		OR 0.85 (0.68 to 1.05)	6408 (7 studies)	⊕⊕⊕⊕ very low ^{21.} 22.23.24.25. 26.27	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Obesity and Overweight - Cohort Studies OR	Study population		OR 0.99 (0.9 to 1.09)	23806 (8 studies)	⊕⊕⊕⊕ very low ^{6.} 14.1.6.20.28. 29.30.31	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Obesity and Overweight - Cohort Studies Unadjusted	Study population		OR 0.81 (0.52 to 1.27)	1654 (3 studies)	⊕⊕⊕⊕ very low ^{7.} 19.32	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Obesity and Overweight - Cross Sectional Unadjusted	Study population		OR 1.01 (0.6 to 1.69)	5847 (7 studies)	⊕⊕⊕⊕ very low ^{1,} 3,4,33,34,35, 36,37	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Waist Circumference (cm) - Cross Sectional Studies		The mean waist circumference (cm) - cross sectional studies in the intervention groups was 0.07 higher (0.47 lower to 0.61 higher)		969 (1 study)	⊕⊕⊕⊕ very low ^{9,} 38	

Skinfold Thickness		The mean skinfold thickness in the intervention groups was 0.1 lower (1.08 lower to 0.88 higher)		356 (1 study)	⊕⊕⊕⊕ very low ^{9, 10,19}	
Fat Mass - Cohort Studies		The mean fat mass - cohort studies in the intervention groups was 0.11 standard deviations lower (0.3 lower to 0.08 higher)		560 (2 studies)	⊕⊕⊕⊕ very low ^{14,18}	SMD -0.11 (-0.3 to 0.08)
Fat Mass/Height2 - Cohort Studies		The mean fat mass/height2 - cohort studies in the intervention groups was 0.05 lower (0.25 lower to 0.15 higher)		560 (2 studies)	⊕⊕⊕⊕ very low ^{14,18}	
Lean Mass/Height2 - Cohort Studies		The mean lean mass/height2 - cohort studies in the intervention groups was 0.02 lower (0.23 lower to 0.19 higher)		560 (2 studies)	⊕⊕⊕⊕ very low ^{14,18}	
Percentage leg/Total Height - Cohort Studies		The mean percentage leg/total height - cohort studies in the intervention groups was 0.1 lower (0.54 lower to 0.34 higher)		409 (1 study)	⊕⊕⊕⊕ very low ^{9, 14}	
Lean Mass - Cohort Studies		The mean lean mass - cohort studies in the intervention groups was 0.1 lower (0.59 lower to 0.39 higher)		151 (1 study)	⊕⊕⊕⊕ very low ^{9, 18}	
Trunk Length z score - Cross Sectional Studies		The mean trunk length z score - cross sectional studies in the intervention groups was 0.07 higher (0.13 lower to 0.27 higher)		1251 (1 study)	⊕⊕⊕⊕ very low ^{9, 15}	
Leg Length z Score - Cross Sectional Studies		The mean leg length z score - cross sectional studies in the intervention groups was 0.05 lower (0.24 lower to 0.14 higher)		1251 (1 study)	⊕⊕⊕⊕ very low ^{9, 15}	
*The basis for the assumed risk (e.g. the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). CI: Confidence interval; OR: Odds ratio;						

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

Very low quality: We are very uncertain about the estimate.

¹ Cheraghi 2013 has serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to selection of participants, and classification of exposure

² Kikafunda 1998 has serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to selection of participants, and classification of exposure

³ Vafa 2012 has serious risk of bias due to confounding and moderate risk of bias due to selection of participants, departure from intended exposure and classification of exposure

⁴ Vehapoglu 2017 has serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to selection of participants

⁵ Victora 1984 has moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data

⁶ Grummer Strawn 2014 has moderate risk of bias due to confounding, selection of participants, classification of exposure, missing data and selection of reported result

⁷ Procter 2008 has serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to classification of exposure

⁸ Nsereko 2018 has moderate risk of bias due to confounding, selection of participants, and departure from intended exposure

⁹ Downgraded by 1 for serious risk of indirectness: The available evidence is from one population set and age group from only one country, the findings of which cannot be extrapolated to other settings, locations or age groups

¹⁰ 19 Downgraded by 1 for imprecision: 95% confidence interval (or alternative estimate of precision) around the pooled or best estimate of effect includes both 1) no effect and 2) appreciable benefit or appreciable harm and/or low cumulative sample

¹¹ Brakohiapa 1988 has serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to selection of participants, and classification of exposure and missing data

¹² Putra 2015 has serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to selection of participants, and classification of exposure and missing data

¹³ Taren 1993 has moderate risk of bias due to confounding, selection of participants, classification of exposure and departure from intended exposure

¹⁴ Victora 2006 has moderate risk of bias due to confounding, departure from intended exposure, selection of participants, missing data and classification of exposure

¹⁵ Martin 2002 has moderate risk of bias due to confounding, departure from intended exposure, selection of participants, missing data and classification of exposure

¹⁶ Araujo 2006 has moderate risk of bias due to confounding and classification of exposure

¹⁷ Camurdan 2011 has serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to classification of exposure and missing data

- ¹⁸ Robinson 2009 has moderate risk of bias due to confounding, classification of exposure, departure from intended exposure and missing data
- ¹⁹ Taveras 2006 has serious risk of bias due to departure from intended exposure and moderate risk of bias due to confounding, classification of exposure and missing data
- ²⁰ Burdette 2006 has moderate risk of bias due to confounding and selection of participants
- ²¹ di Siqueira 2007 has moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data
- ²² Izadi 2013 has moderate risk of bias due to confounding, selection of participants, classification of exposure and departure from intended exposure
- ²³ Liese 2001 has serious risk of bias due to confounding and selection of reported result, moderate risk of bias due to selection of participants and departure from intended exposure and no information on missing data
- ²⁴ Novaes 2012 has moderate risk of bias due to confounding, selection of participants, classification of exposure and departure from intended exposure
- ²⁵ Pudla 2015 has serious risk of bias due to departure from intended exposure and moderate risk of bias due to confounding, selection of participants, missing data and selection of reported result
- ²⁶ Song 2020 has moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data
- ²⁷ von Kries 1999 has moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data
- ²⁸ Burke 2005 has moderate risk of bias due to confounding, and classification of exposure
- ²⁹ Jing 2014 has moderate risk of bias due to confounding, selection of participants, and departure from intended exposure
- ³⁰ Neutzing 2009 has moderate risk of bias due to confounding, classification of exposure, departure from intended exposure and missing data
- ³¹ Walby 2016 has serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to selection of participants, and missing data
- ³² Caleyachetty 2013 has moderate risk of bias due to confounding and no information on missing data
- ³³ Kersey 20015 has serious risk of bias due to confounding, and departure from intended exposure and moderate risk of bias due to selection of participants, classification of exposure and missing data
- ³⁴ Kondolot 2017 has serious risk of bias due to confounding, and departure from intended exposure and moderate risk of bias due to selection of participants, classification of exposure and missing data
- ³⁵ Krenz-Niedbala 2015 has serious risk of bias due to confounding, and departure from intended exposure and moderate risk of bias due to selection of participants, classification of exposure and missing data
- ³⁶ Nambiar 2013 has serious risk of bias due to confounding, and departure from intended exposure and moderate risk of bias due to selection of participants, classification of exposure and missing data
- ³⁷ Downgraded by 1 for serious risk of inconsistency: There were widely differing estimates of the outcome with significant heterogeneity in results across studies
- ³⁸ Wong 2018 has moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure

Footnotes

3 Summary of Findings Table: Outcomes in Children: Infections and Non-infectious Morbidity

Outcomes in Children: Infections and Non-infectious morbidity, including micronutrient deficiency						
Patient or population: Breastfed children						
Settings: Any						
Exposure: Continued breastfeeding into second year						
Reference: Breastfeeding discontinued before one year						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Control	Outcomes in Children: Infections and Non-infectious morbidity, including micronutrient deficiency				
Infections - Cohort Studies	Study population		OR 1.08 (1 to 1.16)	46156 (2 studies)	⊕⊕⊕⊕ very low ^{1,2}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Gastrointestinal Infections - Cohort Studies	Study population		OR 1 (0.96 to 1.04)	43018 (2 studies)	⊕⊕⊕⊕ very low ^{2,3}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Acute Gastroenteritis		The mean acute gastroenteritis in the intervention groups was 2.23 lower (2.55 to 1.91 lower)		270 (1 study)	⊕⊕⊕⊕ very low ^{4,5,6}	

Respiratory Tract Infections		The mean respiratory tract infections in the intervention groups was 2.43 lower (3.99 to 0.87 lower)		270 (1 study)	⊕⊕⊕⊕ very low ^{4,5,6}	
Acute Otitis Media		The mean acute otitis media in the intervention groups was 1.4 lower (1.8 to 1 lower)		270 (1 study)	⊕⊕⊕⊕ very low ^{4,5,6}	
Acute Otitis Media Cohort OR - Adjusted OR	Study population		OR 0.99 (0.95 to 1.03)	47019 (2 studies)	⊕⊕⊕⊕ very low ^{2,7}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Acute Otitis Media Cohort OR - Unadjusted OR	Study population		OR 0.89 (0.35 to 2.29)	70 (1 study)	⊕⊕⊕⊕ very low ^{5,6,8}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Urinary System Infections		The mean urinary system infections in the intervention groups was 0.02 lower (0.25 lower to 0.21 higher)		270 (1 study)	⊕⊕⊕⊕ very low ^{4,5,6}	
Diabetes - Cohort Studies	Study population		OR 0.62 (0.29 to 1.29)	2090 (1 study)	⊕⊕⊕⊕ very low ⁹	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Glucose (mg/dL) - Cross Sectional Studies		The mean glucose (mg/dl) - cross sectional studies in the intervention groups was 0.01 lower (0.1 lower to 0.08 higher)		969 (1 study)	⊕⊕⊕⊕ very low ^{5,10}	
Type 1 Diabetes -	Study population		OR	67803	⊕⊕⊕⊕	

Cohort Study	See comment	See comment	0.98 (0.73 to 1.32)	(1 study)	very low ^{5,11}	
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Systolic BP - Cross Sectional Studies		The mean systolic bp - cross sectional studies in the intervention groups was 1.07 lower (2.04 to 0.1 lower)		969 (1 study)	⊕⊕⊕⊕ very low ^{5,10}	
Systolic BP - Cohort Studies		The mean systolic bp - cohort studies in the intervention groups was 0.16 lower (1.2 lower to 0.87 higher)		3194 (3 studies)	⊕⊕⊕⊕ very low ^{9,12,13}	
Diastolic BP - Cohort Studies		The mean diastolic bp - cohort studies in the intervention groups was 1.6 lower (4.11 lower to 0.92 higher)		704 (2 studies)	⊕⊕⊕⊕ very low ^{12,13}	
Prehypertension - Cohort Studies	Study population		OR 0.86 (0.69 to 1.07)	2490 (1 study)	⊕⊕⊕⊕ very low ⁹	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Carotid Intima Media Thickness - Cohort Studies (Unadjusted)		The mean carotid intima media thickness - cohort studies (unadjusted) in the intervention groups was 18.3 lower (41.89 lower to 5.29 higher)		191 (1 study)	⊕⊕⊕⊕ very low ^{5,6,13}	
Carotid Intima Media Thickness - Cohort Studies (Adjusted)		The mean carotid intima media thickness - cohort studies (adjusted) in the intervention groups was 3.98 lower (8.47 lower to 0.51 higher)		615 (1 study)	⊕⊕⊕⊕ very low ^{5,14}	
Total Cholesterol - Cohort Studies		The mean total cholesterol - cohort studies in the intervention groups was 7.2 higher (0.51 lower to 14.91 higher)		409 (1 study)	⊕⊕⊕⊕ very low ^{5,15}	

Total Cholesterol - Cross Sectional Studies (Adjusted)		The mean total cholesterol - cross sectional studies (adjusted) in the intervention groups was 2.32 lower (8.43 lower to 3.79 higher)		228 (1 study)	⊕⊕⊕⊕ very low ^{5,6,16}	
LDL - Cohort Studies		The mean ldl - cohort studies in the intervention groups was 6 higher (0.83 lower to 12.83 higher)		409 (1 study)	⊕⊕⊕⊕ very low ^{5,15}	
LDL - Cross Sectional Studies (Adjusted)		The mean ldl - cross sectional studies (adjusted) in the intervention groups was 0.39 lower (5.47 lower to 4.7 higher)		228 (1 study)	⊕⊕⊕⊕ very low ^{5,6,16}	
HDL - Cross Sectional Studies		The mean hdl - cross sectional studies in the intervention groups was 0.02 higher (0.03 lower to 0.07 higher)		969 (1 study)	⊕⊕⊕⊕ very low ^{5,10}	
HDL - Cohort Studies		The mean hdl - cohort studies in the intervention groups was 0.7 lower (3.36 lower to 1.96 higher)		409 (1 study)	⊕⊕⊕⊕ very low ^{5,15}	
LDL/HDL Ratio		The mean ldl/hdl ratio in the intervention groups was 0.18 higher (0.04 lower to 0.4 higher)		409 (1 study)	⊕⊕⊕⊕ very low ^{5,15}	
Serum Triglyceride - Cross Sectional Studies		The mean serum triglyceride - cross sectional studies in the intervention groups was 0.01 higher (0.08 lower to 0.1 higher)		969 (1 study)	⊕⊕⊕⊕ very low ^{5,10}	
Serum Triglyceride - Cohort Studies		The mean serum triglyceride - cohort studies in the intervention groups was 8.6 higher (3.86 lower to 21.06 higher)		409 (1 study)	⊕⊕⊕⊕ very low ^{5,15}	
VLDL		The mean vldl in the intervention groups was 1.7 higher (0.83 lower to 4.23 higher)		409 (1 study)	⊕⊕⊕⊕ very low ^{5,15}	
Cardiometabolic Risk z score - Cross Sectional Studies		The mean cardiometabolic risk z score - cross sectional studies in the intervention groups was 0.08 lower (0.22 lower to 0.06 higher)		969 (1 study)	⊕⊕⊕⊕ very low ^{5,10}	
Anemia - Cross	Study population		OR	139	⊕⊕⊕⊕	

Sectional PR	See comment	See comment	0.21 (0.05 to 0.88)	(1 study)	very low ^{5,6,17}	
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Iron Deficiency - Cross Sectional	Study population		OR 1.71 (1.05 to 2.78)	1509 (1 study)	⊕⊕⊕⊕ very low ^{5,18}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **OR:** Odds ratio;

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

Very low quality: We are very uncertain about the estimate.

¹ Christensen 2020 has moderate risk of bias due to confounding, and departure from intended exposure

² Stordal 2017 has moderate risk of bias due to confounding, classification of exposure, departure from intended exposure, and missing data

³ Ferguson 1981 has serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to classification of exposure

⁴ Ardic 2008 has serious risk of bias due to confounding, departure from intended exposure and missing data

⁵ Downgraded by 1 for serious risk of indirectness: The available evidence is from one population set and age group from only one country, the findings of which cannot be extrapolated to other settings, locations or age groups

⁶ 19 Downgraded by 1 for imprecision: 95% confidence interval (or alternative estimate of precision) around the pooled or best estimate of effect includes both 1) no effect and 2) appreciable benefit or appreciable harm and/or low cumulative sample

⁷ Alho 1990 has moderate risk of bias due to confounding and missing data

⁸ Teele 1989 has serious risk of bias due to confounding and departure from intended exposure; moderate risk of bias due to selection of participants and classification of exposure; and no information on missing data

- ⁹ Fall 2011 has moderate risk of bias due to confounding, classification of exposure, departure from intended exposure and missing data
- ¹⁰ Wong 2018 has moderate risk of bias due to confounding, selection of participants, classification of exposure and departure from intended exposure
- ¹¹ Blix 2017 has moderate risk of bias due to confounding, departure from intended exposure and missing data
- ¹² Horta 2006 has moderate risk of bias due to confounding, classification of exposure and departure from intended exposure and missing data
- ¹³ Putra 2015 has serious risk of bias due to confounding and departure from intended exposure; and moderate risk of bias due to selection of participants, departure from intended exposure and missing data
- ¹⁴ Linhares 2015 has moderate risk of bias due to confounding, classification of exposure, departure from intended exposure and missing data
- ¹⁵ Victora 2006 has moderate risk of bias due to confounding, departure from intended exposure, selection of participants, missing data and classification of exposure
- ¹⁶ Owen 2002 has moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data
- ¹⁷ Villamor 2000 has moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data
- ¹⁸ Maguire 2013 has moderate risk of bias due to confounding, selection of participants, and departure from intended exposure

Footnotes

4 Summary of Findings Table: Outcomes in Children: Oral Health, Bone Health and Atopy/Allergies

Outcomes in Children: Bone Health, Oral Health and Allergies						
Patient or population: Breastfed children						
Settings: Any						
Exposure: Continued breastfeeding into second year						
Reference: Breastfeeding discontinued before one year						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Control	Outcomes in Children: Bone Health, Oral Health and Allergies				
Bone Mineral Density (Total) - Cohort Studies		The mean bone mineral density (total) - cohort studies in the intervention groups was 0.01 lower (0.01 lower to 0 higher)		985 (2 studies)	⊕⊕⊕⊕ very low ^{1,2}	

Bone Mineral Content - Cohort Studies		The mean bone mineral content - cohort studies in the intervention groups was 12.27 lower (25.75 lower to 1.2 higher)		985 (2 studies)	⊕⊕⊕⊕ very low ^{1,2}	
Dental Caries - Cohort Studies PR/RR/HR	Study population		OR 1.17 (0.94 to 1.44)	1603 (5 studies)	⊕⊕⊕⊕ very low ^{3,4,5,6,7}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Dental Caries - Cohort Studies OR	Study population		OR 2.37 (1.24 to 4.54)	246 (1 study)	⊕⊕⊕⊕ very low ^{8,9}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Dental Caries - Cross Sectional Studies PR	Study population		OR 1.29 (0.86 to 1.95)	2698 (3 studies)	⊕⊕⊕⊕ very low ^{10,11,12}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Dental Caries - Cross Sectional OR	Study population		OR 2.62 (1.26 to 5.43)	2229 (3 studies)	⊕⊕⊕⊕ very low ^{13,14,15,16}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Dental Caries - Cross Sectional	Study population		OR	4510	⊕⊕⊕⊕	

Cross Sectional Unadjusted	See comm ent	See comment	1.51 (1.09 to 2.09)	(8 studies)	very low ^{16.} 17.18.19.20.21. 22.23.24	
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Asthma - RR Cohort	Study population		OR 1.04 (0.93 to 1.16)	31053 (1 study)	⊕⊕⊕⊕ very low ^{9,25}	
	See comm ent	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Asthma - RR Cross Sectional	Study population		OR 1.36 (0.82 to 2.25)	0 (1 study)	⊕⊕⊕⊕ very low ^{9,26}	
	See comm ent	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Asthma - OR Cross Sectional	Study population		OR 1 (0.84 to 1.17)	9824 (3 studies)	⊕⊕⊕⊕ very low ^{27, 28,29}	
	See comm ent	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Asthma - OR Cohort	Study population		OR 0.93 (0.67 to 1.29)	674 (1 study)	⊕⊕⊕⊕ very low ^{9,30}	
	See comm ent	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Asthma - OR Cross	Study population		OR	970	⊕⊕⊕⊕	

Sectional Unadjusted	See comment	See comment	1.3 (0.66 to 2.57)	(2 studies)	very low ^{31,32}	
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Allergies - Cross Sectional Studies	Study population		OR 0.88 (0.4 to 1.95)	9824 (2 studies)	⊕⊕⊕⊕ very low ^{28,29}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Eczema - Cross Sectional Studies	Study population		OR 1.09 (0.94 to 1.27)	13360 (4 studies)	⊕⊕⊕⊕ very low ^{27, 28,29,33}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Hay Fever - Cross Sectional Studies	Study population		OR 0.3 (0.07 to 1.21)	381 (1 study)	⊕⊕⊕⊕ very low ^{9,29}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **OR:** Odds ratio;

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low quality: Further research is very likely to have an important impact on our confidence in the estimate of

effect and is likely to change the estimate.

Very low quality: We are very uncertain about the estimate.

¹ Harvey 2009 has serious risk of bias due to confounding and departure from intended exposure; and moderate risk of bias due to classification of exposure and missing data

² Muniz 2015 has moderate risk of bias due to confounding, classification of exposure, departure from intended exposure and missing data

³ Chafee 2014 has moderate risk of bias due to confounding and departure from intended exposure

⁴ Devenish 2020 has moderate risk of bias due to confounding, departure from intended exposure and missing data

⁵ Hartwig 2019 has moderate risk of bias due to confounding, selection of participants, departure from intended exposure and selection of reported result; and no information on missing data

⁶ Nirunsittirat 2016 has moderate risk of bias due to confounding, classification of exposure, departure from intended exposure and missing data

⁷ Nunes 2012 has moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data

⁸ Tanaka 2013 has moderate risk of bias due to confounding, departure from intended exposure and missing data

⁹ Downgraded by 1 for serious risk of indirectness: The available evidence is from one population set and age group from only one country, the findings of which cannot be extrapolated to other settings, locations or age groups

¹⁰ Haag 2019 has moderate risk of bias due to confounding, departure from intended exposure and selection of reported result

¹¹ Peres 2017 has moderate risk of bias due to confounding, departure from intended exposure and missing data

¹² Tanaka 2012 has serious risk of bias due to missing data; and moderate risk of bias due to confounding, selection of participants and departure from intended exposure

¹³ Olatosi 2014 has moderate risk of bias due to confounding, selection of participants and departure from intended exposure

¹⁴ Vasquez Nava 2008 has moderate risk of bias due to confounding, selection of participants, classification of exposure and departure from intended exposure; and no information on missing data

¹⁵ Tanaka 2013 has moderate risk of bias due to confounding, selection of participants, classification of exposure and departure from intended exposure

¹⁶ Downgraded by 1 for serious risk of inconsistency: There were widely differing estimates of the outcome with significant heterogeneity in results across studies

¹⁷ Azevedo 2005 has serious risk of bias due to confounding, and moderate risk of bias due to selection of participants and classification of exposure

¹⁸ Helderman 2006 has serious risk of bias due to confounding, selection of participants, departure from intended exposure and missing data; and moderate risk of bias due to selection of reported result

¹⁹ Iida 2007 has moderate risk of bias due to confounding, selection of participants and departure from intended exposure; and no information on missing data

²⁰ Mwakayoka 2017 has serious risk of bias due to confounding, departure from intended exposure; and moderate risk of bias due to selection of participants, classification of exposure and missing data

- ²¹ Retnakumari 2012 has serious risk of bias due to confounding, departure from intended exposure; and moderate risk of bias due to selection of participants, classification of exposure
- ²² Sankeshwari 2012 has serious risk of bias due to confounding, departure from intended exposure; and moderate risk of bias due to selection of participants, classification of exposure
- ²³ Shrutha 2013 has serious risk of bias due to confounding, departure from intended exposure; and moderate risk of bias due to selection of participants, classification of exposure
- ²⁴ Sowole 2006 has serious risk of bias due to confounding, departure from intended exposure; and moderate risk of bias due to selection of participants, missing data
- ²⁵ Lossius 2018 has moderate risk of bias due to confounding and departure from intended exposure
- ²⁶ Abarca 2019 has moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data
- ²⁷ Al Makoshi 2013 has moderate risk of bias due to confounding and selection of participants
- ²⁸ Miyake 2007 has moderate risk of bias due to confounding, selection of participants, classification of exposure and missing data
- ²⁹ Obihara 2005 has moderate risk of bias due to confounding, selection of participants, departure from intended exposure
- ³⁰ Fredriksson 2007 has serious risk of bias due to confounding, selection of participants; moderate risk of bias due to classification of exposure
- ³¹ Fonseca 2010 has serious risk of bias due to confounding and classification of exposure; moderate risk of bias due to measurement of outcome and no information on selection of participants
- ³² Krenz-Niedbala 2015 has serious risk of exposure due to confounding and departure from intended exposure; moderate risk of exposure due to selection of participants, classification of exposure and missing data
- ³³ Hong 2014 has moderate risk of bias due to confounding, selection of participants and classification of exposure; and no information on missing data

Footnotes

5 Summary of Findings Table: Maternal Outcomes as per Duration of Breastfeeding per Child: Diabetes and Cardiovascular Health

Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health						
Patient or population: Mothers who breastfed their children						
Settings: Any						
Exposure: Continued breastfeeding into second year						
Reference: Breastfeeding discontinued before one year						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				

	Cont rol	Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health				
Diabetes (Cohort)	Study population		OR 0.66 (0.24 to 1.81)	33432 (2 studies)	⊕⊕⊕⊕ very low ^{1,2}	
	See com ment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Diabetes -Cross Sectional	Study population		OR 1.14 (0.76 to 1.69)	9555 (3 studies)	⊕⊕⊕⊕ very low ^{3,4,5}	
	See com ment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Blood Glucose (mg/dL) - Cohort Studies		The mean blood glucose (mg/dl) - cohort studies in the intervention groups was 2.37 lower (6.6 lower to 1.86 higher)		422 (2 studies)	⊕⊕⊕⊕ very low ^{6,7,8}	
Blood Glucose (mg/dL) - Cross Sectional		The mean blood glucose (mg/dl) - cross sectional in the intervention groups was 2.88 higher (1.08 to 4.68 higher)		5224 (1 study)	⊕⊕⊕⊕ very low ^{13,14}	
HbA1C		The mean hba1c in the intervention groups was 0.01 lower (0.09 lower to 0.07 higher)		291 (1 study)	⊕⊕⊕⊕ very low ^{7, 12,14}	
Fasting Insulin		The mean fasting insulin in the intervention groups was 0.1 lower (2.03 lower to 1.83 higher)		89 (1 study)	⊕⊕⊕⊕ very low ^{7, 12,14}	
Hypertension - Cohort Studies (Hazard Ratio/RR)	Study population		OR 0.99 (0.93 to 1.05)	258769 (2 studies)	⊕⊕⊕⊕ very low ^{8,9}	
	See com ment	See comment				

	Moderate				
	0 per 1000	0 per 1000 (0 to 0)			
Hypertension - Odds Ratio Cross Sectional	Study population		OR 0.87 (0.73 to 1.04)	3360 (3 studies)	⊕⊕⊕⊕ very low ^{4,5,10}
	See comment	See comment			
	Moderate				
	0 per 1000	0 per 1000 (0 to 0)			
Systolic BP - Cohort Studies		The mean systolic bp - cohort studies in the intervention groups was 0.2 higher (2.6 lower to 3 higher)		323 (1 study)	⊕⊕⊕⊕ very low ^{6,12,14}
Systolic BP - Cross Sectional Study (Unadjusted)		The mean systolic bp - cross sectional study (unadjusted) in the intervention groups was 4.57 higher (3.3 to 5.84 higher)		5224 (1 study)	⊕⊕⊕⊕ very low ^{14,15}
Diastolic BP - Cohort Studies		The mean diastolic bp - cohort studies in the intervention groups was 0.46 higher (1.7 lower to 2.62 higher)		323 (1 study)	⊕⊕⊕⊕ very low ^{6,12,15}
Diastolic BP - Cross Sectional Study (Unadjusted)		The mean diastolic bp - cross sectional study (unadjusted) in the intervention groups was 0.7 lower (1.46 lower to 0.05 higher)		5224 (1 study)	⊕⊕⊕⊕ very low ^{13,14}
Stroke - Hazard Ratio	Study population		OR 1.02 (1 to 1.05)	239959 (1 study)	⊕⊕⊕⊕ very low ^{14,15}
	See comment	See comment			
	Moderate				
	0 per 1000	0 per 1000 (0 to 0)			
Cardiovascular	Study population		OR	272257	⊕⊕⊕⊕

Mortality - Hazard Ratio Cohort	See comment	See comment	0.97 (0.94 to 1)	(2 studies)	very low ^{11,15}	
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
All Cardiovascular Disease - Hazard Ratio Cohort	Study population		OR 0.97 (0.94 to 1)	272257 (2 studies)	⊕⊕⊕⊕ very low ^{11,15}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Hyperlipidemia - Cross Sectional Studies	Study population		OR 0.69 (0.39 to 1.22)	3156 (1 study)	⊕⊕⊕⊕ very low ^{4,14}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Cholesterol (mG/dL) - Cohort Studies		The mean cholesterol (mg/dl) - cohort studies in the intervention groups was 6.33 lower (14.99 lower to 2.33 higher)		422 (2 studies)	⊕⊕⊕⊕ very low ^{6,7,12}	
Cholesterol (mG/dL) - Cross Sectional Unadjusted		The mean cholesterol (mg/dl) - cross sectional unadjusted in the intervention groups was 3.65 lower (6.15 to 1.15 lower)		5224 (1 study)	⊕⊕⊕⊕ very low ^{13,14}	
LDL (mg/dL) - Cohort Studies		The mean ldl (mg/dl) - cohort studies in the intervention groups was 3.59 lower (10.86 lower to 3.69 higher)		422 (2 studies)	⊕⊕⊕⊕ very low ^{6,7,12}	
LDL (mg/dL) - Cross Sectional Unadjusted		The mean ldl (mg/dl) - cross sectional unadjusted in the intervention groups was 2.58 lower (4.82 to 0.34 lower)		5224 (1 study)	⊕⊕⊕⊕ very low ^{13,14}	

HDL (mg/dL) - Cohort Studies		The mean hdl (mg/dl) - cohort studies in the intervention groups was 1.79 lower (4.75 lower to 1.17 higher)		422 (2 studies)	⊕⊕⊕⊕ very low ^{6,7,12}	
HDL (mg/dL) - Cross Sectional Unadjusted		The mean hdl (mg/dl) - cross sectional unadjusted in the intervention groups was 1.98 lower (2.83 to 1.13 lower)		5224 (1 study)	⊕⊕⊕⊕ very low ^{13,14}	
Low HDL - Cross Sectional Studies	Study population		OR 0.75 (0.39 to 1.44)	2443 (1 study)	⊕⊕⊕⊕ very low ^{4,14}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Triglyceride (mg/dL) - Cohort Studies		The mean triglyceride (mg/dl) - cohort studies in the intervention groups was 1.12 lower (1.3 to 0.94 lower)		412 (2 studies)	⊕⊕⊕⊕ very low ^{6,7,12}	
Metabolic Syndrome - Cross Sectional Studies	Study population		OR 0.83 (0.45 to 1.53)	2443 (1 study)	⊕⊕⊕⊕ very low ^{4,14}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
HOMA-IR		The mean homa-ir in the intervention groups was 0 higher (0.35 lower to 0.35 higher)		89 (1 study)	⊕⊕⊕⊕ very low ^{7,12,14}	
Intima Media Thickness (um) - Cohort Studies		The mean intima media thickness (um) - cohort studies in the intervention groups was 0.96 higher (3.3 lower to 5.22 higher)		323 (1 study)	⊕⊕⊕⊕ very low ^{6,14,16}	
Pulse Wave Velocity (m/s) - Cohort Studies		The mean pulse wave velocity (m/s) - cohort studies in the intervention groups was 0.24 lower		323 (1 study)	⊕⊕⊕⊕ very low ^{6,14}	

		(0.6 lower to 0.12 higher)				
Overweight and Obesity - Cross Sectional	Study population		OR 0.95 (0.73 to 1.24)	5224 (2 studies)	⊕⊕⊕⊕ very low ^{4,13}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
BMI - Cohort Studies		The mean bmi - cohort studies in the intervention groups was 0.15 lower (1.02 lower to 0.71 higher)		405 (2 studies)	⊕⊕⊕⊕ very low ^{7,17}	
BMI - Cross Sectional Studies		The mean bmi - cross sectional studies in the intervention groups was 0.04 higher (0.21 lower to 0.28 higher)		5224 (1 study)	⊕⊕⊕⊕ very low ^{13,14}	
BMI Gain - Cohort Studies		The mean bmi gain - cohort studies in the intervention groups was 0.08 higher (0.97 lower to 1.13 higher)		120 (1 study)	⊕⊕⊕⊕ very low ^{12,14,17}	
Weight Gain - Cohort Studies		The mean weight gain - cohort studies in the intervention groups was 0.21 higher (0.39 lower to 0.8 higher)		2250 (4 studies)	⊕⊕⊕⊕ very low ^{7,17,18,19}	
Waist Circumference - Cohort Studies		The mean waist circumference - cohort studies in the intervention groups was 0.21 higher (1.8 lower to 2.23 higher)		405 (2 studies)	⊕⊕⊕⊕ very low ^{7,17}	
Waist Circumference - Cross Sectional Studies		The mean waist circumference - cross sectional studies in the intervention groups was 0.44 higher (0.31 lower to 1.19 higher)		5224 (1 study)	⊕⊕⊕⊕ very low ^{13,14}	
WC>85 cm - Cross Sectional	Study population		OR 1.04 (0.77 to 1.42)	5224 (1 study)	⊕⊕⊕⊕ very low ^{13,14}	
	See comment	See comment				
	Moderate					

	0 per 1000	0 per 1000 (0 to 0)				
Waist Hip Ratio - Cohort Studies		The mean waist hip ratio - cohort studies in the intervention groups was 0.03 higher (0 to 0.06 higher)		120 (1 study)	⊕⊕⊕⊕ very low ^{12,14,17}	
Skinfold Thickness - Cohort Studies		The mean skinfold thickness - cohort studies in the intervention groups was 0.39 higher (1.34 lower to 2.12 higher)		120 (1 study)	⊕⊕⊕⊕ very low ^{12,14,16,17}	
Subscapular Triceps Skinfold Thickness Ratio - Cohort Studies		The mean subscapular triceps skinfold thickness ratio - cohort studies in the intervention groups was 0 higher (0.07 lower to 0.07 higher)		288 (1 study)	⊕⊕⊕⊕ very low ^{7,12,14}	
Percentage Fat Mass - Cohort Studies		The mean percentage fat mass - cohort studies in the intervention groups was 0.87 higher (4.44 lower to 6.18 higher)		120 (1 study)	⊕⊕⊕⊕ very low ^{12,14,17}	
Arm Fat Index - Cohort Studies		The mean arm fat index - cohort studies in the intervention groups was 0.54 lower (3.38 lower to 2.3 higher)		120 (1 study)	⊕⊕⊕⊕ very low ^{12,14,17}	

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **OR:** Odds ratio;

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

Very low quality: We are very uncertain about the estimate.

¹ Both studies had moderate risk of bias due to confounding and departure from intended exposure. One study (Bajaj 2017) had moderate risk of bias due to missing data and one study (Villegas 2008) had moderate risk of bias in selection of participants.

² There was widely differing estimates of the outcome with significant heterogeneity in results across studies

³ Nam 2019 had moderate risk of bias due to confounding, bias in selection of participants, departure from

intended exposure and missing data.

⁴ Suliga 2020 had moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data.

⁵ Zhang 2015 had moderate risk of bias due to confounding, selection of participants, and departure from intended exposure.

⁶ Lima 2019 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing participants

⁷ Stuebe 2010 had moderate risk of bias due to confounding, classification of exposure, departure from intended exposure and missing participants

⁸ Lee 2005 had moderate risk of bias due to confounding and selection of participants

⁹ Stuebe 2009 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure, missing data and selection of reported result

¹⁰ Lupton 2013 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure

¹¹ Nguyen 2019 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data

¹² Total cumulative sample size is low

¹³ Ki 2017 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data

¹⁴ Downgraded by 1 for indirectness: The study population is from a single country, which may not be generalizable to other age groups or populations.

¹⁵ Peters 2017 had moderate risk of bias due to confounding, selection of participants and departure from intended exposure and provided no information on missing data

¹⁶ 95% confidence interval around the pooled or best estimate of effect includes both 1) no effect and 2) appreciable benefit or appreciable harm.

¹⁷ Gigante 2001 had moderate risk of bias due to confounding, classification of exposure, departure from intended exposure and missing data

¹⁸ Palmer 2015 had moderate risk of bias due to confounding, classification of exposure, departure from intended exposure and missing data

¹⁹ Sichieri 2003 had serious risk of bias due to confounding, moderate risk of bias due to classification of exposure and missing data and no information on departure from intended exposure

Footnotes

6 Summary of Findings Table: Maternal Outcomes as per Breastfeeding Duration per child: Cancer and Bone Health

Maternal Outcomes as per Breastfeeding Duration per child: Cancer and Bone Health

Patient or population: Mothers who breastfed their children

Settings: Any

Exposure: Continued breastfeeding into second year

Reference: Breastfeeding discontinued before one year

Outcomes	Illustrative comparative risks* (95%CI)		Relati ve effect (95% CI)	No of Parti c pants (studie s)	Quality of the evidence (GRADE)	Com men ts
	Assu med risk	Corresponding risk				
	Cont rol	Maternal Outcomes Breastfeeding Duration per child: Cancer, Bone Health, Mental Health				
Breast Cancer - Case Control Studies	See com ment	See comment	OR 0.89 (0.57 to 1.37)	5077 (1 study ⁶)	⊕⊕⊕⊕ very low ^{1,2}	
Breast Cancer - Cohort Studies	Study population		OR 0.78 (0.49 to 1.22)	19618 (3 studies)	⊕⊕⊕⊕ very low ^{3,4,5}	
	See com ment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Cancer Ovary - Cohort Studies	Study population		OR 1.04 (0.46 to 2.36)	5480 (1 study)	⊕⊕⊕⊕ very low ^{2,3}	
	See com ment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Cancer Cervix - Cohort Studies	Study population		OR 1.87 (0.93 to 3.77)	5480 (1 study)	⊕⊕⊕⊕ very low ^{2,3}	
	See com ment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Cancer Corpus Uteri Cohort Studies	Study population		OR	5480	⊕⊕⊕⊕	

- Cohort Studies	See comment	See comment	1.29 (0.52 to 3.2)	(1 study)	very low ^{2,3}	
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Cancer All Sites - Cohort Studies	Study population		OR 0.84 (0.67 to 1.06)	5480 (1 study)	⊕⊕⊕⊕ very low ^{2,3}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Cancer All Except Breast/ Genitalia - Cohort Studies	Study population		OR 0.79 (0.6 to 1.05)	5480 (1 study)	⊕⊕⊕⊕ very low ^{2,3}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Osteoporosis - Cross Sectional Studies	Study population		OR 3.37 (0.3 to 38.07)	1790 (2 studies)	⊕⊕⊕⊕ very low ^{7,8,9,10}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
BMD Total Femur		The mean bmd total femur in the intervention groups was 0.06 lower (0.07 to 0.06 lower)		1113 (1 study)	⊕⊕⊕⊕ very low ^{2,11}	
Femoral Neck BMD - Cohort Studies		The mean femoral neck bmd - cohort studies in the intervention groups was 0.01 higher (0.02 lower to 0.03 higher)		805 (1 study)	⊕⊕⊕⊕ very low ^{2,12}	

Femoral Neck BMD - Cross Sectional Studies		The mean femoral neck bmd - cross sectional studies in the intervention groups was 0.06 lower (0.07 to 0.06 lower)		1113 (1 study)	⊕⊕⊕⊕ very low ^{2,11}	
Lumbar Vertebrae BMD - Cross Sectional Studies		The mean lumbar vertebrae bmd - cross sectional studies in the intervention groups was 0.1 lower (0.11 to 0.09 lower)		1143 (2 studies)	⊕⊕⊕⊕ very low ^{9,11,13}	
Lumbar Vertebrae BMD - Cohort Studies		The mean lumbar vertebrae bmd - cohort studies in the intervention groups was 0.03 higher (0.02 lower to 0.08 higher)		805 (1 study)	⊕⊕⊕⊕ very low ^{2,12}	
BMD Mid Radius		The mean bmd mid radius in the intervention groups was 0 higher (0.01 lower to 0.02 higher)		30 (1 study)	⊕⊕⊕⊕ very low ^{2,10,13}	
BMD Distal Radius		The mean bmd distal radius in the intervention groups was 0 higher (0.01 lower to 0.01 higher)		30 (1 study)	⊕⊕⊕⊕ very low ^{2,10,13}	

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **OR:** Odds ratio;

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.

Very low quality: We are very uncertain about the estimate.

¹ Trygvadottir 2001 had moderate risk of bias due to confounding, classification of exposure, and departure from intended exposure; and serious risk of bias due to selection of participants

² Downgraded by 1 for serious risk of indirectness: The available evidence is from one population set and age group from only one country, the findings of which cannot be extrapolated to other settings, locations or age groups

³ Kvale 1987 had serious risk of bias due to confounding and departure from intended exposure, and moderate risk of bias due to selection of participants, classification of exposure and missing data

⁴ London 1990 had moderate risk of bias due to confounding, selection of participants and classification of exposure

⁵ Stuebe 2009a had moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data

⁶ case-control

⁷ Kim 2015 had moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data

⁸ Okyay 2013 had serious risk of bias due to confounding and departure from intended exposure, and moderate risk of bias due to selection of participants, and missing data

⁹ Downgraded by 1 for inconsistency: There were widely differing estimates of the treatment effect (i.e. heterogeneity or variability in results) across studies

¹⁰ Downgraded by 1 for imprecision: 95% confidence interval (or alternative estimate of precision) around the pooled or best estimate of effect includes both 1) no effect and 2) appreciable benefit or appreciable harm and/or low cumulative sample

¹¹ Yeo 2016 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data

¹² Derakshan 2017 had serious risk of bias due to confounding and selection of participants and moderate risk of bias due to departure from intended exposure

¹³ Feldblum 1992 had moderate risk of bias due to confounding and selection of participants

Footnotes

7 Summary of Findings Table: Maternal Outcomes as per Cumulative Duration of Breastfeeding: Diabetes and Cardiovascular Health

Maternal Outcomes as per Cumulative Duration of Breastfeeding: Diabetes and Cardiovascular Health						
Patient or population: Mothers who breastfed their children Settings: Any Exposure: Cumulative breastfeeding >1 year Reference: Cumulative breastfeeding <1 year						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				
	Control	Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health				
Diabetes - Cohort Studies	Study population		OR 0.98 (0.92 to 1.04)	301194 (5 studies)	⊕⊕⊕⊕ very low ^{1, 2,3,4,5}	
	See comment	See comment				
	Moderate					

	0 per 1000	0 per 1000 (0 to 0)				
Diabetes - OR Cross Sectional Studies	Study population		OR 0.92 (0.82 to 1.03)	43900 (6 studies)	⊕⊕⊕⊕ very low ^{6,7,8,9,10,11}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Blood Glucose (mg/dL) - Cohort Studies		The mean blood glucose (mg/dl) - cohort studies in the intervention groups was 0.76 higher (3.1 lower to 4.62 higher)		782 (1 study)	⊕⊕⊕⊕ very low ^{12,13}	
Blood Glucose (mg/dL) - Cross Sectional Studies		The mean blood glucose (mg/dl) - cross sectional studies in the intervention groups was 0.38 higher (2.44 lower to 3.2 higher)		13514 (2 studies)	⊕⊕⊕⊕ very low ^{6,8}	
Hypertension - Cohort Study Hazard Ratio/RR	Study population		OR 1.04 (0.96 to 1.12)	122206 (3 studies)	⊕⊕⊕⊕ very low ^{4,14,15}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Hypertension - Odds Ratio Cross Sectional Studies	Study population		OR 0.97 (0.93 to 1.02)	50160 (6 studies)	⊕⊕⊕⊕ very low ^{6,8,9,10,11,16}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Systolic BP - Cohort Studies		The mean systolic bp - cohort studies in the intervention groups was 0.53 higher (1.8 lower to 2.86 higher)		782 (1 study)	⊕⊕⊕⊕ very low ^{12,13}	

Diastolic BP - Cohort Studies	The mean diastolic bp - cohort studies in the intervention groups was 0.64 higher (1 lower to 2.28 higher)			782 (1 study)	⊕⊕⊕⊕ very low ^{12,13}	
Stroke - Hazard Ratio	Study population		OR 1 (0.95 to 1.05)	0 (1 study)	⊕⊕⊕⊕ very low ^{13,17}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
All Cardiovascular Disease - Hazard Ratio	Study population		OR 1.01 (0.97 to 1.04)	328381 (3 studies)	⊕⊕⊕⊕ very low ^{3,10,17}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
All Cardiovascular Disease - Cross Sectional Studies	Study population		OR 0.56 (0.19 to 1.6)	0 (1 study)	⊕⊕⊕⊕ very low ^{13,18,19}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Cardiovascular Mortality - Hazard Ratio	Study population		OR 1.15 (0.95 to 1.4)	8613 (2 studies)	⊕⊕⊕⊕ very low ^{17,20}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Hyperlipidemia - OR Cross Sectional Studies	Study population		OR 0.92 (0.84 to 1)	38493 (4 studies)	⊕⊕⊕⊕ very low ^{6,9,10,11}	
	See comment	See comment				

	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Hyperlipidemia - Cohort Studies	Study population		OR 0.74 (0.3 to 1.81)	153 (1 study)	⊕⊕⊕⊕ very low ^{4,13,19}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Cholesterol (mmol/L) - Cohort Studies		The mean cholesterol (mmol/l) - cohort studies in the intervention groups was 0.1 lower (0.29 lower to 0.08 higher)		782 (1 study)	⊕⊕⊕⊕ very low ^{12,13}	
Cholesterol (mmol/L) - Cross Sectional Studies		The mean cholesterol (mmol/l) - cross sectional studies in the intervention groups was 0.02 higher (0.07 lower to 0.11 higher)		11667 (1 study)	⊕⊕⊕⊕ very low ^{8,13}	
LDL (mmol/L) - Cohort Studies		The mean ldl (mmol/l) - cohort studies in the intervention groups was 0.11 lower (0.26 lower to 0.04 higher)		782 (1 study)	⊕⊕⊕⊕ very low ^{12,13}	
LDL (mmol/L) - Cross Sectional Studies		The mean ldl (mmol/l) - cross sectional studies in the intervention groups was 0.09 higher (0.01 lower to 0.19 higher)		11667 (1 study)	⊕⊕⊕⊕ very low ^{8,13}	
HDL (mmol/L) - Cohort Studies		The mean hdl (mmol/l) - cohort studies in the intervention groups was 0.01 lower (0.07 lower to 0.05 higher)		782 (1 study)	⊕⊕⊕⊕ very low ^{12,13}	
HDL (mmol/L) - Cross Sectional Studies		The mean hdl (mmol/l) - cross sectional studies in the intervention groups was 0.02 higher (0.03 lower to 0.07 higher)		13514 (2 studies)	⊕⊕⊕⊕ very low ^{6,8,21}	
Low HDL - Cross Sectional OR	Study population		OR 0.96 (0.81 to 1.14)	7350 (3 studies)	⊕⊕⊕⊕ very low ^{6,9,11}	
	See comment	See comment				

	Moderate				
	0 per 1000	0 per 1000 (0 to 0)			
Low HDL - Cohort Studies	Study population		OR 0.48 (0.16 to 1.46)	153 (1 study)	⊕⊕⊕⊕ very low ^{4,13,19}
	See comment	See comment			
	Moderate				
	0 per 1000	0 per 1000 (0 to 0)			
Triglyceride (mmol/L) - Cohort Studies		The mean triglyceride (mmol/l) - cohort studies in the intervention groups was 0.01 lower (0.01 to 0.01 lower)		782 (1 study)	⊕⊕⊕⊕ very low ^{12,13}
Triglyceride (mmol/L) - Cross Sectional Studies		The mean triglyceride (mmol/l) - cross sectional studies in the intervention groups was 0.07 higher (0.14 lower to 0.27 higher)		13514 (2 studies)	⊕⊕⊕⊕ very low ^{6,8,21}
Metabolic Syndrome - Cross Sectional Studies OR	Study population		OR 0.87 (0.71 to 1.07)	7350 (3 studies)	⊕⊕⊕⊕ very low ^{6,9,11}
	See comment	See comment			
	Moderate				
	0 per 1000	0 per 1000 (0 to 0)			
Metabolic Syndrome - Cohort Studies	Study population		OR 1.2 (0.45 to 3.23)	153 (1 study)	⊕⊕⊕⊕ very low ^{4,13,19}
	See comment	See comment			
	Moderate				
	0 per 1000	0 per 1000 (0 to 0)			
Obesity - OR Cross	Study population		OR	51394	⊕⊕⊕⊕

Sectional Studies	See comment	See comment	0.95 (0.9 to 1)	(6 studies)	very low ⁶ . 8.9.10.11.22	
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Obesity - Cohort Studies	Study population		OR 0.71 (0.24 to 2.1)	153 (1 study)	⊕⊕⊕⊕ very low ^{4,13,19}	
	See comment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
BMI - Cross Sectional Studies		The mean bmi - cross sectional studies in the intervention groups was 0.03 lower (0.3 lower to 0.25 higher)		12388 (2 studies)	⊕⊕⊕⊕ very low ^{8,21,23}	
BMI - Cohort Study		The mean bmi - cohort study in the intervention groups was 0.7 lower (2.99 lower to 1.59 higher)		75 (1 study)	⊕⊕⊕⊕ very low ^{13, 19,24}	
Waist Circumference		The mean waist circumference in the intervention groups was 0.17 lower (0.53 lower to 0.2 higher)		13514 (2 studies)	⊕⊕⊕⊕ very low ^{6,8}	
Total Lean Mass		The mean total lean mass in the intervention groups was 0.2 lower (2.4 lower to 2 higher)		75 (1 study)	⊕⊕⊕⊕ very low ^{13, 19,24}	
Total Fat Mass - Cohort Studies		The mean total fat mass - cohort studies in the intervention groups was 1.6 lower (6.1 lower to 2.9 higher)		75 (1 study)	⊕⊕⊕⊕ very low ^{13, 19,24}	
Intima Media Thickness (um) - Cohort Studies		The mean intima media thickness (um) - cohort studies in the intervention groups was 1.72 higher (1.5 lower to 4.94 higher)		782 (1 study)	⊕⊕⊕⊕ very low ^{12,13}	

Pulse Wave Velocity (m/s) - Cohort Studies	The mean pulse wave velocity (m/s) - cohort studies in the intervention groups was 0.06 lower (0.4 lower to 0.28 higher)	782 (1 study)	⊕⊕⊕⊕ very low ^{12,13}
*The basis for the assumed risk (e.g. the median control group risk across studies) is provided in footnotes. The corresponding risk (and its 95% confidence interval) is based on the assumed risk in the comparison group and the relative effect of the intervention (and its 95% CI). CI: Confidence interval; OR: Odds ratio; GRADE Working Group grades of evidence High quality: Further research is very unlikely to change our confidence in the estimate of effect. Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate. Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate. Very low quality: We are very uncertain about the estimate.			
¹ Gunderson 2018 had moderate risk of bias due to confounding, departure from intended exposure and missing data ² Luo 2019 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data ³ Stuebe 2009 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure, missing data and selection of reported result ⁴ Tehrani 2014 had moderate risk of bias due to confounding, selection of participants, classification of exposure and departure from intended exposure ⁵ Villegas 2008 had moderate risk of bias due to confounding, selection of participants, and departure from intended exposure ⁶ Choi 2017 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data ⁷ Nam 2019 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data ⁸ Natland 2012 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data ⁹ Ra 2020 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure ¹⁰ Schwarz 2009 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data ¹¹ Suliga 2020 had moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data ¹² Lima 2019 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data ¹³ Downgraded by 1 for serious risk of indirectness: The available evidence is from one population set and age group from only one country, the findings of which cannot be extrapolated to other settings,			

locations or age groups

¹⁴ Chetwynd 2017 had critical risk of bias in measurement of outcome, serious risk of bias due to confounding, missing data and selection of reported result and moderate risk of bias due to classification of exposure, selection of participants and departure from intended exposure

¹⁵ Lee 2005 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure, and no information on missing data

¹⁶ Lupton 2013 had moderate risk of bias due to confounding, selection of participants, and departure from intended exposure

¹⁷ Peters 2017 had moderate risk of bias due to confounding, selection of participants, and departure from intended exposure, and no information on missing data

¹⁸ Rajaei 2016 had moderate risk of bias due to selection of participants and classification of exposure and no information on confounding, departure from intended exposure, and missing data

¹⁹ Downgraded by 1 for imprecision: 95% confidence interval (or alternative estimate of precision) around the pooled or best estimate of effect includes both 1) no effect and 2) appreciable benefit or appreciable harm and/or low cumulative sample

²⁰ Fagerhaug 3 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data

²¹ Downgraded by 1 for serious risk of inconsistency: There were widely differing estimates of the outcome with significant heterogeneity in results across studies

²² Cohen 2009 had moderate risk of bias due to confounding, selection of participants, departure from intended exposure and missing data

²³ Dursun 2006 had serious risk of bias due to confounding and departure from intended exposure and moderate risk of bias due to selection of participants

²⁴ Wiklund 2012a had serious risk of bias due to confounding, and moderate risk of bias due to selection of participants and missing data

Footnotes

8 Summary of Findings Table: Maternal Outcomes in Relation to Cumulative Breastfeeding Duration: Cancer and Bone Health

Maternal Outcomes - Cumulative Breastfeeding: Cancer, Bone Health						
Patient or population: Mothers who breastfed their children						
Settings: Any						
Exposure: Cumulative breastfeeding >1 year						
Reference: Cumulative breastfeeding <1 year						
Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	No of Participants (studies)	Quality of the evidence (GRADE)	Comments
	Assumed risk	Corresponding risk				

	Cont rol	Maternal Outcomes - Cumulative Breastfeeding: Cancer, Bone Health				
Breast Cancer - Cohort Studies	Study population		OR 1.07 (0.95 to 1.2)	218966 (6 studies)	⊕⊕⊕⊕ very low ^{1,2,3,4,5,6,}	
	See com ment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Ovarian Cancer - Cohort studies	Study population		RR 1.12 (0.69 to 1.83)	270147 (2 studies)	⊕⊕⊕⊕ very low ^{7,8}	
	See com ment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Lung Cancer - Cohort Studies HR	Study population		OR 0.99 (0.89 to 1.1)	397789 7 (2 studies)	⊕⊕⊕⊕ very low ^{9,10}	
	See com ment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Osteoporosis - Cross Sectional Studies	Study population		OR 1.66 (1.21 to 2.26)	721 (1 study)	⊕⊕⊕⊕ very low ^{11,12}	
	See com ment	See comment				
	Moderate					
	0 per 1000	0 per 1000 (0 to 0)				
Bone Mineral Density TF		The mean bone mineral density tf in the intervention groups was 0.02 lower (0.07 lower to 0.03 higher)		75 (1 study)	⊕⊕⊕⊕ very low ^{12,13,14}	

Bone Mineral Density FN - Cohort Studies		The mean bone mineral density fn - cohort studies in the intervention groups was 0.01 lower (0.06 lower to 0.04 higher)		75 (1 study)	⊕⊕⊕⊕ very low ^{12,13,14}	
Bone Mineral Density FN - Cross Sectional Studies		The mean bone mineral density fn - cross sectional studies in the intervention groups was 0.04 lower (0.06 to 0.02 lower)		721 (1 study)	⊕⊕⊕⊕ very low ^{11,12}	
Bone Mineral Density - Cohort Studies		The mean bone mineral density - cohort studies in the intervention groups was 0.01 lower (0.06 lower to 0.04 higher)		75 (1 study)	⊕⊕⊕⊕ very low ^{12,13,14}	
Bone Mineral Density Lumbar Spine		The mean bone mineral density lumbar spine in the intervention groups was 0.04 lower (0.06 to 0.02 lower)		721 (1 study)	⊕⊕⊕⊕ very low ^{11,12}	
Bone Mineral Density Tibia - Cohort Studies		The mean bone mineral density tibia - cohort studies in the intervention groups was 0.27 standard deviations lower (0.73 lower to 0.18 higher)		75 (1 study)	⊕⊕⊕⊕ very low ^{12,13,14}	SMD -0.27 (-0.73 to 0.18)
Bone Mineral Content - Cohort Studies		The mean bone mineral content - cohort studies in the intervention groups was 40 higher (130.98 lower to 210.98 higher)		75 (1 study)	⊕⊕⊕⊕ very low ^{12,13,14}	
Bone Area		The mean bone area in the intervention groups was 39 higher (52.01 lower to 130.01 higher)		75 (1 study)	⊕⊕⊕⊕ very low ^{12,13,14}	

*The basis for the **assumed risk** (e.g. the median control group risk across studies) is provided in footnotes. The **corresponding risk** (and its 95% confidence interval) is based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its 95% CI).

CI: Confidence interval; **RR:** Risk ratio; **OR:** Odds ratio;

GRADE Working Group grades of evidence

High quality: Further research is very unlikely to change our confidence in the estimate of effect.

Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.

Low quality: Further research is very likely to have an important impact on our confidence in the estimate of

effect and is likely to change the estimate.

Very low quality: We are very uncertain about the estimate.

¹ Butt 2014 has serious risk of bias due to classification of exposure and missing data and moderate risk of bias due to confounding and selection of participants

² Danial 2017 has serious risk of bias due to classification of exposure, moderate risk of bias for selection of reported result and selection of participants and no information on confounding, departure from intended exposure and missing data

³ London 1990 has moderate risk of bias due to confounding, selection of participants and classification of exposure

⁴ Michels 1996 has moderate risk of bias due to confounding, selection of participants, classification of exposure and selection of reported result

⁵ Stendell Hollis 2013 has moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data

⁶ Stuebe 2009a has moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data

⁷ Danforth 2007 has serious risk of bias due to confounding, and moderate risk of bias due to selection of participants, classification of exposure

⁸ Gay 2015 has moderate risk of bias due to confounding, selection of participants, classification of exposure, departure from intended exposure and missing data

⁹ Jeon 2020 has moderate risk of bias due to confounding, selection of participants, departure from intended exposure and selection of reported result and no information on missing data

¹⁰ Tan 2015 has moderate risk of bias due to confounding, selection of participants, departure from intended exposure

¹¹ Dursun 2006 has serious risk of bias due to confounding, and departure from intended exposure and moderate risk of bias due to selection of participants

¹² Downgraded by 1 for serious risk of indirectness: The available evidence is from one population set and age group from only one country, the findings of which cannot be extrapolated to other settings, locations or age groups

¹³ Wiklund 2012a had serious risk of bias due to confounding, and moderate risk of bias due to selection of participants and missing data

¹⁴ Downgraded by 1 for imprecision: 95% confidence interval (or alternative estimate of precision) around the pooled or best estimate of effect includes both 1) no effect and 2) appreciable benefit or appreciable harm and/or low cumulative sample

Footnotes

Additional tables

1 Risk of Bias of Individual Studies

Study	Bias due to confounding	Bias in Selection of Participants	Bias in Classification of Exposure	Bias due to departure from intended exposure	Bias due to missing data	Bias in measurement of outcome	Bias in Selection of Reported Result
Abarca 2019	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Adair 1992	Moderate	Low	Low	Moderate	Low	Low	Low
Alho 1990	Moderate	Low	Low	Low	Moderate	Low	Low
Al-Makoshi 2013	Moderate	Moderate	Low	Low	Low	Low	Low
Araujo 2006	Moderate	Low	Moderate	Low	Low	Low	Low
Ardic 2018	Serious	Low	Low	Serious	Serious	Low	Low
Azevedo 2005	Serious	Moderate	Moderate	Low	Low	Low	Low
Bajaj 2017	Moderate	Low	Low	Moderate	Moderate	Low	Low
Belfort 2013	Moderate	Low	Low	Moderate	Moderate	Low	Low
Blix 2017	Moderate	Low	Low	Moderate	Moderate	Low	Low
Brakohiapa 1988	Serious	Moderate	Moderate	Serious	Moderate	Low	Low
Burdette 2006	Moderate	Moderate	Low	Low	Low	Low	Low
Burke 2005	Moderate	Low	Moderate	Low	Low	Low	Low
Butt 2014	Moderate	Moderate	serious	Low	serious	Low	Low
Caleyachetty 2013	Moderate	Low	Low	Low	unclear	Low	Low

Camur dan 2011	Serious	Low	Moderate	Serious	Moderate	Low	Low
Chaffe e 2014	Moderate	Low	Low	Moderate	Low	Low	Moderate
Cherag hi 2013	Serious	Moderate	Moderate	Serious	Low	Low	Low
Chetwy nd 2017	Serious	Moderate	Moderate	Moderate	Serious	Critical	Serious
Choi 2017	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Christe nsen 2020	Moderate	Low	Low	Moderate	Low	Low	Low
Cohen 2009	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Danfort h 2007	Serious	Moderate	Moderate	Low	Low	Low	Low
Danial 2017	unclear	Moderate	Serious	unclear	unclear	Low	Moderate
Daniels 2005	Moderate	Low	Low	Moderate	Moderate	Low	Low
de Siqueir a 2007	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Derakh shan 2017	Serious	Serious	Low	Moderate	Low	Low	Low
Deveni sh 2020	Moderate	Low	Low	Moderate	Moderate	Low	Low
Duazo 2010	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Dursun 2006	Serious	Moderate	Low	Serious	Low	Low	Low
Fagerh aug 2013	Moderate	Moderate	Low	Moderate	Moderate	Low	Serious
Fall 2011	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Feldblu m 1992	Moderate	Moderate	Low	Low	Low	Low	Low

Fergusson 1981	Serious	Low	Moderate	Serious	Low	Low	Low
Fonseca 2010	Serious	unclear	Serious	Low	Low	Moderate	Low
Fredriksson 2007	Serious	Serious	Moderate	Low	Low	Low	Low
Gay 2015	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Gigante 2001	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Girard 2019	Moderate	Low	Low	Moderate	Serious	Low	Moderate
Grummer-Strawn 2004	Moderate	Moderate	Moderate	Low	Moderate	Low	Moderate
Gundersen 2018	Moderate	Low	Low	Moderate	Moderate	Low	Low
Haag 2019	Moderate	Low	Low	Moderate	Low	Low	Moderate
Hansstein 2016	Serious	Moderate	Serious	Low	unclear	Serious	Low
Hartwig 2019	Moderate	Moderate	Low	Moderate	Unclear	Low	Moderate
Harvey 2009	Serious	Low	Moderate	Serious	Moderate	Low	Low
Helderman 2006	Serious	Serious	Low	Serious	Serious	Low	Moderate
Hong 2014	Moderate	Moderate	Moderate	Low	unclear	Low	Low
Horta 2006	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Iida 2007	Moderate	Moderate	Low	Moderate	unclear	Low	Low
Intusoma 2016	Moderate	Low	Moderate	unclear	unclear	Low	Low

Izadi 2013	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
Jeon 2020	Moderate	Moderate	Low	Moderate	unclear	Low	Moderate
Jiang 2011	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
Jing 2014	Moderate	Moderate	Low	Moderate	Low	Low	Low
Karlson 2004	Moderate	Moderate	Low	Low	Low	Low	Low
Kersey 2005	Serious	Moderate	Moderate	Serious	Moderate	Low	Low
Ki 2017	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Kikafunda 1998	Serious	Moderate	Moderate	Serious	Low	Low	Low
Kim 2015	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Kim 2020a	Moderate	Low	Low	Low	Moderate	Low	Moderate
Kondolot 2017	Serious	Moderate	Moderate	Serious	Moderate	Low	Low
Krenz-Niedballa 2015	Serious	Moderate	Moderate	Serious	Moderate	Low	Low
Kvale 1987	Serious	Moderate	Moderate	Serious	Moderate	Low	Low
Lee 2003	Moderate	Moderate	Low	Low	Low	Low	Low
Lee 2005	Moderate	Moderate	Low	Moderate	unclear	Low	Low
Lee 2016	Serious	Low	Moderate	Serious	Low	Low	Serious
Li 2020	Moderate	Moderate	Low	Moderate	Serious	Low	Low
Liese 2001	Serious	Moderate	Low	Moderate	Unclear	Low	Serious
Lima 2019	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Linharens 2015	Moderate	Low	Moderate	Moderate	Moderate	Low	Low

London 1990	Moderate	Moderate	Moderate	Low	Low	Low	Low
Lossius 2018	Moderate	Low	Low	Moderate	Low	Low	Low
Luo 2019	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Lupton 2013	Moderate	Moderate	Low	Moderate	Low	Low	Low
Maguire 2013	Moderate	Moderate	Low	Moderate	Low	Low	Low
Martin 2002	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Michels 1996	Moderate	Moderate	Moderate	Low	Low	Low	Moderate
Miyake 2007	Moderate	Moderate	Moderate	Low	Moderate	Low	Low
Muniz 2015	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Mwaka yoka 2017	Serious	Moderate	Moderate	Serious	Moderate	Low	Low
Nam 2019	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Nambiar 2013	Serious	Moderate	Moderate	Serious	Moderate	Low	Low
Nandi 2017 a	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Nandi 2017 b	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Natland 2012	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Neutzling 2009	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Ngandu 1990	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Nguyen 2019	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Nirunsi ttirat 2016	Moderate	Low	Moderate	Moderate	Moderate	Low	Low

Novaes 2012	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
Nserek o 2018	Moderate	Moderate	Low	Moderate	Low	Low	Low
Nunes 2012	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Obihara 2005	Moderate	Moderate	Low	Moderate	Low	Low	Low
Oddy 2010	Moderate	Low	Low	Moderate	Serious	Low	Low
Okyay 2013	Serious	Moderate	Low	Serious	Moderate	Low	Low
Olatosi 2014	Moderate	Moderate	Low	Moderate	Low	Low	Low
Ollila 2007	Serious	Moderate	Low	Serious	Moderate	Low	Low
Owen 2002	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Palmer 2015	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Peres 2017	Moderate	Low	Low	Moderate	Moderate	Low	Low
Peters 2017	Moderate	Moderate	Low	Moderate	unclear	Low	Low
Procter 2008	Serious	Low	Moderate	Serious	Low	Low	Low
Pudla 2015	Moderate	Moderate	Low	Serious	Moderate	Low	Moderate
Putra 2015	Serious	Moderate	Moderate	Serious	Moderate	Low	Low
Ra 2020	Moderate	Moderate	Low	Moderate	Low	Low	Low
Rajaei 2016	unclear	Moderate	Moderate	unclear	unclear	Low	Low
Retnakumari 2012	Serious	Moderate	Moderate	Serious	Low	Low	Low
Robinson 2009	Moderate	Low	Moderate	Moderate	Moderate	Low	Low

Sankes hwari 2012	Serious	Moderate	Moderate	Serious	Low	Low	Low
Schwar z 2009	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Shruth a 2013	Serious	Moderate	Moderate	Serious	Low	Low	Low
Sichier i 2003	Serious	Low	Moderate	unclear	Moderate	Low	Low
Slyker man 2005	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Song 2020	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Sowole 2006	Serious	Moderate	Low	Serious	Moderate	Low	Low
Stende ll-Hollis 2013	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Stordal 2017	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Stuebe 2009	Moderate	Moderate	Low	Moderate	Moderate	Low	Moderate
Stuebe 2009a	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Stuebe 2010	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Suliga 2020	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Tan 2015	Moderate	Moderate	Low	Moderate	Low	Low	Low
Tanaka 2012	Moderate	Moderate	Low	Moderate	Serious	Low	Low
Tanaka 2013	Moderate	Low	Low	Moderate	Moderate	Low	Low
Taren 1993	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
Tavera s 2006	Moderate	Low	Moderate	Serious	Moderate	Low	Low

Teele 1989	Serious	Moderate	Moderate	Serious	unclear	Low	Low
Tehrani 2014	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
Trygvadottir 2001	Moderate	Serious	Moderate	Moderate	Low	Low	Low
Vafa 2012	Serious	Moderate	Moderate	Moderate	Low	Low	Low
Vazquez-Nava 2008	Moderate	Moderate	Moderate	Moderate	unclear	Low	Low
Veena 2010	Moderate	Low	Moderate	Moderate	Moderate	Low	Low
Vehapoglu 2017	Serious	Moderate	Low	Serious	Low	Low	Low
Victoria 1984	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Victoria 2006	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Villamor 2000	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Villegas 2008	Moderate	Moderate	Low	Moderate	Low	Low	Low
von Kries 1999	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Walby 2016	Serious	Moderate	Low	Serious	Moderate	Low	Low
Wiklund 2012a	Serious	Moderate	Low	Low	Moderate	Low	Low
Wong 2017	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
Wong 2018	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
Yang 2017	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Yeo 2016	Moderate	Moderate	Low	Moderate	Moderate	Low	Low

Zhang 2015	Moderate	Moderate	Low	Moderate	Low	Low	Low
Zhu 2020	Moderate	Low	Low	Moderate	Low	Low	Low

Footnotes

References to studies

Included studies

Abarca 2019

Abarca NE, Garro AC, Pearlman DN. Relationship between breastfeeding and asthma prevalence in young children exposed to adverse childhood experiences. *J Asthma* 2019;56(2):142-151.

Adair 1992

Adair LS, Popkin BM. Prolonged Lactation Contributes to Depletion of Maternal Energy Reserves in Filipino Women. *J Nutr* 1992;122:1643-55.

Adair LS. Postpartum Nutritional Status of Filipino Women. *Am J Human Biol* 1992;3:635-46.

Alho 1990

Alho OP, Koivu M, Sorri M, Rantakallio P. Risk factors for recurrent acute otitis media and respiratory infection in infancy. *Int J Pediatr Otorhinolaryngol* 1990;19:151-61.

Al-Makoshi 2013

Al-Makoshi A, Al-Frayh, Turner S, Devereux G. Breastfeeding Practice and Its Association with Respiratory Symptoms and Atopic Disease in 1-3-Year-Old Children in the City of Riyadh, Central Saudi Arabia. *Breastfeeding Med* 2013;8(1):127-133.

Araujo 2006

Araujo CL, Victora CJ, Hallal PC, Gigante DP. Breastfeeding and overweight in childhood: evidence from the Pelotas 1993 birth cohort study. *Int J Obesity* 2006;30:500-506.

Ardic 2018

Ardic C, Yavuz E. Effect of breastfeeding on common pediatric infections: a 5-year prospective cohort study. *Arch Argent Pediatr* 2018;116(2):126-132.

Azevedo 2005

Azevedo TD, Bezerra AC, de Toledo OA. Feeding habits and severe early childhood caries in Brazilian preschool children. *Pediatr Dent* 2005;27(1):28-33.

Bajaj 2017

Bajaj H, Ye C, Hanley AJ, Connelly PW, Sermer M, Zinman B, Retnakaran R. Prior lactation reduces future diabetic risk through sustained postweaning effects on insulin sensitivity. *Am J Physiol Endocrinol Metab* 2017; 312:E215-223.

Belfort 2013

Belfort MB, Rifas-Shiman SL, Kleinman KP, Guthrie LB, Bellinger DC, et al. Infant feeding and childhood cognition at ages 3 and 7 years: effects of breastfeeding duration and exclusivity. *JAMA Pediatrics* 2013;167(9): 836-44.

Chapman DC. Does Breastfeeding Result in Smarter Children? A Closer Look. *J Human Lactation* 2013;29(4): 444-5.

Blix 2017

Lund-Blix NA, Sander SD, Stordal K, Anderson AN, Ronnigen KS, et al. Infant Feeding and Risk of Type 1 Diabetes in Two Large Scandinavian Birth Cohorts. *Diabetes Care* 2017;40:920-7.

Brakohiapa 1988

Brakohiapa LA, Yartey J, Bille A, Harrison E, Quansah E, Armar MA, Kishi K, Yamamoto S. Does prolonged breastfeeding adversely affect a child's nutritional status? *Lancet* 1988;2(8608):416-8.

Burdette 2006

Burdette HL, Whitaker RC, Hall WC, Daniels SR. Breastfeeding, introduction of complementary foods, and adiposity at 5 y of age. *Am J Clin Nutr* 2006;83:550-8.

Burke 2005

Burke V, Beilin LJ, Simmer K, Oddy WH, Blake KV, Doherty D, Kendall GE, Newnham JP, Landau LI, Stanley FJ. Breastfeeding and overweight: longitudinal analysis in an Australian birth cohort. *J Pediatr* 2005;147:56-61.

Butt 2014

Butt S, Borgquist S, Anagnostaki L, Landberg G, Manjer J. Breastfeeding in relation to risk of different breast cancer characteristics. *BMC Res Notes* 2014;7:216.

Caleyachetty 2013

Caleyachetty A, Krishnaveni GV, Veena SR, Hill J, Karat SC, Fall CHD, Wills AK. Breastfeeding duration, age of starting solids and high BMI risk and adiposity in Indian children. *Maternal Child Health* 2013;9:199-216.

Camurdan 2011

Camurdan MO, Camurdan AD, Polat S, Beyazova U. Growth patterns of large, small, and appropriate for gestational age infants: impacts of long-term breastfeeding: a retrospective cohort study. *J Pediatr Endocr Met* 2011;24:463-8.

Chaffee 2014

Chaffee BW, Feldens CA, Vitolo MR. Association of Long-Duration Breastfeeding and Dental Caries Estimated with Marginal Structural Models. *Ann Epidemiol* 2014;24(6):448-454.

Cheraghi 2013

Cheraghi R, Salehi S, Sohbabei F, Zare M. Relation Between Body Mass Index and Breastfeeding in Preschool Children in Urmia, 2011-2012. *Nurs Midwifery J* 2013;11(5):0-0.

Chetwynd 2017

Chetwynd EM, Stuebe AM, Rosenberg L, Troester M, Rowley D, Palmer JR. Cumulative Lactation and Onset of Hypertension in African-American Women. *Am J Epidemiol* 2017;186(8):927-934.

Choi 2017

Choi SR, Kim YM, Cho MS, Kim SH, SHim YS. Association Between Duration of BreastFeeding and Metabolic Syndrome:The Korean National Health and Nutrition Examination Surveys. J Women Health 2017;26(4):361-7.

Christensen 2020

Christensen N, Bruun S, Søndergaard J, Christensen HT, Fisker N, et al. Breastfeeding and Infections in EarlyChildhood: A Cohort Study. Pediatrics 2020;146(5):e20191892.

Cohen 2009

Cohen SS, Larson CO, Matthews CE, Buchowski MS, Signorello LB, Hargreaves MK, Blot WJ. Parity and Breastfeeding in Relation to Obesityamong Black and White Women in the SouthernCommunity Cohort Study. J Women Health 2009;18(9):1323-32.

Danforth 2007

Danforth KN, Tworoger SS, Hecht JL, Rosner BA, Colditz GA, Hankinson SE. Breastfeeding and risk of ovarian cancer in two prospective cohorts. Cancer Causes Control 2007;18:517-23.

Danial 2017

Danial FNM, Cade JE, Greenwood DC, Burley VJ. Breastfeeding and incidence of breast cancers in the UK Women'sCohort Study. Proc Nutr Soc 2017;76(OCE4):E202.

Daniels 2005

Daniels MC, Adair LS. Breast-Feeding Influences Cognitive Development in Filipino Children. J Nutr 2005;135: 2589-95.

Derakhshan 2017

Derakhshan S, Mahmoudi M, Shahsawari S. Effects of multiparity and duration of breast-feeding on maternal bone mineral density in post-menopausal Kurdish women: A retrospective study. Iran J Nucl Med 2017;25(1):43-50.

de Siqueira 2007

de Siqueira RS, Monteirroll CA. Breastfeeding and obesity in school-age children from families of high socioeconomic status. Rev Saúde Pública 2007;41(1):5-12.

Devenish 2020

Devenish G, Mukhtar A, Begley A, Spencer AJ, Thomson WM, Ha D, Do L, Scott JA. Early childhood feeding practices and dental caries among Australianpreschoolers. Am J Clin Nutr 2020;0:1-8.

Do LG, Scott JA, Thomson WM, Stamm JW, Rugg-Gunn AJ, LevySM, Wong C, Devenish G, Ha DH, Spencer AJ. Common risk factor approach to address socioeconomic inequality in the oral health of preschool children—a prospective cohort study. BMC Public Health 2014;14(1):429.

Duazo 2010

Duazo P, Avila J, Kuzawa CW. Breastfeeding and Later Psychosocial Development in the Philippines. Am J Human Biol 2010;22:725-30.

Dursun 2006

Dursun N, Akin S, Dursun E, Sade I, Korkusuz F. Influence of duration of total breast-feeding on bone mineral density in a Turkish population: does the priority of risk factors differ from society to society? Osteoporos Int

2006;17:651-655.

Fagerhaug 2013

Fagerhaug TN, Forsmo S, Jacobsen GW, Midthjell K, Andersen LF, Nilsen TIL. A prospective population-based cohort study of lactation and cardiovascular disease mortality: the HUNT study. BMC Public Health 2013;13:1070.

Fall 2011

Fall CH, Borja JB, Osmond C, Richter L, Bhargava SK, Martorell R, Stein AD, Barros FC, Victora CG; COHORTS group. Infant-feeding patterns and cardiovascular risk factors in young adulthood: data from five cohorts in low- and middle-income countries. Int J Epidemiol 2011;40:47-62.

Feldblum 1992

Feldblum PJ, Zhang J, Rich LE, Fortney JA, Talmage RV. Lactation History and Bone Mineral Density among Perimenopausal Women. Epidemiol 1992;3:527-31.

Ferguson 1981

Fergusson DM, Horwood LJ, Shannon FT, Taylor B. Breast-feeding, gastrointestinal and lower respiratory illness in the first two years. Aust Paediatr J 1981;17:191-5.

Fonseca 2010

Fonseca MJ, Moreira A, Moreira P, Delgado L, Teixeira V, Padrao P. Duration of Breastfeeding and the Risk of Childhood Asthma in Children Living in Urban Areas. J Investig Allergol Clin Immunol 2010;20:357-8.

Fredriksson 2007

Fredriksson P, Jaakkola N, Jaakkola JJK. Breastfeeding and childhood asthma: a six-year population-based cohort study. BMC Pediatrics 2007;7:39.

Gay 2015

Gay GM, Lim JS, Chay WY, Chow KY, Tan MH, Lim WY. Reproductive factors, adiposity, breastfeeding and their associations with ovarian cancer in an Asian cohort. Cancer Causes Control 2015;26(11):1561-73.

Gigante 2001

Gigante DP, Victora CG, Barros FC. Breast-feeding has a limited long-term effect on anthropometry and body composition of Brazilian mothers. J Nutr 2001;131:78-84.

Girard 2019

Girard LC, Farkas C. Breastfeeding and behavioural problems: Propensity score matching with a national cohort of infants in Chile. BMJ Open 2019;9:e025058.

Grummer-Strawn 2004

Grummer-Strawn LM, Mei Z. Does Breastfeeding Protect Against Pediatric Overweight? Analysis of Longitudinal Data From the Centers for Disease Control and Prevention Pediatric Nutrition Surveillance System. Pediatrics 2004;113:e81-6.

Gunderson 2018

Gunderson EP, Lewis CE, Lin Y, Sorel M, Gross M, et al. Lactation Duration and Progression to Diabetes in Women Across the Childbearing Years The 30-Year CARDIA Study. JAMA Intern Med 2018;178(3):328-337.

Haag 2019

Broughton JR, Maipi JTH, Person M, Thomson WM, Morgaine KC, et al. Reducing disease burden and health inequalities arising from chronic disease among indigenous children: an early childhood caries intervention in Aotearoa/New Zealand. *BMC Public Health* 2013;13:1177.

Haag DG, Jamieson LM, Hedges J, Smithers LG. Is There an Association between Breastfeeding and Dental Caries among Three-Year-Old Australian Aboriginal Children? *Nutrients* 2019;11:2811.

Hansstein 2016

Hansstein FV. The Impact of Breastfeeding on Early Childhood Obesity: Evidence From the National Survey of Children's Health. *Am J Health Promotion* 2016;30(4):250-8.

Hartwig 2019

Hartwig AD, Romano AR, Azevedo MS. Prolonged breastfeeding and dental caries in children in the third year of life. *J Clin Pediatr Dent* 2019;43(2):doi 10.17796/1053-4625-43.2.4.

Harvey 2009

Harvey NC, Robinson SM, Crozier SR, Marriott LD, Gale CR, Cole ZA, Inskip HM, Godfrey KM, Cooper C; Southampton Women's Survey Study Group. Breast-feeding and adherence to infant feeding guidelines do not influence bone mass at age 4 years. *Br J Nutr* 2009;102(6):915-20.

Helderman 2006

Helderman WHP, Soe W, van't Hof MA. Risk Factors of Early Childhood Caries in a Southeast Asian Population. *J Dent Res* 2006;85(1):85-88.

Hong 2014

Hong S, Choi WJ, Kwon HJ, Cho YH, Yum HY, Son DK. Effect of prolonged breast-feeding on risk of atopic dermatitis in early childhood. *Allergy Asthma Proc* 2014;35:66-70.

Horta 2006

Horta BL, Victora CG, Lima RC, Goncalves H, Guimaraes BE, Barros FC. Breastfeeding duration and blood pressure among Brazilian adolescents. *Acta Paediatrica* 2006;95:325-331.

Iida 2007

Iida H, Auinger P, Bilings RJ, Weitzman M. Association Between Infant Breastfeeding and Early Childhood Caries in the United States. *Pediatrics* 2007;120(4):e944-952.

Intusoma 2016

Intusoma U, Mo-suwan L, Sangsupawanich P. Prolonged breastfeeding showed no benefit for cognitive outcome: data from a birth cohort in rural Thailand. *Eur J Pediatr* 2016;175(11):1632-3.

Izadi 2013

Izadi V, Kelishadi R, Qorbani M, EsmailMotagh M, Taslimi M, et al. Duration of breast-feeding and cardiovascular risk factors among Iranian children and adolescents: The CASPIAN III study. *Nutrition* 2013;29:744-751.

Jeon 2020

Jeon KH, Shin DW, Han K, Yoo JE, Jeong SM, Cho JH. Female reproductive factors and the risk of lung cancer in postmenopausal women: a nationwide cohort study. *Br J Cancer* 2020;s41416-020-0789-7.

Jiang 2011

Jiang M, Foster EM, Gibson-Davis CM. Breastfeeding and the Child Cognitive Outcomes: A Propensity Score Matching Approach. *Matern Child Health J* 2011;15:1296-1307.

Jing 2014

Jing H, Xu H, Wan J, Yang Y, Ding H, et al. Effect of Breastfeeding on Childhood BMI and Obesity The China Family Panel Studies. *Medicine* 2014;93(10):e55.

Karlson 2004

Karlson EW, Mandl LA, Hankinson SE, Grodstein F. Do Breast-Feeding and Other Reproductive Factors Influence Future Risk of Rheumatoid Arthritis? Results from the Nurses' Health Study. *Arthritis Rheum* 2004;50:3458-67.

Kersey 2005

Kersey M, Lipton R, Sanchez-Rosado M, et al. Breast-feeding history and overweight in Latino preschoolers. *Ambul Pediatr* 2005;5:355-58.

Ki 2017

Ki EY, Han KD, Park YG. Relationship between duration of breast-feeding and obesity in Korean women: The Korea National Health and Nutrition Examination Survey (KNHANES) 2010-2012. *Maturitas* 2017;102:41-45.

Kikafunda 1998

Kikafunda JK, Walker AF, Collett D, Tumwine JK. Risk Factors for Early Childhood Malnutrition in Uganda. *Pediatrics* 1998;102:e45.

Kim 2015

Kim HJ, Kwon H, Oh SW, Lee CM, Joh HK, Kim Y, Um YJ, Ahn SH. Breast Feeding Is Associated with Postmenopausal Bone Loss: Findings from the Korea National Health and Nutrition Examination Survey. *Korean J Fam Med* 2015;36(5):216-20.

Kim 2020a

Kim KM, Choi JW. Associations between breast feeding and cognitive function in children from early childhood to school age: a prospective birth cohort study. *International Breastfeeding J* 2020;15:83.

Kondolot 2017

Kondolot M, Poyrazoglu S, Horoz D, Borlu A, Altunay C, et al. Risk factors for overweight and obesity in children aged 2-6 years. *J Pediatr Endocrinol Metab* 2017.

Krenz-Niedbala 2015

Krenz-Niedbala M, Kosciński K, Puch EA, Zelent A, Breborowicz A. Is the Relationship Between Breastfeeding and Childhood Risk of Asthma and Obesity Mediated by Infant Antibiotic Treatment? *Breastfeed Med* 2015;10(6):326-33.

Kvale 1987

Kvale G, Heuch I. Lactation and cancer risk: is there a relation specific to breast cancer? *J Epidemiol Comm Health* 1987;42:30-7.

Lee 2003

Lee SY, Kim MT, Kim SW, Song MS, Yoon SJ.. Effect of lifetime lactation on breast cancer risk: a Korean women's cohort study. *Int J Cancer* 2003;105:390-3.

Lee 2005

Lee SY, Kim MT, Jee SH, Yang HP. Does long-term lactation protect premenopausal women against hypertension risk? a Korean women's cohort study. *Prev Med* 2005;41:433-8.

Lee 2016

Lee H, Park H, Ha E, Hong YC, Ha M, Park H, Kim BN, Lee B, Lee SJ, Lee KY, Kim JH, Jeong KS, Kim Y. Effect of Breastfeeding Duration on Cognitive Development in Infants: 3-Year Follow-up Study. *J Korean Med Sci* 2016;31(4):579-84.

Li 2020

Li F, Lin J, Ying X, Qiu Y, Li S, Zhai Y, Zhang T, Wang X, Gu X, Wu M, He F. A U-shaped Association of Breastfeeding Duration with Cognitive Impairment in Chinese Postmenopausal Women. *Scientific Reports* 2020; 10:6584.

Liese 2001

Liese AD, Hirsch T, von Mutius E, Keil U, Leupold W, Weiland SK. Inverse association of overweight and breast feeding in 9 to 10-y-old children in Germany. *Int J Obesity* 2001;25:1644-1650.

Weiland SK, von Mutius E, Hirsch T, Duhme H, Fritzsche C, Werner B, et al. Prevalence of respiratory and atopic disorders among children in the East and West of Germany five years after unification. *Eur Respir J* 1999;14: 862-70.

Lima 2019

Lima NP, Bassani DG, Magalhaes EIS, Barros FC, Horta BL. Breastfeeding and maternal cardiovascular risk factors: 1982 Pelotas Birth Cohort. *Scientific Report* 2019;9:13092.

Victora CG, Horta BL, de Mola CL, Quevedo L, Pinheiro RT, et al. Association between breastfeeding and intelligence, educational attainment, and income at 30 years of age: a prospective birth cohort study from Brazil. *Lancet Global Health* 2015;3:e199-205.

Linhares 2015

Linhares RdS, Gigante DP, de Barros FCLF, Horta BL. Carotid Intima-Media Thickness at Age 30, Birth Weight, Accelerated Growth during Infancy and Breastfeeding: A Birth Cohort Study in Southern Brazil.. *Plos One* 2015;10(1):e0115166.

London 1990

London SJ, Colditz GA, Stampfer MJ, Willett WC, Rosner BA, Corsano K, Speizer FE. Lactation and risk of breast cancer in a cohort of US women. *Am J Epidemiol* 1990;132:17-26.

Lossius 2018

Lossius AK, Magnus MC, Lunde J, Stordal K. Prospective Cohort Study of Breastfeeding and the Risk of Childhood Asthma. *J Pediatr* 2018;195:182-9.

Luo 2019

Luo J, Hendryx M, LeBlanc MS, Shadyab AH, Qi L, Sealy-Jefferson S, Manson JE. Associations Between Parity, Breastfeeding, and Risk of Maternal Type 2 Diabetes Among Postmenopausal Women. *Obstet Gynecol* 2019; 134:591-9.

Lupton 2013

Lupton SJ, Chiu CL, Lujic S, Hennessy A, Lind JM. Association between parity and breastfeeding with maternal high blood pressure. *Am J Obstet Gynecol* 2013;208:e1-7.

Maguire 2013

Maguire JL, Salehi L, Birken CS, Carsley S, mamdani M, et al. Association Between Total Duration of Breastfeeding and Iron Deficiency. *Pediatrics* 2013;131:e1530-e1537.

Martin 2002

Martin RM, Smith GD, Mangtani P, Frankel S, Gunnell D. Association between breast feeding and growth: the Boyd-Orr cohort study. *Arch Dis Child Fetal Neonatal Ed* 2002;87:F193-201.

Michels 1996

Michels KB, Willett WC, Rosner BA, Manson JE, Hunter DJ, Colditz GA, Hankinson SE, Speizer FE. Prospective assessment of breastfeeding and breast cancer incidence among 89 887 women. *Lancet* 1996;347(8999):431-6.

Miyake 2007

Miyake Y, Arakawa M, Tanaka K, Sasaki S, Ohya A. Cross-sectional study of allergic disorders associated with breastfeeding in Japan: The Ryukyus Child Health Study. *Pediatr Allergy Immunol* 2007;18:433-440.

Muniz 2015

Muniz LC, Menezes AMB, Assunção MCF, Wehrmeister FC, Martínez-Mesa J, Gonçalves H, et al. Breastfeeding and Bone Mass at the Ages of 18 and 30: Prospective Analysis of Live Births from the Pelotas (Brazil) 1982 and 1993 Cohorts. *PLoS ONE* 10;4(e0122759).

Mwakayoka 2017

Mwakayoka H, Masalu JR, Kikwili EN. Dental Caries and Associated Factors in Children Aged 2-4 Years Old in Mbeya City, Tanzania. *J Dent Shiraz Med Sci* 2017;18(2):104-11.

N'gandu 1990

Ng'andu NH, Watts TE. Child growth and duration of breast feeding in urban Zambia. *J Epidemiol Community Health* 1990;44:281-5.

Nam 2019

Nam GE, Han K, Kim DH, Huh Y, Han B, Cho SJ, Park YG, Park YM. Associations between breastfeeding and Type 2 Diabetes Mellitus and glycemic control in parous women: A nationwide, population based study. *Diabetes Metab J* 2019;43:236-241.

Nambiar 2013

Nambiar S, Truby H, Davies SW. Exploring the influence of breastfeeding on abdominal adiposity in young children using the waist to height ratio. *Nutrition Diet* 2013;70:146-152.

Nandi 2017 a

Nandi A, Lutter R, Laxminarayan R. Breastfeeding Duration and Adolescent Educational Outcomes: Longitudinal Evidence From India. *Food Nutr Bull* 2017;38(4):528-41.

Nandi 2017 b

Nandi A, Lutter R, Laxminarayan R. . Breastfeeding Duration and Adolescent Educational Outcomes: Longitudinal Evidence From India. *Food Nutr Bull* 2017;38(4):528-41.

Natland 2012

Natland ST, Nilsen TIL, Midthjell K, Andersen LF, Forsmo S. Lactation and cardiovascular risk factors in mothers in a population-based study: the HUNT-study. *Int Breastfeed J* 2012;7:8.

Neutzling 2009

Neutzling MB, Hallal PRC, Araujo CLP, Horta BL, Vieira MFA, Menezes AMB, Victora CG. Infant feeding and obesity at 11 years: Prospective birth cohort study. *Int J Pediatr Obesity* 2009;4:143-149.

Nguyen 2019

Nguyen B, Gale J, Nassar N, Bauman A, Joshy G, Ding D. Breastfeeding and Cardiovascular Disease Hospitalization and Mortality in Parous Women: Evidence From a Large Australian Cohort Study. *J Am Heart Assoc* 2019;8:e011056. DOI: 10.1161/JAHA.118.011056.

Nirunsittirat 2016

Nirunsittirat A, Pitiphat W, McKinney CM, DeRouen TA, Chansamak N, et al. Breastfeeding Duration and Childhood Caries: A Cohort Study. *Caries Res* 2016;50:498-507.

Novaes 2012

Novaes JF, Lamounier JA, Colosimo EA, Franceschini SCC, Priori SE. Breastfeeding and obesity in Brazilian children. *Eur J Public Health* 2012;22(3):383-9.

Nsereko 2018

Nsereko E, Mukabutera A, Iyakaremye D, Umwungerimwiza YD, Mbarushimana V, Nzayirambaho M. Early feeding practices and stunting in Rwandan children: across-sectional study from the 2010 Rwanda demographic and health survey. *Panafr Med J* 2018;29:157.

Nunes 2012

Nunes AMM, Alves CMC, de Araujo FB, Ortiz TML, Ribeiro MRC, da Silva AAM, Ribeiro CCC. Association between prolonged breast-feeding and early childhood caries: a hierarchical approach. *Community Dent Oral Epidemiol* 2012;40:542-9.

Obihara 2005

Obihara CC, Marais BJ, Gie RP, Potter P, Bateman ED, Lombard CJ, Beyers N, Kimpen JL. The association of prolonged breastfeeding and allergic disease in poor urban children. *Eur Respir J* 2005;25:970-7.

Oddy 2010

Oddy WH, Kendall GE, Li J, Jacoby P, Robinson M, et al. The Long-Term Effects of Breastfeeding on Child and Adolescent Mental Health: A Pregnancy Cohort Study Followed for 14 Years. *J Pediatr* 2010;156:568-74.

Okyay 2013

Okyay DO, Okyay E, Dogan E, Kurtulmus S, Acet F, Taner CE. Prolonged breast-feeding is an independent risk factor for postmenopausal osteoporosis. *Maturitas* 2013;74(3):270-5.

Olatosi 2014

Olatosi OO, Inem V, Sofola OO, Prakash P, Sote EO. The prevalence of early childhood caries and its associated risk factors among preschool children referred to a tertiary care institution. *Niger J Clin Pract* 2015;18(4):493-501.

Olatosi OO, Sote EO. ASSOCIATION OF EARLY CHILDHOOD CARIES WITH BREASTFEEDING AND BOTTLE FEEDING IN SOUTHWESTERN NIGERIAN CHILDREN OF PRESCHOOL AGE [ASSOCIATION DE LA CARIE DE LA PREMIERE ENFANCE AVEC L'ALLAITEMENT AU SEIN ET AU BIBERON CHEZ LES ENFANTS D'AGE PRESCOLAIRE DANS LE SUD-OUEST DU NIGERIA]. *J W Afr Coll Surg* 2014;4(1):31-53.

Ollila 2007

Ollila P, Larmas M. A seven-year survival analysis of caries onset in primary second molars and permanent first molars in different caries risk groups determined at age two years. *Acta Odontologica Scandinavica* 2007;65:29-35.

Owen 2002

Owen CG, Whincup PH, Odoki K, et al. *Pediatrics* 2002;110:597-608. Infant feeding and blood cholesterol: a study in adolescents and a systematic review. *Pediatrics* 2002;110:597-608.

Palmer 2015

Palmer JR, Kipping-Ruane K, Wise LA, Yu J, Rosenberg L. Lactation in Relation to Long-Term Maternal Weight Gain in African-American Women. *Am J Epidemiol* 2015;181(12):932-9.

Peres 2017

Peres KG, Nascimento GG, Peres MA, Mittinty MN, Demarco FF, Santos IS, Matijasevich A, Barros AJ. Impact of Prolonged Breastfeeding on Dental Caries: A Population-Based Birth Cohort Study. *Pediatrics* 2017;140(1):e20162943.

Santos IS, Barros AJ, Matijasevich A, Domingues MR, Barros FC, Victora CG. Cohort profile: the 2004 Pelotas (Brazil) birth cohort study. *Int J Epidemiol* 2011;40(6):1461-8.

Peters 2017

Chen Z, Chen J, Collins R, Guo Y, Peto R, Wu F, et al. China Kadoorie Biobank of 0.5 million people: survey methods, baseline characteristics and long-term follow-up. *Int J Epidemiol* 2011;40:1652-66.

Peters SAE, Yang L, Guo Y, Chen Y, Bian Z, Du J, et al. Breastfeeding and the Risk of Maternal Cardiovascular Disease: A Prospective Study of 300 000 Chinese Women. *JAMA* 2017;6:e006081.

Procter 2008

Procter SB, Holcomb CA. Breastfeeding Duration and Childhood Overweight Among Low-Income Children in Kansas, 1998-2002. *Am J Pub Health* 2008;97:106-110.

Pudla 2015

Bernardo CO, de Vasconcelos FAG. Association of parents' nutritional status, and sociodemographic and dietary factors with overweight/obesity in schoolchildren 7 to 14 years old. *Cad. Saúde Pública*, Rio de Janeiro 2012;28(2):291-304.

Pudla KJ, Gonzalez-Chica DA, de Voscancelos FAG. Effect of breastfeeding on obesity of schoolchildren: influence of maternal education. *Rev Paul Pediatr* 2015;33(3):294-301.

Putra 2015

Putra ST, Mansyur M, Satroasmoro S. Effects of Duration of Breastfeeding During Infancy on Vascular Dysfunction in Adolescents. *Acta Medica Indonesiana* 2015;47(1):24-30.

Ra 2020

Ra JS, Kim SO. Beneficial Effects of Breastfeeding on the Prevention of Metabolic Syndrome Among Postmenopausal Women. *Asian Nurs Res* 2020;14:173-7.

Rajaei 2016

Rajaei S, Tsai SA, Rigdon J, Weber S, Mathur M, Tremmel J. LACTATION AND FUTURE CARDIOVASCULAR DISEASE IN WOMEN: AN UNDER APPRECIATED TARGET FOR PREVENTION. *J Am Coll Cardiol* 2016;67(13 Suppl):1859.

Retnakumari 2012

Retnakumari N, Cyriac G. Childhood caries as influenced by maternal and child characteristics in pre-school children of Kerala-an epidemiological study. *Contemp Clin dent* 2012;3(1):2-8.

Robinson 2009

Robinson, SM, Marriott, LD, Crozier, SR, Harvey, NC, Gale, CR, Inskip, HM, Baird, J, Law, CM, Godfrey, KM, Cooper, C & Southampton Women's Survey Study Group 2009. Variations in infant feeding practice are associated with body composition in childhood: a prospective cohort study. *J Clin Endocrinol Metabol* 2009;94(8):2799-805.

Sankeshwari 2012

Sankeshwari RM, Ankola AV, Tangade PS, Hebhal MI. Feeding habits and oral hygiene practices as determinants of early childhood caries in 3- to 5-year-old children of Belgaum City, India. *Oral Health Prev Dent* 2012;10(3):283-90.

Schwarz 2009

Schwarz EB, Ray RM, Stuebe AM, Allison MA, Ness RB, Freiberg MS, Cauley JA. Duration of Lactation and Risk Factors for Maternal Cardiovascular Disease. *Obstet Gynecol* 2009;113(5):974-982.

Stefanick ML, Cochrane BB, Hsia J, Barad DH, Liu JH, Johnson SR. The Women's Health Initiative postmenopausal hormone trials: overview and baseline characteristics of participants. *Ann Epidemiol* 2003;13:S78-86.

The Women's Health Initiative Study Group. Design of the Women's Health Initiative Clinical Trial and Observational Study. *Controlled Clin Trial* 1998;19:61-109.

Shrutha 2013

Prakasha Shrutha S, Vinit GB, Giri KY, Alam S. Feeding practices and early childhood caries: a cross-sectional study of preschool children in Kanpur district, India. *ISRN Dent* 2013;2013:275193.

Sichieri 2003

Sichieri R, Field AE, Rich-Edwards J, Willett WC. Prospective assessment of exclusive breastfeeding in relation to weight change in women. *Int J Obes Relat Metab Disord* 2003;27:815-20.

Slykerman 2005

Slykerman RF, Thompson JM, Becroft DM, Robinson E, Pryor JE, Clark PM, Wild CJ, Mitchell EA. Breastfeeding and intelligence of preschool children. *Acta Paediatr* 2005;94:832-7.

Song 2020

Song Q, Yang Y, Liu X, Yang C, Huang X, Zhou H, Wang Y. Breastfeeding Practices and Overweight/Obesity Among Children Under 5 Years of Age: A Multistage Random Sampling Survey in Central and Western China. *Maternal Child Health J* 2020;24(8):998-1007.

Sowole 2006

Sowole CA, Sote EO. BREAST FEEDING, BOTTLE FEEDING AND CARIE EXPERIENCE IN CHILDREN AGED 6 MONTHS TO 5 YEARS IN LAGOS STATE, NIGERIA. *Afr J Oral Health* 2006;2:43-56.

Stendel-Hollis 2013

Stendell-Hollis NR, Thompson PA, Thomson CA, O'Sullivan MJ, Ray RM, Chlebowski RT. Investigating the Association of Lactation History and Postmenopausal Breast Cancer Risk in the Women's Health Initiative. *Nutr Cancer* 2013;65(7):969-81.

Stordal 2017

Stordal K, Lundeby KM, Brantsaeter AL, Haugen M, Nakstad B, et al. Breastfeeding and infant hospitalisation for infections: large cohort- and sibling analysis. *J Pediatr Gastroenterol Nutr* 2017;65(2):225-231.

Stuebe 2009

Stuebe AM, Michels KB, Willett WC, Manson JE, Rexrode K, Rich-Edwards JW. Duration of lactation and incidence of myocardial infarction in middle-to-late adulthood. *Am J Obstet Gynecol* 2009;200(2):e8.

Stuebe AM, Rich-Edwards JW, Willett WC, Manson JE, Michels KB. Duration of Lactation and Incidence of Type 2 Diabetes. *JAMA* 2005;294:2601-10.

Stuebe AM, Schwarz EB, Grewen K, Rich-Edwards JW, Michels KB, Foster EM, Curhan G, Forman J. Duration of Lactation and Incidence of Maternal Hypertension: A Longitudinal Cohort Study. *Am J Epidemiol* 2011;174(10):1147-58.

Stuebe 2009a

Stuebe AM, Michels KB, Willett WC, Manson JE, Rexrode K, et al. Lactation and incidence of premenopausal breast cancer: a longitudinal study. *Arch Intern Med* 2009;169:1364-71.

Stuebe 2010

Stuebe AM, Kleinman K, Gillman MW, Rifas-Shiman SL, Gunderson EP, Rich-Edwards J. Duration of Lactation and Maternal Metabolism at 3 Years Postpartum. *J Women Health* 2010;19:941-950.

Suliga 2020

Suliga E, Ciesla E, Gluszek-Osuch M, Lysek-Gladysinska M, Wawrzycka I, Gluszek S. Breastfeeding and Prevalence of Metabolic Syndrome among Perimenopausal Women. *Nutrients* 2020;12:2691.

Tan 2015

Tan HS, Tan MH, Chow KY, Chay WY, Lim WY. Reproductive factors and lung cancer risk among women in the Singapore Breast Cancer Screening Project. *Lung Cancer* 2015;90:499-508.

Tanaka 2012

Tanaka K, Miyake Y. Association Between Breastfeeding and Dental Caries in Japanese Children. *J Epidemiol* 2012;22(1):72-77.

Tanaka 2013

Tanaka K, Miyake Y, Sasaki S, Hirota Y. Infant Feeding Practices and Risk of Dental Caries in Japan: The Osaka Maternal and Child Health Study. *Pediatr Dent* 2013;35:267-71.

Taren 1993

Prentice A. Extended Breast-feeding and Growth in Rural China. *Nutr Rev* 1994;52:144-6.

Taren D, Chen J. A positive association between extended breast-feeding and nutritional status in rural Hubei Province, People's Republic of China. 1993 58;(862-7).

Taveras 2006

Taveras EM, Rifas-Shiman SL, Scanlon KS, Grummer-Strawn LM, Sherry B, Gillman MW. To What Extent Is the Protective Effect of Breastfeeding on Future Overweight Explained by Decreased Maternal Feeding Restriction? *Pediatrics* 2006;118:2341-8.

Teele 1989

Teele DW, Klein JO, Rosner B. Epidemiology of otitis media during the first seven years of life in children in greater Boston: a prospective, cohort study. *J Infect Dis* 1989;160:83-94.

Tehrani 2014

Tehrani FR, Momenan AA, Khomami MB, Azizi F. Does lactation protect mothers against metabolic syndrome? Findings from the Tehran Lipid and Glucose Study. *J Obstet Gynaecol Res* 2014;40(3):736-42.

Tryggvadottir 2001

Tryggvadóttir L, Tulinius H, Eyfjord JE, Sigurvinsson T. Breast cancer risk factors and age at diagnosis: an Icelandic cohort study. *Int J Cancer* 2002;98(4):604-8.

Tryggvadóttir L, Tulinius H, Eyfjord JE, Sigurvinsson T. Breastfeeding and reduced risk of breast cancer in an Icelandic cohort study. *Am J Epidemiol* 2001;154(1):37-42.

Tryggvadottir L, Olafsdottir EJ, Gudlaugsdottir S, Thorlacius S, Jonasson JG, Tulinius H, Eyfjord JE. BRCA2 mutation carriers, reproductive factors and breast cancer risk. *Breast Cancer Res* 2003;5:R121-8.

Vafa 2012

Vafa M, Afshari S, Moslehi N, Salehpour A, Hosaini F, Goharinezhad M, et al. Relationship Between Infant Nutrition Feeding and Childhood Obesity in First Grade Tehranian Students of Primary Schools, 2009. *Iran J Endocrinol Metabol* 2011;12(5):505-12.

Vafa M, Afshari S, Moslehi N, Salehpour A. Relationship between infant nutrition feeding and childhood obesity in first grade Tehranian students of primary schools. *Journal of gastroenterology and hepatology* 2012;5:139.

Vafa M, Moslehi N, Afshari S, Hossini A, Eshraghian M. Relationship between Breastfeeding and Obesity in Childhood. *J Health Popul Nutr* 2012;30(3):303-10.

Vazquez-Nava 2008

Vazquez-Nava F, Vazquez REM, Salvidar GAH, Beltran GFJ, Almeida AVM, Vazquez RCF. Allergic Rhinitis, Feeding and Oral Habits, Toothbrushing and Socioeconomic Status. *Caries Res* 2008;42:141-7.

Veena 2010

Veena SR, Krishnaveni GV, Srinivasan K, Wills AK, Hill JC, et al. Infant feeding practice and childhood cognitive performance in South India. *Arch Dis Child* 2010;95:347-354.

Vehapoglu 2017

Vehapoglu A, Goknar N, Turel O, Torun E, Ozgurhan G. Risk factors for childhood obesity: Do the birth weight, type of delivery, and mother's overweight have an implication on current weight status? *World J Pediatr* 2017.

Vehapoglu A, Yazici M, Demir AD, Turkmen S, Nursoy, M, Ozkaya E. Early infant feeding practice and childhood obesity: the relation of breast-feeding and timing of solid food introduction with childhood obesity. *J Pediatr Endocr Met* 2014;27:1181-7.

Victora 1984

Victora CG, Vaughan JP, Martines JC, Barcelos LB. Is prolonged breast-feeding associated with malnutrition? *Am J Clin Nutr* 1984;39:307-14.

Victora 2006

Victora CG, Barros F, Lima RC, Horta BL, Wells J. Anthropometry and body composition of 18 year old men according to duration of breast feeding: birth cohort study from Brazil. *BMJ* 2003;327(7420):901.

Victora CG, Barros FC, Horta BL, Lima RC. Breastfeeding and school achievement in Brazilian adolescents. *Acta Paediatrica* 2005;94:1656-60.

Victora CG, Horta BL, Post P, Lima RC, De Leon Elizalde JW, Gerson BM, Barros FC. Breast feeding and blood lipid concentrations in male Brazilian adolescents. *J Epidemiol Community Health* 2006;60:621-5.

Villamor 2000

Villamor E, Mbise R, Spiegelman D, Ndossi G, Fawzi WW. Vitamin A supplementation and other predictors of anemia among children from Dar Es Salaam, Tanzania. *Am J Trop Med Hyg* 2000;62(5):590-7.

Villegas 2008

Villegas R, Gao YT, Yang G, Li HL, Elasy T, Zheng W, Shu XO. Duration of breast-feeding and the incidence of type 2 diabetes mellitus in the Shanghai Women's Health Study. *Diabetologia* 2008;51:258-266.

Zheng W, Chow WH, Yang G, Jin F, Rothman N, Blair A, et al. The Shanghai Women's Health Study: Rationale, Study Design, and Baseline Characteristics. *Inter J Epidemiol* 2005;162(11):1123-31.

von Kries 1999

von Kries R, Koletzko B, Sauerwald T, von Mutius E, Barnert D, Grunert V et al. Breast feeding and obesity: cross sectional study. *Br Med j* 1999;319:147-150.

von Kries R, Koletzko B, Sauerwald T, von Mutius E. DOES BREAST-FEEDING PROTECT AGAINST CHILDHOOD OBESITY? In: Koletzko B, editor(s), editor(s). *Short and Long Term Effects of Breast Feeding on Child Health*. Kluwer Academic/Plenum Publishers, 2000:29-39.

Walby 2016

Walby T, Lagerberg D, Magnusson M. Relationship Between Breastfeeding and Early Childhood Obesity: Results of a Prospective Longitudinal Study from Birth to 4 Years. *Breastfeeding Med* 2016;12(1):1-6.

Wiklund 2012a

Wiklund PK, Xu L, Wang Q, Mikkola T, Lyytikäinen A, et al. Lactation is associated with greater maternal bone size and bone strength later in life. *Osteopor Int* 2012;23:1939-45.

Wong 2017

Wong PD, Birken CS, Parkin PC, Venu I, Chen Y, Schroth RJ, Maguire JL. Total Breast-Feeding Duration and Dental Caries in Healthy Urban Children. *Acad Pediatr* 2017;17(3):310-15.

Wong 2018

Wong PD, Anderson LN, Dai DDW, Parkin PC, Maguire JL, Birken CS. The Association of Breastfeeding Duration and Early Childhood Cardiometabolic Risk. *J Pediatr* 2018;192:80-5.

Yang 2017

Yang L, Li L, Millwood IY, Lewington S, Guo Y, Sherlikar P, et al. Adiposity in relation to age at menarche and other reproductive factors among 300 000 Chinese women: findings from China Kadoorie Biobank study. *Int J Epidemiol* 2017;46(2):502-512.

Yeo 2016

Yeo UH, Choi CJ, Choi WS, Kim KS. Relationship between breast-feeding and bone mineral density among Korean women in the 2010 Korea National Health and Nutrition Examination Survey. *J Bone Miner Metab* 2016;34(1):109-117.

Zhang 2015

Zhang BZ, Zhang HY, Liu HH, Li HJ, Wang JS. Breastfeeding and Maternal Hypertension and Diabetes: A Population-Based Cross-Sectional Study. *Breastfeed Med* 2015;10(3):163-7.

Zhu 2020

Zhu Z, Cheng Y, Qi Q, Lu Y, Ma S, Li S, et al. Association of infant and young child feeding practices with cognitive development at 10–12 years: a birth cohort in rural Western China. *Br J Nutr* 2020;123:768-779.

Excluded studies**Abdulmoniem 2001**

Abdulmoneim I, Al-Ghamdi SA. Relationship between breast-feeding duration and acute respiratory infections in infants. *Saudi Med J* 2001;22(4):347-50.

Acosta 2008

Acosta SMJ, Suarez AR, Rodriguez GP, Pena PR. Low birth weight and overweight in children aged under 5 yr. in Cuba [Bajo peso al nacer y sobrepeso en niños menores de cinco años en Cuba]. *Revista Espanola de Nutricion Comunitaria* 2008;14(4):225-30.

Adami 1990

Adami HO, Bergström R, Lund E, Meirik O. Absence of association between reproductive variables and the risk of breast cancer in young women in Sweden and Norway. *Br J Cancer* 1990;62:122-6.

Agras 1987

Agras WS, Kraemer HC, Berkowitz RI, Korner AF, Hammer LD. Does a vigorous feeding style influence early development of adiposity? *J Pediatr* 1987;110:799-804.

Agras 1990

Agras WS, Kraemer HC, Berkowitz RI, Hammer LD. Influence of early feeding style on adiposity at 6 years of age. *J Pediatr* 1990;116:805-9.

Akbari 2011

Akbari A, Razzaghi Z, Homaei F, Khayamzadeh M, Movahedi M, Akbari ME. Parity and breastfeeding are preventive measures against breast cancer in Iranian women. *Breast Cancer* 2011;18:51-55.

Akkus 2005

Akkus Z, Camdeviren H, Celik F, Gur A, Nas K. Determination of osteoporosis risk factors using a multiple logistic regression model in postmenopausal Turkish women. *Saudi Med J* 2005;26(9):1351-9.

Al-Kubaisy 2005

Al-Kubaisy W, Ali SH, Al-Thamiri D. Risk factors for asthma among primary school children in Baghdad, Iraq. *Saudi Med J* 2005;26(3):460-6.

Almeida 2004

Almeida CA, Ricco RG, Ciampo LA, Souza AM, Pinho AP, Oliveira JE. Factors associated with iron deficiency anemia in Brazilian preschool children. *J Pediatr (Rio J)* 2004;80:229-34.

Al-Othaimeen 1988

Al-Othaimeen A, Villanueva BP. The Effects of Prolonged Breast Feeding on the Nutritional Status of Saudi Arabian Children. *Ann Saudi Med* 1988;8(2):97-102.

Altinkanayak 2006

Altinkanayak S, Selimoglu MA, Turgut A, Kilicaslan B, Ertekin V. Breast-feeding Duration and Childhood Acute Leukemia and Lymphomas in a Sample of Turkish Children. *J Pediatr Gastroenterol Nutr* 2006;42:568-72.

Alzate-Meza 2011

Alzate-Meza MC, Arango C, Castano-Castrillon JJ, Henao-Hurtado AM, Lozano-Acosta MM, Munoz-Salazar G, Ocampo-Munoz NA, Rengifo-Calderon SV, Tovar-Orozco LM, Vallejo-Chavez H. Breastfeeding as a protective factor for prevalent diseases in children up to 5 years of age in some educational institutions in Colombia 2009. Cross-sectional study. *Rev Colomb Obstet Ginecol* 2011;62(1).

Amore 2003

Amore M, Balista C, McCreddie RG, Cimmino C, Pisani F, Bevilacqua G, Ferrari G. Can breast-feeding protect against schizophrenia? Case-control Study. *Biol Neonate* 2003;83:97-101.

Anderson 2014

Anderson J, Hayes D, Chock L. Characteristics of Overweight and Obesity at Age Two and the Association with Breastfeeding in Hawai'i Women, Infants, and Children (WIC) Participants. *Maternal Child Health* 2014;18(10):2323-31.

Arif 2017

Arif AA, Racine EF. Does longer duration of breastfeeding prevent childhood asthma in low-income families? J Asthma 2017;54(6):600-5.

Awatef 2011

Awatef M, Olfa G, Imed H, Kacem M, Imen C, et al. Breastfeeding reduces breast cancer risk: a case-control study in Tunisia. Cancer Causes Control 2010;21:393-7.

Bahreynian 2017

Bahreynian M, Qorbani M, Khaniabadi BM, Motlagh ME, Safari O, et al. Association between Obesity and Parental Weight Status in Children and Adolescents. J Clin Res Ped Endocrinol 2017;9(2):111-117.

Baranowski 1990

Baranowski T, Bryan GT, Rassin DK, Harrison JA, Henske JC. Ethnicity, Infant Feeding Practices and Childhood Adiposity. Dev Behav Pediatr 1990;11:234-9.

Barone 2006

Barone JG, Ramasamy R, Farkas R, Lerner E, Creenan E, Salmon D, Tranchell J, Schneider D. Breastfeeding During Infancy May Protect Against Bed-wetting During Childhood. Pediatrics 2006;118(1):254-9.

Becher 2003

Becher H, Schmidt S, Chang-Claude J. Reproductive factors and familial predisposition for breast cancer by age 50 years. A case-control-family study for assessing main effects and possible gene-environment interaction. Int J Epidemiol 2003;32:38-48.

Bener 2008

Bener A, Ehlayel MS, Alsowaidi S, Sabbah A. Role of breast feeding in primary prevention of asthma and allergic diseases in a traditional society. Eur Ann Allergy Clin Immunol 2008;39(10):337-43.

Bergmann 2002

Bergmann RL, Diepgen TL, Kuss O, Bergmann KE, Kujat J, Dudenhausen JW, Wahn U; MAS-study group. Breastfeeding duration is a risk factor for atopic eczema. Clin Exp Allergy 2002;32:205-9.

Bernard 2013

Bernard JY, Agostini MD, Forhan A, Alfaiate T, Bonet M, et al. Breastfeeding Duration and Cognitive Development at 2 and 3 Years of Age in the EDEN Mother-Child Cohort. J Pediatr 2013;163:36-42.

Berning 1993

Berning B, van Kuijk C, Schütte HE, Kuiper JW, Drogendijk AC, Fauser BC. Determinants of lumbar bone mineral density in normal weight, non-smoking women soon after menopause. A study using clinical data and quantitative computed tomography. Bone Miner 1993;21:129-39.

Bjertnaes 2020

Bjertnaes AA, Grundt JH, Donkor HM, Juliusson PB, Wentzel-Larsen T, Vaktskjold A, Markestad T, Holten-Andersen MN. No significant associations between breastfeeding practices and overweight in 8 year old children. Acta Paediatrica 2020;109:109-114.

Bloss 2004

Bloss E, Wainaina F, Bailey RC. Prevalence and Predictors of Underweight, Stunting, and Wasting among Children Aged 5 and Under in Western Kenya. *J Trop Pediatr* 2004;50:260-70.

Bobrow 2013

Bobrow KL, Quigley MA, Green J, Reeves GK, Beral V for the Million Women Study Collaborators. Persistent effects of women's parity and breastfeeding patterns on their body mass index: results from the Million Women Study. *Int J Obesity* 2013;37:712-17.

Boucher 2017

Boucher O, Julvez J, Guxens M, Arranz E, Ibarluzea J, Sánchez de Miguel M, Fernández-Somoano A, Tardon A, Rebagliato M, Garcia-Esteban R, O'Connor G, Ballester F, Sunyer J. Association between breastfeeding duration and cognitive development, autistic traits and ADHD symptoms: a multicenter study in Spain. *Pediatr Res* 2017;81(3):434-442.

Bravo 1997

López Bravo IM, Sepúlveda H, Valdés I. Acute respiratory illnesses in the first 18 months of life. *Rev Panam Salud Publica* 1997;1:9-17.

Briend 1989

Briend A, Bari A. Breastfeeding improves survival, but not nutritional status, of 12-35 months old children in rural Bangladesh. *Eur J Clin Nutr* 1989;43(9):603-8.

Brinton 1995

Brinton LA, Potischman NA, Swanson CA, Schoenberg JB, Coates RJ, Gammon MD, Malone KE, Stanford JL, Daling JR. Breastfeeding and breast cancer risk. *Cancer Causes Control* 1995;6:199-208.

Brion 2011

Brion MJ, Lawlor DA, Matijasevich A, Horta B, Anselmi L, Araujo CL, et al.. What are the causal effects of breastfeeding on IQ, obesity and blood pressure? Evidence from comparing high-income with middle-income cohorts. *Int J Epidemiol* 2011;40:670-80.

Brun 1995

Brun JG, Nilssen S, Kvåle G. Breast feeding, other reproductive factors and rheumatoid arthritis. A prospective study. *Br J Rheumatol* 1995;34:542-6.

Bulbul 2008

Bulbul L, Baysal SU, Gokcay G, Vehid HE, Bulbul A. Correlation between exclusive breast feeding duration and blood hemoglobin levels, erythrocyte indices in six-month-old infant. *Turk pediatri arsiv* 2008;43(4):119-26.

Buyken 2008

Buyken AE, Karaolis-Danckert N, Remer T, Bolzenius K, Landsberg B, Kroke A. Effects of Breastfeeding on Trajectories of Body Fat and BMI throughout Childhood. *Obesity* 2008;16:389-395.

Byrne 2018

Byrne ML, Schwartz OS, Simmons JG, Sheeber L, Whittle S, Allen LB. Duration of breastfeeding and subsequent adolescent obesity: Effects of maternal behaviour and socioeconomic status. *J Adolesc Health* 2018;62(4):471-9.

Camayo 2008

Camayo JR. Breastfeeding and breast cancer: a case-control study in patients of the Hospital NacionalArzobispo Loayza, Lima-Peru. *An Fac Med* 2008;69(1):1-12.

Cando 2019

Cando RI, DiazSilva A, Guerendiain M. The cognitive performance of indigenous schoolchildren in relation to their feeding during infancy. *Am J Human Biol* 2019;e23326.

Caulfield 1996

Caulfield LE, Bentley ME, Ahmed S. Is Prolonged BreastfeedingAssociated with Malnutrition?Evidence from Nineteen Demographicand Health Surveys. *Int J Epidemiol* 1996;25:693-703.

Chaiffarino 2005

Chiaffarino F, Pelucchi C, Negri E, Parazzini F, Franceschi S, Talamini R, Montella M, Ramazzotti V, La Vecchia C. Breastfeeding and the risk of epithelial ovarian cancer in an Italian population. *Gynecol Oncol* 2005;98:304-8.

Chang-Claude 2000

Chang-Claude J, Eby N, Kiechle M, Bastert G, Becher H. Breastfeeding and breast cancer risk by age 50 among women in Germany. *Cancer Causes Control* 2000;11:687-95.

Chantry 2004

Chantry CJ, Auinger P, Byrd RS. Lactation Among Adolescent Mothersand Subsequent Bone Mineral Density. *Arch Pediatr Adolesc Med* 2004;158:650-6.

Chantry 2007

Chantry CJ, Howard CR, Auinger P. Full breastfeeding duration and risk for iron deficiency in U.S. infants. *Breastfeed Med* 2007;2(2):63-73.

Chiu 2011

Chiu W-C, Liao H-F, Chang P-J, Chen P-C, Chen YC. Duration of breast feeding and risk of developmental delay in Taiwanese children: a nationwide birth cohort study. *Paediatr Perinatal Epidemiol* 2011;25:519-27.

Chowdhury 2002

Chowdhury S, Sarkar NR, Roy SK. Impact of Lactational Performance on Bone Mineral Density in Marginally Nourished Bangladeshi Women. *J Health Pop Nutr* 2002;20:26-30.

Clark 2006

Clark KM, Castillo M, Calatroni A, Walter T, Cayazzo M, Pino P, Lozoff B. Breastfeeding and Mental and Motor Development at 5 1/2 Years. *Ambul Pediatr* 2006;6:65-71.

Coogan 1999

Coogan PF, Rosenberg L, Shapiro S, Hoffman M. Lactation and Breast Carcinoma Risk in a SouthAfrican Population. *Cancer* 1999;86:982-9.

Cooke-Hubley 2019

Cooke-Hubley S, Gao Z, Mugford G, Kaiser SM, Goltzman D, Leslie WD, et al. Parity and lactation are not associated with incident fragility fractures or radiographic vertebral fractures over 16 years of follow up:

Canadian Multicentre Osteoporosis Study (CaMos). Arch Osteoporosis 2019;14:49.

Cruz 2017

Cruz LMG, Azpeitia GG, Suárez DR, Rodríguez AS, Ferrer JFL, Serra-Majem L. Factors Associated with Stunting among Children Aged 0 to 59 Months from the Central Region of Mozambique. Nutrients 2017;9(5):491.

Cumming 1993

Cumming RG, Klineberg RJ. Breastfeeding and Other Reproductive Factors and the Risk of Hip Fractures in Elderly Women. Int J Epidemiol 1993;22:684-91.

Dahlquist 1991

Dahlquist G, Blom L, Lönnberg G. The Swedish Childhood Diabetes Study- a multivariate analysis of risk determinants for diabetes in different age groups. Diabetologia 1991;34:757-62.

Daniels 2002

Daniels JL, Olshan AF, Pollock BH, Shah NR, Stram DO. Breast-feeding and neuroblastoma, USA and Canada. Cancer Causes Control 2002;13:401-5.

Darmawikarta 2016

Darmawikarta D, Chen Y, Lebovic C, Birken CS, Parkin PC, Maguire JL. Total Duration of Breastfeeding, Vitamin D Supplementation, and Serum Levels of 25-Hydroxyvitamin D. Am J Pub Health 2016;106:714-19.

Darsene 2017

Darsene H, Geleto A, Gebeyehu A, Meseret S. Magnitude and predictors of undernutrition among children aged six to fifty nine months in Ethiopia: A cross sectional study. Arch Pub Health 2017;75:29.

Dasanayake 2002

Dasanayake AP, Caufield PW. Prevalence of dental caries in Sri Lankan aboriginal Veddha children. Int Dent J 2002;52:438-44.

Davis-Paturet 2020

Davis-Paturet C, Adel-Patient K, Forhan A, Lioret S, Annesi-Maesano I, Heude B, Charles MA, de Lauzen-Guillain B. Breastfeeding initiation or duration and longitudinal patterns of infection up to 2 years and rash and respiratory symptoms up to 8 years in the EDEN mother child cohort. Matern Child Nutr 2020;16:e12935.

Delgado 2017

Delgado CA, Munhoz TN, Santos IS, Barros FC, Matijasevich A. Prolonged breastfeeding for 24 months or more and mental health at 6 years of age: evidence from the 2004 Pelotas Birth Cohort Study, Brazil. Child Adolesc Mental Health 2017;22(4):209-215.

de Matos 2011

de Matos SMA, de Jesus SR, Saldiva SRDM, Prado MS, D'Innocenzo S, Assis AMO, Rodriguez LC, Barreto ML. Speed of weight gain in the first years of life and excess weight between 5-11 years of age, Salvador, Bahia, Brazil. Cad Saude Publica 2011;27(4).

den Dekker 2016

den Dekker HT, der Voort AMMS, Jaddoe VVW, Reiss IK, de Jongste JC, Duijts L. Breastfeeding and asthma outcomes at the age of 6 years: The Generation R Study. Pediatr Allergy Immunol 2016;27(5):486-92.

De Silva 2010

De Silva M, Senarath U, Gunatilake M, Lokuhetty D. Prolonged breastfeeding reduces risk of breast cancer in Sri Lankan women: A case-control study. *Cancer Epidemiol* 2010;34:267-73.

Dewey 1991

Dewey KG, Heinig MJ, Nommsen LA, Lönnerdal B. Adequacy of energy intake among breast-fed infants in the DARLING study: relationships to growth velocity, morbidity, and activity levels. *Davis Area Research on Lactation, Infant Nutrition and Growth. J Pediatr* 1991;119:538-47.

Dewey 1993

Dewey KG, Heinig MJ, Nommsen LA. Maternal weightloss patterns during prolonged lactation. *Am J Clin Nutr* 1993;58:162-6.

Dieu 2007

HTT Dieu, MJ Dibley, D Sibbritt, TTM Hanh. Prevalence of overweight and obesity in preschool children and associated socio-demographic factors in Ho Chi Minh City, Vietnam. *Int J Pediatr Obesity* 2007;2:40-50.

Dini 2000

Dini EL, Holt RD, Bedi R. Caries and its association with infant feeding and oral health-related behaviours in 3-4 years old Brazilian children. *Community Dent Oral Epidemiol* 2000;28:241-8.

Donkor 2017

Donkor HM, Grundt JH, Júlíusson PB, Eide GE, Hurum J, et al. Social and somatic determinants of underweight, overweight and obesity at 5 years of age: a Norwegian regional cohort study. *BMJ Open* 2017;0:e014548.

Durmus 2012

Durmus B, Ay L, Duijts L, Moll HA, Hokken-Koelega ACS, et al. Infant diet and subcutaneous fat mass in early childhood: The Generation R Study. *Eur J Clin Nutr* 2012;66:253-260.

Egan 1998

Egan KM, Stampfer MJ, Rosner BA, Trichopoulos D, Newcomb PA, Trentham-Dietz A, Longnecker MP, Mittendorf R, Greenberg ER, Willett WC. Risk factors for breast cancer in women with a breast cancer family history. *Cancer Epidemiol Biomarkers Prev* 1998;7:359-64.

Ehlayel 2008

Ehlayel MS, Bener A. Duration of breast-feeding and the risk of childhood allergic diseases in a developing country. *Allergy Asthma Proc* 2008;29:386-391.

Elliott 1997

Elliott KG, Kjolhede CL, Gournis E, Rasmussen KM. Duration of breastfeeding associated with obesity during adolescence. *Obes Res* 1997;5:538-541.

Elliott 2008

Elliott L, Henderson J, Northstone J, Northstone K, Chiu GY, Dunson D, London SJ. Prospective study of breastfeeding in relation to wheeze, atopy, and bronchial hyperresponsiveness in the Avon Longitudinal Study of Parents and Children (ALSPAC). *J Allergy Clin Immunol* 2008;122(1):49-54.

Elverud 2019

Elverud IS, Stordal K, Chidou M, Klingenberg C. Factors influencing growth of children aged 12 to 24 months in the Tanga region, Tanzania. *J Trop Pediatr* 2019;0:1-8.

Elwood 2005

Elwood PC, Pickering J, Gallacher JE, Hughes J, Davies D. Long term effect of breast feeding: cognitive function in the Caerphilly cohort. *Epidemiol Community Health* 2005;59:130-3.

Enger 1997

Enger SM, Ross RK, Henderson B, Bernstein L. Breastfeeding history, pregnancy experience and risk of breast cancer. *Br J Cancer* 1997;76:118-23.

Enger 1998

Enger SM, Ross RK, Paganini-Hill A, Bernstein L. Breastfeeding experience and breast cancer risk among postmenopausal women. *Cancer Epidemiol Biomarkers Prev* 1998;7(5):365-9.

Eriksson 2003

Eriksson J, Forsén T, Osmond C, Barker D. Obesity from cradle to grave. *Int J Obes Relat Metab Disord* 2003;27:722-7.

Fancony 2020

Fancony C, Soares A, Lavinha J, Barros H, Brito M. Iron deficiency anemia among 6 to 36 month children from North Angola. *BMC Pediatrics* 2020;20:298.

Farajzadeh 2011

Farjzadeh S, Shahesmaeili A, Bazargan N, Poorkani ZM, Karaminejad Z, Aghaei H, Pourdamghan N. Relationship between duration of breastfeeding and development of atopic dermatitis. *J Pak Assoc Dermatol* 2011;21:80-6.

Fatemi 2019

Fatemi MJ, Fararouei M, Maravej H, Dianatinasab M. Stunting and its associated factors among 6-7 year old children in Southern Iran: a nested case control study. *Public Health Nutrition* 2019;22(1):55-62.

Fawzi 1998

Fawzi WW, Herrera MG, Nestel P, el Amin A, Mohamed KA. A longitudinal study of prolonged breastfeeding in relation to child undernutrition. *Int J Epidemiol* 1998;27:255-60.

Feldens 2010

Feldens CA, Giugliani ERJ, Vigo A, Vitolo MR. Early Feeding Practices and Severe Early Childhood Caries in Four-Year-Old Children from Southern Brazil: A Birth Cohort Study. *Caries Res* 2010;44:445-452.

Fikadu 2014

Fikadu T, Assegid S, Amente LD. Factors associated with stunting among children of age 24 to 59 months in Meskan district, Gurage Zone, South Ethiopia: A case-control study. *BMC Public Health* 2014;14(1):800.

Flohr 2011

Flohr C, Nagel G, Weinmayr G, Kleiner A, Strachan DP, Williams HC; ISAAC Phase Two Study Group. Lack of evidence for a protective effect of prolonged breastfeeding on childhood eczema: lessons from the

International Study of Asthma and Allergies in Childhood (ISAAC) Phase Two. Br J Dermatol 2011;165(6):1280-9.

Folayan 2010

Folayan MO, Sowole CA, Owotade FJ, Sote E. Impact of Infant Feeding Practices on Caries Experience of Preschool Children. J Clin Pediatr Dent 2010;34(4):297-302.

Foroushani 2010

Foroushani AR, Mohammad K, Mahmoodi M, Siassi F. Effect of breastfeeding on cognitive performance in a British birth cohort. East Mediterr Health J 2010;16(2):202-8.

Fox 1993

Fox KM, Magaziner J, Sherwin R, Scott JC, Plato CC, Nevitt M, Cummings S. Reproductive correlates of bone mass in elderly women. Study of Osteoporotic Fractures Research Group. J Bone Miner Res 1993;8:901-8.

Fox 2013

Fox M, Berzuine C, Knapp LA. Maternal Breastfeeding History and Alzheimer's Disease Risk. J Alzheimers Dis 2013;37:809-21.

Francisco 1993

de Francisco A, Morris J, Hall AJ, Armstrong Schellenberg JR, Greenwood BM. Risk Factors for Mortality from Acute Lower Respiratory Tract Infections in Young Gambian Children. Int J Epidemiol 1993;22:1174-82.

Frank 2019

Frank NM, Lynch KF, Uusitalo U, Yang J, Lonnrot M, Virtanen SM, et al. The relationship between breastfeeding and reported respiratory and gastrointestinal infection rates in young children. BMC Pediatrics 2019;19:339.

Freudenhiem 1997

Freudenheim JL, Marshall JR, Vena JE, Moysich KB, Muti P, Laughlin R, Nemoto T, Graham S. Lactation History and Breast Cancer Risk. Am J Epidemiol 1997;146:932-8.

Furberg 1999

Furberg H, Newman B, Moorman P, Millikan R. Lactation and breast cancer risk. Int J Epidemiol 1999;28:396-402.

Gale 2004

Gale CR, O'Callaghan FJ, Godfrey KM, Law CM, Martyn CN. Critical periods of brain growth and cognitive function in children. Brain 2004;127:321-9.

Gammon 2002

Gammon MD, Neugut AI, Santella RM, Teitelbaum SL, Britton JA, Terry MB, Eng SM, Wolff MS, Stellman SD, Kabat GC, Levin B, Bradlow HL, Hatch M, Beyea J, Camann D, Trent M, Senie RT, Garbowski GC, Maffeo C, Montalvan P, Berkowitz GS, Kemeny M, Citron M, Schnabe F, Schuss A, Hajdu S, Vinciguerra V, Collman GW, Ostram GI. The Long Island Breast Cancer Study Project: description of a multi-institutional collaboration to identify environmental risk factors for breast cancer. Breast Cancer Res Treat 2002;74:235-254.

Garden 2012

Garden FL, Marks GB, Simpson JM, Webb KL. Body Mass Index (BMI) Trajectories from Birth to 11.5 Years: Relation to Early Life Food Intake. *Nutrients* 2012;4:1382-98.

Gewa 2012

Gewa CA, Yandell N. Undernutrition among Kenyan children: contribution of child,maternal and household factors. *Public Health Nutr* 2012;15(6):1029-38.

Ghiasvand 2011

Ghiasvand R, Maram ES, Tahmasebi S, Tabatabaee SHR. Risk factors for breast cancer among young women in Southern Iran. *Int J Cancer* 2011;129:1443-9.

Giamba de Lima 2001

Geimba de Lima M, Koifman S, Scapulatempo IL, Peixoto M, Naomi S, Curado do Amaral M. Risk factors for breast cancer among rural Terena Indian women in the State of Mato Grosso do Sul, Brazil [Fatores de risco para câncer de mama em mulheres indígenas Terena de área rural,Estado do Mato Grosso do Sul, Brasil]. *Cad. Saúde Pública*, Rio de Janeiro, 2001;17(5):1537-44.

Girma 2019

Girma A, Woldie H, Mekonnen FA, Gonete KA, Sisay M. Undernutrition and associated factors among urban children aged 24-59 months in Northwest Ethiopia: a community based cross sectional study. *BMC Pediatrics* 2019;19:214.

Goldfield 2006

Goldfield GS, Paluch R, Keniray K, Hadjiyannakis S, Lumb AB, Adamo K. Effects of Breastfeeding on Weight Changes in Family-based Pediatric Obesity Treatment. *J Dev Behav Pediatr* 2006;27:93-97.

Gomez-Sanchiz 2003

Gómez-Sanchiz M, Cañete R, Rodero I, Baeza JE, Avila O. Influence of Breast-Feeding on Mental and Psychomotor Development. *Clin Pediatr (Phila)* 2003;42:35-42.

Gomez-Sanchiz 2004

Gómez-Sanchiz M, Cañete R, Rodero I, Baeza JE, González JA. Influence of Breast-feeding and Parental Intelligence on Cognitive Development in the 24-Month-Old Child. *Clin Pediatr (Phila)* 2004;43:753-61.

Gopalan 1992

Gopalan S, Puri RK. Breast Feeding and Infant Growth. *Indian Pediatr* 1992;29:1079-86.

Gopinath 2012

Gopinath B, Subramanian I, Flood VM, Baur LA, Pfund N, et al. Relationship between breast-feeding and adiposity in infants and pre-school children. *Public Health Nutr* 2012;15(9):1639-44.

Greggi 2000

Greggi S, Parazzini F, Paratore MP, Chatenoud L, Legge F, Mancuso S, La Vecchia C. Risk factors for ovarian cancer in central Italy. *Gynecol Oncol* 2000;79:50-4.

Grimshaw 2013

Grimshaw KEC, Maskell J, Oliver EM, Morris RCG, Foote KD, et al. Introduction of Complementary Foods and the Relationship to Food Allergy. *Pediatrics* 2013;132:e1529.

Grijbovski 2008

Grijbovski AM, Ehrenblad B, Yngve A. Infant feeding in Sweden: Socio-demographic determinants and associations with adiposity in childhood and adolescence. *Int Breastfeed J* 2008;3:23.

Gunderson 2014

Gunderson EP, Lewis CE, Jacobs Jr DR, Gross M, Quesenberry Jr CP, Goff Jr DC. 25-year prospective study of lactation duration and incidence of diabetes among cardia women screened before and after pregnancy. *Diabetes* 2014;1:A336-7.

Gunderson 2014a

Gunderson EP, Lewis CE, Ning X, Pletcher M, Jacobs D, Goff D, et al. Lactation duration and subsequent intima media thickness in women during midlife controlling for pre-pregnancy cardiometabolic risk factors: The cardia study. *Circulation Conference: American Heart Association's Epidemiology and Prevention/Nutrition, Physical Activity, and Metabolism* 2014;129(Suppl 1).

Gunderson 2015

Gunderson EP, Quesenberry CP Jr, Ning X, Jacobs DR Jr, Gross M, Goff DC Jr, Pletcher MJ, Lewis CE. Lactation Duration and Midlife Atherosclerosis. *Obstet Gynecol* 2015;126(2):381-390.

Gunther 2013

Günther ALB, Walz H, Kroke A, Wudy SA, Riedel C, et al. (2013) Breastfeeding and Its Prospective Association with Components of the GH-IGF-Axis, Insulin Resistance and Body Adiposity Measures in Young Adulthood – Insights from Linear and Quantile Regression Analysis. *PLoS ONE* 2013;8(11):e79436.

Guven 2005

Guven A, Aydin M. Beş yaşından önce tip 1 diyabetes mellitus tanısı alan çocuklarda etiyopatogeneizde rol alan faktörler. *Çocuk Sağlığı ve Hastalıkları Dergisi* 2005;48:295-300.

Hallonsten 1995

Hallonsten AL, Wendt LK, Mejäre I, Birkhed D, Håkansson C, Lindvall AM, Edwardsson S, Koch G. Dental caries and prolonged breast-feeding in 18-month-old Swedish children. *Int J Paediatr Dent* 1995;5:149-55.

Han 2004

Han DF, Ma J, Zhou X, Qiu H, Fang L, Huang S. A case-control study on the risk of female breast cancer in Wuhan area [武汉地区女性乳腺癌危险因素的病例对照研究]. *Chin J Epidemiol* 2004;25(3):256-60.

Han 2012

Han DH, Shin JM, Lee JE, Won TB, Kim DY, Lee CH, Min YG, Rhee CS. 168 The Impact of Breast-Feeding Duration and Mode of Delivery on Allergic Rhinitis in Korean Children: Cohort of Allergic Rhinitis in Korea (Coar-korea) Study. *World Allergy Organ J* 2012;5(Suppl 2):S 73.

Han 2019

Han DH, Shin JM, An S, Kim JS, Kim DY, Moon S, et al. Long term breastfeeding in the prevention of allergic rhinitis: Allergic Rhinitis Cohort Study for Kids (Arco-Kids Study). *Clin Exp Otorhinolaryng* 2019;12(3):301-7.

Harding 2007

Harding NJ, Birch JM, Hepworth SJ, McKinney PA, on behalf of the UKCCS investigators. Breastfeeding and risk of childhood CNS tumours. *Br J Cancer* 2007;96:815-817.

Hassa 2005

Hassa H, Tanir HM, Senses T, Oge T, Sahin-Mutlu F. Related factors in bone mineral density of lumbal and femur in natural postmenopausal women. *Arch Gynecol Obstet* 2005;273:86-9.

Hay 2008

Hay G, Johnston C, Whitelaw A, Trygg K, Refsum H. Folate and cobalamin status in relation to breastfeeding and weaning in healthy infants. *Am J Clin Nutr* 2008;88:105-114.

Hayosh 2015

Hayosh O, Mandel D, Mimouni FB, Lahat S, Marom R, Lubetzky R. Prolonged duration of breastfeeding does not affect lipid profile in adulthood. *Breastfeed Med* 2015;10(4):218-21.

Heard-Lipsmeyer 2020

Heard-Lipsmeyer ME, Diaz EC, Sims CR, Sobik SR, Rueben ML, Thakali KM, Krukowski RA, Cleves M, Bosrshiem E, Shankar K, Andres A. Maternal Adiposity is Associated with Fat Mass Accretion in Female but not Male Offspring During the First Two Years of Life. *Pediatric Obesity* 2020;0:1-7.

Hediger 2001

Hediger ML, Overpeck MD, Kuczmarski RJ, Ruan WJ. Association between infant breastfeeding and overweight in young children. *JAMA* 2001;285(19):2453-60.

Hewat 1986

Hewat RJ, Ellis DJ. Similarities and differences between women who breastfeed for short and long duration. *Midwifery* 1986;2:37-43.

Hosaka 2013

Hosaka M, Asayama K, Staessen JA, Ohkubo T, Hayashi K, et al. Breastfeeding leads to lower blood pressure in 7-year-old Japanese children: Tohoku Study of Child Development. *Hypertension Research* 2013;36:117-122.

Houle 2019

Houle B, Rochat TJ, Newell ML, Stein A, Bland RL. Breastfeeding, HIV exposure, childhood obesity and prehypertension: A South African cohort study. *PLOS Med* 2019;16(8):e1002889.

Howie 1990

Howie PW, Forsyth JS, Ogston SA, Clark A, Florey CD. Protective effect of breast feeding against infection. *BMJ* 1990;300(6716):11-16.

Hu 1994

Hu JF, Zhao XH, Chen JS, Fitzpatrick J, Parpia B, Campbell TC. Bone Density and Lifestyle Characteristics in Premenopausal and Postmenopausal Chinese Women. *Osteoporos Int* 1994;4:288-97.

Hu 2020

Hu J, Aris IM, Lin PD, Rifas-Shiman SL, Perng W, Baidal JAW, Wen D, Oken E. Longitudinal associations of modifiable risk factors in the first 1000 days with weight status and metabolic risk in early adolescence. *Am J*

Clin Nutr 2020;0:1-10.

Huang 2017

Huang C, Liu W, Cai J, Weschler LB, Wang X, Hu Y, Zou Z, Shen L, Sundell J. Breastfeeding and timing of first dietary introduction in relation to childhood asthma, allergies, and airway diseases: A cross-sectional study. J Asthma 2017;54(5):488-97.

Huang 2018

Huang T, Yue Y, Wang H, Zheng J, Chen Z, Chen T, Zhang M, Wang S. Infant Breastfeeding and Behavioral Disorders in School-Age Children. Breastfeeding Med 2018;14(2):115-20.

Huo 2003

Huo D, Lauderdale DS, Li L. Influence of reproductive factors on hip fracture risk in Chinese women. Osteoporos Int 2003;14:694-700.

Hwang 2016

Hwang IR, Choi YK, Lee WK, Kim JG, Lee IK, Kim SW, Park KG. Association between prolonged breastfeeding and bone mineral density and osteoporosis in postmenopausal women: KNHANES2010-2011. Osteoporosis Int 2016;27(1):257-265.

Infante-Rivard 2001

Infante-Rivard C, Amre D, Gautrin D, Malo JL. Family Size, Day-Care Attendance, and Breastfeeding in Relation to the Incidence of Childhood Asthma. Am J Epidemiol 2001;153(7):653-8.

Iron-Segev 2013

Iron-Segev S, Peterson KE, Gillman MW, Williams CM, Austin SB, Field AE. Associations of breastfeeding with bulimic behaviors and eating disorders among adolescents. Int J Eat Disord 2013;46(8):834-840.

Issa 2019

Issa C, Hobeika M, Salameh P, Zeidan RK, Mattar L. Longer durations of both exclusive and mixed breastfeeding are associated with better health in infants and toddlers. Breastfeeding Rev 2019;27(2):17-27.

Ito 2014

Ito J, Fujiwara T. Breastfeeding and risk of atopic dermatitis up to the age 42 months: a birth cohort study in Japan. Ann Epidemiol 2014;24:267-72.

Jacobson 1999

Jacobson SW, Chiodo LM, Jacobson JL. Breastfeeding Effects on Intelligence Quotient in 4- and 11-Year-Old Children. Pediatrics 1999;103:e71.

Jenkins 2014

Jenkins JM, Foster EM. The Effects of Breastfeeding Exclusivity on Early Childhood Outcomes. Am J Public Health 2014;104:S128-135.

Jensen 2015

Jensen SM, Ritz C, Ejlerskov KT, Mølgaard C, Michaelsen KF. Infant BMI peak, breastfeeding, and body composition at age 3 y. Am J Clin Nutr 2015;101(2):319-25.

Jernström 2004

Jernström H, Lubinski J, Lynch HT, Ghadirian P, Neuhausen S, Isaacs C, Weber BL, Horsman D, Rosen B, Foulkes WD, Friedman E, Gershoni-Baruch R, Ainsworth P, Daly M, Garber J, Olsson H, Sun P, Narod SA. Breast-feeding and the risk of breast cancer in BRCA1 and BRCA2 mutation carriers. *J Natl Cancer Inst* 2004; 96:1094-8.

Jigjid 2009

Jigjid B, Ueno M, Shinida K, Kawaguchi Y. Early childhood caries and related risk factors in Mongolian children. *Community Dental Health* 2009;26:121-128.

Jordan 2010

Jordan SJ, Siskind V, Green AC, Whiteman DC, Webb PM. Breastfeeding and risk of epithelial ovarian cancer. *Cancer Causes Control* 2010;21:109-16.

Jordan 2012

Jordan SJ, Cushing-Haugen KL, Wicklund KG, Doherty JA, Rossing MA. Breast feeding and risk of epithelial ovarian cancer. *Cancer Causes Control* 2012;23:919-27.

Jordan 2013

Jordan I, Hebestreit A, Swai B, Krawinkel MB. Breast cancer risk among women with long-standing lactation and reproductive parameters at low risk level:a case-control study in Northern Tanzania. *Breast Cancer Res Treat* 2013;142:133-141.

Kadziella-Olech 1995

Kadziella-Olech H, Piotrowska-Jastrzebska J. The duration of breastfeeding and attention deficit hyperactivity disorder. *Roczniki Akademii Medycznej w Białymstoku* 1995;50:302-6.

Kadziella-Olech 2005

Kadziella-Olech H, Piotrowska-Jastrzebska J. The duration of breastfeeding and attention deficit hyperactivity disorder. *Rocz Akad Med Białymst* 2005;50:302-6.

Kakanur 2017

Kakanur M, Nayak M, Patil SS, Thakur R, Paul ST, Tewathia N. Exploring the Multitude of Risk Factors Associated with Early Childhood Caries. *Indian J Dental Res* 2017;28:27-32.

Kalies 2005

Kalies H, Heinrich J, Borte N, Schaaf B, von Berg A, von Kries R, Wichmann HE, Bolte G; LISA Study Group. The effect of breastfeeding on weight gain in infants: results of a birth cohort study. *Eur J Med Res* 2005;10:36-42.

Kalkarf 2013

Kalkarf HJ, Zemel BS, Yolton K, Heubi JE. Bone mineral content and density of the lumbar spine of infants and toddlers: influence of age, sex, race, growth and human milk feeding. *J Bone Miner Res* 2013;28(1):206-12.

Kallio 1992

Kallio MJ, Siimes MA, Perheentupa J, Salmenperä L, Miettinen TA. Serum cholesterol and lipoprotein concentrations in mothers during and after prolonged exclusive lactation. *Metabolism* 1992;41:1327-30.

Katsouyanni 1996

Katsouyanni K, Lipworth L, Trichopoulou A, Samoli E, Stuver S, Trichopoulos D. A case-control study of lactation and cancer of the breast. *Br J Cancer* 1996;73:814-8.

Kim 2007

Kim Y, Choi JY, Lee KM, Park SK, Ahn SH, et al. Dose-dependent protective effect of breast-feeding against breast cancer among ever-lactated women in Korea. *Eur J Cancer Prev* 2007;16:124-129.

Kim 2019

Kim JY, Kim DH, Kim YH, Shin HY. Associations of breastfeeding duration and reproductive factors with sarcopenia in elderly Korean women: A cross sectional study from the Korea National Health and Nutrition Examination Survey 2010-11. *Korean J Fam Med* 2019;40:165-70.

Kim 2020

Kim MY, Kim HJ, Noh JH, Kim SA, Hwang DS, Lee CH, Ha IH. Relationship of breastfeeding duration with joint pain and knee osteoarthritis in middle-aged Korean women: a cross-sectional study using the Korea National Health and Nutrition Examination Survey. *BMC Womens Health* 2020;20:213.

Kitsantas 2010

Kitsantas P, Gaffney KF. Risk profiles for overweight/obesity among preschoolers. *Early Human Dev* 2010;86:563-8.

Koetting 1988

Koetting CA, Wardlaw GM. Wrist, spine, and hip bone density in women with variable histories of lactation. *Am J Clin Nutr* 1988;48:1479-81.

Kolacek 1993

Kolacek S, Kapetanović T, Luzar V. Early determinants of cardiovascular risk factors in adults.B. Blood pressure. *Acta Paediatr* 1993;82:377-82.

Kolacek 1993a

Kolacek S, Kapetanović T, Zimolo A, Luzar V. Early determinants of cardiovascular risk factors in adults.A. Plasma lipids. *Acta Paediatr* 1993;82:699-704.

Kong 2020

Kong KL, Burgess B, Morris KS, Faith MS, Paluch RA. High intake of added sugars is linked to rapid weight gain in infancy, breastfeeding ≥ 12 months may protect against this: A preliminary investigation. *Pediatric Obesity* 2020;e12728..

Kotsopoulos 2012

Kotsopoulos J, Lubinski J, Salmena L, Lynch HT, Kim-Sing C, Foulkes WD, Ghadirian P, Neuhausen SL, Demsky R, Tung N, Ainsworth P, Senter L, Eisen A, Eng C, Singer C, Ginsburg O, Blum J, Huzarski T, Poll A, Sun P, Narod SA; Hereditary Breast Cancer Clinical Study Group. Breastfeeding and the risk of breast cancer in BRCA1 and BRCA2 mutation carriers. *Breast Cancer Res* 2012;14:R42.

Kowal 2017

Kowal M, Matusik S, Pilecki SW, Kryst L, Sobiecki J, Woronkiewicz A, , 44:8, 693-703,. Overweight and obesity risk factors in children aged 3–7 years: a prospective study in the city of Kraków. *Annals of Human Biology* 2017; 44(8):693-703.

Kraljevic 2017

Kraljevic I, Filippi C, Filippi A. Risk indicators of early childhood caries (ECC) in children with high treatment needs. *Swiss Dent J* 2017;127:398-404.

Kramer 1981

Kramer MS. Do breast-feeding and delayed introduction of solid foods protect against subsequent obesity? *J Pediatr* 1981;98:883-7.

Kramer 1986

Kramer MS, Barr RG, Pless IB. Determinants of weight and adiposity in early childhood. *Canadian J Public Health* 1986;77(Suppl 1):98-103.

Kramer 2007

Kramer MS, McGill J, Matush L, Vanilovich I, Platt R, et al. Effect of prolonged and exclusive breast feeding on risk of allergy and asthma: cluster randomised trial. *BMJ* 2007;335(7624):815.

Kramer 2007a

Kramer MS, Matush L, Vanilovich I, Platt RW, Bogdanovich N, et al. Effects of prolonged and exclusive breastfeeding on child height, weight, adiposity, and blood pressure at age 6.5 y: evidence from a large randomized trial. *Am J Clin Nutr* 2007;86:1717-21.

Kramer 2007b

Kramer MS, Vanilovich I, Matush L, Bogdanovich N, Zhang X, et al. The Effect of Prolonged and Exclusive Breast-Feeding on Dental Caries in Early School-Age Children. *Caries Res* 2007;41:484-8.

Kramer 2007c

Kramer MS, Matush L, Aboud F, Vanilovich I, Bogdanovich N, Mironova E. Long-term child health effects of breastfeeding in developed countries: new evidence from the PROBIT trial. *J Human Lact* 2007;23(1):90.

Kramer 2008

Kramer MS, Aboud F, Mironova E, Vanilovich I, Platt RW, et al. Breastfeeding and Child Cognitive Development. *Arch Gen Psychiatry* 2008;65:578-84.

Kramer 2008a

Kramer MS, Fombonne E, Igumnov S, Vanilovich I, Matush L, et al. Effects of Prolonged and Exclusive Breastfeeding on Child Behavior and Maternal Adjustment: Evidence From a Large, Randomized Trial. *Pediatrics* 2008;121:e435-441.

Kruk 2007

Kruk J. Association of Lifestyle and Other Risk Factors with Breast Cancer According to Menopausal Status: A Case-Control Study in the Region of Western Pomerania (Poland). *Asian Pacific J Cancer Prev* 2007;8:513-524.

Kubota 2020

Kubota Y, Pech NS, Durward C, Ogawa H. Association between Early Childhood Caries and Maternal Factors among 18- to 36-month-old Children in a Rural Area of Cambodia. *Oral Health Prev Dent* 2020;18:973-80.

Kull 2002

Kull I, Wickman M, Lilja G, Nordvall SL, Pershagen G. Breast feeding and allergic diseases in infants—a prospective birth cohort study. *Arch Dis Child* 2002;87:478-81.

Kuru 2002

Kuru B, Ozaslan C, Ozdemir P, Dinç S, Camlibel M, Alagöl H. Risk factors for breast cancer in Turkish women with early pregnancies and long-lasting lactation—a case-control study. *Acta Oncol* 2002;41(6):556-61.

Kwan 2005

Kwan ML, Buffler PA, Wiemels JL, Metayer C, Selvin S, Ducore JM, Block G. Breastfeeding patterns and risk of childhood acute lymphoblastic leukaemia. *Br J Cancer* 2005;93:379-84.

Kyvik 1992

Kyvik KO, Green A, Svendsen A, Mortensen K. Breast Feeding and the Development of Type 1 Diabetes Mellitus. *Diabet Med* 1992;9:233-5.

Lamb 2010

Lamb MM, Dabelea D, Yin X, Ogden LG, Klingensmith GJ, Rewers M, Norris JM. Early-Life Predictors of Higher Body Mass Index in Healthy Children. *Ann Nutr Metab* 2010;56:16-22.

Lancashire 2003

Lancashire RJ, Sorahan T. Breastfeeding and childhood cancer risks: OSCC data. *Br J Cancer* 2003;88:1035-7.

Langton 2020

Langton CR, Whitcomb BW, Purdue-Smithe AC, Sievert LL, Hankinson SE, Manson JE, Rosner BA, Bertone-Johnson ER. Association of Parity and Breastfeeding with Risk of Early Natural Menopause. *JAMA Network Open* 2020;3(1):e1919615.

Laurenco 2018

Lourenco ASN, Neri DA, Konstantyner T, Palma D, Oliviera FLC. Factors associated with rapid weight gain in preschool children in public day care centres. *Rev Paul Paediatr* 2018;36(3):292-300.

Lawlor 2004

Lawlor DA, Najman JM, Sterne J, Williams GM, Ebrahim S, Davey Smith G. Associations of Parental, Birth, and Early Life Characteristics With Systolic Blood Pressure at 5 Years of Age: findings from the Mater-University study of pregnancy and its outcomes. *Circulation* 2004;110:2417-23.

Lawlor 2005

Lawlor DA, Riddoch CJ, Page AS, Andersen LB, Wedderkopp N, Harro M, Stansbie D, Smith GD. Infant feeding and components of the metabolic syndrome: findings from the European Youth Heart Study. *Arch Dis Child* 2005;90:582-8.

Lawlor 2006

Lawlor DA, Najman JA, Batty GD, O'Callaghan MJ, Williams GM, Bor W. Early life predictors of childhood intelligence: findings from the Mater-University study of pregnancy and its outcomes. *Paediatr Perinatal Epidemiol* 2006;20:148-162.

Lawlor 2008

Lawlor DA, Cooper AR, Bain C, Smith GD, Irwin A, Riddoch C, Ness A. Associations of birth size and duration of breast feeding with cardiorespiratory fitness in childhood: findings from the Avon Longitudinal Study of Parents and Children (ALSPAC). *Eur J Epidemiol* 2008;23:411-422.

Layde 1989

Layde PM, Webster LA, Baughman AL, Wingo PA, Rubin GL, Ory HW. The independent associations of parity, age at first full term pregnancy, and duration of breastfeeding with the risk of breast cancer. *Cancer and Steroid Hormone Study Group. J Clin Epidemiol* 1989;42:963-73.

Lee 2004

Lee EO, Ahn SH, You C, Lee DS, Han W, Choe KJ, Noh DY. Determining the Main Risk Factors and High-risk Groups of Breast Cancer Using a Predictive Model for Breast Cancer Risk Assessment in South Korea. *Cancer Nurs* 2004;37:400-6.

Lee 2017

Lee KS, Rha YH, Oh IH, Choi YS, Kim YE, Choi SH. Does Breast-feeding Relate to Development of Atopic Dermatitis in Young Korean Children?: Based on the Fourth and Fifth Korea National Health and Nutrition Examination Survey 2007–2012. *Allergy Asthma Immunol Res* 2017;9(4):307-13.

Leeson 2001

Leeson CP, Kattenhorn M, Deanfield JE, Lucas A. Duration of breast feeding and arterial distensibility in early adult life: population based study. *BMJ* 2001;322(7287):643-7.

Lehocka 2014

Lehocká L, Malovecká I, Minariková D, Foltan V. Breastfeeding and Its Effect On The Probability of Occurrence of the Probability of Occurrence of the Disease And Related Costs.. *Value Health* 2014;17(7):A446-7.

Lenora 2009

Lenora J, Lekamwasam S, Karlsson MK. Effects of multiparity and prolonged breast-feeding on maternal bone mineral density: a community-based cross-sectional study. *BMC Women Health* 2009;9:19.

Leventakou 2015

Leventakou V, Roumeliotaki T, Koutra K, Vassilaki M, Mantzouranis E, et al. Breastfeeding duration and cognitive, language and motor development at 18 months of age: Rhea mother-child cohort in Crete, Greece. *J Epidemiol Community Health* 2015;69(3):232-9.

Li 2010

Li SC, Kuo SC, Hsu YY, Lin SJ, Chen PC, Chen YC. Effect of Breastfeeding Duration on Infant Growth Until 18 Months of Age: A National Birth Cohort Study. *J Exp Clin Med* 2010;2:165-72.

Li 2014

Li R, Dee D, Li CM, Hoffman HJ, Grummer-Strawn LM. Breastfeeding and Risk of Infections at 6 Years. *Pediatrics* 2014;134(S1):S13-S20.

Li 2019

Li S, Yue A, Abbey C, Medina A, Shi Y. Breastfeeding and the Risk of Illness among Young Children in Rural China. *Int J Environ Res Pub Health* 2019;16:136.

Linne 2003

Linné Y, Dye L, Barkeling B, Rössner S. Weight development over time in parous women—The SPAWN study—15 years follow-up. *Int J Obes Relat Metab Disord* 2003;27:1516-22.

Liu 2005

Liu Y, Inoue M, Sobue T, Tsugane S. Reproductive factors, hormone use and the risk of lung cancer among middle-aged never-smoking Japanese women: a large-scale population-based cohort study. *Int J Cancer* 2005;117(4):662-6.

Liu 2011

Liu YT, Gao CM, Ding JH, Li SP, Cao HX, Wu JZ, Tang JH, Qian Y, Tajima K. Physiological, Reproductive Factors and Breast Cancer Riskin Jiangsu Province of China. *Asian Pacific J Cancer Prev* 2011;12:787-790.

Liu 2018

Liu JX, Xu X, Liu JH, Hardin JW, Li R. Association of maternal gestational weight gain with their offspring's anthropometric outcomes at late infancy and 6 years old: Mediating roles of birth weight and breastfeeding duration,. *Int J Obes* 2018;42(1):8-14.

Lopes 2014

Lopes TSP, Moura LFAD, Lima MCMP. Association between breastfeeding and breathing pattern in children: a sectional study. *J Pediatr (Rio J)* 2014;90(4):396-402.

Lowe 2006

Lowe AJ, Carlin JB, Bennett CM, Abramson MJ, Hosking CS, Hill DJ, Dharmage SC. Atopic disease and breast-feeding—cause or consequence? *J Allergy Clin Immunol* 2006;117:682-7.

Lumachi 2002

Lumachi F, Ermani M, Brandes AA, Basso U, Paris M, Basso SM, Boccagni P. Breast cancer risk in healthy and symptomatic women:results of a multivariate analysis. A case–control study. *Biomed Pharmacother* 2002;56:416-20.

Ma 2006

Ma H, Bernstein L, Ross RK, Ursin G. Hormone-related risk factors for breast cancer in women underage 50 years by estrogen and progesterone receptor status:results from a case–control and a case–case comparison. *Breast Cancer Res* 2006;8:R39.

Macaluso 1982

Macaluso M, Tamburini M, Massara G, Bertario L, Di Pietro S. Parity and breast cancer: confirmed evidence of an effect on age at diagnosis. *Breast Cancer Res Treat* 1982;2:257-60.

Malcova 2006

Malcova H, Sumnik Z, Drevinek P, Venhacova J, Lebl J, Cinek O. Absence of breast-feeding is associated with the risk of type 1diabetes: a case–control study in a population with rapidly increasing incidence. *Eur J Pediatr* 2006;165:114-119.

Marild 1990

Mårild S, Jodal U, Hanson LA. Breastfeeding and urinary-tract infection. *Lancet* 1990;336(8720):942.

Marild 2004

Mårild S, Hansson S, Jodal U, Odén A, Svedberg K. Protective effect of breastfeeding against urinary tract infection. *Acta Paediatr* 2004;93:164-8.

Marquis 1997

* Marquis GS, Habicht JP, Lanata CF, Black RE, Rasmussen KM. Association of Breastfeeding and Stunting in Peruvian Toddlers: An Example of Reverse Causality. *Int J Epidemiol* 1997;26:349-56.

Marquis GS, Habicht JP, Lanata CF, Black RE, Rasmussen KM. Breast milk or animal-product foods improve linear growth of Peruvian toddlers consuming marginal diet. *Am J Clin Nutr* 1997;66:1102-9.

Marquis GS, Habicht JP. Breastfeeding and stunting among the toddlers in Peru. In: Koletzko B, Michaelson KF, Hernell O, editor(s). *Short and long term effects of Breastfeeding on child health. Advances in Experimental Medicine and Biology*. Vol. 478. Boston, MA: Springer, 2002.

Martin 2004

Martin RM, Ness AR, Gunnell D, Emmett P, Davey Smith G; ALSPAC Study Team. Does breast-feeding in infancy lower blood pressure in childhood? The Avon Longitudinal Study of Parents and Children (ALSPAC). *Circulation* 2004;109:1259-66.

Martin 2005

Martin RM, Ben-Shlomo Y, Gunnell D, Elwood P, Yarnell JW, Davey Smith G. Breast feeding and cardiovascular disease risk factors, incidence, and mortality: the Caerphilly study. *J Epidemiol Community Health* 2005;59:121-9.

Martin 2017

Martin RM, Kramer MS, Patel R, Rifas-Shiman SL, Thompson J, et al. Effects of promoting longer-term and exclusive breastfeeding on adolescent adiposity, blood pressure, and longitudinal growth trajectories: evidence from the PROBIT cluster-randomized trial. *JAMA Pediatr* 2017;171(7):e170698.

Mastroeni 2017

Mastroeni MF, Mastroeni SS, Czarnobay SA, Ekwaru JP, Loehr SA, Veugeliers PJ. Breast-feeding duration for the prevention of excess body weight of mother-child pairs concurrently: a 2-year cohort study. *Public Health Nutr* 2017;20(14):2537-48.

Mathur 1993

Mathur GP, Gupta N, Mathur S, Gupta V, Pradhan S, Dwivedi JN, Tripathi BN, Kushwaha KP, Sathy N, Modi UJ, et al. Breastfeeding and childhood cancer. *Indian Pediatr* 1993;30:651-7.

Mattison 2015

Mattison SM, Wander K, Hinde K. Breastfeeding over Two Years is Associated with Longer Birth Intervals, but not Measures of Growth or Health, Among Children in Kilimanjaro, TZ. *Am J Human Biol* 2015;27(807-15).

Mayer 1988

Mayer EJ, Hamman RF, Gay EC, Lezotte DC, Savitz DA, Klingensmith GJ. Reduced risk of IDDM among breast-fed children. The Colorado IDDM Registry. *Diabetes* 1988;37:1625-32.

Mayer-Davis 2008

Mayer-Davis EJ, Liese AD, Dabelea D, Thomas J, Lamichhane AP, et al. Breast-Feeding and Type 2 Diabetes in the Youth of Three Ethnic Groups. *Diabetes Care* 2008;31:470-475.

McCredie 1998

McCredie M, Paul C, Skegg DC, Williams S. Reproductive factors and breast cancer in New Zealand. *Int J Cancer* 1998;76:182-8.

McCrory 2011

McCrory C, Layte R. The effect of breastfeeding on children's educational test scores at nine years of age: results of an Irish cohort study. *Soc Sci Med* 2011;72:1515-21.

Meeske 2004

Meeske K, Press M, Patel A, Bernstein L. Impact of reproductive factors and lactation on breast carcinoma in situ risk. *Int J Cancer* 2004;110:102-9.

Meinzen-Darr 2004

Meinzen-Derr JK, Guerrero ML, Altaye M, Ruiz-Palacios GM, Morrow AL. Duration of exclusive breastfeeding and risk of anemia in a cohort of Mexican infants. *Adv Exp Med Biol* 2004;554:395-8.

Meylan 2018

Meylan P, Gallay C, Mermoud S, Lang C, Johannsen A, Christen-Zaech S. Prospective birth cohort study on environmental factors and atopic dermatitis development. *Br J Dermatol* 2018;179(1):e28.

Mezzacappa 2002

Mezzacappa ES, Guethlein W, Katkin ES. Breast-Feeding and Maternal Health in Online Mothers. *Ann Behav Med* 2002;24:299-309.

Miao 2006

Miao Q, Kong BH. A case-control study on etiology of epithelial ovarian cancer in Shandong Province. *Chinese J Cancer* 2006;25(7):871-5.

Michaelsson 2001

Michaëlsson K, Baron JA, Farahmand BY, Ljunghall S. Influence of Parity and Lactation on Hip Fracture Risk. *Am J Epidemiol* 2001;153:166-172.

Michels 2007

Michels KB, Willett WC, Graubard BI, Vaidya RL, Cantwell MM, et al. A longitudinal study of infant feeding and obesity throughout life course. *Int J Obesity* 2007;31:1078-85.

Mihreshahi 2007

Mihreshahi S, Ampon R, Webb K, Almqvist C, Kemp AS, Hector D, Marks GB for the CAPS Team. The association between infant feeding practices and subsequent atopy among children with a family history of asthma. *Clin Exp Allergy* 2007;37:671-9.

Modrek 2017

Modrek S, Basu S, Harding M, White JS, Bartick MC, Rodriguez E, Rosenberg KD. Does breastfeeding duration decrease child obesity? An instrumental variables analysis. *Pediatr Obes* 2017;12(4):304-11.

Modugno 2019

Modugno F, Goughnour SL, Wallack D, Edwards RP, Odunsi K, Kelley JL, Moysich K, Ness RB, Brooks MM. Breastfeeding factors and the risk of epithelial ovarian cancer. *Gynecol Oncol* 2019;153(1):116-122.

Mohammadi 2019

Mohammadi F, Iranagh JA, Motalebi SA, Hamid TA. Reproductive factors influencing bone mineral density in postmenopausal women. *Women Health* 2019;59(2):145-154.

Mohebbi 2008

Mohebbi SZ, Virtanen JI, Vahid-Golpayegani M, Vehkalahti MM. Feeding habits as determinants of early childhood caries in a population where prolonged breastfeeding is the norm. *Community Dent Oral Epidemiol* 2008;36:363-9.

Molbak 1994

Mølbak K, Gottschau A, Aaby P, Højlyng N, Ingholt L, da Silva AP. Prolonged breast feeding, diarrhoeal disease, and survival of children in Guinea-Bissau. *BMJ* 1994;308(6941):1403-6.

Molbak 1997

Molbak K, Jakobsen M, Sodemann M, Aaby P. Is Malnutrition Associated with Prolonged Breastfeeding? *Int J Epidemiol* 1997;26(2):458-9.

Moradi 2016

Moradi S, Zamani F, Pishgar F, Ordookhani S, Nateghi N, Salehi F. Parity,duration of lactation and prevalence of maternal metabolic syndrome: a cross sectionalstudy. *Eur J Obstet Gynecol Reprod Biol* 2016;201:70-74.

Morales 2013

Morales L, Alvarez-Garriga C, Matta J, Ortiz C, Vergne Y, et al. Factors associated with breast cancer in Puerto Rican women. *J Epidemiol Global Health* 2013;3:205-215.

Morales-Romero 2015

Morales-Romero J, Bedollo-Barajas M, Lopez Varagas L, Romero-Velarde E. Prevalence of allergic diseases and their association with breastfeeding and initiation of complementary feeding in school-age children of Ciudad Guzmán, Mexico [Prevalencia de las enfermedades alérgicas y su asociación con la lactancia materna y el inicio dela alimentación complementaria en niños de edadescolar de Ciudad Guzmán, México]. *Arch Argent Pediatr* 2015;113(4):324-330.

Moreira 2012

Moreira MA, Cabral PC, Ferreira HS, de Lira PIC. Overweight and associated factors in children from northeastern Brazil [Excesso de peso e fatores associados em crianças da região nordeste do Brasil]. *Jornal de Pediatria* 2012;88(4):347-52.

Moreno 2006

Moreno VM, Cabrerizo MRM, Gomez CG. RELATIONSHIP AMONG THE ERUPTIONOF THE FIRST TEMPORAL TEETHS,THE BREAST FEEDING DURATIONAND THE ANTHROPOMETRIC DEVELOPMENTIN THE FIRST TWO YEARS OF LIFE [Duración de la lactancia materna, erupción de los primeros dientestemporales y desarrollo antropométrico alcanzado a los dos años de vida]. *Nutr Hosp* 2006;21(3):362-8.

Morgen 2018

Morgen CS, Angquist L, Baker JL, Andersen AN, Sorenson TIA, Michaelsen KF. Breastfeeding and complementary feeding in relation to body mass index and overweight at ages 7 and 11 y: a path analysis within theDanish National Birth Cohort. *Am J Clin Nutr* 2018;107:313-22.

Morovic 2019

Morovic ML, Milanovic SM. Breastfeeding duration as a predictor of childhood lifestyle habits, overweight and obesity in second and third grade schoolchildren in Croatia. *Acta Clin Croatia* 2019;58:481-90.

Mortenson 2002

Mortensen EL, Michaelsen KF, Sanders SA, Reinisch JM. The Association Between Duration of Breastfeeding and Adult Intelligence. *JAMA* 2002;287:2365-71.

Muino 2008

Muino A, Menezes AMB, Reichert FF, Duquia RP, Chatkin M. Wheezing phenotypes from birth to adolescence: a cohort study in Pelotas, Brazil, 1993-2004. *J Bras Pneumol* 2008;34(6):347-55.

Naz 2016

Naz MSG, Ozgoli G, Aghdashi MA, Salmani F. Prevalence and risk factors of osteoporosis in women referring to the Bone Densitometry Academic Centre in Urmia, Iran. *Global J Health Sci* 2016;8(7):135-145.

Negri 1996

Negri E, Braga C, La Vecchia C, Levi F, Talamini R, Franceschi S. Lactation and the risk of breast cancer in an Italian population. *Int J Cancer* 1996;67:161-4.

Newcomb 1994

Newcomb PA, Storer BE, Longnecker MP, Mittendorf R, Greenberg ER, Clapp RW, Burke KP, Willett WC, MacMahon B. Lactation and a reduced risk of premenopausal breast cancer. *N Engl J Med* 1994;330:81-7.

Newcomb 1999

Newcomb PA, Egan KM, Titus-Ernstoff L, Trentham-Dietz A, Greenberg ER, Baron JA, Willett WC, Stampfer MJ. Lactation in Relation to Postmenopausal Breast Cancer. *Am J Epidemiol* 1999;150:174-182.

Nianogo 2017

Nianogo RA, Wang MC, Wang A, Nobari TZ, Crespi CM, et al. Projecting the impact of hypothetical early life interventions on adiposity in children living in low-income households. *Pediatr Obes* 2017;12(5):398-405.

Niegel 2008

Niegel S, Ystrom E, Hagtvet KA, Vollrath ME. Difficult Temperament, Breastfeeding, and Their Mutual Prospective Effects: The Norwegian Mother and Child Cohort Study. *J Dev Behav Pediatr* 2008;29:458-62.

Nikpour 2012

Nikpour S, Rahimian S, Shokrabi S, Haghani H. Related Factors of Acute Leukemia in Children and the Role of Breast Feeding. *Iranian Journal of Endocrinology & Metabolism* 2012;14(1):63-97.

Nurmukhamedova 2015

Nurmukhamedova L. Does multiparity and prolonged breast-feeding have effects on maternal bone mineral density (BMD) in postmenopausal age. *Int J Gynecol Obstet* 2015;5:E404.

Nzefa 2019

Nzefa LD, Monebenimp F, Ang C. Undernutrition among children under five in the Bandja village of Cameroon, Africa. *South Afr J Clin Nutr* 2019;32(2):46-50.

Oddy 2002

Oddy WH, de Klerk NH, Sly PD, Holt PG. The effects of respiratory infections, atopy, and breastfeeding on childhood asthma. *Eur Respir J* 2002;19:899-905.

Oddy 2002a

Oddy WH, Peat JK, de Klerk NH. Maternal asthma, infant feeding, and the risk of asthma in childhood. *J Allergy Clin Immunol* 2002;110:65-7.

Oddy 2004

Oddy WH, Kendall GE, Blair E, de Klerk NH, Silburn S, Zubrick S. Breastfeeding and cognitive development in children. *Adv Exp Med Biol* 2004;554:365-9.

Oddy 2004a

Oddy WH, Sherriff JL, de Klerk NH, Kendall GE, Sly PD, Beilin LJ, Blake KB, Landau LI, Stanley FJ. The Relation of Breastfeeding and Body Mass Index to Asthma and Atopy in Children: A Prospective Cohort Study to Age 6 Years. *Am J Public Health* 2004;94:1531-7.

Oddy 2006

Oddy WH, Li J, Landsborough L, Kendall GE, Henderson S, Downie J. THE ASSOCIATION OF MATERNAL OVERWEIGHT AND OBESITY WITH BREASTFEEDING DURATION. *J Pediatr* 2006;149:185-91.

Oddy 2011

Oddy WH, Li J, Whitehouse AJO, Zubrick SR, Malacova E. Breastfeeding Duration and Academic Achievement at 10 Years. *Pediatrics* 2011;127:e137.

Oddy 2011a

Oddy WH, Robinson M, Kendall GE, Li J, Kubrick SR, Stanley FJ. Breastfeeding and early child development: a prospective cohort study. *Acta Paediatrica* 2011;100:992-999.

Oh 2017

Oh S, Du R, Zeiger AM, McGarry ME, Hu D, et al. Breastfeeding associated with higher lung function in African American youths with asthma. *J Asthma* 2017;54(8):856-865.

Ohlendorf 2019

Ohlendorf JM, Robinson K, Garnier-Villareal M. The impact of maternal BMI, gestational weight gain and breastfeeding on early childhood weight: Analysis of a statewide WIC dataset. *Prev Med* 2019;118:210-215.

Oken 2008

Oken E, Osterdal ML, Gillman MW, Knudsen VK, Halldorsson TI, et al. Associations of maternal fish intake during pregnancy and breastfeeding duration with attainment of developmental milestones in early childhood: a study from the Danish National Birth Cohort. *Am J Clin Nutr* 2008;88:789-796.

Oken 2013

Oken E, Patel R, Guthrie LB, Vilchuck K, Bogdanovich N, Sergeichick N, Palmer TM, Kramer MS, Martin RM. Effects of an intervention to promote breastfeeding on maternal adiposity and blood pressure at 11.5 y postpartum: results from the Promotion of Breastfeeding Intervention Trial, a cluster-randomized controlled trial. *Am J Clin Nutr* 2013;98(4):1048-56.

Onyango 1999

Onyango AW, Esrey SA, Kramer MS. Continued breastfeeding and child growth in the second year of life: a prospective cohort study in western Kenya. *Lancet* 1999;354(9195):2041-5.

Onyango 2000

Onyango AW. BREASTFEEDING AND GROWTH IN RURAL KENYAN TODDLERS. In: Koletzko B, et al, editor(s). *Short and Long Term Effects of Breast Feeding on Child Health*. Kluwer Academic/Plenum Publishers, 2000: 151-162.

Oran 2004

Oran B, Celik I, Erman M, Baltali E, Zengin N, Demirkazik F, Tezcan S. Analysis of menstrual, reproductive, and life-style factors for breast cancer risk in Turkish women: a case-control study. *Med Oncol* 2004;21:31-40.

Ortega-Garcia 2018

Ortega-Garcia JA, Kloosterman N, Alvarez L, Tobará-Sánchez E, Carceles-Alvarez A, et al. Full breastfeeding and obesity in children: A prospective study from birth to 6 years. *Childhood Obesity* 2018;14(5):327-337.

Owen 1993

Owen MJ, Baldwin CD, Swank PR, Pannu AK, Johnson DL, Howie VM. Relation of infant feeding practices, cigarette smoke exposure, and group child care to the onset and duration of otitis media with effusion in the first two years of life. *J Pediatr* 1993;123:702-11.

Pajuelo-Ramirez 2011

Pajuelo-Ramírez J, Miranda-Cuadros M, Campos-Sánchez M, Sánchez-Abanto J. PREVALENCE OF OVERWEIGHT AND OBESITY AMONG CHILDREN UNDER FIVE YEARS IN PERU 2007-2010 [PREVALENCIA DE SOBREPESO Y OBESIDAD EN NIÑOS MENORES DE CINCO AÑOS EN EL PERÚ 2007-2010]. *Rev Peru Med Exp Salud Publica* 2011;28:222-7.

Panpanich 2003

Panpanich R, Vitsupakorn K, Brabin b. Breastfeeding and its relation to child nutrition in rural Chaing Mai, Thailand. *J Med Assoc Thai* 2003;86:415-9.

Park 2018

Park S, Choi NK. Breastfeeding and Maternal Hypertension. *Am J Hypertens* 2018;31(5):615-21.

Pasricha 2011

Pasricha SR, Shet AS, Black JF, Sudarshan H, Prashanth NS, Biggs BA. Vitamin B-12, folate, iron, and vitamin A concentrations in rural Indian children are associated with continued breastfeeding, complementary diet, and maternal nutrition. *Am J Clin Nutr* 2011;94(5):1358-70.

Paton 2003

Paton LM, Alexander JL, Nowson CA, Margerison C, Frame MG, Kaymakci B, Wark JD. Pregnancy and lactation have no long-term deleterious effect on measures of bone mineral in healthy women: a twin study. *Am J Clin Nutr* 2003;77:707-14.

Pattison 2019

Pattison KL, Kraschnewski JL, Lehman E, Savage JS, Downs DS, Leonard KS, Adams EL, Paul IM, Kjerulff KH. Breastfeeding initiation and duration and child health outcomes in the first baby study. *Prev Med* 2019;118:1-6.

Perera 2014

Perera PJ, Fernando MP, Warnakoolasuriya TD, Ranathunga N. Effect of feeding practices on dental caries among preschool children: a hospital based analytical cross sectional study. *Asia Pac J Clin Nutr* 2014;23(2): 272-77.

Perez 2013

Pérez Ruiz JM, Miranda León MT, Peinado Herreros JM, Iribar Ibabe MC. Breastfeeding and its influence into the cognitive process of Spanish school-children (6 years old), measured by the Wechsler Intelligence Scale. *Archivos latinoamericanos de nutrición* 2013;63(3):218-23.

Peters 2013

Peters KE, Huang J, Vaughn MG, Witko C. Does breastfeeding contribute to the racial gap in reading and math test scores? *Am J Epidemiol* 2013;23(10):646-51.

Pirila 2014

Pirila S, Taskinen M, Viljakainen H, Makitie O, KejoSaari M, Saarinen-Pihkala UM, Turanlahti M. Breast-fed infants and their later cardiovascular health: a prospective study from birth to age 32 years. *Br J Nutr* 2014;111: 1069-76.

Portela 2015

Portela DS, Vieira TO, Matos SM, de Oliveira NF, Vieira GO. Maternal obesity, environmental factors, cesarean delivery and breastfeeding as determinants of overweight and obesity in children: results from a cohort. *BMC Pregnancy Childbirth* 2015;15:94.

Purvis 2005

Purvis DJ, Thompson JM, Clark PM, Robinson E, Black PN, Wild CJ, Mitchell EA. Risk factors for atopic dermatitis in New Zealand children at 3.5 years of age. *Br J Dermatol* 2005;152:742-9.

Quigley 2018

Quigley MA, Carson C, Kelly Y. Breastfeeding and Childhood Wheeze: Age-Specific Analyses and Longitudinal Wheezing Phenotypes as Complementary Approaches to the Analysis of Cohort Data. *Am J Epidemiol* 2018;187 (8):1651-61.

Ram 2008

Ram KT, Bobby P, Hailpern SM, Lo JC, Schocken M, Skurnick J, et al. Duration of Lactation is Associated with Lower Prevalence of the Metabolic Syndrome in Midlife—SWAN, the Study of Women's Health Across the Nation. *Am J Obstet Gynecol* 2008;198(3):268.e1-6.

Ramon 1996

Ramon JM, Escriba JM, Casas I, Benet J, Iglesias C, Gavalda L, Torras G, Oromi J. Age at first full-term pregnancy, lactation and parity and risk of breast cancer: A case-control study in Spain. *Eur J Epidemiol* 1996; 12:449-53.

Rapp 2005

Rapp K, Schick KH, Bode H, Weiland SK. Type of kindergarten and other potential determinants of overweight in pre-school children. *Public Health Nutr* 2005;8:642-9.

Rathnayake 2013

Rathnayake KM, Satchithanathan A, Mahamithawa S, Jayawardena R. Early life predictors of preschool overweight and obesity: a case-control study in Sri Lanka. BMC Public Health 2013;13:994.

Richards 2002

Richards M, Hardy R, Wadsworth ME. Long-term effects of breast-feeding in a national birth cohort: educational attainment and midlife cognitive function. Public Health Nutr 2002;5:631-5.

Ridd 2013

Ridd M, Penfold C, Morris R, Sullivan S, Santer M, Roberts A, et al. Risk factors for the onset and persistence of childhood eczema: Birth cohort study. Br J Dermatol 2013;1:114.

Riman 2001

Riman T, Dickman PW, Nilsson S, Correia N, Nordlinder H, Magnusson CM, Persson IR. Risk Factors for Epithelial Borderline Ovarian Tumors: Results of a Swedish Case-Control Study. Gynecol Oncol 2001;83(3): 575-85.

Riman 2002

Riman T, Dickman PW, Nilsson S, Correia N, Nordlinder H, Magnusson CM, Persson IR. Risk Factors for Invasive Epithelial Ovarian Cancer: Results from a Swedish Case-Control Study. Am J Epidemiol 2002;156:363-73.

Rojano-Mejia 2011

Rojano-Mejia D, Aguilar-Madrid G, Lopez-Medina G, Cortes-Espinosa L, Hernandez-Chiu MC, et al. Risk factors and impact on bone mineral density in postmenopausal Mexican mestizo women. Menopause 2011;18(3): 302-306.

Romieu 1996

Romieu I, Hernández-Avila M, Lazcano E, Lopez L, Romero-Jaime R. Breast Cancer and Lactation History in Mexican Women. Am J Epidemiol 1996;143:543-552.

Romieu 2000

Romieu I, Hernandez-Avila M, Lazcano-Ponce E, Weber JP, Dewailly E. Breast cancer, lactation history, and serum organochlorines. Am J Epidemiol 2000;152:363-70.

Romieu 2018

Romieu I, Biessy C, Carayol M, His M, Torres-Mejia G, et al. Reproductive factors and molecular subtypes of breast cancer among premenopausal women in Latin America: the PRECAMA study. Sci Report 2018;8:13109.

Rosenbauer 2007

Rosenbauer J, Herzig P, Kaiser P, Giani G. Early Nutrition and Risk of Type 1 Diabetes Mellitus – A Nationwide Case-control Study in Preschool Children. Exp Clin Endocrinol Diabetes 2007;115:502-8.

Rosenbauer 2008

Rosenbauer J, Herzig P, Giani G. Early infant feeding and risk of type 1 diabetes mellitus – a nationwide population-based case-control study in pre-school children. Diabetes Metab Res Rev 2008;24:211-22.

Rosenblatt 1995

Rosenblatt KA, Thomas DB. Prolonged lactation and endometrial cancer. WHO Collaborative Study of Neoplasia and Steroid Contraceptives. *Int J Epidemiol* 1995;24:499-503.

Rosenblatt 2004

Rosenblatt A, Zarzar P. Breast-feeding and early childhood caries: an assessment among Brazilian infants. *Int J Pediatr Dent* 2004;14:439-445.

Rothenbacher 2002

Rothenbacher D, Bode G, Brenner H. History of breastfeeding and *Helicobacter pylori* infection in pre-school children: results of a population-based study from Germany. *Int J Epidemiol* 2002;31:632-7.

Rothenbacher 2005

Rothenbacher D, Weyermann M, Beermann C, Brenner H. Breastfeeding, soluble CD14 concentration in breast milk and risk of atopic dermatitis and asthma in early childhood: birth cohort study. *Clin Exp Allergy* 2005;35:1014-21.

Rust 2001

Rust GS, Thompson CJ, Minor P, Davis-Mitchell W, Holloway K, Murray V. Does breastfeeding protect children from asthma? Analysis of NHANES III survey data. *J Natl Med Assoc* 2001;93(4):139-48.

Ruuska 1992

Ruuska T. Occurrence of acute diarrhea in atopic and nonatopic infants: The role of prolonged breastfeeding. *J Pediatr Gastroenterol Nutr* 1992;14(1):27-33.

Saarinen 1982

Saarinen UM. Prolonged breast feeding as prophylaxis for recurrent otitis media. *Acta Paediatr Scand* 1982;71:567-71.

Sadauskaite-Kuehne 2004

Sadauskaite-Kuehne V, Ludvigsson J, Padaiga Z, Jasinskiene E, Samuelsson U. Longer breastfeeding is an independent protective factor against development of type 1 diabetes mellitus in childhood. *Diabetes Metab Res Rev* 2004;20:150-7.

Saddlemire 2006

Saddlemire S, Olshan AF, Daniels JL, Breslow NE, Bunin GR, Ross JA. Breast-feeding and Wilms tumor: a report from the Children's Oncology Group. *Cancer Causes Control* 2006;17:687-93.

Sajjad 2015

Sajjad A, Tharner A, Kiefe-de Jong JC, Jaddoe VV, Hofman A, Verhulst FC, Franco OH, Tiemeier H, Roza SJ. Breastfeeding duration and non-verbal IQ in children. *J Epidemiol Community Health* 2015;69(8):775-81.

Sangaramoorthy 2019

Sangaramoorthy M, Hines LM, Torres-Mejia G, Phipps AI, Baumgartner KB, Wu AH, et al. A pooled analysis of breast-feeding and breast cancer risk by hormone receptor status in parous Hispanic women. *Epidemiology* 2019;30:449-57.

Sayegh 2005

Sayegh A, Dini EL, Holt RD, Bedi R. Oral health sociodemographic factors, dietary and oral hygiene practices in Jordanian children. *J Dent* 2005;33:379-388.

Schack-Nielsen 2004

Schack-Nielsen L, Michaelsen KF, Mortensen EL, Sørensen TI, Reinisch JM. Is duration of breastfeeding influencing the risk of obesity in adult males? *Adv Exp Med Biol* 2004;554:383-5.

Schack-Nielsen 2004a

Schack-Nielsen L, Mølgaard C, Larsen D, Martyn C, Michaelsen KF. ARTERIAL COMPLIANCE IN 10-YEAR-OLD CHILDREN IN RELATION TO BREASTFEEDING. *Adv Exp Med Biol* 2004;554:391-3.

Schack-Nielsen 2006

Schack-Nielsen L, Mølgaard C, Larsen D, Martyn C, Michaelsen K. Arterial compliance in 10-year-old children: current and early determinants. *Br J Nutr* 2005;94:1004-11.

Scholtens 2008

Scholtens S, Brunekreef B, Smit HA, Gast GM, Hoekstra MO, et al. Do Differences in Childhood Diet Explain the Reduced Overweight Risk in Breastfed Children? *Obesity* 2008;16:2498-2503.

Schuz 2001

Schüz J, Kaletsch U, Kaatsch P, Meinert R, Michaelis J. Risk Factors for Pediatric Tumors of the Central Nervous System: Results From a German Population-Based Case-Control Study. *Med Pediatr Oncol* 2001;36(2):274-82.

Sears 2002

Sears MR, Greene JM, Willan AR, Taylor DR, Flannery EM, Cowan JO, Herbison GP, Poulton R. Long-term relation between breastfeeding and development of atopy and asthma in children and young adults: a longitudinal study. *Lancet* 2002;360(9337):901-7.

Shahidullah 1994

Shahidullah M. Breast Feeding and Child Survival in Matlab, Bangladesh. *J Biosoc Sci* 1994;26:143-154.

Sharma 2017

Sharma ND. Breastfeeding and the risk of childhood asthma: A two-stage instrumental variable analysis to address endogeneity. *Pediatr Allergy Immunol* 2017;28(6):564-72.

Shehadeh 2006

Shehadeh N, Aslih N, Shihab S, Werman MJ, Sheinman R, Shamir R. Human milk beyond one year post-partum: lower content of protein, calcium, and saturated very long-chain fatty acids. *J Pediatr* 2006;148:122-4.

Shema 2007

Shema L, Ore L, Ben-Shachar M, Haj M, Linn S. The association between breastfeeding and breast cancer occurrence among Israeli Jewish women: a case control study. *J Cancer Res Clin Oncol* 2007;133:539-546.

Sherwood 2019

Sherwood WP, Bion V, Lockett GA, Ziyab AH, Soto-Ramirez N, Mukherjee N, et al. Duration of breastfeeding is associated with leptin (lep) DNA methylation profiles and BMI in 10 year old children. *Clinical Epigenetics* 2019; 11:128.

Shields 2006

Shields L, O'Callaghan M, Williams GM, Najman JM, Bor W. Breastfeeding and obesity at 14 years: A cohort study. *J Paediatr Child Health* 2006;42:289-96.

Shilbayeh 2003

Shilbayeh S. Prevalence of osteoporosis and its reproductive risk factors among Jordanian women: A cross-sectional study. *Osteoporosis Int* 2003;14:929-40.

Shu 1995

Shu XO, Clemens J, Zheng W, Ying DM, Ji BT, Jin F. Infant Breastfeeding and the Risk of Childhood Lymphoma and Leukaemia. *Int J Epidemiol* 1995;24:27-32.

Shu 1995a

Shu XO, Nesbit ME, Buckley JD, Krailo MD, Robinson LL. An exploratory analysis of risk factors for childhood malignant germ-cell tumors: report from the Childrens Cancer Group. *Cancer Causes Control* 1995;6(187-98).

Shu 1999

Shu XO, Linet MS, Steinbuch M, Wen WQ, Buckley JD, Neglia JP, Potter JD, Reaman GH, Robison LL. Breast-Feeding and Risk of Childhood Acute Leukemia. *J Natl Cancer Inst* 1999;91:1765-72.

Siltanen 2003

Siltanen M, Kajosaari M, Poussa T, Saarinen KM, Savilahti E. A dual long-term effect of breastfeeding on atopy in relation to heredity in children at 4 years of age. *Allergy* 2003;58:524-30.

Silva 2006

Silva AA, Mehta Z, O'Callaghan FJ. Duration of breast feeding and cognitive function: Population based cohort study. *Eur J Epidemiol* 2006;21:435-441.

Silvers 2012

Silvers KM, Frampton CM, Wickens K, Pattermore PK, Ingham T, Fishwick D, Crane J, Town GI, Epton MJ; New Zealand Asthma and Allergy Cohort Study Group. Breastfeeding Protects against Current Asthma up to 6 Years of Age. *J Pediatr* 2012;160(6):991-6.

Simondon 2001

Simondon KB, Simondon F, Costes R, Delaunay V, Diallo A. Breast-feeding is associated with improved growth in length, but not weight, in rural Senegalese toddlers. *Am J Clin Nutr* 2001;73(5):959-67.

Sipila 1988

Sipilä M, Karma P, Pukander J, Timonen M, Kataja M. The Bayesian Approach to the Evaluation of Risk Factors in Acute and Recurrent Acute Otitis Media. *Acta Otolaryngol* 1988;106:94-101.

Siskind 1989

Siskind V, Schofield F, Rice D, Bain C. Breast cancer and breastfeeding: results from an Australian case-control study. *Am J Epidemiol* 1989;130:229-36.

Siti-Noor 2006

Siti-Noor AS, Wan-Maziah WM, Narazah MY, Quah BS. Prevalence and risk factors for iron deficiency in Kelantanese pre-school children. *Singapore Med J* 2006;47:935-9.

Skau 2019

Skau JKH, Grenov B, Chamnan C, Chea M, Wieringa FT, et al. Stunting, wasting and breast-feeding as correlates of body composition in Cambodian children at 6 and 15 months of age. *Br J Nutr* 2019;121:688-98.

Smulevich 1999

Smulevich VB, Solionova LG, Belyakova SV. Parental occupation and other factors and cancer risk in children: I. Study methodology and non-occupational factors. *Int J Cancer* 1999;83:712-7.

Snijders 2007

Snijders BEP, Thijs C, Dagnelie PC, Stelma FF, Mommers M, et al. Breast-Feeding Duration and Infant Atopic Manifestations, by Maternal Allergic Status, in the First 2 Years of Life (KOALA Study). *J Pediatr* 2007;151:347-51.

Soke 2019

Soke GN, Maenner M, Windham G, Moody E, Kaczaniuk J, DiGiuseppi C, Schieve LA. Association between breastfeeding initiation and duration and Autism Spectrum Disorder in the preschool children enrolled in the study to explore early development. *Autism Res* 2019;12(5):816-829.

Sonnenschein-van der Voort 2012

Sonnenschein-van der Voort AM, Jaddoe VW, van der Valk RJ, Willemsen SP, Hofman A, Moll HA, de Jongste JC, Duijts L. Duration and exclusiveness of breastfeeding and childhood asthma-related symptoms. *Eur Respir J* 2012;39(1):81-9.

Soto-Ramirez 2012

Soto-Ramírez N, Alexander M, Karmaus W, Yousefi M, Zhang H, Kurukulaaratchy RJ, Raza A, Mitchell F, Ewart S, Arshad SH. Breastfeeding is associated with increased lung function at 18 years of age: a cohort study. *Eur Respir J* 2012;39(4):985-91.

Starodubova 2011

Starodubova A, Storozhakov G, Kisliak O, Govorun V, Sergienko V, Kopelev A, et al. Influence of breastfeeding on risk of insulin resistance in later life in young women. *J Diabetes* 2011;1:175.

Strom 2018

Strom M, Mortensen EL, Kesmodel US, Halldorsson T, Olsen J, Olsen SF. Is breast feeding associated with offspring IQ at 5? Findings from prospective cohort : Lifestyle during pregnancy study. *BMJ Open* 2019;9:e023134.

Stuebe 2011

Stuebe AM, Mantzoros C, Kleinman K, Gillman MW, Rifas-Shiman S, Gunderson EP, Rich-Edwards J. Duration of Lactation and Maternal Adipokines at 3 Years Postpartum. *Diabetes* 2011;60:1277-85.

Stuver 1997

Stuver SO, Hsieh CC, Bertone E, Trichopoulos D. The association between lactation and breast cancer in an international case-control study: a re-analysis by menopausal status. *Int J Cancer* 1997;71:166-9.

Su 2013

Su D, Pasalich M, Lee AH, Binns CW. Ovarian cancer risk is reduced by prolonged lactation: a case-control study in southern China. *Am J Clin Nutr* 2013;97(2):354-9.

Taylor 1984

Taylor B, Wadsworth J. Breast feeding and child development at five years. *Dev Med Child Neurol* 1984;26:73-80.

Taylor 2011

Taylor BJ, Heath AM, Galland BC, Gray AR, Lawrence JA, et al. Prevention of Overweight in Infancy (POI.nz) study: a randomised controlled trial of sleep, food and activity interventions for preventing overweight from birth. *BMC Public Health* 2011;11:942.

Tehrani 2010

Tehrani N, Shobeiri F, Pour FH, Hagizadeh E. Risk Factors for Breast Cancer in Iranian Women Aged Less than 40 Years. *Asian Pacific J Cancer Prev* 2010;11:1723-1725.

Terati 2018

Terati, Yuniarti H, Susanto E. Effects of Diet and Breastfeeding Duration on the Stunting Status of Children under 5 Years of Age at Maternal and Child Health Centers of the Palembang Regional Office of Health. *Pak J Nutr* 2018;17:51-6.

Tessaro 2003

Tessaro S, B ria JU, Tomasi E, Victora CG. Breastfeeding and breast cancer: a case-control study in Southern Brazil. *Cad Saude Publica* 2003;19:1593-1601.

Thomas 1993

Thomas DB, Noonan EA. Breast cancer and prolonged lactation. The WHO Collaborative Study of Neoplasia and Steroid Contraceptives. *Int J Epidemiol* 1993;22:619-26.

Thomsen 2006

Thomsen SF, Ulrik CS, Porsbjerg C, Backer V. Early life exposures and risk of atopy among Danish children. *Allergy Asthma Proc* 2006;27:110-114.

Thorsdottir 2003

Thorsdottir I, Gunnarsdottir I, Palsson GI. Association of birth weight and breast-feeding with coronary heart disease risk factors at the age of 6 years. *Nutr Metab Cardiovasc Dis* 2003;13:267-72.

Thwin 2016

Thwin KM, Zaitis T, Ueno M, Kawaguchi Y. Early Childhood Caries and Related Risk Factors among Myanmar Preschool Children. *Int J Clin Prev Dent* 2016;12(4):229-36.

Titus-Ernstoff 2001

Titus-Ernstoff L, Perez K, Cramer DW, Harlow BL, Baron JA, Greenberg ER. Menstrual and reproductive factors in relation to ovarian cancer risk. *Br J Cancer* 2001;84(5):714-21.

Torris 2013

Torris C, Thune I, Emaus A, Finstad SE, Bye A, et al. Duration of Lactation, Maternal Metabolic Profile, and Body Composition in the Norwegian EBBA I-Study. *Breastfeed Med* 2013;8(1):8-15.

Toschke 2007

Toschke AM, Martin RM, von Kries R, Wells J, Smith GD, Ness AR. Infant feeding method and obesity: body mass index and dual-energy X-ray absorptiometry measurements at 9 –10 y of age from the Avon Longitudinal Study of Parents and Children (ALSPAC). *Am J Clin Nutr* 2007;85:1578-85.

Tozzi 2012

Tozzi AE, Bisiacchi P, Tarantino V, Chiarotti F, D'Elia L, De Mei B, Romano M, Gesualdo F, Salmaso S. Effect of duration of breastfeeding on neuropsychological development at 10 to 12 years of age in a cohort of healthy children. *Dev Med Child Neurol* 2012;54(9):843-8.

Troisi 1995

Troisi RJ, Wolf AM, Mason JE, Klingler KM, Colditz GA. Relation of Body Fat Distribution to Reproductive Factors in Pre- and Postmenopausal Women. *Obes Res* 1995;3:143-51.

Tsvetov 2014

Tsvetov G, Levy S, Benbassat C, Shrager-Slutsky I, Hirsch D. Influence of number of deliveries and total breastfeeding time on bone mineral density in premenopausal and young postmenopausal women. *Maturitas* 2014;77:249-254.

Tung 2003

Tung KH, Goodman MT, Wu AH, McDuffie K, Wilkens LR, Kolonel LN, Nomura AM, Terada KY, Carney ME, Sobin LH. Reproductive factors and epithelial ovarian cancer risk by histologic type: a multiethnic case-control study. *Am J Epidemiol* 2003;158:629-38.

Turton 2016

Turton B, Durward C, Manton D, Bach K, Yos C. Socio-behavioural risk factors for early childhood caries (ECC) in Cambodian preschool children: a pilot study. *Eur Arch Paediatr Dent* 2016;17(2):97-105.

Tyagi 2008

Tyagi R. The prevalence of nursing caries in Davangere preschool children and its relationship with feeding practices and socioeconomic status of the family. *J Indian Soc Pediatr Prevent Dent* 2008;153-7.

Tympa-Psirropoulou 2005

Tympa-Psirropoulou E, Vagenas C, Psirropoulos D, Dafni O, Matala A, Skopouli F. Nutritional risk factors for iron-deficiency anaemia in children 12-24 months old in the area of Thessalia in Greece. *Int J Food Sci Nutr* 2005;56:1-12.

Tympa-Psirropoulou 2008

Tympa-Psirropoulou E, Vagenas C, Dafni O, Matala A, Skopouli F. Environmental risk factors for iron deficiency anemia in children 12-24 months old in the area of Thessalia in Greece. *Hippokratia* 2008;12:240-50.

United Kingdom National Case Control Study Group

United Kingdom National Case-Control Study Group. Breast feeding and risk of breast cancer in young women. *BMJ* 1993;307(6895):17-20.

Ursin 2004

Ursin G, Bernstein L, Wang Y, Lord SJ, Deapen D, Liff JM, et al. Reproductive Factors and Risk of Breast Carcinoma in a Study of White and African-American Women. *Cancer* 2004;101:353-62.

Ursin 2005

Ursin G, Bernstein L, Lord SJ, Karim R, Deapen D, Press MF, Daling JR, Norman SA, Liff JM, Marchbanks PA, Folger SG, Simon MS, Strom BL, Burkman RT, Weiss LK, Spirtas R. Reproductive factors and subtypes of breast cancer defined by hormone receptor and histology. *Br J Cancer* 2005;93:364-71.

Vasquez 2019

Vasquez CE, Cubbin C. Associations between breastfeeding duration and overweight/obese among children aged 5-10: a focus on racial/ethnic disparities in California. *AIMS Public Health* 2019;6(4):355-69.

Vella 1995

Vella V, Tomkins A, Nviku J, Marshall T. Determinants of Nutritional Status in South West Uganda. *J Trop Pediatr* 1995;41:89-98.

Velle-Forbord 2019

Velle-Forbord V, Skrastad RB, Salvesen O, Kramer MS, Morken NH, Vanky E. Breastfeeding and long-term maternal metabolic health in the HUNT Study: a longitudinal population-based cohort study. *Br J Obstet Gynaecol* 2019;126(4):526-34.

Victora 1991

Victora CG, Huttly SR, Barros FC, Martines JC, Vaughan JP. Prolonged breastfeeding and malnutrition: confounding and effect modification in a Brazilian cohort study. *Epidemiology* 1991;2:175-81.

Virtanen 1991

Virtanen SM, Räsänen L, Aro A, Lindström J, Sippola H, Lounamaa R, Toivanen L, Tuomilehto J, Akerblom HK. Infant feeding in Finnish children less than 7 yr of age with newly diagnosed IDDM. Childhood Diabetes in Finland Study Group. *Diabetes Care* 1991;14:415-7.

Vogazianos 2007

Vogazianos E, Vogazianos P, Fiala J, Janecek D, Slapak I. The Effect of Breastfeeding and its Duration on Acute Otitis Media in Children in Brno, Czech Republic. *Cent Eur J Public Health* 2007;15(4):143-6.

Vogelezang 2018

Vogelezang S, Santos S, van der Beek EM, Abrahamse-Berkeveld M, Duijts L, van der Lugt A, Felix JF, Jaddoe VVW. Infant breastfeeding and childhood general, visceral, liver, and pericardial fat measures assessed by magnetic resonance imaging. *Am J Clin Nutr* 2018;108:1-8.

Waidyatillake 2016

Waidyatillake NT, Simpson JA, Allen KJ, Lodge CJ, Dharmage SC, Abramson MJ, De Livera AM, Matheson MC, Erbas B, Hill DJ, Lowe AJ. The effect of breastfeeding on lung function at 12 and 18 years: a prospective cohort study. *Eur Respir J* 2016;48(1):125-32.

Waka 1995

Waka K, Ohno Y, Suzuki S, Watanabet S, Sakamoto G, Kubo N. A Case-Control Study of Breast Cancer among Japanese Women in Tokyo. *Med J Indones* 1995;4:177-82.

Wang 1992

Wang QS, Ross RK, Yu MC, Ning JP, Henderson BE, Kimm HT. A Case-Control Study of Breast Cancer in Tianjin, China. *Cancer Epidemiol Biomarkers Prev* 1992;1:435-9.

Wang 2006

Wang IJ, Guo YL, Hwang KC, Hsieh WS, Chuang YL, Lin SJ, et al. Genetic and environmental predictors for pediatric atopic dermatitis. *Acta paediatrica Taiwanica* 2006;47:238-242.

Wang 2016

Wang F, Liu H, Wan Y, Li J, Chen Y, et al. Prolonged Exclusive Breastfeeding Duration Is Positively Associated with Risk of Anemia in Infants Aged 12 Months. *J Nutr* 2016;146:1707-13.

Wang 2017

Wang L, Collins C, Ratliff M, Wang Y. Breastfeeding reduces childhood obesity risks. *Child Obes* 2017;13(3):197-204.

Wang 2017a

Wang J, Ramette A, Jurca M, Goutaki M, Beardsmore CS, Kuehni CE. Association between breastfeeding and eczema during childhood and adolescence: A cohort study. *PLoS One* 2017;12(9):e0185066.

Wegienka 2006

Wegienka G, Ownby DR, Havstad S, Williams LK, Johnson CC. Breastfeeding history and childhood allergic status in a prospective birth cohort. *Ann Allergy Asthma Immunol* 2006;97:78-83.

Wen 2014

Wen LM, Baur LA, Rissel C, Xu H, Simpson JM. Correlates of Body Mass Index and Overweight and Obesity of Children Aged 2 Years: Findings from the Healthy Beginnings Trial. *Obesity* 2014;22:1723-1730.

Wetzig 2000

Wetzig H, Schulz R, Diez U, Herbarth O, Viehweg B, Borte M. Associations between duration of breast-feeding, sensitization to hens' eggs and eczema infantum in one and two year old children at high risk of atopy. *Int J Hyg Environ Health* 2000;203:17-21.

Weyermann 2006

Weyermann M, Rothenbacher D, Brenner H. Duration of breastfeeding and risk of overweight in childhood: a prospective birth cohort study from Germany. *Int J Obes (Lond)* 2006;30:1281-7.

Whaley 2017

Whaley SE, Koliellat M, Leonard S, Whaley M. Breastfeeding Is Associated With Reduced Obesity in Hispanic 2- to 5-Year-Olds Served by WIC. *J Nutr Edu Behav* 2017;49(7S2):S144-150.

Whitemore 1993

Whitemore AS. Personal Characteristics Relating to Risk of Invasive Epithelial Ovarian Cancer in Older Women in the United States. *Cancer* 1993;71(2):558-565.

Wienfield 2020

Wienfield NS, Borger C, Gola AA. Breastfeeding Duration in a Low-Income Sample Is Associated With Child Diet Quality at Age Three. *J Human Lact* 2020;890334420903029. doi: 10.1177/0890334420903029.

Wiklund 2012

Wiklund P, Xu L, Lyytikäinen A, Saltevo J, Wang Q, Volgyi E, et al. Prolonged breast-feeding protects mothers from later-life obesity and related cardiometabolic disorders. *Publ Health Nutr* 2012;15(1):67-74.

Woo 2008

Woo JG, Dolan LM, Morrow AL, Geraghty SR, Goodman E. Breastfeeding Helps Explain Racial and Socioeconomic Status Disparities in Adolescent Adiposity. *Pediatrics* 2008;121:e458-465.

Wright 2000

Wright AL, Holberg CJ, Taussig LM, Martinez F. MATERIAL ASTHMA STATUS ALTERS RELATION OF INFANT FEEDING TO ASTHMA CHILDHOOD. In: Koletzko B, editor(s). *Short and Long Term Effects of Breast Feeding on Child Health*. Kluwer Academic/Plenum Publishers, 2000:131-7.

Wright 2001

Wright AL, Holberg CJ, Taussig LM, Martinez FD. Factors influencing the relation of infant feeding to asthma and recurrent wheeze in childhood. *Thorax* 2001;56:192-7.

Wu 1996

Wu AH, Ziegler RG, Pike MC, Nomura AM, West DW, Kolonel LN, Horn-Ross PL, Rosenthal JF, Hoover RN. Menstrual and reproductive factors and risk of breast cancer in Asian-Americans. *Br J Cancer* 1996;73:680-6.

Yang 2018

Yang S, Martin RM, Oken E, Hameza M, Doniger G, Amit S, et al. Breastfeeding during infancy and neurocognitive function in adolescence: 16 year follow up of the PROBIT cluster randomized controlled trial. *Plos Med* 2018;15(4):e1002554.

Yavari 2005

Yavari P, Mosavizadeh M, Sadrol-Heftazi B, Mehrabi Y. Reproductive Characteristics and the Risk of Breast Cancer - A Case-control Study in Iran. *Asian Pac J Cancer Prev* 2005;6:370-5.

Yazdani 2011

Yazdani S, Asli AI, Salemi A, Asli AI, Heidarnia MA, Sarbaksh P. Determination of Clinical Decision Rule for Estimation of Bone Mineral Density in Women. *Med Princ Pract* 2011;20:416-21.

Yazici 2011

Yazici S, Korkmaz U, Erkan M, Korkmaz N, Baki AE, et al. The effect of breast-feeding duration on bone mineral density in postmenopausal Turkish women: a population-based study. *Arch Med Sci* 2011;7(3):486-92.

Yelverton 2020

Yelverton CA, Geraghty AA, O'Brien EC, Killeen SL, Horan MK, Donnelly JM, Larkin E, Mehegan J, McAulliffe FM. Breastfeeding and maternal eating behaviours are associated with child eating behaviours: findings from the ROLO kids study. *Eur J Clin Nutr* 2020;doi: 10.1038/s41430-020-00764-7.

Yokoi 2020

Yokoi A, Takeuchi N, Ekuni D, Morita M. Association between the incidence of early childhood caries and attending childcare among toddlers in a rural area of Japan: a prospective cohort study. *Acta Odontologica Scandinavica* 2020;DOI:10.1080/00016357.2020.1795249.

Yonezu 2006

Yonezu T, Yotsuya K, Yakushiji M. Characteristics of Breast-fed Children with Nursing Caries. *Bull Tokyo Dent Coll* 2006;47(4):161-5.

Yuan 1988

Yuan JM, Yu MC, Ross RK, Gao YT, Henderson BE. Risk factors for breast cancer in Chinese women in Shanghai. *Cancer Res* 1988;48:1949-53.

Yun 2016

Yun BH, Chon SJ, Choi YS, Cho S, Lee BS, Seo SK. The effect of prolonged breast-feeding on the development of postmenopausal osteoporosis in population with insufficient calcium intake and vitamin D level. *Osteoporos Int* 2016;27(9):2745-53.

Zhang 2003

Zhang YY, Liu PY, Deng HW. The Impact of Reproductive and Menstrual History on Bone Mineral Density in Chinese Women. *J Clin Densitom* 2003;6:289-96.

Zhang 2004

Zhang M, Xie X, Lee AH, Binns CW. Prolonged lactation reduces ovarian cancer risk in Chinese women. *Eur J Cancer Prev* 2004;13:499-502.

Zhang 2004a

Zhang M, Lee AH, Binns CW. Reproductive and dietary risk factors for epithelial ovarian cancer in China. *Gynecol Oncol* 2004;92:320-6.

Zhang 2017

Zhang Y, Zhou J, Niu F, Donowitz JR, Haque R, Petri Jr WA, Ma JZ. Characterizing early child growth patterns of height-for-age in an urban slum cohort of Bangladesh with functional principal component analysis. *BMC Pediatr* 2017;17:84.

Zhao 2020

Zhao M, Wu H, Liang Y, Liu F, Bovet P, Xi B. Breastfeeding and Mortality Under 2 Years of Age in Sub-Saharan Africa. *Pediatrics* 2020;145(5):e20192209.

Zheng 2000

Zheng T, Duan L, Liu Y, Zhang B, Wang Y, Chen Y, Zhang Y, Owens PH. Lactation reduces breast cancer risk in Shandong Province, China. *Am J Epidemiol* 2000;152:1129-35.

Zheng 2001

Zheng T, Holford TR, Mayne ST, Owens PH, Zhang Y, Zhang B, Boyle P, Zahm SH. Lactation and breast cancer risk: a case-control study in Connecticut. *Br J Cancer* 2001;84:1472-6.

Zheng 2020

Zheng M, Cameron AJ, Birken CS, Keown-Stoneman C, Laws R, Wen LM, Campbell KJ. Early Infant Feeding and BMI Trajectories in the First 5 Years of Life. *Obesity* 2020;28:339-46.

Zhong 2019

Zhong H, Penders J, Shi Z, Ren H, Cai K, Fang C, et al. Impact of early events and lifestyle on the gut microbiota and the metabolic phenotypes in young school age children. *Microbiome* 2019;7:2.

Zhou 2007

Zhou SJ, Baghurst P, Gibson RA, Makrides M. Home environment, not duration of breast-feeding, predicts intelligence quotient of children at four years. *Nutrition* 2007;23:236-41.

Zhou 2012

Zhou H, Wang XL, Ye F, Zeng XL, Wang Y. Relationship between child feeding practices and malnutrition in 7 remote and poor counties, P R China. *Asia Pac J Clin Nutr* 2012;21(2):234-40.

Ziegler 2003

Ziegler AG, Schmid S, Huber D, Hummel M, Bonifacio E. Early infant feeding and risk of developing type 1 diabetes-associated autoantibodies. *JAMA* 2003;290:1721-8.

Zielhuis 1989

Zielhuis GA, Heuvelmans-Heinen EW, Rach GH, van den Broek P. Environmental risk factors for otitis media with effusion in preschool children. *Scand J Prim Health Care* 1989;7:33-8.

Zive 1992

Zive MM, McKay H, Frank-Spohrer GC, Broyles SL, Nelson JA, Nader PR. Infant-feeding practices and adiposity in 4-y-old Anglo- and Mexican-Americans. *Am J Clin Nutr* 1992;55:1104-8.

Studies awaiting classification**Ongoing studies****Other references****Additional references****AAFP 2020**

American Academy of Family Physicians. Breastfeeding (policy statement). <https://www.aafp.org/about/policies/all/breastfeeding.html>. Accessed October 28, 2020..

Aune 2014

D. Aune, T. Norat, P. Romundstad, L.J. Vatten. Breastfeeding and the maternal risk of type 2 diabetes: A systematic review and dose-response meta-analysis of cohort studies. *Nutrition, Metabolism & Cardiovascular Diseases* 2014;24:107-115.

Babic 2020

Ana Babic, Naoko Sasamoto, Bernard A. Rosner, Shelley S. Tworoger, Susan J. Jordan, Harvey A. Risch et al. Association Between Breastfeeding and Ovarian Cancer Risk. *JAMA Oncology* 2020;6(6):E1-8.

Belfort 2013

Belfort MB, Rifas-Shiman SL, Kleinman KP, Guthrie LB, Bellinger DC, Taveras EM, et al. Infant feeding and childhood cognition at ages 3 and 7 years: effects of breastfeeding duration and exclusivity. *JAMA Pediatr* 2013; 167:836–44.

Bernard 2013

Bernard JY, De Agostini M, Forhan A, et al. Breastfeeding duration and cognitive development at 2 and 3 years of age in the EDEN Mother-Child Cohort. *J Pediatr* 2013;163:36–42.

Black 2008

Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M, et al.. Maternal and Child Undernutrition Study Group. Maternal and child undernutrition: Global and regional exposures and health consequences. *Lancet* 2008;371:243-60.

Bobrow 2013

Bobrow KL, Quigley MA, Green J, et al.; Million Women Study Collaborators.. Persistent effects of women's parity and breastfeeding patterns on their body mass index: results from the Million Women Study. *Int J Obes (Lond)* 2013;37:712-7.

Bonifacino 2018

Eliana Bonifacino, Eleanor B. Schwartz, Hyejo Jun, Charles B. Wessel, and Jennifer A. Corbelli. Effect of Lactation on Maternal Hypertension: A Systematic Review. *Breastfeed Med* 2018;13(9):578-588.

Brennan 2004

Brennan L, McDonald J, Shlomowitz R. Infant feeding practices and chronic child malnutrition in the Indian states of Karnataka and Uttar Pradesh. *Econ Hum Biol* 2004;2:139–58.

Briend 2015

Briend A, Khara T, Dolan C. Wasting and stunting—similarities and differences: Policy and programmatic implications. *Food Nutr Bull* 2015;36(Supplement 1):S15-S23.

Caulfield 1996

Caulfield LE, Bentley ME, Ahmed S. Is prolonged breastfeeding associated with malnutrition? Evidence from nineteen demographic and health surveys. *Int. J. Epidemiol.* 1996;25:693–703..

CGHFBC 2002

Collaborative Group on Hormonal Factors in Breast Cancer.. Breast cancer and breastfeeding: collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50302 women with breast cancer and 96973 women without the disease. *Lancet*. 2002;360(9328):187–195.

Cochrane 2021

Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors).. *Cochrane Handbook for Systematic Reviews of Interventions* version 6.2 (updated February 2021). Cochrane, 2021. Available from www.training.cochrane.org/handbook..

Cockburn 2003

Cockburn F. Role of infant dietary long-chain polyunsaturated fatty acids, liposoluble vitamins, cholesterol and lecithin on psychomotor development. *Acta Paediatr Suppl* 2003;92:19–33.

Collaborative Group on Hormonal factors 2002

Collaborative Group on Hormonal Factors in Breast Cancer. Breast cancer and breastfeeding: collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50 302 women with breast cancer and 96 973 women without the disease. *Lancet* 2002;360:187–95.

CRSDA 2016

University of Bristol. Centre for Research Synthesis and Decision Analysis.. The Risk of Bias in Non-randomized Studies – of Interventions (ROBINS-I) assessment tool. Available from: https://www.bristol.ac.uk/media-library/sites/social-community-medicine/images/centres/cresyda/ROBINS-I_tool_template_1aug2016.pdf (accessed 28 October 2020).

Cui 2017

Lingling Cui, Xing Li, Yalan Tian, Juntao Bao, Ling Wang, Dongmei Xu, Bing Zhao, Wenjie Li. Breastfeeding and early childhood caries: a meta-analysis of observational studies. *Asia Pac J Clin Nutr* 2017;26(5):867–880.

Daniels 2005

Daniels MC, Adair LS. Breast-feeding influences cognitive development in Filipino children. *J Nutr.* 2005;135:2589–2595.

Dewey 2003

Kathryn G Dewey. Is breastfeeding protective against child obesity? *J Hum Lact* 2003;19(1):9–18.

Dietary Guidelines Advisory Committee 2020

Scientific Report of the 2020 Dietary Guidelines Advisory Committee. Available from: 1. https://www.dietaryguidelines.gov/sites/default/files/2020-07/PartC_Methodology_first-print.pdf.

Dieterich 2013

Dieterich CM, Felice JP, O’ Sullivan E, Rasmussen KM. Breastfeeding and health outcomes for the mother-infant dyad. *Pediatr Clin N Am* 2013;60:31–48.

Dogaru 2014

Dogaru CM, Nyffenegger D, Pescatore AM, Spycher BD, Kuehni CE. Breastfeeding and childhood asthma: systematic review and meta-analysis. *Am J Epidemiol* 2014;179:1153–67.

Fraser 2003

Anna B Fraser, David A Grimes. Effect of lactation on maternal body weight: a systematic review. *Obstet Gynecol Surv* 2003;58(4):265–9.

Grantham 1997

Grantham-McGregor S, Walker C, Chang S, Powell C.. Effects of early childhood supplementation with and without stimulation on later development in stunted Jamaican children. *Am. J. Clin. Nutr.* 66(2), 247–253..

Heinrichs 2002

Heinrichs M, Neumann ID, Ehlert U.. Lactation and stress: protective effects of breast-feeding in humans. *Stress.* 2002;5:165–203.

Husk 2015

Husk JS, Keim SA. Breastfeeding and autism spectrum disorder in the National Survey of Children’s Health.

Epidemiology 2015;26:451â€“57.

Int 1996

Int. J. Epidemiol 1996;25:693â€“703.

Isaacs 2010

Isaacs EB, Fischl BR, Quinn BT, Chong WK, Gadian DG, Lucas A. Impact of breast milk on intelligence quotient, brain size, and white matter development. *Pediatr Res* 2010;67:357â€“62.

Jager 2014

Jager S, Jacobs S, Kroger J, et al. Breast-feeding and maternal risk of type 2 diabetes: a prospective study and meta-analysis. *Diabetologia* 2014;57:1355-65.

Kramer 2008

Kramer MS, Aboud F, Mironova E, et al. Breastfeeding and child cognitive developmentâ€”new evidence from a large randomized trial. *Arch Gen Psychiatry* 2008;65:578â€“84.

Kramer 2011

Kramer MS, Moodie EE, Dahhou M, Platt RW. Breastfeeding and infant size: evidence of reverse causality. *Am J Epidemiol.* 2011;173(9):978-983. doi:10.1093/aje/kwq495.

Krol 2015

Krol KM, Rajhans P, Missana M, Grossmann T. Duration of exclusive breastfeeding is associated with differences in infantsâ€™ brain responses to emotional body expressions. *Front Behav Neurosci* 2015;8:459.

Li 2014

Da-Peng Li, Chen Du, Zuo-Ming Zhang, Guang-Xiao Li, Zhi-Fu Yu, Xin Wang, Peng-Fei Li, Cheng Cheng, Yu-Peng Liu, Ya-Shuang Zhao. Breastfeeding and Ovarian Cancer Risk: a Systematic Review and Meta-analysis of 40 Epidemiological Studies. *Asian Pac J Cancer Prev* 2014;15(12):4829-4837.

Luan 2013

Luan NN, Wu QJ, Gong TT, et al. Breastfeeding and ovarian cancer risk: a meta-analysis of epidemiologic studies. *Am J Clin Nutr* 2013;98:1020â€“31.

Maternal 2008

Maternal and Child Undernutrition Study Group. Maternal and child undernutrition: Global and regional exposures and health consequences. *Lancet* 2008;371:243â€“60.

Matheson 2012

Matheson M, Allen KJ, Tang MLK. Understanding the evidence for and against the role of breastfeeding in allergy prevention. *Clin Exp Allergy* 2012;42:827â€“51.

McClure 2011

McClure CK, Schwarz EB, Conroy MB, et al. Breastfeeding and subsequent maternal visceral adiposity. *Obesity (Silver Spring)* 2011;19:2205â€“13.

Mortensen 2013

Mortensen K, Tawia S. Sustained breastfeeding. *Breastfeed. Rev.* 2013;21:22-34.

Musilova 2014

Musilova S, Rada V, Vlkova E, Bunesova V. Beneficial effects of human milk oligosaccharides on gut microbiota. *Benef Microbes* 2014;5:273â€“83.

Ngandua 1990

Ng'andua NH, Watts TEE. Child growth and duration of breastfeeding in urban Zambia. *J Epidemiol Community Health*. 1990;44:281–5..

Pan 2014

Pan H, He Z, Ling L, et al. Reproductive factors and breast cancer risk among BRCA1 or BRCA2 mutation carriers: results from ten studies. *Cancer Epidemiol* 2014;38:1â€“8.

Sankar 2015

Mari Jeeva Sankar, Bireshwar Sinha, Ranadip Chowdhury, Nita Bhandari, Sunita Taneja, Jose Martinez, Rajiv Bahl. Optimal breastfeeding practices and infant and child mortality: a systematic review and meta-analysis. *Acta Pædiatrica* 2015;104:3-13.

Schwarz 2009

Schwarz EB, Ray RM, Stuebe AM, et al. Duration of lactation and risk factors for maternal cardiovascular disease. *Obstet Gynecol* 2009;113:974â€“82.

Sterne 2016

Sterne JAC, Higgins JPT, Elbers RG, Reeves BC and the development group for ROBINS-I. Risk Of Bias In Non-randomized Studies of Interventions (ROBINS-I): detailed guidance, updated 12 October 2016. Available from <http://www.riskofbias.info> [accessed 26 October 2020].

Stuebe 2010

Stuebe AM, Kleinman K, Gillman MW, et al. Duration of lactation and maternal metabolism at 3 years postpartum. *J Womens Health (Larchmt)* 2010;19:941â€“50.

Stuebe 2011

Stuebe AM, Schwarz EB, Grewen K, et al. Duration of lactation and incidence of maternal hypertension: a longitudinal cohort study. *Am J Epidemiol* 2011;174:1147â€“58.

Sustained 2013

Sustained breastfeeding. *Breastfeed. Rev* 2013;21:22â€“34.

Torris 2020

Christine Tørris, Ann Kristin Bjørnnes. Duration of Lactation and Maternal Risk of Metabolic Syndrome: A Systematic Review and Meta-Analysis. *Nutrients* 2020;12(9):2718.

Victora 2015

Victora CG, Horta BL, de Mola CL, Quevedo L, Pinheiro RT, Gigante DP, et al. Association between breastfeeding and intelligence, educational attainment, and income at 30 years of age: a prospective birth cohort study from Brazil. *Lancet Glob Health* 2015;3:e199â€“205.

Victora 2016

Victora CG, Bahl R, Barros AJD, França GVA, Horton S, Krasevec J, et al. Breastfeeding in the 21st century:

Epidemiology, mechanisms, and lifelong effect. Lancet 2016;387:475â€“90.

Watts 1990

Watts TEE. Child growth and duration of breastfeeding in urban Zambia. J Epidemiol Community Health 1990; 44:281â€“5.

WHO 2001

World Health Organization. THE OPTIMAL DURATION OF EXCLUSIVE BREASTFEEDING REPORT OF AN EXPERT CONSULTATION. Geneva: World Health Organization; 2001. 2001.

WHO 2009

World Health Organization. Infant and young child feeding: model chapter for textbooks for medical students and allied health professionals. Geneva: World Health Organization; 2009.2.

Xiao 2020

Haixiang Xiao, Quan Zhou, Gouqi Niu, Guansheng Han, Zhongchuan Zhang, Qingbo Zhang, Jianzhong Bai, Xunbing Zhu. Association between breastfeeding and osteoporotic hip fracture in women: a dose-response meta-analysis. J Orthop Surg Res 2020;15(1):15.

Zeng 2020

Yan Zeng, Ying Tang, Jun Tang, Jing Shi, Li Zhang, Tingting Zhu, Dongqiong Xiao, Yi Qu & Dezhi Mu. Association between the different duration of breastfeeding and attention deficit/hyperactivity disorder in children: a systematic review and meta-analysis,. Nutritional Neuroscience 2020;23(10):811-823.

Other published versions of this review

Data and analyses

1 Outcomes in Children: Development, Intelligence, Cognition and Behaviour

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
1.1 Delayed Development	2	1872	Odds Ratio (IV, Random, 95% CI)	1.15 [0.54, 2.43]
1.1.1 Cohort Studies OR	2	1872	Odds Ratio (IV, Random, 95% CI)	1.15 [0.54, 2.43]
1.2 Delayed Development 12-18 months	1	826	Odds Ratio (IV, Random, 95% CI)	1.19 [0.50, 2.86]
1.2.1 Cohort OR	1	826	Odds Ratio (IV, Random, 95% CI)	1.19 [0.50, 2.86]
1.3 Delayed Development 18-24 months	1	609	Odds Ratio (IV, Fixed, 95% CI)	2.87 [1.17, 7.06]
1.3.1 Cohort Studies OR	1	609	Odds Ratio (IV, Fixed, 95% CI)	2.87 [1.17, 7.06]

1.4 IQ	6	5079	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.06, 0.08]
1.4.1 Cohort	5	4742	Std. Mean Difference (IV, Random, 95% CI)	0.00 [-0.07, 0.08]
1.4.2 Cohort Studies Unadjusted	1	337	Std. Mean Difference (IV, Random, 95% CI)	0.12 [-0.16, 0.40]
1.5 IQ Adjusted 12-18 months BF	3	2452	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.12, 0.09]
1.5.1 Cohort Studies	3	2452	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.12, 0.09]
1.6 IQ Adjusted 18-24 months	3	1700	Std. Mean Difference (IV, Random, 95% CI)	-0.08 [-0.32, 0.17]
1.6.1 Cohort Studies	3	1700	Std. Mean Difference (IV, Random, 95% CI)	-0.08 [-0.32, 0.17]
1.7 Learning Ability	1	413	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.27, 0.23]
1.7.1 Cohort Studies	1	413	Std. Mean Difference (IV, Random, 95% CI)	-0.02 [-0.27, 0.23]
1.8 Learning Ability 12-18 mo	1	312	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.31, 0.21]
1.8.1 Cohort Studies	1	312	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.31, 0.21]
1.9 Learning Ability 18-24 mo	1	178	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.24, 0.35]
1.9.1 Cohort Studies	1	178	Std. Mean Difference (IV, Random, 95% CI)	0.06 [-0.24, 0.35]
1.10 Coding Wisc III	1	413	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.11, 0.39]
1.10.1 Cohort Studies	1	413	Std. Mean Difference (IV, Random, 95% CI)	0.14 [-0.11, 0.39]
1.11 Coding WISC III 12-18 mo	1	312	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.09, 0.42]
1.11.1 Cohort Studies	1	312	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.09, 0.42]

1.12 Coding WISC III 18-24 mo	1	178	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.21, 0.38]
1.12.1 Cohort Studies	1	178	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.21, 0.38]
1.13 Visuospatial Problem Solving	2	1403	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.33, -0.01]
1.13.1 Cohort Studies	2	1403	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.33, -0.01]
1.14 Visuospatial Problem Solving 12-18 mo	2	1138	Std. Mean Difference (IV, Random, 95% CI)	-0.15 [-0.35, 0.05]
1.14.1 Cohort Studies	2	1138	Std. Mean Difference (IV, Random, 95% CI)	-0.15 [-0.35, 0.05]
1.15 Visuospatial Problem Solving 18-24 mo	2	787	Std. Mean Difference (IV, Random, 95% CI)	-0.24 [-0.39, -0.09]
1.15.1 Cohort Studies	2	787	Std. Mean Difference (IV, Random, 95% CI)	-0.24 [-0.39, -0.09]
1.16 Verbal Intelligence	3	1936	Std. Mean Difference (IV, Random, 95% CI)	-0.08 [-0.18, 0.01]
1.16.1 Cohort Studies Adjusted	2	1523	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.17, 0.03]
1.16.2 Cohort Studies Unadjusted	1	413	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.40, 0.08]
1.17 Verbal Intelligence 12-18 mo	3	1577	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.15, 0.05]
1.17.1 Cohort Studies	2	1265	Std. Mean Difference (IV, Random, 95% CI)	-0.04 [-0.15, 0.08]
1.17.2 Cohort Studies Unadjusted	1	312	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.37, 0.15]
1.18 Verbal Intelligence 18-24 mo	3	1076	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.29, -0.03]
1.18.1 Cohort Studies	2	898	Std. Mean Difference (IV, Random, 95% CI)	-0.14 [-0.29, 0.00]
1.18.2 Cohort Studies Unadjusted	1	178	Std. Mean Difference (IV, Random, 95% CI)	-0.25 [-0.55, 0.05]

1.19 Working Memory	2	946	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.19, 0.10]
1.19.1 Cohort Studies	1	533	Std. Mean Difference (IV, Random, 95% CI)	-0.10 [-0.27, 0.08]
1.19.2 Cohort Studies Unadjusted	1	413	Std. Mean Difference (IV, Random, 95% CI)	0.05 [-0.20, 0.30]
1.20 Working Memory 12-18 mo	2	751	Std. Mean Difference (IV, Random, 95% CI)	-0.12 [-0.33, 0.08]
1.20.1 Cohort Studies	1	439	Std. Mean Difference (IV, Random, 95% CI)	-0.21 [-0.40, -0.02]
1.20.2 Cohort Studies Unadjusted	1	312	Std. Mean Difference (IV, Random, 95% CI)	0.00 [-0.26, 0.26]
1.21 Working Memory 18-24 mo	2	467	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.37, 0.32]
1.21.1 Cohort Studies	1	289	Std. Mean Difference (IV, Random, 95% CI)	-0.19 [-0.44, 0.05]
1.21.2 Cohort Studies Unadjusted	1	178	Std. Mean Difference (IV, Random, 95% CI)	0.16 [-0.14, 0.46]
1.22 Reasoning	3	1936	Std. Mean Difference (IV, Random, 95% CI)	-0.13 [-0.22, -0.03]
1.22.1 Cohort Studies	2	1523	Std. Mean Difference (IV, Random, 95% CI)	-0.12 [-0.22, -0.02]
1.22.2 Cohort Studies Unadjusted	1	413	Std. Mean Difference (IV, Random, 95% CI)	-0.14 [-0.39, 0.11]
1.23 Reasoning 12-18 mo	3	1678	Std. Mean Difference (IV, Random, 95% CI)	-0.09 [-0.19, 0.02]
1.23.1 Cohort Studies	2	1265	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.19, 0.04]
1.23.2 Cohort Studies Unadjusted	1	413	Std. Mean Difference (IV, Random, 95% CI)	-0.14 [-0.39, 0.11]
1.24 Reasoning 18-24 mo	3	1076	Std. Mean Difference (IV, Random, 95% CI)	-0.23 [-0.36, -0.10]
1.24.1 Cohort Studies	2	898	Std. Mean Difference (IV, Random, 95% CI)	-0.25 [-0.39, -0.10]
1.24.2 Cohort Studies Unadjusted	1	178	Std. Mean Difference (IV, Random, 95% CI)	-0.16 [-0.45, 0.14]

1.25 Processing Speed	1	533	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.24, 0.11]
1.25.1 Cohort Studies	1	533	Std. Mean Difference (IV, Random, 95% CI)	-0.07 [-0.24, 0.11]
1.26 Processing Speed 12-18 mo	1	439	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.22, 0.16]
1.26.1 Cohort Studies	1	439	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.22, 0.16]
1.27 Processing Speed 18-24 mo	1	289	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.41, 0.08]
1.27.1 Cohort Studies	1	289	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.41, 0.08]
1.28 Highest School Grade	3		Mean Difference (IV, Random, 95% CI)	0.02 [-0.19, 0.23]
1.28.1 Cohort Studies	3		Mean Difference (IV, Random, 95% CI)	0.02 [-0.19, 0.23]
1.29 School Test Score	1		Mean Difference (IV, Random, 95% CI)	0.22 [-0.06, 0.50]
1.29.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	0.22 [-0.06, 0.50]
1.30 Emotional Reactivity	1	1952	Mean Difference (IV, Random, 95% CI)	0.41 [-0.83, 1.65]
1.31 Anxiety/ Depression	1	1952	Mean Difference (IV, Random, 95% CI)	0.16 [-0.98, 1.30]
1.32 Somatic Complaints	1	1952	Mean Difference (IV, Random, 95% CI)	0.45 [-0.65, 1.55]
1.33 Withdrawn	1	1952	Mean Difference (IV, Random, 95% CI)	0.20 [-0.69, 1.09]
1.34 Sleep Problems	1	1952	Mean Difference (IV, Random, 95% CI)	0.51 [-0.53, 1.55]
1.35 Aggression	1	1952	Mean Difference (IV, Random, 95% CI)	2.29 [-1.15, 5.73]
1.36 Attention Problems	1	1952	Mean Difference (IV, Random, 95% CI)	0.49 [-0.15, 1.13]

2 Outcomes in Children: Growth and Anthropometry

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
2.1 Underweight	7	15441	Odds Ratio (M-H, Random, 95% CI)	1.25 [1.08, 1.46]
2.1.1 Cross Sectional	5	3715	Odds Ratio (M-H, Random, 95% CI)	1.18 [0.93, 1.51]
2.1.2 Cohort Studies Unadjusted	2	11726	Odds Ratio (M-H, Random, 95% CI)	1.30 [1.07, 1.57]
2.2 Underweight 12-18 months	2	201	Odds Ratio (M-H, Random, 95% CI)	1.21 [0.37, 4.02]
2.2.1 Cross Sectional	2	201	Odds Ratio (M-H, Random, 95% CI)	1.21 [0.37, 4.02]
2.3 Underweight 18-24 months	2	229	Odds Ratio (M-H, Random, 95% CI)	1.49 [0.48, 4.62]
2.3.1 Cross Sectional	2	229	Odds Ratio (M-H, Random, 95% CI)	1.49 [0.48, 4.62]
2.4 Stunting	3		Odds Ratio (IV, Random, 95% CI)	1.87 [0.95, 3.68]
2.4.1 OR Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	2.77 [1.91, 4.02]
2.4.2 Cross Sectional Studies (Unadjusted)	2		Odds Ratio (IV, Random, 95% CI)	1.18 [0.58, 2.40]
2.5 Stunting 12-18 mo	2	201	Odds Ratio (M-H, Random, 95% CI)	1.02 [0.45, 2.35]
2.5.1 Cross Sectional	2	201	Odds Ratio (M-H, Random, 95% CI)	1.02 [0.45, 2.35]
2.6 Stunting 18-24 mo	2	229	Odds Ratio (M-H, Random, 95% CI)	1.23 [0.52, 2.95]
2.6.1 Cross Sectional	2	229	Odds Ratio (M-H, Random, 95% CI)	1.23 [0.52, 2.95]
2.7 Wasting	2	342	Odds Ratio (M-H, Random, 95% CI)	2.16 [1.18, 3.98]
2.7.1 Cross Sectional	2	342	Odds Ratio (M-H, Random, 95% CI)	2.16 [1.18, 3.98]

2.8 Wasting 12-18 mo	2	283	Odds Ratio (M-H, Random, 95% CI)	1.84 [0.95, 3.58]
2.8.1 Cross Sectional	2	283	Odds Ratio (M-H, Random, 95% CI)	1.84 [0.95, 3.58]
2.9 Wasting 18-24 mo	2	203	Odds Ratio (M-H, Random, 95% CI)	4.47 [0.66, 30.41]
2.9.1 Cross Sectional	2	203	Odds Ratio (M-H, Random, 95% CI)	4.47 [0.66, 30.41]
2.10 Weight [kg]	1	191	Mean Difference (IV, Random, 95% CI)	-3.30 [-7.39, 0.79]
2.10.1 Cohort Studies	1	191	Mean Difference (IV, Random, 95% CI)	-3.30 [-7.39, 0.79]
2.11 WAZ	1	1799	Mean Difference (IV, Random, 95% CI)	0.25 [0.10, 0.40]
2.11.1 Cross Sectional Studies	1	1799	Mean Difference (IV, Random, 95% CI)	0.25 [0.10, 0.40]
2.12 WAZ 12-18 mo	1	1311	Mean Difference (IV, Random, 95% CI)	0.18 [-0.00, 0.36]
2.12.1 Cross Sectional Studies	1	1311	Mean Difference (IV, Random, 95% CI)	0.18 [-0.00, 0.36]
2.13 WAZ 18-24 mo	1	1310	Mean Difference (IV, Random, 95% CI)	0.32 [0.14, 0.50]
2.13.1 Cross Sectional Studies	1	1310	Mean Difference (IV, Random, 95% CI)	0.32 [0.14, 0.50]
2.14 Height [cm]	2	600	Mean Difference (IV, Random, 95% CI)	-0.68 [-2.46, 1.11]
2.14.1 Cohort Studies	2	600	Mean Difference (IV, Random, 95% CI)	-0.68 [-2.46, 1.11]
2.15 HAZ	2		Mean Difference (IV, Random, 95% CI)	0.14 [-0.07, 0.36]
2.15.1 Cross Sectional Studies	2		Mean Difference (IV, Random, 95% CI)	0.14 [-0.07, 0.36]
2.16 HAZ 12-18 mo	1	1311	Mean Difference (IV, Random, 95% CI)	0.21 [0.00, 0.42]
2.16.1 Cross Sectional Studies	1	1311	Mean Difference (IV, Random, 95% CI)	0.21 [0.00, 0.42]

2.17 HAZ 18-24 mo	1	1310	Mean Difference (IV, Random, 95% CI)	0.29 [0.08, 0.50]
2.17.1 Cross Sectional Studies	1	1310	Mean Difference (IV, Random, 95% CI)	0.29 [0.08, 0.50]
2.18 WHZ	2	2148	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.33, 0.31]
2.18.1 Cross Sectional Studies	1	1799	Mean Difference (IV, Random, 95% CI)	0.13 [-0.02, 0.28]
2.18.2 cohort studies	1	349	Mean Difference (IV, Random, 95% CI)	-0.20 [-0.50, 0.10]
2.19 WHZ 12-18 mo	1	1311	Mean Difference (IV, Random, 95% CI)	0.07 [-0.11, 0.25]
2.19.1 Cross Sectional Studies	1	1311	Mean Difference (IV, Random, 95% CI)	0.07 [-0.11, 0.25]
2.20 WHZ 18-24 mo	1	1310	Mean Difference (IV, Random, 95% CI)	0.19 [0.01, 0.37]
2.20.1 Cross Sectional Studies	1	1310	Mean Difference (IV, Random, 95% CI)	0.19 [0.01, 0.37]
2.21 BMI	5	12356	Mean Difference (IV, Random, 95% CI)	-0.10 [-0.17, -0.03]
2.21.1 Cohort Studies	5	12356	Mean Difference (IV, Random, 95% CI)	-0.10 [-0.17, -0.03]
2.22 BMI z score	3		Mean Difference (IV, Random, 95% CI)	0.01 [-0.14, 0.16]
2.22.1 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	0.07 [-0.13, 0.27]
2.22.2 Cohort Studies Unadjusted	1		Mean Difference (IV, Random, 95% CI)	-0.02 [-0.28, 0.24]
2.22.3 Cohort studies adjusted	1		Mean Difference (IV, Random, 95% CI)	-0.26 [-0.73, 0.21]
2.23 Obesity and Overweight	25	37715	Odds Ratio (IV, Random, 95% CI)	0.94 [0.79, 1.12]
2.23.1 Cross Sectional Studies OR	7	6408	Odds Ratio (IV, Random, 95% CI)	0.85 [0.68, 1.05]
2.23.2 Cohort Studies OR	8	23806	Odds Ratio (IV, Random, 95% CI)	0.99 [0.90, 1.09]
2.23.3 Cohort Studies Unadjusted	3	1654	Odds Ratio (IV, Random, 95% CI)	0.81 [0.52, 1.27]

2.23.4 Cross Sectional Unadjusted	7	5847	Odds Ratio (IV, Random, 95% CI)	1.01 [0.60, 1.69]
2.24 Obesity and Overweight 12-18 mo	2		Odds Ratio (IV, Random, 95% CI)	0.51 [0.29, 0.91]
2.25 Obesity and Overweight 18-24 mo	2		Odds Ratio (IV, Random, 95% CI)	0.73 [0.39, 1.36]
2.26 Waist Circumference (cm)	1		Mean Difference (IV, Random, 95% CI)	0.07 [-0.47, 0.61]
2.26.1 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	0.07 [-0.47, 0.61]
2.27 Skinfold Thickness	1	356	Mean Difference (IV, Random, 95% CI)	-0.10 [-1.08, 0.88]
2.27.1 Continued BF	1	356	Mean Difference (IV, Random, 95% CI)	-0.10 [-1.08, 0.88]
2.28 Fat Mass	2	560	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.30, 0.08]
2.28.1 Cohort Studies	2	560	Std. Mean Difference (IV, Random, 95% CI)	-0.11 [-0.30, 0.08]
2.29 Fat Mass/Height ²	2	560	Mean Difference (IV, Random, 95% CI)	-0.05 [-0.25, 0.15]
2.29.1 Cohort Studies	2	560	Mean Difference (IV, Random, 95% CI)	-0.05 [-0.25, 0.15]
2.30 Lean Mass/Height ²	2	560	Mean Difference (IV, Random, 95% CI)	-0.02 [-0.23, 0.19]
2.30.1 Cohort Studies	2	560	Mean Difference (IV, Random, 95% CI)	-0.02 [-0.23, 0.19]
2.31 Percentage leg/Total Height	1	409	Mean Difference (IV, Random, 95% CI)	-0.10 [-0.54, 0.34]
2.31.1 Cohort Studies	1	409	Mean Difference (IV, Random, 95% CI)	-0.10 [-0.54, 0.34]
2.32 Lean Mass	1	151	Mean Difference (IV, Random, 95% CI)	-0.10 [-0.59, 0.39]
2.32.1 Cohort Studies	1	151	Mean Difference (IV, Random, 95% CI)	-0.10 [-0.59, 0.39]

2.33 Trunk Length z score	1		Mean Difference (IV, Random, 95% CI)	0.07 [-0.13, 0.27]
2.33.1 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	0.07 [-0.13, 0.27]
2.34 Leg Length z Score	1		Mean Difference (IV, Random, 95% CI)	-0.05 [-0.24, 0.14]
2.34.1 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	-0.05 [-0.24, 0.14]

3 Outcomes in Children: Infections and Non-infectious morbidity, including micronutrient deficiency

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
3.1 Infections	2		Odds Ratio (IV, Fixed, 95% CI)	1.08 [1.00, 1.16]
3.1.1 Cohort Studies	2		Odds Ratio (IV, Fixed, 95% CI)	1.08 [1.00, 1.16]
3.2 Gastrointestinal Infections	2	43018	Odds Ratio (IV, Random, 95% CI)	1.00 [0.96, 1.04]
3.2.1 Cohort Studies	2	43018	Odds Ratio (IV, Random, 95% CI)	1.00 [0.96, 1.04]
3.3 Acute Gastroenteritis	1	270	Mean Difference (IV, Fixed, 95% CI)	-2.23 [-2.55, -1.91]
3.4 Respiratory Tract Infections	1	270	Mean Difference (IV, Fixed, 95% CI)	-2.43 [-3.99, -0.87]
3.4.1 New Subgroup	1	270	Mean Difference (IV, Fixed, 95% CI)	-2.43 [-3.99, -0.87]
3.4.2 New Subgroup	0	0	Mean Difference (IV, Fixed, 95% CI)	Not estimable
3.5 Respiratory tract infections Cohort	3		Odds Ratio (IV, Random, 95% CI)	1.00 [0.94, 1.06]
3.6 Acute Otitis Media	1	270	Mean Difference (IV, Random, 95% CI)	-1.40 [-1.80, -1.00]
3.6.1 Cohort Studies	1	270	Mean Difference (IV, Random, 95% CI)	-1.40 [-1.80, -1.00]

3.7 Acute Otitis Media Cohort OR	3	47089	Odds Ratio (IV, Random, 95% CI)	0.99 [0.95, 1.03]
3.7.1 Adjusted OR	2	47019	Odds Ratio (IV, Random, 95% CI)	0.99 [0.95, 1.03]
3.7.2 Unadjusted OR	1	70	Odds Ratio (IV, Random, 95% CI)	0.89 [0.35, 2.29]
3.8 Urinary System Infections	1	270	Mean Difference (IV, Random, 95% CI)	-0.02 [-0.25, 0.21]
3.9 Diabetes	1		Odds Ratio (IV, Fixed, 95% CI)	0.62 [0.29, 1.29]
3.9.1 Cohort Studies	1		Odds Ratio (IV, Fixed, 95% CI)	0.62 [0.29, 1.29]
3.10 Diabetes 12-18 mo	1		Odds Ratio (IV, Fixed, 95% CI)	0.73 [0.34, 1.61]
3.10.1 Cohort Studies	1		Odds Ratio (IV, Fixed, 95% CI)	0.73 [0.34, 1.61]
3.11 Diabetes 18-24 mo	1		Odds Ratio (IV, Fixed, 95% CI)	0.45 [0.18, 1.15]
3.11.1 Cohort Studies	1		Odds Ratio (IV, Fixed, 95% CI)	0.45 [0.18, 1.15]
3.12 High Fasting Blood Sugar	2		Odds Ratio (IV, Random, 95% CI)	1.33 [0.95, 1.87]
3.13 High FBS 12-18 mo	2		Odds Ratio (IV, Random, 95% CI)	1.22 [0.85, 1.76]
3.14 High FBS 18-24 mo	2		Odds Ratio (IV, Random, 95% CI)	1.49 [1.03, 2.16]
3.15 Glucose (mg/dL)	1		Mean Difference (IV, Random, 95% CI)	-0.01 [-0.10, 0.08]
3.15.1 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	-0.01 [-0.10, 0.08]
3.16 Type 1 Diabetes	1		Odds Ratio (IV, Random, 95% CI)	0.98 [0.73, 1.32]
3.16.1 Cohort Study	1		Odds Ratio (IV, Random, 95% CI)	0.98 [0.73, 1.32]
3.17 Hypertension	2		Odds Ratio (IV, Random, 95% CI)	0.91 [0.61, 1.33]
3.18 Hypertension 12-18 mo	2		Odds Ratio (IV, Random, 95% CI)	0.96 [0.63, 1.45]
3.19 Hypertension 18-24 mo	2		Odds Ratio (IV, Random, 95% CI)	0.83 [0.53, 1.30]

3.20 Systolic BP	4		Mean Difference (IV, Random, 95% CI)	-0.65 [-1.35, 0.06]
3.20.1 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	-1.07 [-2.04, -0.10]
3.20.2 Cohort Studies	3		Mean Difference (IV, Random, 95% CI)	-0.16 [-1.20, 0.87]
3.21 Systolic BP 12-18 mo	1		Mean Difference (IV, Random, 95% CI)	-0.07 [-1.26, 1.12]
3.22 Systolic BP 18-24 mo	1		Mean Difference (IV, Random, 95% CI)	0.05 [-1.18, 1.28]
3.23 Diastolic BP	2		Mean Difference (IV, Random, 95% CI)	-1.60 [-4.11, 0.92]
3.23.1 Cohort Studies	2		Mean Difference (IV, Random, 95% CI)	-1.60 [-4.11, 0.92]
3.24 Prehypertension	1		Odds Ratio (IV, Random, 95% CI)	0.86 [0.69, 1.07]
3.24.1 Cohort Studies	1		Odds Ratio (IV, Random, 95% CI)	0.86 [0.69, 1.07]
3.25 Prehypertension 12-18 mo	1		Odds Ratio (IV, Random, 95% CI)	0.79 [0.62, 1.00]
3.25.1 Cohort Studies	1		Odds Ratio (IV, Random, 95% CI)	0.79 [0.62, 1.00]
3.26 Prehypertension 18-24 mo	1		Odds Ratio (IV, Random, 95% CI)	0.97 [0.76, 1.24]
3.26.1 Cohort Studies	1		Odds Ratio (IV, Random, 95% CI)	0.97 [0.76, 1.24]
3.27 Carotid Intima Media Thickness	2		Mean Difference (IV, Random, 95% CI)	-6.27 [-16.54, 4.01]
3.27.1 Cohort Studies (Unadjusted)	1		Mean Difference (IV, Random, 95% CI)	-18.30 [-41.89, 5.29]
3.27.2 Cohort Studies (Adjusted)	1		Mean Difference (IV, Random, 95% CI)	-3.98 [-8.47, 0.51]
3.28 Total Cholesterol	2	637	Mean Difference (IV, Random, 95% CI)	2.14 [-7.17, 11.45]
3.28.1 Cohort Studies	1	409	Mean Difference (IV, Random, 95% CI)	7.20 [-0.51, 14.91]
3.28.2 Cross Sectional Studies (Adjusted)	1	228	Mean Difference (IV, Random, 95% CI)	-2.32 [-8.43, 3.79]

3.29 High Total Cholesterol	1		Odds Ratio (IV, Random, 95% CI)	1.07 [0.32, 3.55]
3.30 High Total Cholesterol 12-18 mo	1		Odds Ratio (IV, Random, 95% CI)	1.30 [0.32, 5.23]
3.31 High Total Cholesterol 18-24 mo	1		Odds Ratio (IV, Random, 95% CI)	0.90 [0.23, 3.53]
3.32 LDL	2	637	Mean Difference (IV, Random, 95% CI)	2.38 [-3.82, 8.58]
3.32.1 Cohort Studies	1	409	Mean Difference (IV, Random, 95% CI)	6.00 [-0.83, 12.83]
3.32.2 Cross Sectional Studies (Adjusted)	1	228	Mean Difference (IV, Random, 95% CI)	-0.39 [-5.47, 4.70]
3.33 High LDL	1		Odds Ratio (IV, Random, 95% CI)	1.38 [0.28, 6.74]
3.34 High LDL 12-18 mo	1		Odds Ratio (IV, Random, 95% CI)	1.54 [0.26, 9.03]
3.35 High LDL 18-24 mo	1		Odds Ratio (IV, Random, 95% CI)	1.31 [0.23, 7.30]
3.36 HDL	2		Mean Difference (IV, Random, 95% CI)	0.02 [-0.03, 0.07]
3.36.1 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	0.02 [-0.03, 0.07]
3.36.2 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	-0.70 [-3.36, 1.96]
3.37 Low HDL	1		Odds Ratio (IV, Random, 95% CI)	1.86 [0.38, 8.96]
3.38 Low HDL 12-18 mo	1		Odds Ratio (IV, Random, 95% CI)	2.14 [0.37, 12.37]
3.39 Low HDL 18-24 mo	1		Odds Ratio (IV, Random, 95% CI)	1.71 [0.32, 9.32]
3.40 LDL/HDL Ratio	1	409	Mean Difference (IV, Random, 95% CI)	0.18 [-0.04, 0.40]
3.40.1 Cohort Studies	1	409	Mean Difference (IV, Random, 95% CI)	0.18 [-0.04, 0.40]
3.41 High TG	1		Odds Ratio (IV, Random, 95% CI)	0.91 [0.28, 3.00]

3.42 High TG 12-18 mo	1		Odds Ratio (IV, Random, 95% CI)	0.91 [0.23, 3.64]
3.43 High TG 18-24 mo	1		Odds Ratio (IV, Random, 95% CI)	0.94 [0.25, 3.61]
3.44 Serum Triglyceride	2		Mean Difference (IV, Random, 95% CI)	1.95 [-5.09, 8.99]
3.44.1 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	0.01 [-0.08, 0.10]
3.44.2 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	8.60 [-3.86, 21.06]
3.45 VLDL	1	409	Mean Difference (IV, Random, 95% CI)	1.70 [-0.83, 4.23]
3.45.1 Cohort Studies	1	409	Mean Difference (IV, Random, 95% CI)	1.70 [-0.83, 4.23]
3.46 Cardiometabolic Risk z score	1		Mean Difference (IV, Random, 95% CI)	-0.08 [-0.22, 0.06]
3.46.1 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	-0.08 [-0.22, 0.06]
3.47 Anemia	1		Odds Ratio (IV, Random, 95% CI)	0.21 [0.05, 0.88]
3.47.1 Cross Sectional PR	1		Odds Ratio (IV, Random, 95% CI)	0.21 [0.05, 0.88]
3.48 Anemia 12-18 mo	1		Odds Ratio (IV, Random, 95% CI)	0.26 [0.04, 1.63]
3.48.1 Cross Sectional PR	1		Odds Ratio (IV, Random, 95% CI)	0.26 [0.04, 1.63]
3.49 Anemia 18-24 months	1		Odds Ratio (IV, Random, 95% CI)	0.16 [0.02, 1.36]
3.49.1 Cross Sectional PR	1		Odds Ratio (IV, Random, 95% CI)	0.16 [0.02, 1.36]
3.50 Iron Deficiency	1		Odds Ratio (IV, Random, 95% CI)	1.71 [1.05, 2.78]
3.50.1 Cross Sectional	1		Odds Ratio (IV, Random, 95% CI)	1.71 [1.05, 2.78]

4 Outcomes in Children: Bone Health, Oral Health and Allergies

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
4.1 Bone Mineral Density (Total)	2	985	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.01, 0.00]
4.1.1 Cohort Studies	2	985	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.01, 0.00]
4.2 Bone Mineral Content	2	985	Mean Difference (IV, Random, 95% CI)	-12.27 [-25.75, 1.20]
4.2.1 Cohort Studies	2	985	Mean Difference (IV, Random, 95% CI)	-12.27 [-25.75, 1.20]
4.3 Dental Caries	20	11286	Odds Ratio (IV, Random, 95% CI)	1.52 [1.24, 1.88]
4.3.1 Cohort Studies PR/RR/HR	5	1603	Odds Ratio (IV, Random, 95% CI)	1.17 [0.94, 1.44]
4.3.2 Cohort Studies OR	1	246	Odds Ratio (IV, Random, 95% CI)	2.37 [1.24, 4.54]
4.3.3 Cross Sectional Studies PR	3	2698	Odds Ratio (IV, Random, 95% CI)	1.29 [0.86, 1.95]
4.3.4 Cross Sectional OR	3	2229	Odds Ratio (IV, Random, 95% CI)	2.62 [1.26, 5.43]
4.3.5 Cross Sectional Unadjusted	8	4510	Odds Ratio (IV, Random, 95% CI)	1.51 [1.09, 2.09]
4.4 Dental Caries 12-18 months	6	3216	Odds Ratio (IV, Random, 95% CI)	1.29 [1.09, 1.53]
4.4.1 Cohort Studies	2	430	Odds Ratio (IV, Random, 95% CI)	0.99 [0.67, 1.48]
4.4.2 Cross Sectional Studies	1	1081	Odds Ratio (IV, Random, 95% CI)	1.09 [0.73, 1.61]
4.4.3 Cross Sectional Unadjusted	3	1705	Odds Ratio (IV, Random, 95% CI)	1.46 [1.18, 1.81]
4.5 Dental Caries 18-24 months	6	2550	Odds Ratio (IV, Random, 95% CI)	1.94 [1.50, 2.51]
4.5.1 Cohort Studies	2	426	Odds Ratio (IV, Random, 95% CI)	1.95 [0.69, 5.53]
4.5.2 Cross Sectional Studies PR	1	1057	Odds Ratio (IV, Random, 95% CI)	2.10 [1.47, 3.00]

4.5.3 Cross Sectional Unadjusted	3	1067	Odds Ratio (IV, Random, 95% CI)	2.17 [1.67, 2.83]
4.6 Asthma	8	42521	Odds Ratio (IV, Random, 95% CI)	1.04 [0.95, 1.13]
4.6.1 RR Cohort	1	31053	Odds Ratio (IV, Random, 95% CI)	1.04 [0.93, 1.16]
4.6.2 RR Cross Sectional	1	0	Odds Ratio (IV, Random, 95% CI)	1.36 [0.82, 2.25]
4.6.3 OR Cross Sectional	3	9824	Odds Ratio (IV, Random, 95% CI)	1.00 [0.84, 1.17]
4.6.4 OR Cohort	1	674	Odds Ratio (IV, Random, 95% CI)	0.93 [0.67, 1.29]
4.6.5 OR Cross Sectional Unadjusted	2	970	Odds Ratio (IV, Random, 95% CI)	1.30 [0.66, 2.57]
4.7 Allergies	2	9824	Odds Ratio (IV, Random, 95% CI)	0.88 [0.40, 1.95]
4.7.1 Cross Sectional Studies	2	9824	Odds Ratio (IV, Random, 95% CI)	0.88 [0.40, 1.95]
4.8 Eczema	4	13360	Odds Ratio (IV, Random, 95% CI)	1.09 [0.94, 1.27]
4.8.1 Cross Sectional Studies	4	13360	Odds Ratio (IV, Random, 95% CI)	1.09 [0.94, 1.27]
4.9 Hay Fever	1	381	Odds Ratio (IV, Random, 95% CI)	0.30 [0.07, 1.21]
4.9.1 Cross Sectional Studies	1	381	Odds Ratio (IV, Random, 95% CI)	0.30 [0.07, 1.21]

5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
5.1 Diabetes	5		Odds Ratio (IV, Random, 95% CI)	0.93 [0.62, 1.39]
5.1.1 Hazard Ratio/ RR (Cohort)	2		Odds Ratio (IV, Random, 95% CI)	0.66 [0.24, 1.81]
5.1.2 Odds Ratio Cross Sectional	3		Odds Ratio (IV, Random, 95% CI)	1.14 [0.76, 1.69]

5.2 Diabetes 12-18 mo	2		Odds Ratio (IV, Random, 95% CI)	1.41 [0.50, 4.03]
5.2.1 Cross Sectional Studies	2		Odds Ratio (IV, Random, 95% CI)	1.41 [0.50, 4.03]
5.3 Diabetes 18-24 mo	2		Odds Ratio (IV, Random, 95% CI)	1.09 [0.66, 1.78]
5.3.1 Cross Sectional Studies	2		Odds Ratio (IV, Random, 95% CI)	1.09 [0.66, 1.78]
5.4 Blood Glucose (mg/dL)	3		Mean Difference (IV, Random, 95% CI)	0.35 [-3.85, 4.55]
5.4.1 Cohort Studies	2		Mean Difference (IV, Random, 95% CI)	-2.37 [-6.60, 1.86]
5.4.2 Cross Sectional Unadjusted	1		Mean Difference (IV, Random, 95% CI)	2.88 [1.08, 4.68]
5.5 Blood Glucose (12-18 mo)	1	3292	Mean Difference (IV, Random, 95% CI)	1.30 [-0.99, 3.59]
5.5.1 Cross Sectional (Unadjusted)	1	3292	Mean Difference (IV, Random, 95% CI)	1.30 [-0.99, 3.59]
5.6 Blood Glucose (18-24 months)	1	4356	Mean Difference (IV, Random, 95% CI)	3.60 [1.48, 5.72]
5.6.1 Cross Sectional (Unadjusted)	1	4356	Mean Difference (IV, Random, 95% CI)	3.60 [1.48, 5.72]
5.7 HbA1C	1	291	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.09, 0.07]
5.7.1 Cohort Studies	1	291	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.09, 0.07]
5.8 Fasting Insulin	1	89	Mean Difference (IV, Random, 95% CI)	-0.10 [-2.03, 1.83]
5.8.1 Cohort Studies	1	89	Mean Difference (IV, Random, 95% CI)	-0.10 [-2.03, 1.83]
5.9 Hypertension	5		Odds Ratio (IV, Random, 95% CI)	0.94 [0.83, 1.06]
5.9.1 Cohort Studies (Hazard Ratio/RR)	2		Odds Ratio (IV, Random, 95% CI)	0.99 [0.93, 1.05]
5.9.2 Odds Ratio Cross Sectional	3		Odds Ratio (IV, Random, 95% CI)	0.87 [0.73, 1.04]

5.10 Hypertension 12-18 months	2		Odds Ratio (IV, Fixed, 95% CI)	0.86 [0.78, 0.95]
5.10.1 Cross Sectional	2		Odds Ratio (IV, Fixed, 95% CI)	0.86 [0.78, 0.95]
5.11 Hypertension 18-24 months	2		Odds Ratio (IV, Fixed, 95% CI)	0.71 [0.63, 0.80]
5.11.1 Cross Sectional	2		Odds Ratio (IV, Fixed, 95% CI)	0.71 [0.63, 0.80]
5.12 Systolic BP	2		Mean Difference (IV, Random, 95% CI)	2.57 [-1.70, 6.84]
5.12.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	0.20 [-2.60, 3.00]
5.12.2 Cross Sectional Study (Unadjusted)	1		Mean Difference (IV, Random, 95% CI)	4.57 [3.30, 5.84]
5.13 Systolic BP (12-18 mo) [mmHg]	1	3292	Mean Difference (IV, Random, 95% CI)	2.50 [0.81, 4.19]
5.13.1 Cross Sectional Unadjusted	1	3292	Mean Difference (IV, Random, 95% CI)	2.50 [0.81, 4.19]
5.14 Systolic BP (18-24 months)	1	4356	Mean Difference (IV, Random, 95% CI)	5.50 [4.11, 6.89]
5.14.1 Cross Sectional (Unadjusted)	1	4356	Mean Difference (IV, Random, 95% CI)	5.50 [4.11, 6.89]
5.15 Diastolic BP	1		Mean Difference (IV, Random, 95% CI)	0.46 [-1.70, 2.62]
5.15.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	0.46 [-1.70, 2.62]
5.15.2 Cross Sectional Study (Unadjusted)	0		Mean Difference (IV, Random, 95% CI)	Not estimable
5.16 Diastolic BP (12-18 mo)	1	3292	Mean Difference (IV, Random, 95% CI)	0.40 [-0.58, 1.38]
5.16.1 Cross Sectional (Unadjusted)	1	3292	Mean Difference (IV, Random, 95% CI)	0.40 [-0.58, 1.38]
5.17 Diastolic BP (18-24 mo)	1	4356	Mean Difference (IV, Random, 95% CI)	-1.20 [-2.03, -0.37]
5.17.1 Cross Sectional (Unadjusted)	1	4356	Mean Difference (IV, Random, 95% CI)	-1.20 [-2.03, -0.37]
5.18 Stroke	1		Odds Ratio (IV, Fixed, 95% CI)	1.02 [1.00, 1.05]
5.18.1 Hazard Ratio	1		Odds Ratio (IV, Fixed, 95% CI)	1.02 [1.00, 1.05]

5.19 Stroke 12-18 months	1		Odds Ratio (IV, Fixed, 95% CI)	1.02 [0.98, 1.06]
5.19.1 Hazard Ratio	1		Odds Ratio (IV, Fixed, 95% CI)	1.02 [0.98, 1.06]
5.20 Stroke 18-24 months	1		Odds Ratio (IV, Fixed, 95% CI)	1.03 [0.99, 1.07]
5.20.1 Hazard Ratio	1		Odds Ratio (IV, Fixed, 95% CI)	1.03 [0.99, 1.07]
5.21 Cardiovascular Mortality	2		Odds Ratio (IV, Random, 95% CI)	0.97 [0.94, 1.00]
5.21.1 Hazard Ratio Cohort	2		Odds Ratio (IV, Random, 95% CI)	0.97 [0.94, 1.00]
5.22 Cardiovascular Mortality 12-18 months	1		Odds Ratio (IV, Fixed, 95% CI)	0.98 [0.89, 1.07]
5.22.1 Hazard Ratio	1		Odds Ratio (IV, Fixed, 95% CI)	0.98 [0.89, 1.07]
5.23 Cardiovascular Mortality 18-24 months	1		Odds Ratio (IV, Fixed, 95% CI)	1.04 [0.94, 1.14]
5.23.1 Hazard Ratio	1		Odds Ratio (IV, Fixed, 95% CI)	1.04 [0.94, 1.14]
5.24 All Cardiovascular Disease	2		Odds Ratio (IV, Random, 95% CI)	0.97 [0.94, 1.00]
5.24.1 Hazard Ratio Cohort	2		Odds Ratio (IV, Random, 95% CI)	0.97 [0.94, 1.00]
5.24.2 Odds Ratio	0		Odds Ratio (IV, Random, 95% CI)	Not estimable
5.25 All Cardiovascular Disease 12-18 months	1		Odds Ratio (IV, Fixed, 95% CI)	0.99 [0.97, 1.01]
5.25.1 Hazard Ratio	1		Odds Ratio (IV, Fixed, 95% CI)	0.99 [0.97, 1.01]
5.26 All Cardiovascular Disease 18 to 24 months	1		Odds Ratio (IV, Fixed, 95% CI)	0.96 [0.93, 0.99]
5.26.1 Hazard Ratio	1		Odds Ratio (IV, Fixed, 95% CI)	0.96 [0.93, 0.99]
5.27 Hyperlipidemia	1		Odds Ratio (IV, Random, 95% CI)	0.69 [0.39, 1.22]
5.27.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	0.69 [0.39, 1.22]
5.28 Hyperlipidemia 12-18 months	1		Odds Ratio (IV, Random, 95% CI)	0.42 [0.15, 1.19]
5.28.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	0.42 [0.15, 1.19]

5.29 Hyperlipidemia 18-24 mo	1		Odds Ratio (IV, Random, 95% CI)	0.82 [0.49, 1.39]
5.29.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	0.82 [0.49, 1.39]
5.30 Cholesterol (mG/dL)	3		Mean Difference (IV, Random, 95% CI)	-3.86 [-6.26, -1.45]
5.30.1 Cohort Studies	2		Mean Difference (IV, Random, 95% CI)	-6.33 [-14.99, 2.33]
5.30.2 Cross Sectional Unadjusted	1		Mean Difference (IV, Random, 95% CI)	-3.65 [-6.15, -1.15]
5.31 Total Cholesterol (12-18 mo)	1	3292	Mean Difference (IV, Random, 95% CI)	-1.30 [-4.90, 2.30]
5.31.1 Cross Sectional (Unadjusted)	1	3292	Mean Difference (IV, Random, 95% CI)	-1.30 [-4.90, 2.30]
5.32 Total Cholesterol (18-24 mo)	1	4356	Mean Difference (IV, Random, 95% CI)	-4.70 [-7.49, -1.91]
5.32.1 Cross Sectional (Unadjusted)	1	4356	Mean Difference (IV, Random, 95% CI)	-4.70 [-7.49, -1.91]
5.33 LDL (mg/dL)	3		Mean Difference (IV, Random, 95% CI)	-2.67 [-4.81, -0.53]
5.33.1 Cohort Studies	2		Mean Difference (IV, Random, 95% CI)	-3.59 [-10.86, 3.69]
5.33.2 Cross Sectional Unadjusted	1		Mean Difference (IV, Random, 95% CI)	-2.58 [-4.82, -0.34]
5.34 LDL (12-18 mo)	1	3292	Mean Difference (IV, Random, 95% CI)	-0.30 [-3.46, 2.86]
5.34.1 Cross Sectional (Unadjusted)	1	3292	Mean Difference (IV, Random, 95% CI)	-0.30 [-3.46, 2.86]
5.35 LDL (18-24 mo)	1	4356	Mean Difference (IV, Random, 95% CI)	-3.60 [-6.11, -1.09]
5.35.1 Cross Sectional (Unadjusted)	1	4356	Mean Difference (IV, Random, 95% CI)	-3.60 [-6.11, -1.09]
5.36 HDL (mg/dL)	3		Mean Difference (IV, Random, 95% CI)	-1.97 [-2.78, -1.15]
5.36.1 Cohort Studies	2		Mean Difference (IV, Random, 95% CI)	-1.79 [-4.75, 1.17]
5.36.2 Cross Sectional Unadjusted	1		Mean Difference (IV, Random, 95% CI)	-1.98 [-2.83, -1.13]

5.37 HDL (12-18 mo)	1	3292	Mean Difference (IV, Random, 95% CI)	-1.70 [-2.84, -0.56]
5.37.1 Cross Sectional (Unadjusted)	1	3292	Mean Difference (IV, Random, 95% CI)	-1.70 [-2.84, -0.56]
5.38 HDL (18-24 mo)	1	4356	Mean Difference (IV, Random, 95% CI)	-2.10 [-3.08, -1.12]
5.38.1 Cross Sectional (Unadjusted)	1	4356	Mean Difference (IV, Random, 95% CI)	-2.10 [-3.08, -1.12]
5.39 Low HDL	1		Odds Ratio (IV, Random, 95% CI)	0.75 [0.39, 1.44]
5.39.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	0.75 [0.39, 1.44]
5.40 Low HDL 12-18 months	1		Odds Ratio (IV, Random, 95% CI)	0.60 [0.22, 1.63]
5.40.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	0.60 [0.22, 1.63]
5.41 Low HDL 18-24 months	1		Odds Ratio (IV, Random, 95% CI)	0.89 [0.37, 2.15]
5.41.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	0.89 [0.37, 2.15]
5.42 Triglyceride (mg/dL)	2		Mean Difference (IV, Random, 95% CI)	-1.12 [-1.30, -0.94]
5.42.1 Cohort Studies	2		Mean Difference (IV, Random, 95% CI)	-1.12 [-1.30, -0.94]
5.43 Metabolic Syndrome	1		Odds Ratio (IV, Random, 95% CI)	0.83 [0.45, 1.53]
5.43.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	0.83 [0.45, 1.53]
5.44 Metabolic Syndrome 12-18 months	1		Odds Ratio (IV, Random, 95% CI)	1.07 [0.45, 2.53]
5.44.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	1.07 [0.45, 2.53]
5.45 Metabolic Syndrome 18-24 months	1		Odds Ratio (IV, Random, 95% CI)	0.65 [0.28, 1.51]
5.45.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	0.65 [0.28, 1.51]

5.46 HOMA-IR	1	89	Mean Difference (IV, Random, 95% CI)	0.00 [-0.35, 0.35]
5.46.1 Cohort Studies	1	89	Mean Difference (IV, Random, 95% CI)	0.00 [-0.35, 0.35]
5.47 Intima Media Thickness (um)	1		Mean Difference (IV, Random, 95% CI)	0.96 [-3.30, 5.22]
5.47.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	0.96 [-3.30, 5.22]
5.48 Pulse Wave Velocity (m/s)	1		Mean Difference (IV, Random, 95% CI)	-0.24 [-0.60, 0.12]
5.48.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	-0.24 [-0.60, 0.12]
5.49 Overweight and Obesity	2		Odds Ratio (IV, Random, 95% CI)	0.95 [0.73, 1.24]
5.49.1 Cross Sectional	2		Odds Ratio (IV, Random, 95% CI)	0.95 [0.73, 1.24]
5.50 Overweight and Obesity (18-24 mo)	2		Odds Ratio (IV, Random, 95% CI)	0.92 [0.67, 1.27]
5.50.1 Cross Sectional	2		Odds Ratio (IV, Random, 95% CI)	0.92 [0.67, 1.27]
5.51 Overweight and Obesity (12-18 mo)	2		Odds Ratio (IV, Random, 95% CI)	1.07 [0.77, 1.48]
5.51.1 Cross Sectional	2		Odds Ratio (IV, Random, 95% CI)	1.07 [0.77, 1.48]
5.52 BMI	3		Mean Difference (IV, Random, 95% CI)	0.01 [-0.22, 0.25]
5.52.1 Cohort Studies	2		Mean Difference (IV, Random, 95% CI)	-0.15 [-1.02, 0.71]
5.52.2 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	0.04 [-0.21, 0.28]
5.53 BMI (13-18 mo)	2	3292	Mean Difference (IV, Random, 95% CI)	-0.10 [-0.38, 0.18]
5.53.1 Cross Sectional Studies	1	3292	Mean Difference (IV, Random, 95% CI)	-0.10 [-0.38, 0.18]
5.53.2 Cohort Studies	1	0	Mean Difference (IV, Random, 95% CI)	Not estimable

5.54 BMI (18-24 mo)	1	4356	Mean Difference (IV, Random, 95% CI)	0.10 [-0.18, 0.38]
5.54.1 Cross Sectional	1	4356	Mean Difference (IV, Random, 95% CI)	0.10 [-0.18, 0.38]
5.55 BMI Gain	1		Mean Difference (IV, Random, 95% CI)	0.08 [-0.97, 1.13]
5.55.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	0.08 [-0.97, 1.13]
5.56 Weight Gain	4		Mean Difference (IV, Random, 95% CI)	0.21 [-0.39, 0.80]
5.56.1 Cohort Studies	4		Mean Difference (IV, Random, 95% CI)	0.21 [-0.39, 0.80]
5.57 Waist Circumference	3		Mean Difference (IV, Random, 95% CI)	0.41 [-0.29, 1.12]
5.57.1 Cohort Studies	2		Mean Difference (IV, Random, 95% CI)	0.21 [-1.80, 2.23]
5.57.2 Cross Sectional Studies	1		Mean Difference (IV, Random, 95% CI)	0.44 [-0.31, 1.19]
5.58 Waist Circumference (12-18 mo) [cm]	1	3292	Mean Difference (IV, Random, 95% CI)	0.30 [-0.68, 1.28]
5.58.1 Cross Sectional	1	3292	Mean Difference (IV, Random, 95% CI)	0.30 [-0.68, 1.28]
5.59 Waist Circumference (18-24 mo) [cm]	1	4356	Mean Difference (IV, Fixed, 95% CI)	0.50 [-0.33, 1.33]
5.59.1 Cross Sectional	1	4356	Mean Difference (IV, Fixed, 95% CI)	0.50 [-0.33, 1.33]
5.60 WC>85 cm	1		Odds Ratio (IV, Random, 95% CI)	1.04 [0.77, 1.42]
5.60.1 Cross Sectional	1		Odds Ratio (IV, Random, 95% CI)	1.04 [0.77, 1.42]
5.61 WC>85 cm (12-18 mo)	1		Odds Ratio (IV, Random, 95% CI)	1.05 [0.73, 1.52]
5.61.1 Cross Sectional	1		Odds Ratio (IV, Random, 95% CI)	1.05 [0.73, 1.52]

5.62 WC>85 cm (18-24 mo)	1		Odds Ratio (IV, Random, 95% CI)	1.04 [0.73, 1.49]
5.62.1 Cross Sectional	1		Odds Ratio (IV, Random, 95% CI)	1.04 [0.73, 1.49]
5.63 Waist Hip Ratio	1		Mean Difference (IV, Random, 95% CI)	0.03 [0.00, 0.06]
5.63.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	0.03 [0.00, 0.06]
5.64 Skinfold Thickness	1		Mean Difference (IV, Random, 95% CI)	0.39 [-1.34, 2.12]
5.64.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	0.39 [-1.34, 2.12]
5.65 Subscapular Triceps Skinfold Thickness Ratio	1		Mean Difference (IV, Random, 95% CI)	0.00 [-0.07, 0.07]
5.65.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	0.00 [-0.07, 0.07]
5.66 Percentage Fat Mass	1		Mean Difference (IV, Random, 95% CI)	0.87 [-4.44, 6.18]
5.66.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	0.87 [-4.44, 6.18]
5.67 Arm Fat Index	1		Mean Difference (IV, Random, 95% CI)	-0.54 [-3.38, 2.30]
5.67.1 Cohort Studies	1		Mean Difference (IV, Random, 95% CI)	-0.54 [-3.38, 2.30]

6 Maternal Outcomes Breastfeeding Duration per child: Cancer, Bone Health, Mental Health

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
6.1 Breast Cancer	4	24695	Odds Ratio (IV, Random, 95% CI)	0.83 [0.61, 1.14]
6.1.1 Case Control Studies	1	5077	Odds Ratio (IV, Random, 95% CI)	0.89 [0.57, 1.37]
6.1.2 Cohort Studies	3	19618	Odds Ratio (IV, Random, 95% CI)	0.78 [0.49, 1.22]

6.2 Breast Cancer 12-18 mo	1	11204	Odds Ratio (IV, Random, 95% CI)	1.04 [0.33, 3.27]
6.2.1 Cohort Studies	1	11204	Odds Ratio (IV, Random, 95% CI)	1.04 [0.33, 3.27]
6.3 Breast Cancer 18-24 mo	1	8710	Odds Ratio (IV, Random, 95% CI)	1.08 [0.32, 3.68]
6.3.1 Cohort Studies	1	8710	Odds Ratio (IV, Random, 95% CI)	1.08 [0.32, 3.68]
6.4 Cancer Ovary	1	5480	Odds Ratio (IV, Random, 95% CI)	1.04 [0.46, 2.36]
6.4.2 Cohort Studies	1	5480	Odds Ratio (IV, Random, 95% CI)	1.04 [0.46, 2.36]
6.5 Cancer Cervix	1	5480	Odds Ratio (IV, Random, 95% CI)	1.87 [0.93, 3.77]
6.5.2 Cohort Studies	1	5480	Odds Ratio (IV, Random, 95% CI)	1.87 [0.93, 3.77]
6.6 Cancer Corpus Uteri	1	5480	Odds Ratio (IV, Random, 95% CI)	1.29 [0.52, 3.20]
6.6.2 Cohort Studies	1	5480	Odds Ratio (IV, Random, 95% CI)	1.29 [0.52, 3.20]
6.7 Cancer All Sites	1	5480	Odds Ratio (IV, Random, 95% CI)	0.84 [0.67, 1.06]
6.7.2 Cohort Studies	1	5480	Odds Ratio (IV, Random, 95% CI)	0.84 [0.67, 1.06]
6.8 Cancer All Except Breast/ Genitalia	1	5480	Odds Ratio (IV, Random, 95% CI)	0.79 [0.60, 1.05]
6.8.2 Cohort Studies	1	5480	Odds Ratio (IV, Random, 95% CI)	0.79 [0.60, 1.05]
6.9 Osteoporosis	2	1790	Odds Ratio (IV, Random, 95% CI)	3.37 [0.30, 38.07]
6.9.1 Cross Sectional Studies	2	1790	Odds Ratio (IV, Random, 95% CI)	3.37 [0.30, 38.07]
6.10 BMD Total Femur	1	1113	Mean Difference (IV, Random, 95% CI)	-0.06 [-0.07, -0.06]
6.10.1 Cross Sectional	1	1113	Mean Difference (IV, Random, 95% CI)	-0.06 [-0.07, -0.06]

6.11 BMD Total Femur 12-18 mo	1	814	Mean Difference (IV, Random, 95% CI)	-0.04 [-0.05, -0.04]
6.11.1 Cross Sectional	1	814	Mean Difference (IV, Random, 95% CI)	-0.04 [-0.05, -0.04]
6.12 BMD Total Femur 18-24 mo	1	764	Mean Difference (IV, Random, 95% CI)	-0.09 [-0.09, -0.08]
6.12.1 Cross Sectional	1	764	Mean Difference (IV, Random, 95% CI)	-0.09 [-0.09, -0.08]
6.13 Femoral Neck BMD [g/cm ²]	2	1918	Mean Difference (IV, Fixed, 95% CI)	-0.06 [-0.07, -0.05]
6.13.1 Cohort Studies	1	805	Mean Difference (IV, Fixed, 95% CI)	0.01 [-0.02, 0.03]
6.13.2 Cross Sectional Studies	1	1113	Mean Difference (IV, Fixed, 95% CI)	-0.06 [-0.07, -0.06]
6.14 Femoral Neck BMD 12-18 mo	2	1228	Mean Difference (IV, Random, 95% CI)	-0.02 [-0.08, 0.04]
6.14.1 Cross Sectional	1	814	Mean Difference (IV, Random, 95% CI)	-0.05 [-0.05, -0.04]
6.14.2 Cohort Studies	1	414	Mean Difference (IV, Random, 95% CI)	0.02 [-0.01, 0.04]
6.15 Femoral Neck BMD 18-24 mo	2	1321	Mean Difference (IV, Random, 95% CI)	-0.04 [-0.13, 0.04]
6.15.1 Cross Sectional	1	764	Mean Difference (IV, Random, 95% CI)	-0.09 [-0.09, -0.08]
6.15.2 Cohort Studies	1	557	Mean Difference (IV, Random, 95% CI)	-0.00 [-0.03, 0.02]
6.16 Lumbar Vertebrae BMD [g/cm ²]	3	1948	Mean Difference (IV, Fixed, 95% CI)	-0.10 [-0.11, -0.09]
6.16.1 Cross Sectional Studies	2	1143	Mean Difference (IV, Fixed, 95% CI)	-0.10 [-0.11, -0.09]
6.16.2 Cohort Studies	1	805	Mean Difference (IV, Fixed, 95% CI)	0.03 [-0.02, 0.08]
6.17 BMD Lumbar Vertebra 12-18 mo	2	1228	Mean Difference (IV, Random, 95% CI)	-0.03 [-0.16, 0.10]
6.17.1 Cross Sectional	1	814	Mean Difference (IV, Random, 95% CI)	-0.09 [-0.10, -0.08]
6.17.2 Cohort Studies	1	414	Mean Difference (IV, Random, 95% CI)	0.04 [-0.01, 0.10]

6.18 BMD Lumbar Vertebra 18-24 mo	2	1321	Mean Difference (IV, Random, 95% CI)	-0.06 [-0.22, 0.10]
6.18.1 Cross Sectional	1	764	Mean Difference (IV, Random, 95% CI)	-0.14 [-0.15, -0.13]
6.18.2 Cohort Studies	1	557	Mean Difference (IV, Random, 95% CI)	0.02 [-0.03, 0.08]
6.19 BMD Mid Radius	1	30	Mean Difference (IV, Random, 95% CI)	0.00 [-0.01, 0.02]
6.19.1 Cross Sectional Studies	1	30	Mean Difference (IV, Random, 95% CI)	0.00 [-0.01, 0.02]
6.20 BMD Distal Radius	1	30	Mean Difference (IV, Random, 95% CI)	0.00 [-0.01, 0.01]
6.20.1 Cross Sectional Studies	1	30	Mean Difference (IV, Random, 95% CI)	0.00 [-0.01, 0.01]
6.21 Cognitive Impairment	1		(IV, Fixed, 95% CI)	1.04 [0.81, 1.35]
6.21.1 New Subgroup	0		(IV, Fixed, 95% CI)	Not estimable
6.21.2 Cross Sectional OR	1		(IV, Fixed, 95% CI)	1.04 [0.81, 1.35]
6.22 Cognitive Impairment 12-18 months	1		Odds Ratio (IV, Fixed, 95% CI)	0.84 [0.62, 1.14]
6.22.1 Cross Sectional OR	1		Odds Ratio (IV, Fixed, 95% CI)	0.84 [0.62, 1.14]
6.23 Cognitive Impairment 18-24 months	1		Odds Ratio (IV, Fixed, 95% CI)	1.32 [0.96, 1.80]
6.23.1 Cross Sectional OR	1		Odds Ratio (IV, Fixed, 95% CI)	1.32 [0.96, 1.80]

7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
7.1 Diabetes	11	345094	Odds Ratio (IV, Random, 95% CI)	0.96 [0.91, 1.02]
7.1.1 Cohort Studies	5	301194	Odds Ratio (IV, Random, 95% CI)	0.98 [0.92, 1.04]
7.1.2 OR Cross Sectional Studies	6	43900	Odds Ratio (IV, Random, 95% CI)	0.92 [0.82, 1.03]

7.2 Diabetes 12-18 months	1	2443	Odds Ratio (IV, Random, 95% CI)	1.12 [0.81, 1.53]
7.2.1 Cross Sectional Studies	1	2443	Odds Ratio (IV, Random, 95% CI)	1.12 [0.81, 1.53]
7.3 Diabetes 18-24 mo	1	3156	Odds Ratio (IV, Random, 95% CI)	1.05 [0.78, 1.42]
7.3.1 Cross Sectional Studies	1	3156	Odds Ratio (IV, Random, 95% CI)	1.05 [0.78, 1.42]
7.4 Blood Glucose (mg/dL)	3	14296	Mean Difference (IV, Random, 95% CI)	0.46 [-1.70, 2.62]
7.4.1 Cohort Studies	1	782	Mean Difference (IV, Random, 95% CI)	0.76 [-3.10, 4.62]
7.4.2 Cross Sectional Studies	2	13514	Mean Difference (IV, Random, 95% CI)	0.38 [-2.44, 3.20]
7.5 Hypertension	9	172366	Odds Ratio (IV, Random, 95% CI)	0.99 [0.95, 1.03]
7.5.1 Cohort Study Hazard Ratio/RR	3	122206	Odds Ratio (IV, Random, 95% CI)	1.04 [0.96, 1.12]
7.5.3 Odds Ratio Cross Sectional Studies	6	50160	Odds Ratio (IV, Random, 95% CI)	0.97 [0.93, 1.02]
7.6 Hypertension 12-18 months	4	99567	Odds Ratio (IV, Fixed, 95% CI)	1.00 [0.94, 1.06]
7.6.1 Cohort Study (Hazard Ratio/RR)	2	97124	Odds Ratio (IV, Fixed, 95% CI)	1.02 [0.95, 1.10]
7.6.2 Cross Sectional Odds Ratio	2	2443	Odds Ratio (IV, Fixed, 95% CI)	0.97 [0.88, 1.07]
7.7 Hypertension 18-24 months	4	88068	Risk Ratio (IV, Random, 95% CI)	0.97 [0.84, 1.12]
7.7.1 Cohort Study (Hazard Ratio/ RR)	2	84912	Risk Ratio (IV, Random, 95% CI)	1.05 [0.93, 1.17]
7.7.2 Cross Sectional Odds Ratio	2	3156	Risk Ratio (IV, Random, 95% CI)	0.89 [0.76, 1.04]
7.8 Systolic BP	1	782	Mean Difference (IV, Random, 95% CI)	0.53 [-1.80, 2.86]
7.8.1 Cohort Studies	1	782	Mean Difference (IV, Random, 95% CI)	0.53 [-1.80, 2.86]

7.9 Diastolic BP	1	782	Mean Difference (IV, Random, 95% CI)	0.64 [-1.00, 2.28]
7.9.1 Cohort Studies	1	782	Mean Difference (IV, Random, 95% CI)	0.64 [-1.00, 2.28]
7.10 Stroke	1		Odds Ratio (IV, Fixed, 95% CI)	1.00 [0.95, 1.05]
7.10.1 Hazard Ratio	1		Odds Ratio (IV, Fixed, 95% CI)	1.00 [0.95, 1.05]
7.10.2 Odds Ratio	0		Odds Ratio (IV, Fixed, 95% CI)	Not estimable
7.11 All Cardiovascular Disease	4	328381	Odds Ratio (IV, Random, 95% CI)	1.01 [0.97, 1.04]
7.11.1 Hazard Ratio	3	328381	Odds Ratio (IV, Random, 95% CI)	1.01 [0.97, 1.04]
7.11.2 Cross Sectional Studies	1	0	Odds Ratio (IV, Random, 95% CI)	0.56 [0.19, 1.60]
7.11.3 RR	0	0	Odds Ratio (IV, Random, 95% CI)	Not estimable
7.12 Cardiovascular Mortality	2	8613	Odds Ratio (IV, Fixed, 95% CI)	1.15 [0.95, 1.40]
7.12.1 Hazard Ratio	2	8613	Odds Ratio (IV, Fixed, 95% CI)	1.15 [0.95, 1.40]
7.12.2 Odds Ratio	0	0	Odds Ratio (IV, Fixed, 95% CI)	Not estimable
7.13 Hyperlipidemia	5	38646	Odds Ratio (IV, Random, 95% CI)	0.91 [0.84, 1.00]
7.13.1 OR Cross Sectional Studies	4	38493	Odds Ratio (IV, Random, 95% CI)	0.92 [0.84, 1.00]
7.13.2 Cohort Studies	1	153	Odds Ratio (IV, Random, 95% CI)	0.74 [0.30, 1.81]
7.14 Hyperlipidemia 12-18 months	1	2443	Odds Ratio (IV, Random, 95% CI)	0.84 [0.62, 1.14]
7.14.1 Cross Sectional Studies	1	2443	Odds Ratio (IV, Random, 95% CI)	0.84 [0.62, 1.14]
7.15 Hyperlipidemia 18-24 mo	1	3156	Odds Ratio (IV, Random, 95% CI)	0.89 [0.67, 1.19]
7.15.1 Cross Sectional Studies	1	3156	Odds Ratio (IV, Random, 95% CI)	0.89 [0.67, 1.19]
7.16 Cholesterol (mg/dL)	2	12449	Mean Difference (IV, Random, 95% CI)	-1.24 [-4.21, 1.74]
7.16.1 Cohort Studies	1	782	Mean Difference (IV, Random, 95% CI)	-4.04 [-11.10, 3.02]

7.16.2 Cross Sectional Studies	1	11667	Mean Difference (IV, Random, 95% CI)	-0.63 [-3.91, 2.65]
7.17 LDL (mg/dL)	2	12278	Mean Difference (IV, Random, 95% CI)	-1.51 [-4.36, 1.34]
7.17.1 Cohort Studies	1	782	Mean Difference (IV, Random, 95% CI)	-4.13 [-9.90, 1.64]
7.17.2 Cross Sectional Studies	1	11496	Mean Difference (IV, Random, 95% CI)	-0.70 [-3.76, 2.36]
7.18 HDL (mg/dL)	3	14296	Mean Difference (IV, Random, 95% CI)	0.66 [-0.68, 2.01]
7.18.1 Cohort Studies	1	782	Mean Difference (IV, Random, 95% CI)	-0.37 [-2.80, 2.06]
7.18.2 Cross Sectional Studies	2	13514	Mean Difference (IV, Random, 95% CI)	0.96 [-0.81, 2.72]
7.19 Low HDL	4	7503	Odds Ratio (IV, Random, 95% CI)	0.94 [0.80, 1.12]
7.19.1 Cross Sectional OR	3	7350	Odds Ratio (IV, Random, 95% CI)	0.96 [0.81, 1.14]
7.19.2 Cohort Studies	1	153	Odds Ratio (IV, Random, 95% CI)	0.48 [0.16, 1.46]
7.20 Low HDL 12-18 months	1	2443	Odds Ratio (IV, Random, 95% CI)	0.92 [0.66, 1.28]
7.20.1 Cross Sectional Studies	1	2443	Odds Ratio (IV, Random, 95% CI)	0.92 [0.66, 1.28]
7.21 Low HDL 18-24 months	1	3156	Odds Ratio (IV, Random, 95% CI)	1.00 [0.76, 1.31]
7.21.1 Cross Sectional Studies	1	3156	Odds Ratio (IV, Random, 95% CI)	1.00 [0.76, 1.31]
7.22 Triglyceride (mmol/L)	3	14296	Mean Difference (IV, Random, 95% CI)	0.03 [-0.06, 0.11]
7.22.1 Cohort Studies	1	782	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.01, -0.01]
7.22.2 Cross Sectional Studies	2	13514	Mean Difference (IV, Random, 95% CI)	0.07 [-0.14, 0.27]

7.23 Triglyceride (mmol/L) [mmol/L]	3	13514	Mean Difference (IV, Random, 95% CI)	0.07 [-0.14, 0.28]
7.23.1 Cross Sectional Studies	2	13514	Mean Difference (IV, Random, 95% CI)	0.07 [-0.14, 0.28]
7.23.2 Cohort Study	1	0	Mean Difference (IV, Random, 95% CI)	Not estimable
7.24 Metabolic Syndrome	4	7503	Odds Ratio (IV, Fixed, 95% CI)	0.88 [0.72, 1.08]
7.24.1 Cross Sectional Studies OR	3	7350	Odds Ratio (IV, Fixed, 95% CI)	0.87 [0.71, 1.07]
7.24.2 Cohort Studies	1	153	Odds Ratio (IV, Fixed, 95% CI)	1.20 [0.45, 3.23]
7.25 Metabolic Syndrome 12-18 months	1	2443	Odds Ratio (IV, Random, 95% CI)	0.87 [0.65, 1.18]
7.25.1 Cross Sectional Studies	1	2443	Odds Ratio (IV, Random, 95% CI)	0.87 [0.65, 1.18]
7.26 Metabolic Syndrome 18-24 months	1	3156	Odds Ratio (IV, Random, 95% CI)	0.91 [0.68, 1.22]
7.26.1 Cross Sectional Studies	1	3156	Odds Ratio (IV, Random, 95% CI)	0.91 [0.68, 1.22]
7.27 Obesity	7	51547	Odds Ratio (IV, Random, 95% CI)	0.95 [0.90, 1.00]
7.27.1 OR Cross Sectional Studies	6	51394	Odds Ratio (IV, Random, 95% CI)	0.95 [0.90, 1.00]
7.27.2 Cohort Studies	1	153	Odds Ratio (IV, Random, 95% CI)	0.71 [0.24, 2.10]
7.28 Obesity 12-18 months	1	2443	Odds Ratio (IV, Random, 95% CI)	0.92 [0.58, 1.45]
7.28.1 Cross Sectional Studies	1	2443	Odds Ratio (IV, Random, 95% CI)	0.92 [0.58, 1.45]
7.29 Obesity 18-24 months	1	3156	Odds Ratio (IV, Random, 95% CI)	0.78 [0.50, 1.22]
7.29.1 Cross Sectional Studies	1	3156	Odds Ratio (IV, Random, 95% CI)	0.78 [0.50, 1.22]
7.30 BMI [kg/m ²]	3	12463	Mean Difference (IV, Fixed, 95% CI)	-0.04 [-0.31, 0.23]
7.30.1 Cross Sectional Studies	2	12388	Mean Difference (IV, Fixed, 95% CI)	-0.03 [-0.30, 0.25]

7.30.2 Cohort Study	1	75	Mean Difference (IV, Fixed, 95% CI)	-0.70 [-2.99, 1.59]
7.31 Waist Circumference [cm]	2	13514	Mean Difference (IV, Fixed, 95% CI)	-0.17 [-0.53, 0.20]
7.31.1 Cross Sectional Studies	2	13514	Mean Difference (IV, Fixed, 95% CI)	-0.17 [-0.53, 0.20]
7.32 Total Lean Mass [kg]	1	75	Mean Difference (IV, Random, 95% CI)	-0.20 [-2.40, 2.00]
7.32.1 Cohort Studies	1	75	Mean Difference (IV, Random, 95% CI)	-0.20 [-2.40, 2.00]
7.33 Total Fat Mass [kg]	1	75	Mean Difference (IV, Random, 95% CI)	-1.60 [-6.10, 2.90]
7.33.1 Cohort Studies	1	75	Mean Difference (IV, Random, 95% CI)	-1.60 [-6.10, 2.90]
7.34 Intima Media Thickness (um)	1	782	Mean Difference (IV, Random, 95% CI)	1.72 [-1.50, 4.94]
7.34.1 Cohort Studies	1	782	Mean Difference (IV, Random, 95% CI)	1.72 [-1.50, 4.94]
7.35 Pulse Wave Velocity (m/s)	1	782	Mean Difference (IV, Random, 95% CI)	-0.06 [-0.40, 0.28]
7.35.1 Cohort Studies	1	782	Mean Difference (IV, Random, 95% CI)	-0.06 [-0.40, 0.28]

8 Maternal Outcomes - Cumulative Breastfeeding: Cancer, Bone Health

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
8.1 Breast Cancer	6		Odds Ratio (IV, Random, 95% CI)	1.07 [0.95, 1.20]
8.1.1 Cohort Studies	6		Odds Ratio (IV, Random, 95% CI)	1.07 [0.95, 1.20]
8.2 Ovarian Cancer	2		Risk Ratio (IV, Fixed, 95% CI)	1.12 [0.69, 1.83]
8.2.1 Cohort studies	2		Risk Ratio (IV, Fixed, 95% CI)	1.12 [0.69, 1.83]
8.3 Ovarian Cancer 12-18 months	1		Risk Ratio (IV, Fixed, 95% CI)	1.08 [0.62, 1.89]
8.3.1 Cohort studies	1		Risk Ratio (IV, Fixed, 95% CI)	1.08 [0.62, 1.89]

8.4 Ovarian Cancer 18-24 months	1		Risk Ratio (IV, Fixed, 95% CI)	0.87 [0.60, 1.26]
8.4.1 Cohort studies	1		Risk Ratio (IV, Fixed, 95% CI)	0.87 [0.60, 1.26]
8.5 Lung Cancer	2		Odds Ratio (IV, Fixed, 95% CI)	0.99 [0.89, 1.10]
8.5.1 Cohort Studies HR	2		Odds Ratio (IV, Fixed, 95% CI)	0.99 [0.89, 1.10]
8.6 Lung Cancer 12-18 months	1		Odds Ratio (IV, Fixed, 95% CI)	0.43 [0.17, 1.07]
8.6.1 Cohort Studies HR	1		Odds Ratio (IV, Fixed, 95% CI)	0.43 [0.17, 1.07]
8.7 Lung Cancer 18-24 months	1		Odds Ratio (IV, Fixed, 95% CI)	0.88 [0.52, 1.49]
8.7.1 Cohort Studies HR	1		Odds Ratio (IV, Fixed, 95% CI)	0.88 [0.52, 1.49]
8.8 Osteoporosis	1		Odds Ratio (IV, Random, 95% CI)	1.66 [1.21, 2.26]
8.8.1 Cross Sectional Studies	1		Odds Ratio (IV, Random, 95% CI)	1.66 [1.21, 2.26]
8.9 Bone Mineral Density TF	1	75	Mean Difference (IV, Random, 95% CI)	-0.02 [-0.07, 0.03]
8.9.1 Cohort Studies	1	75	Mean Difference (IV, Random, 95% CI)	-0.02 [-0.07, 0.03]
8.10 Bone Mineral Density FN [g/cm ²]	2	796	Mean Difference (IV, Random, 95% CI)	-0.03 [-0.05, -0.01]
8.10.1 Cohort Studies	1	75	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.06, 0.04]
8.10.2 Cross Sectional Studies	1	721	Mean Difference (IV, Random, 95% CI)	-0.04 [-0.06, -0.02]
8.11 Bone Mineral Density [g/cm ²]	1	75	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.06, 0.04]
8.11.1 Cohort Studies	1	75	Mean Difference (IV, Random, 95% CI)	-0.01 [-0.06, 0.04]
8.11.2 Cross Sectional Studies	0	0	Mean Difference (IV, Random, 95% CI)	Not estimable
8.12 Bone Mineral Density Lumbar Spine [g/cm ²]	1	721	Mean Difference (IV, Random, 95% CI)	-0.04 [-0.06, -0.02]
8.12.1 Cross Sectional Studies	1	721	Mean Difference (IV, Random, 95% CI)	-0.04 [-0.06, -0.02]

8.13 Bone Mineral Density Tibia	1	75	Std. Mean Difference (IV, Random, 95% CI)	-0.27 [-0.73, 0.18]
8.13.1 Cohort Studies	1	75	Std. Mean Difference (IV, Random, 95% CI)	-0.27 [-0.73, 0.18]
8.14 Bone Mineral Content [gm]	1	75	Mean Difference (IV, Random, 95% CI)	40.00 [-130.98, 210.98]
8.14.1 Cohort Studies	1	75	Mean Difference (IV, Random, 95% CI)	40.00 [-130.98, 210.98]
8.15 Bone Area	1	75	Mean Difference (IV, Random, 95% CI)	39.00 [-52.01, 130.01]
8.15.1 Continued BF	1	75	Mean Difference (IV, Random, 95% CI)	39.00 [-52.01, 130.01]
8.16 Rheumatoid Arthritis	1		Risk Ratio (IV, Fixed, 95% CI)	1.14 [0.67, 1.96]

9 Subgroup Analysis

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
9.1 IQ LMIC versus Others	6	5079	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.06, 0.08]
9.1.1 LMIC Countries	2	2816	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.09, 0.15]
9.1.2 Others	4	2263	Std. Mean Difference (IV, Random, 95% CI)	0.00 [-0.09, 0.09]
9.2 IQ Area of Residence	6	5079	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.06, 0.08]
9.2.1 Rural	2	2094	Std. Mean Difference (IV, Random, 95% CI)	-0.03 [-0.17, 0.11]
9.2.2 Urban	2	1393	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.08, 0.14]
9.2.3 Mixed	2	1592	Std. Mean Difference (IV, Random, 95% CI)	0.11 [-0.16, 0.39]
9.3 IQ Year of Publication	6	5079	Std. Mean Difference (IV, Random, 95% CI)	0.01 [-0.06, 0.08]
9.3.1 2001-2010	3	3155	Std. Mean Difference (IV, Random, 95% CI)	0.04 [-0.06, 0.15]
9.3.2 After 2011	3	1924	Std. Mean Difference (IV, Random, 95% CI)	-0.01 [-0.12, 0.10]

9.4 Underweight LMIC versus Others	7	15441	Odds Ratio (M-H, Random, 95% CI)	1.25 [1.08, 1.46]
9.4.1 LMIC	3	776	Odds Ratio (M-H, Random, 95% CI)	0.79 [0.36, 1.74]
9.4.2 Others	4	14665	Odds Ratio (M-H, Random, 95% CI)	1.27 [1.09, 1.49]
9.5 Underweight Area of Residence	7	15441	Odds Ratio (M-H, Random, 95% CI)	1.25 [1.08, 1.46]
9.5.1 Urban	3	3406	Odds Ratio (M-H, Random, 95% CI)	1.16 [0.88, 1.54]
9.5.2 Mixed	4	12035	Odds Ratio (M-H, Random, 95% CI)	1.30 [1.08, 1.57]
9.6 Underweight Year of Publication	7	15441	Odds Ratio (M-H, Random, 95% CI)	1.25 [1.08, 1.46]
9.6.1 Before 2000	2	309	Odds Ratio (M-H, Random, 95% CI)	1.38 [0.50, 3.81]
9.6.2 2001-2010	2	11726	Odds Ratio (M-H, Random, 95% CI)	1.30 [1.07, 1.57]
9.6.3 2011-2020	3	3406	Odds Ratio (M-H, Random, 95% CI)	1.16 [0.88, 1.54]
9.7 Obesity and Overweight LMIC versus Others	25	37715	Odds Ratio (IV, Random, 95% CI)	0.94 [0.79, 1.12]
9.7.1 LMIC	4	1196	Odds Ratio (IV, Random, 95% CI)	0.64 [0.44, 0.95]
9.7.2 Others	21	36519	Odds Ratio (IV, Random, 95% CI)	0.99 [0.83, 1.19]
9.8 Obesity and Overweight Area of Residence	25	37715	Odds Ratio (IV, Random, 95% CI)	0.94 [0.79, 1.12]
9.8.1 Rural	2	3708	Odds Ratio (IV, Random, 95% CI)	0.82 [0.61, 1.09]
9.8.2 Urban	17	10350	Odds Ratio (IV, Random, 95% CI)	0.90 [0.68, 1.19]
9.8.3 Mixed	6	23657	Odds Ratio (IV, Random, 95% CI)	0.99 [0.87, 1.13]
9.9 Obesity and Overweight Year of Publication	25	37715	Odds Ratio (IV, Random, 95% CI)	0.94 [0.79, 1.12]
9.9.1 2011 or later	13	21936	Odds Ratio (IV, Random, 95% CI)	1.03 [0.77, 1.37]

9.9.2 2001-2010	11	14795	Odds Ratio (IV, Random, 95% CI)	0.94 [0.83, 1.05]
9.9.3 1991-2000	1	984	Odds Ratio (IV, Random, 95% CI)	0.64 [0.25, 1.68]

Sources of support

Internal sources

- No sources of support provided

External sources

- World Health Organization, Geneva, Switzerland

Feedback

Appendices

1 Assumptions and Calculations

[Butt 2014](#)

1. Adjusted RR data given for the risk of invasive breast cancer in relation to total duration of breast feeding. Total duration of BF was calculated by multiplying the mean duration of BF (Calculated from the addition of duration of BF of first 7 births) with no of live births
2. Data given for ≥ 13 months and 7-13 months, taking < 4 months BF as reference
3. Data was missing for 24 women having breast cancer out of total 424 cases analyzed.

[Fonseca 2010](#)

1. Data given as prevalence of asthma according to the duration of BF in boys and girls. Total cases and events for each feeding duration for boys and girls were combined and OR were calculated for > 12 months Vs 6-12 months.
2. Adjusted data was not given.

[Wong 2017](#)

Adjusted ORs for allergic disorders according to BF duration were given for 6-11 months and 12-23 months, BF 0-5 months as reference group (OR1). ORs for 6-11 months and 12-23 months were imputed.

[Karlson 2004](#)

1. Adjusted RRs were given for RA in relation to lifetime BF for only 336 out of 338 women analysed (for prospective nature), RR values were given for 4-11 months and 12-23 months. No feeding was the comparison group
2. RRs values for 4-11 months Vs 12-23 months were imputed.
3. data regarding BF was missing for 2 participants and analysis was done for 336 only. No of participants in control and continuous BF group was not given.

[Miyake 2007](#)

1. Adjusted ORs for allergic disorders according to BF duration were given for 7-12 months and > 13 months,

BF <4 months as coparison group. ORs for 7-12 months VS >13months were imputed.

2. Adjusted ORs given for wheeze episode in last 12months. As no details about no. of epidsodes in past has bepatientsen given results has been added under the Outcome Asthma.

[Danforth 2007](#)

1. RR for ovarian cancer in relation to life time breastfeeding, adjusted data given for NHS and NHS II cohort seperately and combined. Values given for combined population were taken

2. For cummulative BF adjusted RRs are given for 12-17 months and > 18 months in realtion to no feeding as comparison group. These were analyzed seperately and the combined values were calculated by GIV to compare with 7-12 months values.

[Nam 2019](#)

1. The reference for calculating ORs was No breastfeeding. The HRs for 12-23 versus shorter periods was imputed

2. For cumulative breastfeeding ORs are given for 13-18 month and 19-24 month duration of breastfeeding. These were analysed seperately and also combined by GIV to compare with 7-12 month duration

[Michels 1996](#)

1. RR of breast cancer in relation to life time duration of breast feeding is given, as 7-11 months and 12-23 months, no feeding was the comparison group.

2. RR of breast cancer in relation to life time duration of breast feeding in relation to Parity (for 1 child) was also given f0r 7->24 months in comparison to no feeding. Thus not utilized.

[London 1990](#)

1. For Relative risk of breast cancer in relation to total duration of lactation had been given by menopausal status of participants under 3 headings all women, premenopausal and postmenopausal, values for all women were used for calcuations

2.Values have been given for 7-11 months and 12-23 months of cummulative BF, no feeding was the reference group.

3. Data also given paritywise for 1 child but the exact no of participants having 1 child is not given.

[Burdette 2006](#)

1. For clinical interpretation of results from the dual-energy X-ray absorptiometry (DXA) scans, classified children as having either "high" or "normal" adiposity. "High adiposity" defined as Body fat > 29% for females and 24% for males.

2. The data for Overweight was given as adjusted overweight (% age) with mean difference (95%CI) with no BF as the reference group. From this events were calculated in 6-12 months and >1 year and then OR was calculated.

3. For BMI Z score, adjusted mean, mean difference (95% CI) with No BF as the reference group was given from that mean and SD was calculated.

[Burke 2005](#)

1.Adjusted OR were given for children with > 95th percentile for weight-for-length at 1 year and BMI at 3, 6, and 8 years as the dependent variable

2. Adjustemented were done in two models, model I (adjusted for BW, gestational age, ethnicity. and sex only)

and model II (adjusted for maternal BMI, maternal smoking during pregnancy, first child, and maternal education in addition to what have been done in model I), we have taken model II values for calculations.

3.No. of overweight children were 31 in continued BF group (N=294), 41 in control group (N=308)

[Al-Makoshi 2013](#)

1. Breastfeeding data was given as, Full BF (age when infant formula or other fluids, except water, were introduced) or BF (age when breastfeeding was stopped). We have taken BF values for calculations.

2.No BF was given as reference for the calculation. OR for >12months Versus 6-12 months were calculated.

3. Agewise separate number of participants was not given.

[Alho 1990](#)

1. For acute otitis media, acute otitis media with efussion (prone) and respiratory tract infection data was given as adjusted OR for < 3months Versus 7-11 months and >12months groups.

2. BF < 3months was taken as reference. OR values were inversed for calculation from these values.

3. No values for single episodes were given, AOM/AOME proneness was taken as 3 or more episodes.

[Stuebe 2009](#)

1. For diabetes the data of the two NHS cohorts was given separately. The hazard ratios of the two cohorts were combined for >6-11 months and 12-23 month groups by GIV method

2. The reference for calclating HRs was No breastfeeding. The HRs for 12-23 versus 7-12 was imputed

3. For hypertension BF> 12 months was the reference. The comparison group of relevance was BF duration 9-<12 months. The HRs were reversed for analysis.

[Peters 2017](#)

1. For cumulative breastfeeding the comparison group was 0-12 months breastfeeding

2. ORs for continued breastfeeding versus other breastfeeding imputed

[Lee 2005](#)

1. For cumulative breastfeeding RRs are given for 13-18 month and 19-24 month duration of breastfeeding. These were analysed separately and also combined by GIV to compare with 7-12 month duration

2. The RRs for the continued and lesser breastfeeding durations were given with no breastfeeding as the reference group. RRs of continued versus lesser BF were imputed from this data.

[Gay 2015](#)

The HRs for the continued and lesser breastfeeding durations were given with no breastfeeding as the reference group. RRs of continued versus lesser BF were calculated from this data.

[Kim 2015](#)

The RRs for the continued and lesser breastfeeding durations were given with no breastfeeding as the reference group. RRs of continued versus lesser BF were calculated from this data.

[Lupton 2013](#)

1. Data given with 99% CI s which were converted to SEs

2. Age stratified data was combined using GIV to calculate data on 6-12 months, 12-18 months and 18-24 months

3. The pooled data of 12-18 and 18-24 months was further combined using GIV to arrive at ORs for 12-24 months

4. The reference group was no breastfeeding. ORs were imputed from this data.

[Natland 2012](#)

1. The geometric means of HDL, LDL, TG, Cholesterol and blood glucose was converted to arithmetic mean.

2. Age stratified data was combined using GIV for all the variables

3. The reference group was breastfeeding > 24 months. ORs were imputed from this data.

[Cohen 2009](#)

Reference group for OR for obesity was no breastfeeding. The ORs of continued versus BF 7-12 months was imputed

[Zhang 2015](#)

The ORs for the continued and lesser breastfeeding durations were given with no breastfeeding as the reference group. ORs of continued versus lesser BF were imputed from this data.

[Zhu 2020](#)

1. The adjusted mean difference for IQ for the various breastfeeding durations were given with BF<3 months as the reference. The mean difference between continued BF and BF 7-12 months was imputed from this.

[Daniels 2005](#)

1. The adjusted mean differences were given for normal birth weight and low birthweight children separately without giving the number of subjects in each group separately. The SEs were calculated from upper and lower CIs. The reference group was BF 0-6 months. From these MDs for continued BF (12-18 and 18-24 months separately were imputed). These were pooled using generic inverse variance fixed effect model. The mean difference of these two groups was further pooled to impute the mean difference of the entire 12-24 month group.

[Song 2020](#)

Compares risk of overweight/obesity in 6-11 month breastfeeding group with those for more than 12 months. > 12 month BF group taken as ref (1). ORs reversed for analysis.

[Li 2020](#)

The ORs of 12-18 month duration and >18 months were given, these were combined using the GIV method

The reference group was 12 month BF (OR1). The OR for continued BF versus 6to<12 months was imputed.

[Kim 2020a](#)

The ORs of 12-18 month duration and >18 months were given, these were combined using the GIV method

The reference group was 3-6 mo BF (OR1). The OR for continued BF versus 6to<12 months was imputed.

[Jeon 2020](#)

The reference group was no BF (HR1). The HR for continued BF versus 6to<12 months was imputed.

[Tan 2015](#)

The HRs of 12-18 month duration and >18 months were given, these were combined using the GIV method

The reference group was 12 month BF (HR1). The HR for continued BF versus 6to<12 months was imputed.

[Gunderson 2018](#)

The reference group was no BF (HR1). The HR for continued BF (≥ 12 months) versus 6to<12 months was imputed.

[Tanaka 2013](#)

The ORs of 12-18 month duration and >18 months were given, these were combined using the GIV method

The reference group was 0-6 mo BF (OR1). The OR for continued BF versus 6to<12 months was imputed.

[Iida 2007](#)

The reference group was 0 mo BF (OR1). The OR for continued BF versus 6to<12 months was imputed.

[Tanaka 2012](#)

The PRs of 12-18 month duration and >18 months were given, these were combined using the GIV method

The reference group was <6 month BF (PR1). The PR for continued BF versus 6to<12 months was imputed.

[Olatosi 2014](#)

Compares risk of ECC in 7-12 month breastfeeding group with those for more than 12 months. > 12 month BF group taken as ref (1). ORs reversed for analysis.

[Folayan 2010a](#)

The mean dmft index for 13-18 months and > 18 months was combined for analysis

[Christensen 2020](#)

1. The IRR for hospitalization due to infection was given for 7-9 month duration and 10-12 month duration. The IRR for control group (7-12 month) was calculated by combining the two using GIV.

2. The reference group was 0-3 month BF (IRR1). The IRR for continued BF (>13 month) versus 7 to 12 months was imputed.

[Fagerhaug 2013](#)

1. The SE of 7-12 month BF duration was provided in the text but not of the 13-24 month group (provided as figure. For purpose of analyses web-plot application was used to manually extract mean and confidence intervals.

2. The reference group was >24 month BF (HR1). The HR for continued BF (13-24 month) versus 7 to 12 months was imputed.

[Derakhshan 2017](#)

1. SDs were calculated from 95% CI

2. The values of 13-18 months and 18-24 months duration of breastfeeding were combined to calculate the values for continued breastfeeding

[Ki 2017](#)

1. Data for 12-18 mo and 18-24 mo given separately. They were combined for analysis

2. SEs were converted to Sd

3. The reference group was 0-6 month BF (OR1). The OR for continued BF versus 7 to 12 months was imputed.

[Yeo 2016](#)

1. Data for 12-18 mo and 18-24 mo, and pre and post menopausal women were given separately. They were combined for analysis

[Walby 2016](#)

The reference group was Never BF (OR1). The OR for continued BF (>12 month) versus 9 to 12 months was imputed

[Nambiar 2013](#)

1. Data on male and female subjects was given separately. That was combined using the GIV method

2. The reference group was Never BF (OR1). The OR for continued BF (>12 month) versus 7 to 12 months was imputed

[Abarca 2019](#)

The reference group was Never BF (RR1). The RR for continued BF (>12 month) versus 6 to 12 months was imputed

[Pudla 2015](#)

1. The data for 7-10 years and 11-14 years given separately. The odds ratio for obesity was combined using the GIV method

2. The reference group was Never BF/< 1mo (OR1). The OR for continued BF (>12 month) versus 6 to 12 months was imputed

[Liese 2001](#)

The reference group was breastfeeding < 6 mo (OR1). The OR for continued BF (>12 month) versus 6 to 12 months was imputed

[de Siqueira 2007](#)

Compares risk of obesity in 6-11 month breastfeeding group with those for more than 12 months. > 12 month BF group taken as ref (1). ORs reversed for analysis.

[von Kries 1999](#)

The reference group was no breastfeeding (OR1). The OR for continued BF (>12 month) versus 6 to 12 months was imputed

[Haag 2019](#)

The reference group was no breastfeeding (PR1). The PR for continued BF (12-24 month) versus <12 months was imputed

[Villamor 2000](#)

1. The reference group was breastfeeding 0-6 months (PR1). The PR for continued BF (12-18; >=19 month) versus 7-12 months was imputed

2. The PR for 12-18 months and >=19 months was combined using GIV method

[Victoria 2006](#)

1. For lipid profile the adjusted means and 95% CI were given. SDs were derived from 95% CI

2. The OR for obesity had continued BF as reference group (OR=1). For analyses the ORs were reversed.

3. For anthropometry and body composition means and SEs were given. SDs were derived from SE.

[Victora 1984](#)

Numbers approximated from the percentage figures given in the published paper (Fig 1)

[Veena 2010](#)

Data of 18-24 mo and 12-18 mo were given separately. The means and sds were combined for analysis

Verbal fluency scores were given separately for animal and first names. The means and sds were combined for analysis

For pattern reasoning and Kohls block design medians and IQR were given, median was assumed to be the same as mean and sd calculated as $IQR/1.35$

[Trygvadottir 2001](#)

The reference group was breastfeeding 0-6 weeks (OR1). The OR for continued BF (12-24 month) versus 7-12 months was imputed

[Tehrani 2014](#)

The reference group was breastfeeding >24 mo (RR1). The RR for continued BF (12-24 month) versus 7-12 months was imputed

[Stuebe 2010](#)

SDs derived from 95% CI

[Stendel-Hollis 2013](#)

HRs of the four groups for continued BF and control group were combined using GIV

The reference group was no breastfeeding (HR1). The HR for continued BF (12-24 month) versus 4-12 months was imputed

[Stuebe 2009a](#)

HRs of the 12-18 mo and 19+ groups for continued BF were combined using GIV

The reference group was no breastfeeding (HR1). The HR for continued BF (12-24 month) versus control group was imputed

[Sichieri 2003](#)

The data for women with BMI < and > 25 and for nulli and primiparous women is given separately. The means and SDs of the four groups were combined for analysis

The SDs of adjusted mean difference was not available from the published text. Therefore unadjusted values were used

[Oddy 2010](#)

The percentage of children breastfed for varying durations was given at the beginning of the study and the total number of subjects at the end of the study. It was assumed that the percentage remained constant and the N was derived from these figures

[Owen 2002](#)

Values of cholesterol and LDL given in mmol/L. They were converted to mg/dL by multiplying by 38.67

SDs imputed from SE

[Novaes 2012](#)

Compares risk of Obesity in 6-11 month breastfeeding group with those for more than 12 months. ≥ 12 month BF group taken as ref (OR=1). ORs reversed for analysis.

[Neutzling 2009](#)

Compares risk of Obesity in 9-11.9 month breastfeeding group with those for more than 12 months. ≥ 12 month BF group taken as ref (OR=1). ORs reversed for analysis.

[Retnakumari 2012](#)

Data derived from Fig 3 using the automeris app

[Rajaei 2016](#)

Data derived from Figure using the automeris webplot digitizer app

[Muniz 2015](#)

Data for men and women given separately. This was combined
SDs were derived from 95% CIs

[Harvey 2009](#)

Data derived from Figure using the automeris webplot digitizer app

[Martin 2002](#)

Data derived from Figure 2 using the automeris webplot digitizer app

[Lima 2019](#)

Data given as adjusted mean difference with ≥ 12 months of breastfeeding as reference (0). The values were reversed for quantitative analysis.

The biochemistry values were converted to mmol/L for analyses

[Izadi 2013](#)

1. The reference group was Never BF (OR1). The OR for continued BF (>12 month) versus 7 to 12 months was imputed
2. The ORs for 12-18 mo and 18-24 mo was given separately. These were combined using GIV

[Horta 2006](#)

SDs derived from 95% CIs

The means and CIs of males and females given separately. These were combined.

[Hartwig 2019](#)

The reference group was 0-6mo BF (RR1). The RR for continued BF (12-23 month) versus 6-11 months was imputed

[Duazo 2010](#)

The data for 5 and 6 year olds was given separately with total number of subjects in the two groups. The number of subjects for various durations of breastfeeding was given as a combined group for both the ages. It was assumed that the number of subjects for each age group was in proportion to the total number given. The means and SDs of the two groups was combined and used for quantitative analysis, The values thus imputed

for means, sds and n were

12-17 mo	1.9864	832	20.2366
6-11 mo	1.6688	334	17.9175
18-24 mo	2.6041	395	18.4257
12-24 mo	2.1853	1227	19.6664

[Camurdan 2011](#)

BMI means and SD given separately for AGA and LGA babies. These were combined for quantitative analysis

[Stordal 2017](#)

Data given as adjusted RR with ≥ 12 months of breastfeeding as reference (1). The values were reversed for quantitative analysis.

The RRs for upper and lower respiratory infections was combined using GIV to calculate the RRs for all respiratory tract infections

[Nirunsittirat 2016](#)

1. The reference group was 0-6mo BF (RR1). The RR for continued BF versus 6-11 months was calculated
2. The RRs for 12-18 mo and ≥ 18 mo was given separately. These were combined using GIV

2 Search Strategy

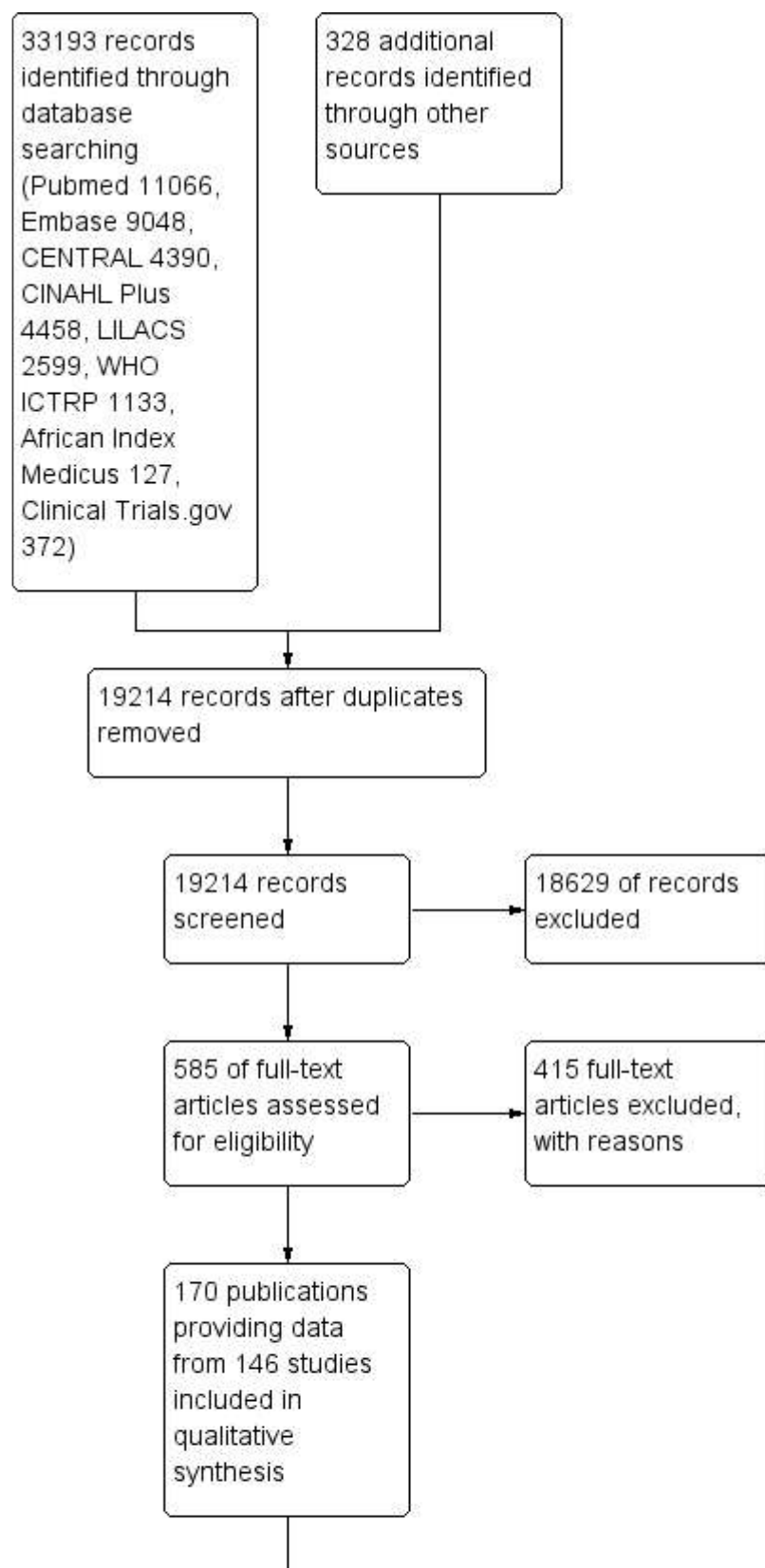
Database & Search number	Query
PubMed	
8	#6 AND #7
7	randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR drug therapy[sh] OR randomly[tiab] OR trial[ti] OR groups[tiab] OR comparative study[pt] OR control groups[mh] OR follow-up studies[mh] OR follow-up stud*[tiab] OR follow-up assessment[tiab] OR prospective studies[mh] OR prospective stud*[tiab] OR "evaluation studies as topic"[mh] OR evaluat*[tiab] OR quasi experiment*[tiab] OR quasiexperiment*[tiab] OR interrupted time series analysis[mh] OR ITS stud*[tiab] OR time series[tiab] OR time point*[tiab] OR controlled before-after studies[mh] OR controlled[tiab] OR CBA stud*[tiab] OR pre test[tiab] OR pretest[tiab] OR post test[tiab] OR posttest[tiab] OR pre intervention[tiab] OR post intervention[tiab] OR before-after stud*[tiab] OR "before and after"[tiab] OR nonrandom*[tiab] OR non-random*[tiab] OR cohort studies[mh] OR cohort stud*[tiab] OR epidemiologic studies[mh]
6	(#3 AND #4) NOT (animals[mh] NOT humans[mh])
5	#3 AND #4
4	duration[tiab] OR durations[tiab] OR continu*[tiab] OR sustain*[tiab] OR extend*[tiab] OR long-term[tiab] OR prolong*[tiab] OR time factors[mh]
3	#1 AND #2

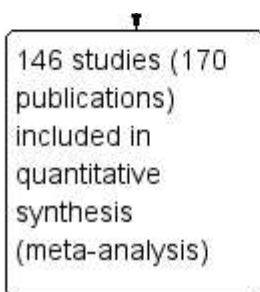
2	(infant[mh] OR infant[tiab] OR infants[tiab] OR toddler[tiab] OR toddlers[tiab] OR baby[tiab] OR babies[tiab] OR child, preschool[mh] OR child[tiab] OR children[tiab] OR boy[tiab] OR boys[tiab] OR girl[tiab] OR girls[tiab] OR mother[tiab] OR mothers[tiab] OR women[tiab] OR womens[tiab] OR maternal[tiab])
1	breast feeding[mh] OR breast feeding[tiab] OR breast feed[tiab] OR breast fed[tiab] OR breastfeeding[tiab] OR breastfeed[tiab] OR breastfed[tiab] OR lactation[mh] OR lactation[tiab] OR lactating[tiab]
Embase	
7	#5 and #6
6	(randomized controlled trial or controlled clinical trial or evaluation research or controlled before after study or cohort study).sh. or (randomized controlled trial or controlled clinical trial or randomized or placebo or randomly or groups or comparative study or control groups or follow-up stud* or follow-up assessment or prospective stud* or evaluat* or quasi experiment* or quasiexperiment* or ITS stud* or time series or time point* or controlled or CBA stud* or pre test or pretest or post test or posttest or pre intervention or post intervention or before-after stud* or "before and after" or nonrandom* or non-random* or cohort stud*).ab. or (randomized controlled trial or controlled clinical trial or randomized or placebo or randomly or groups or comparative study or control groups or follow-up stud* or follow-up assessment or prospective stud* or evaluat* or quasi experiment* or quasiexperiment* or ITS stud* or time series or time point* or controlled or CBA stud* or pre test or pretest or post test or posttest or pre intervention or post intervention or before-after stud* or "before and after" or nonrandom* or non-random* or cohort stud*).ti.
5	#3 and #4
4	time factor.sh. or (duration or durations or continu* or sustain* or extend* or long-term or prolong*).ab. or (duration or durations or continu* or sustain* or extend* or long-term or prolong*).ti.
3	#1 and #2
2	(child or infant or toddler or preschool child).sh. or (infant or infants or toddler or toddlers or baby or babies or child, preschool or child or children or boy or boys or girl or girls or mother or mothers or women or womens or maternal).ab. or (infant or infants or toddler or toddlers or baby or babies or child, preschool or child or children or boy or boys or girl or girls or mother or mothers or women or womens or maternal).ti.
1	(breast feeding or feeding, breast or lactation).sh. or (breast feeding or breast feed or breast fed or breastfeeding or breastfeed or breastfed or lactation or lactating).ab. or (breast feeding or breast feed or breast fed or breastfeeding or breastfeed or breastfed or lactation or lactating).ti.
CENTRAL	
1	breast feeding or breast feed or breast fed or breastfeeding or breastfeed or breastfed or lactation or lactating in Title Abstract Keyword AND infant or infants or toddler or toddlers or baby or babies or child, preschool or child or children or boy or boys or girl or girls or mother or mothers or women or womens or maternal in Title Abstract Keyword AND duration or durations or continu* or sustain* or extend* or long-term or prolong* OR time factors in Title Abstract Keyword

Clinical Trials.gov	
1	breast feeding or breast feed or breast fed or breastfeeding or breastfeed or breastfed or lactation or lactating
CINAHL Plus	
S7	S5 AND S6
S6	randomized controlled trial or controlled clinical trial or randomized or placebo or randomly or groups or comparative study or control groups or follow-up stud* or follow-up assessment or prospective stud* or evaluat* or quasi experiment* or quasiexperiment* or ITS stud* or time series or time point* or controlled or CBA stud* or pre test or pretest or post test or posttest or pre intervention or post intervention or before-after stud* or "before and after" or nonrandom* or non-random* or cohort ...
S5	S3 AND S4
S4	AB duration or durations or continu* or sustain* or extend* or long-term or prolong*
S3	S1 AND S2
S2	AB infant or infants or toddler or toddlers or baby or babies or child, preschool or child or children or boy or boys or girl or girls or mother or mothers or women or womens or maternal
S1	AB breast feeding or breast feed or breast fed or breastfeeding or breastfeed or breastfed or lactation or lactating
LILACS	
1	breast feeding or breast feed or breast fed or breastfeeding or breastfeed or breastfed or lactation or lactating [Abstract Word] and infant or infants or toddler or toddlers or baby or babies or child, preschool or child or children or boy or boys or girl or girls or mother or mothers or women or womens or maternal [Abstract Word]
WHO ICTRP	
1	breast feeding or breast feed or breast fed or breastfeeding or breastfeed or breastfed or lactation or lactating
African Index Medicus	
1	breast feeding or breast feed or breast fed or breastfeeding or breastfeed or breastfed or lactation or lactating

Figures

Figure 1

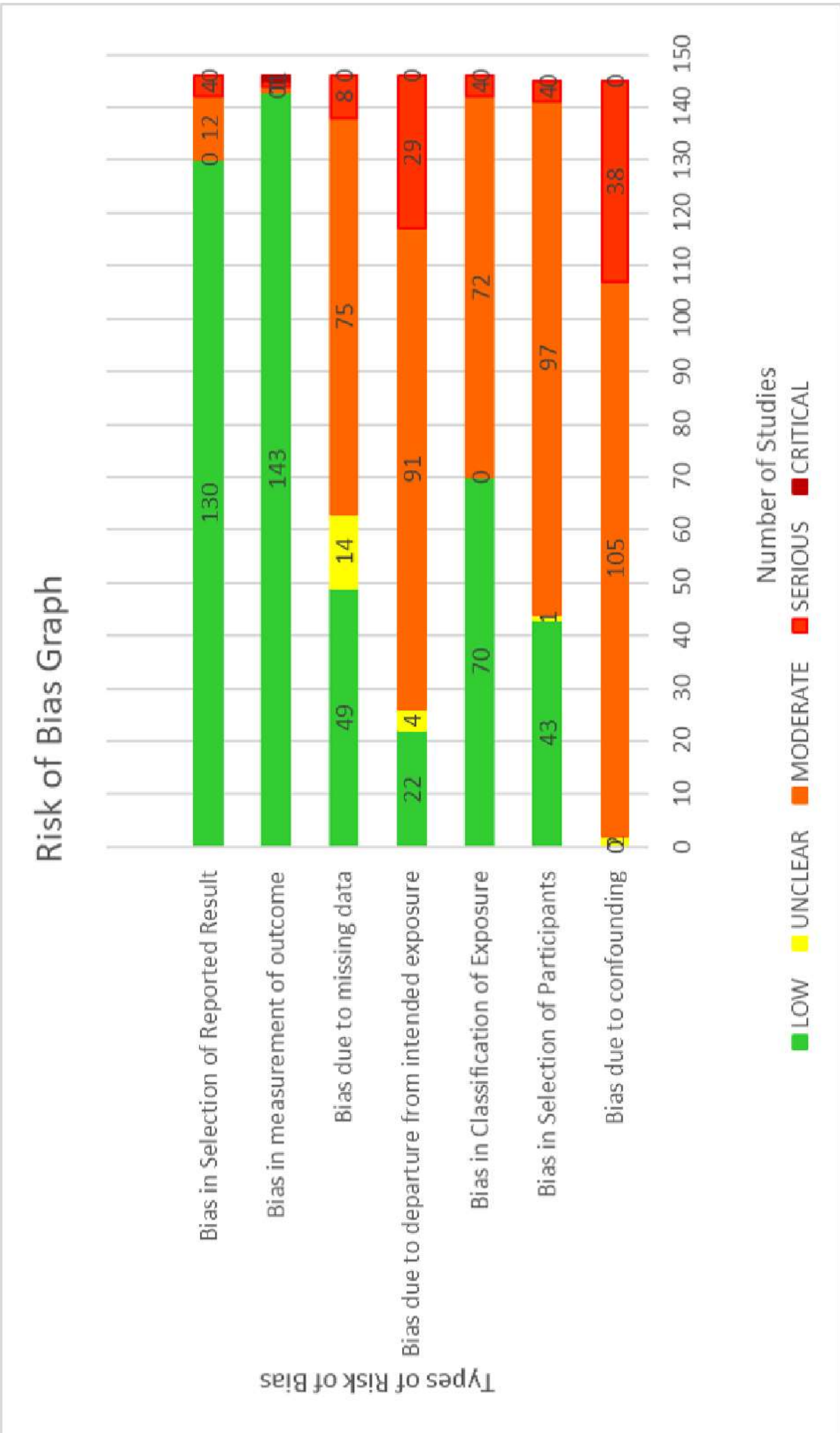




Study flow diagram.

Figures

Figure 2



Risk of Bias Graph

Figure 3

	Bias due to			Bias in Classification		Bias due to		Bias in	
Study	confounding	Bias in Selection of Participants	of Exposure	departure from intended exposure	missing data	measurement of outcome			
Abarca 2019	Moderate	Moderate	Low	Moderate	Moderate	Low			
Adair 1992	Moderate	Low	Low	Moderate	Low	Low			
Alho 1990	Moderate	Low	Low	Low	Moderate	Low			
Al-Makoshi 2013	Moderate	Moderate	Low	Low	Low	Low			
Araujo 2006	Moderate	Low	Moderate	Low	Low	Low			
Ardic 2018	Serious	Low	Low	Serious	Serious	Low			
Azevedo 2005	Serious	Moderate	Moderate	Low	Low	Low			
Bajaj 2017	Moderate	Low	Low	Moderate	Moderate	Low			
Belfort 2013	Moderate	Low	Low	Moderate	Moderate	Low			
Blix 2017	Moderate	Low	Low	Moderate	Moderate	Low			
Brakohiapa 1988	Serious	Moderate	Moderate	Serious	Moderate	Low			
Burdette 2006	Moderate	Moderate	Low	Low	Low	Low			
Burke 2005	Moderate	Low	Moderate	Low	Low	Low			
Butt 2014	Moderate	Moderate	Serious	Low	Serious	Low			
Caleyachetty 2013	Moderate	Low	Low	Low	Unclear	Low			
Camurdan 2011	Serious	Low	Moderate	Serious	Moderate	Low			
Chaffee 2014	Moderate	Low	Low	Moderate	Low	Low			
Cheraghi 2013	Serious	Moderate	Moderate	Serious	Low	Low			
Chetwynd 2017	Serious	Moderate	Moderate	Moderate	Serious	Critical			
Choi 2017	Moderate	Moderate	Low	Moderate	Moderate	Low			
Christensen 2020	Moderate	Low	Low	Moderate	Low	Low			
Cohen 2009	Moderate	Moderate	Low	Moderate	Moderate	Low			
Danforth 2007	Serious	Moderate	Moderate	Low	Low	Low			
Danial 2017	Unclear	Moderate	Serious	Unclear	Unclear	Low			
Daniels 2005	Moderate	Low	Low	Moderate	Moderate	Low			
de Siqueira 2007	Moderate	Moderate	Low	Moderate	Moderate	Low			
Derakhshan 2017	Serious	Serious	Low	Moderate	Low	Low			

Uevenish zuzu	Moderate	Low	Low	Moderate	Moderate	Moderate	Low
Duazo 2010	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Dursun 2006	Serious	Moderate	Low	Serious	Low	Moderate	Low
Fagerhaug 2013	Moderate	Moderate	Low	Moderate	Moderate	Moderate	Low
Fall 2011	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Low
Feldblum 1992	Moderate	Moderate	Low	Low	Low	Low	Low
Ferguson 1981	Serious	Low	Moderate	Serious	Serious	Low	Low
Fonseca 2010	Serious	Unclear	Serious	Low	Low	Moderate	Moderate
Fredriksson 2007	Serious	Serious	Moderate	Moderate	Moderate	Moderate	Low
Gay 2015	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Gigante 2001	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Low
Girard 2019	Moderate	Low	Low	Moderate	Moderate	Serious	Low
Gummer Strawn 2006	Moderate	Moderate	Moderate	Low	Low	Moderate	Low
Gunderson 2018	Moderate	Low	Low	Moderate	Moderate	Moderate	Low
Haag 2019	Moderate	Low	Low	Moderate	Moderate	Low	Low
Hansstein 2016	Serious	Moderate	Serious	Low	Low	Unclear	Serious
Hartwig 2019	Moderate	Moderate	Low	Moderate	Moderate	Unclear	Low
Harvey 2009	Serious	Low	Moderate	Serious	Moderate	Moderate	Low
Helderman 2006	Serious	Serious	Low	Serious	Serious	Serious	Low
Hong 2014	Moderate	Moderate	Moderate	Low	Low	Unclear	Low
Horta 2006	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Low
Iida 2007	Moderate	Moderate	Low	Moderate	Moderate	Unclear	Low
Intusoma 2016	Moderate	Low	Moderate	Unclear	Unclear	Unclear	Low
Izadi 2013	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Jeon 2020	Moderate	Moderate	Low	Moderate	Moderate	Unclear	Low
Jiang 2011	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Low
Jing 2014	Moderate	Moderate	Low	Moderate	Moderate	Low	Low
Karlson 2004	Moderate	Moderate	Low	Low	Low	Low	Low
Kersey 2005	Serious	Moderate	Moderate	Serious	Serious	Moderate	Low
Ki 2017	Moderate	Moderate	Low	Moderate	Moderate	Moderate	Low
Kikafunda 1998	Serious	Moderate	Moderate	Serious	Serious	Low	Low
Kim 2015	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low

Kim 2020a	Moderate	Low	Low	Low	Moderate	Low
Kondolot 2017	Serious	Moderate	Moderate	Serious	Moderate	Low
Krenz-Niedbala 2015	Serious	Moderate	Moderate	Serious	Moderate	Low
Kvale 1987	Serious	Moderate	Moderate	Serious	Moderate	Low
Lee 2003	Moderate	Moderate	Low	Low	Low	Low
Lee 2005	Moderate	Moderate	Low	Moderate	Unclear	Low
Lee 2016	Serious	Low	Moderate	Serious	Low	Low
Li 2020	Moderate	Moderate	Low	Moderate	Serious	Low
Liese 2001	Serious	Moderate	Low	Moderate	Unclear	Low
Lima 2019	Moderate	Moderate	Low	Moderate	Moderate	Low
Linhares 2015	Moderate	Low	Moderate	Moderate	Moderate	Low
London 1990	Moderate	Moderate	Moderate	Low	Low	Low
Lossius 2018	Moderate	Low	Low	Moderate	Low	Low
Luo 2019	Moderate	Moderate	Low	Moderate	Moderate	Low
Lupton 2013	Moderate	Moderate	Low	Moderate	Low	Low
Maguire 2013	Moderate	Moderate	Low	Moderate	Moderate	Low
Martin 2002	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Michels 1996	Moderate	Moderate	Moderate	Low	Low	Low
Miyake 2007	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Muniz 2015	Moderate	Low	Moderate	Moderate	Moderate	Low
Mwakayoka 2017	Serious	Moderate	Moderate	Serious	Moderate	Low
Nam 2019	Moderate	Moderate	Low	Moderate	Moderate	Low
Nambiar 2013	Serious	Moderate	Moderate	Serious	Moderate	Low
Nandi 2017 a	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Nandi 2017 b	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Natland 2012	Moderate	Moderate	Low	Moderate	Moderate	Low
Neutzing 2009	Moderate	Low	Moderate	Moderate	Moderate	Low
Ngandu 1990	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Nguyen 2019	Moderate	Moderate	Low	Moderate	Moderate	Low
Nirunsittirat 2016	Moderate	Low	Moderate	Moderate	Moderate	Low
Novaes 2012	Moderate	Moderate	Moderate	Moderate	Low	Low

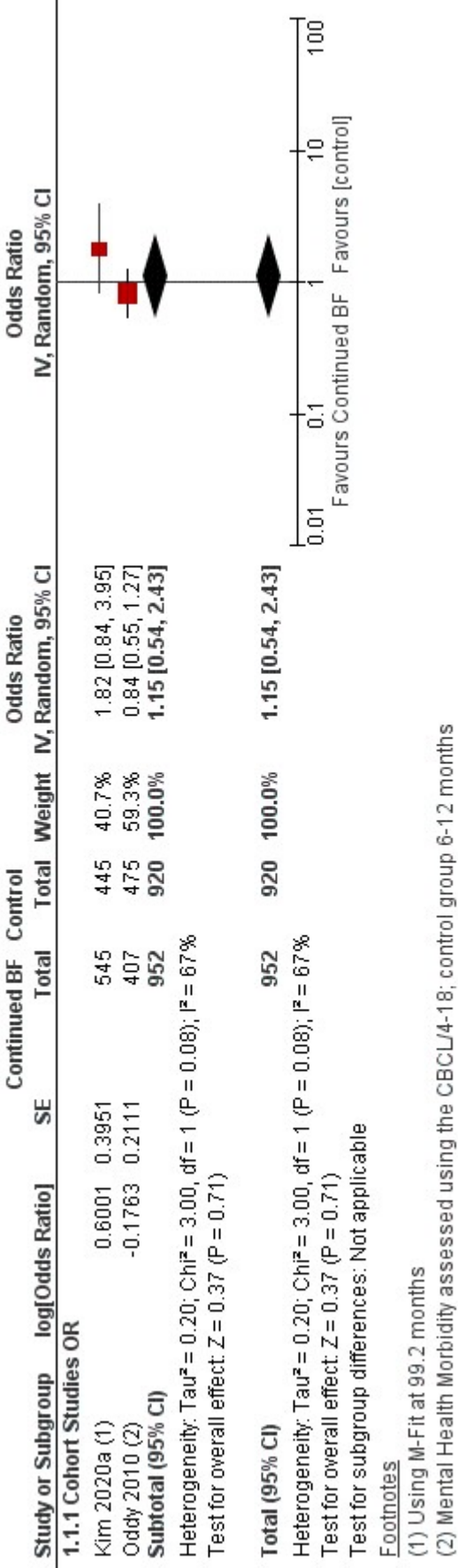
Nsereko 2018	Moderate	Moderate	Low	Moderate	Low	Moderate	Low	Low
Nunes 2012	Moderate	Moderate	Low	Moderate	Low	Moderate	Moderate	Low
Obihara 2005	Moderate	Moderate	Low	Moderate	Low	Moderate	Low	Low
Oddy 2010	Moderate	Low	Low	Moderate	Low	Moderate	Serious	Low
Okyay 2013	Serious	Moderate	Low	Moderate	Low	Serious	Moderate	Low
Olatosi 2014	Moderate	Moderate	Low	Moderate	Low	Moderate	Low	Low
Ollila 2007	Serious	Moderate	Low	Moderate	Low	Serious	Moderate	Low
Owen 2002	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Palmer 2015	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Peres 2017	Moderate	Low	Low	Moderate	Low	Moderate	Moderate	Low
Peters 2017	Moderate	Moderate	Low	Moderate	Low	Moderate	Unclear	Low
Procter 2008	Serious	Low	Moderate	Moderate	Moderate	Serious	Low	Low
Pudla 2015	Moderate	Moderate	Low	Moderate	Low	Serious	Moderate	Low
Putra 2015	Serious	Moderate	Moderate	Moderate	Moderate	Serious	Moderate	Low
Ra 2020	Moderate	Moderate	Low	Moderate	Low	Moderate	Low	Low
Rajaei 2016	Unclear	Moderate	Moderate	Moderate	Moderate	Unclear	Unclear	Low
Retnakumari 2012	Serious	Moderate	Moderate	Moderate	Moderate	Serious	Low	Low
Robinson 2009	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Sankeshwari 2012	Serious	Moderate	Moderate	Moderate	Moderate	Serious	Low	Low
Schwarz 2009	Moderate	Moderate	Low	Moderate	Low	Moderate	Moderate	Low
Shrutha 2013	Serious	Moderate	Moderate	Moderate	Moderate	Serious	Low	Low
Sichieri 2003	Serious	Low	Moderate	Moderate	Moderate	Unclear	Moderate	Low
Slykerman 2005	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Song 2020	Moderate	Moderate	Low	Moderate	Low	Moderate	Moderate	Low
Sowole 2006	Serious	Moderate	Low	Moderate	Low	Serious	Moderate	Low
Stendell-Hollis 2013	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Stordal 2017	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Stuebe 2009	Moderate	Moderate	Low	Moderate	Low	Moderate	Moderate	Low
Stuebe 2009a	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Stuebe 2010	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Suliga 2020	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Tanaka 2015	Moderate	Moderate	Low	Moderate	Low	Moderate	Low	Low

Author	Low	Moderate	Low	Moderate	Low	Low
Tanaka 2012	Moderate	Moderate	Low	Moderate	Serious	Low
Tanaka 2013	Moderate	Low	Low	Moderate	Moderate	Low
Taren 1993	Moderate	Moderate	Moderate	Moderate	Low	Low
Taveras 2006	Moderate	Low	Moderate	Serious	Moderate	Low
Teele 1989	Serious	Moderate	Moderate	Serious	Unclear	Low
Tehrani 2014	Moderate	Moderate	Moderate	Moderate	Low	Low
Trygvadottir 2001	Moderate	Serious	Moderate	Moderate	Low	Low
Vafa 2012	Serious	Moderate	Moderate	Moderate	Low	Low
Vazquez-Nava 2008	Moderate	Moderate	Moderate	Moderate	Unclear	Low
Veena 2010	Moderate	Low	Moderate	Moderate	Moderate	Low
Vehapoglu 2017	Serious	Moderate	Low	Serious	Low	Low
Victoria 1984	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Victoria 2006	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Villamor 2000	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Villegas 2008	Moderate	Moderate	Low	Moderate	Low	Low
von Kries 1999	Moderate	Moderate	Low	Moderate	Moderate	Low
Walby 2016	Serious	Moderate	Low	Serious	Moderate	Low
Wiklund 2012a	Serious	Moderate	Low	Low	Moderate	Low
Wong 2017	Moderate	Moderate	Moderate	Moderate	Low	Low
Wong 2018	Moderate	Moderate	Moderate	Moderate	Low	Low
Yang 2017	Moderate	Moderate	Moderate	Moderate	Moderate	Low
Yeo 2016	Moderate	Moderate	Low	Moderate	Moderate	Low
Zhang 2015	Moderate	Moderate	Low	Moderate	Low	Low
Zhu 2020	Moderate	Low	Low	Moderate	Low	Low

Risk of Bias Summary

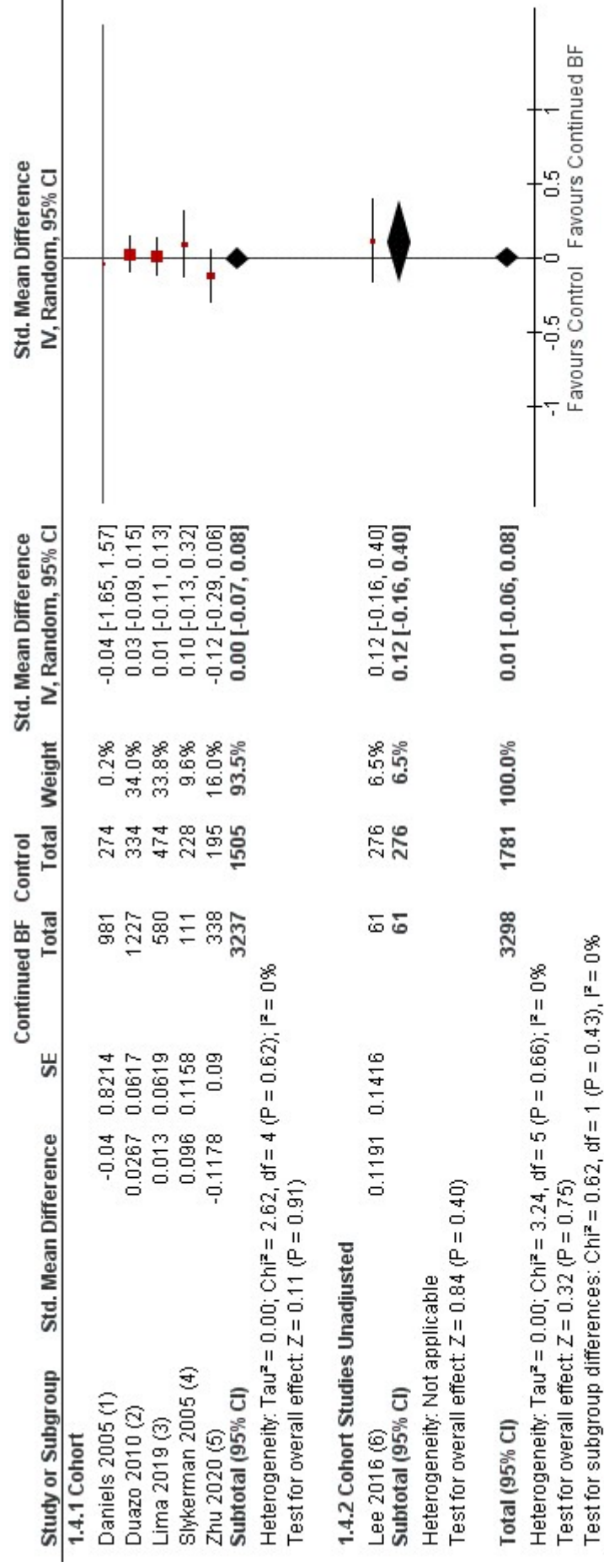
Figures

Figure 4 (Analysis 1.1)



Forest plot of comparison: 1 Outcomes in Children, outcome: 1.1 Delayed Development.

Figure 5 (Analysis 1.4)

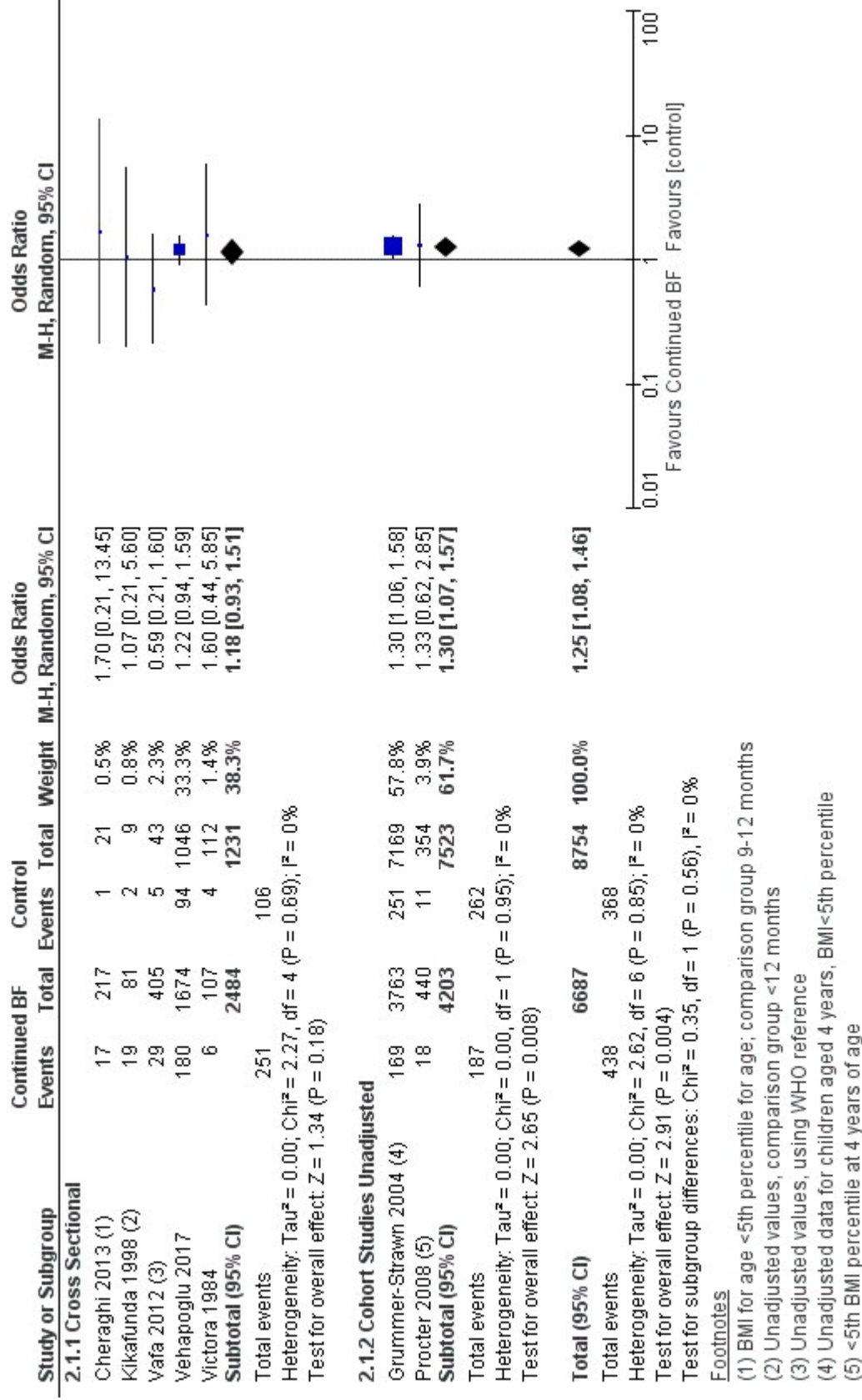


Footnotes

- (1) Assessed using Philippines nonverbal intelligence test of fluid abilities at 8.5 years
- (2) Used Philippines Revised Early Childhood Development Checklist at 5-6 years
- (3) IQ assessed using WechslerAdult Intelligence Scale at 30 years of age
- (4) Using Stanford Binet Scale at 3.5 - 4 years, comparison group 6-12 months
- (5) IQ assessed using Wechsler Intelligence Scale for Children at 10-12 years of age
- (6) Bayley MDI at 36 months

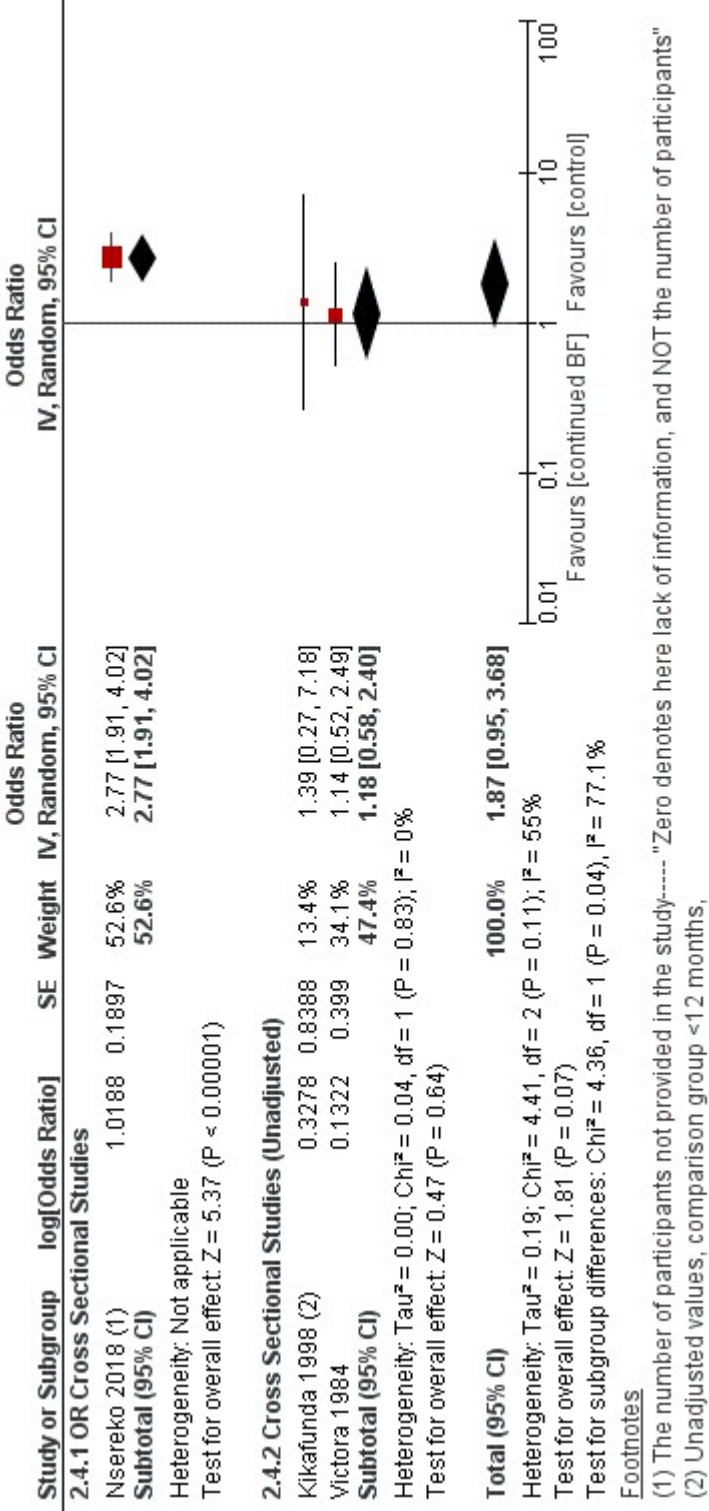
Forest plot of comparison: 1 Outcomes in Children: outcome 1.4 IQ Scores

Figure 6 (Analysis 2.1)



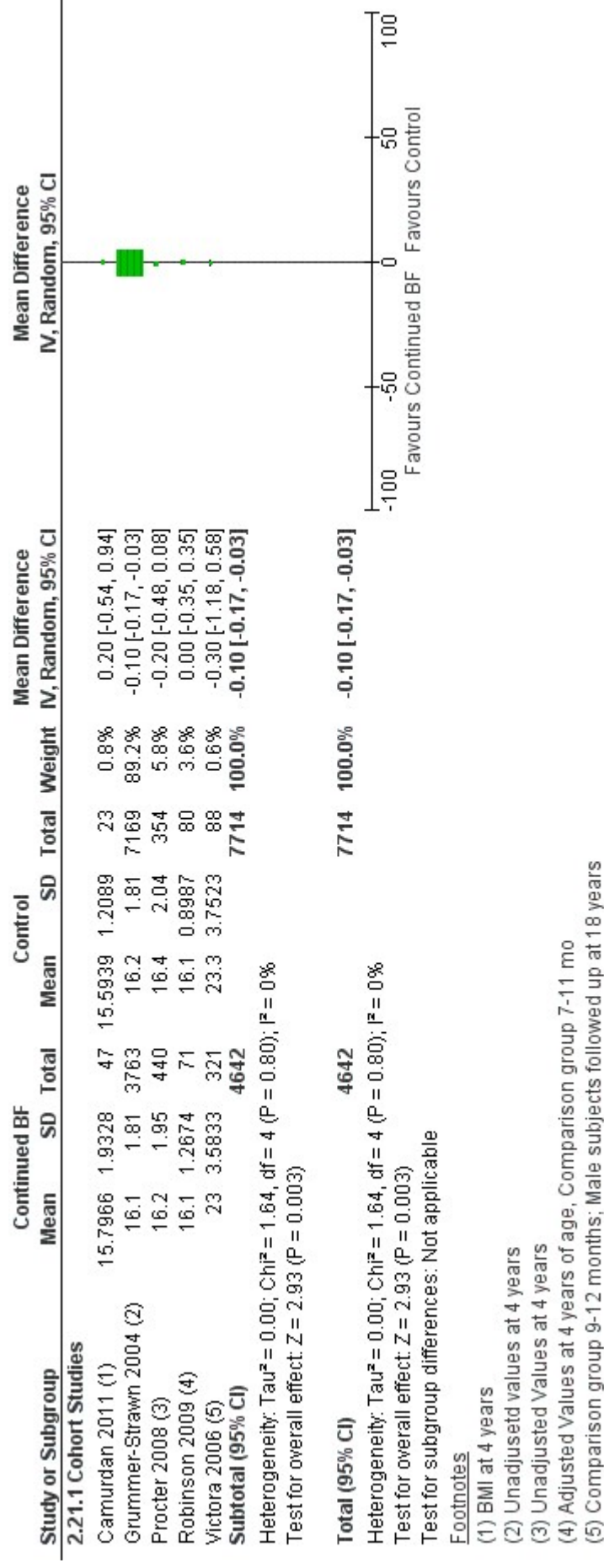
Forest plot of comparison: 2 Outcomes in Children: Growth and Anthropometry, outcome: 2.1 Underweight.

Figure 7 (Analysis 2.4)



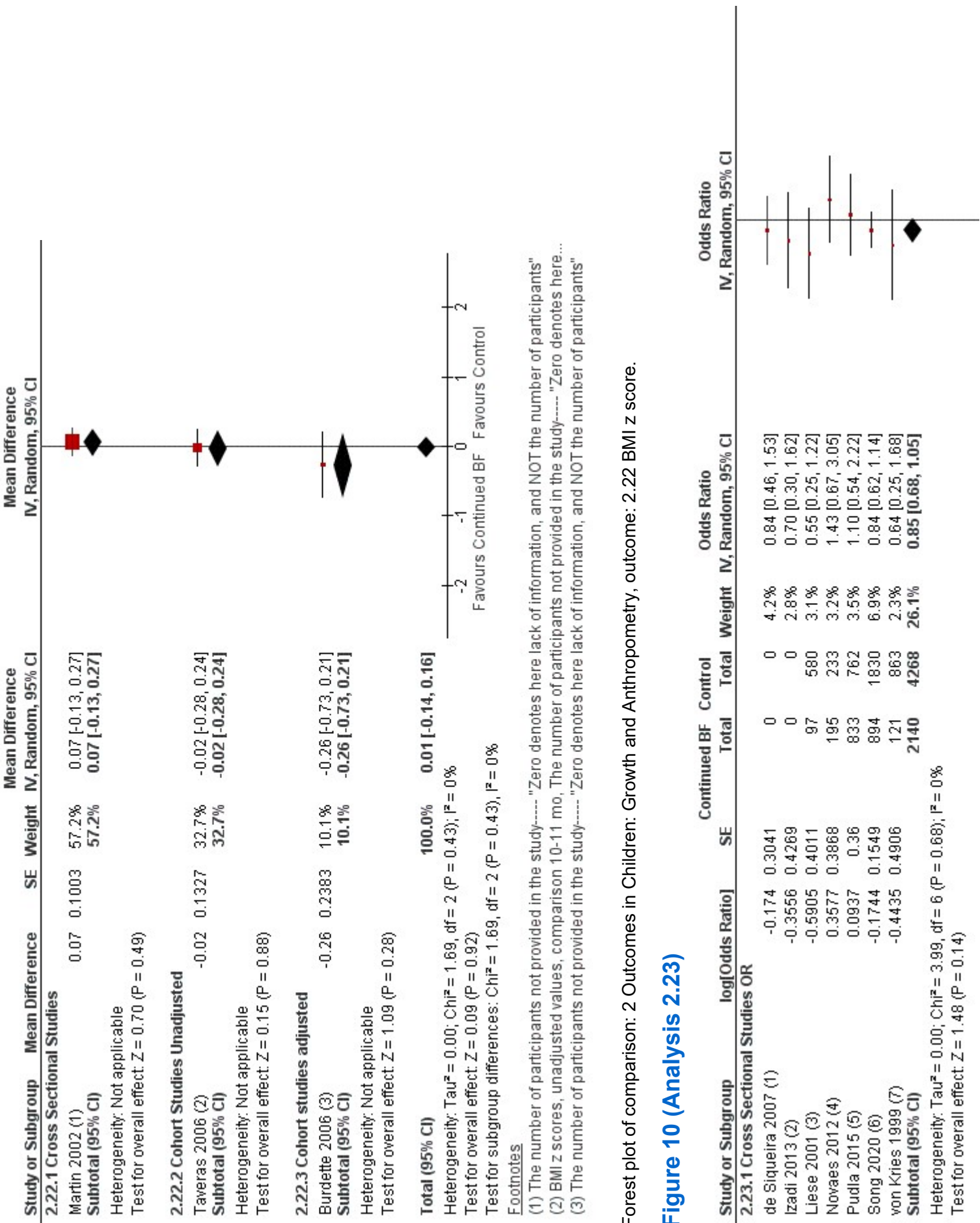
Forest plot of comparison: 2 Outcomes in Children: Growth and Anthropometry, outcome: 2.4 Stunting.

Figure 8 (Analysis 2.21)



Forest plot of comparison: 2 Outcomes in Children: Growth and Anthropometry, outcome: 2.21 BMI.

Figure 9 (Analysis 2.22)



Forest plot of comparison: 2 Outcomes in Children: Growth and Anthropometry, outcome: 2.22 BMI z score.

Figure 10 (Analysis 2.23)

2.23.2 Cohort Studies OR

Araujo 2006	-0.5288	0.5623	233	116	1.9%	0.59 [0.20, 1.77]
Burdette 2006	-0.2649	0.3977	66	77	3.1%	0.77 [0.35, 1.67]
Burke 2005	0.0225	0.3497	294	308	3.6%	1.02 [0.52, 2.03]
Gruemer-Strawn 2004 (8)	-0.0138	0.0745	3763	7169	8.2%	0.99 [0.85, 1.14]
Jing 2014 (9)	0.01	0.0761	0	0	8.2%	1.01 [0.87, 1.17]
Neutzing 2009 (10)	-0.0393	0.2069	220	118	5.9%	0.96 [0.64, 1.44]
Victoria 2006 (11)	-0.2928	0.3058	321	88	4.2%	0.75 [0.41, 1.36]
Walby 2016 (12)	0.3087	0.3639	5470	5563	3.5%	1.36 [0.67, 2.78]
Subtotal (95% CI)			10367	13439	38.6%	0.99 [0.90, 1.09]

Heterogeneity: $\text{Tau}^2 = 0.00$; $\text{Chi}^2 = 2.98$, $\text{df} = 7$ ($P = 0.89$); $I^2 = 0\%$ Test for overall effect: $Z = 0.28$ ($P = 0.78$)

2.23.3 Cohort Studies Unadjusted

Caleyachetty 2013 (13)	-0.6223	0.3155	363	141	4.1%	0.54 [0.29, 1.00]
Procter 2008 (14)	0.0309	0.2094	440	354	5.8%	1.03 [0.68, 1.55]
Tavaras 2006 (15)	-0.1262	0.583	284	72	1.8%	0.88 [0.28, 2.76]
Subtotal (95% CI)			1087	567	11.7%	0.81 [0.52, 1.27]

Heterogeneity: $\text{Tau}^2 = 0.05$; $\text{Chi}^2 = 2.98$, $\text{df} = 2$ ($P = 0.23$); $I^2 = 33\%$ Test for overall effect: $Z = 0.92$ ($P = 0.36$)

2.23.4 Cross Sectional Unadjusted

Cheraghi 2013 (16)	-0.5019	0.5009	217	27	2.3%	0.61 [0.23, 1.62]
Kersey 2005 (17)	-0.5417	0.408	103	92	3.0%	0.58 [0.26, 1.29]
Kondolot 2017 (18)	0.2677	0.2379	137	1331	5.3%	1.31 [0.82, 2.08]
Krenz-Niedbala 2015 (19)	-1.2884	0.7974	177	201	1.1%	0.28 [0.06, 1.32]
Nambiar 2013 (20)	1.0403	0.8617	197	197	0.9%	2.83 [0.52, 15.32]
Vafa 2012 (21)	-0.1855	0.3965	405	43	3.1%	0.83 [0.38, 1.81]
Vehapoglu 2017 (22)	0.6931	0.0921	1674	1046	8.0%	2.00 [1.67, 2.40]
Subtotal (95% CI)			2910	2937	23.6%	1.01 [0.60, 1.69]

Heterogeneity: $\text{Tau}^2 = 0.29$; $\text{Chi}^2 = 24.26$, $\text{df} = 6$ ($P = 0.0005$); $I^2 = 75\%$ Test for overall effect: $Z = 0.04$ ($P = 0.96$)

Total (95% CI)

Heterogeneity: $\text{Tau}^2 = 0.09$; $\text{Chi}^2 = 73.86$, $\text{df} = 24$ ($P < 0.00001$); $I^2 = 68\%$ Test for overall effect: $Z = 0.67$ ($P = 0.50$)Test for subgroup differences: $\text{Chi}^2 = 2.13$, $\text{df} = 3$ ($P = 0.55$), $I^2 = 0\%$

Footnotes

(1) Obesity defined as body mass index at or above the 85th centile plus sub scapular and triceps skin folds at or above the 90th centile using the sex and age specific...

(2) BMI 85-95th centile. The number of participants not provided in the study----- "Zero denotes here lack of information, and NOT the number of participants"

(3) Overweight was defined using the 90th age and sex-specific percentile of the German BMI-for-age reference values

(4) Obesity defined as BMI/age > 2 SD

(5) Adjusted values for 7-14 years

(6) Adjusted OR for Overweight/Obesity

(7) Overweight defined as body mass index above the 90th centile with reference of German school children in Bavaria

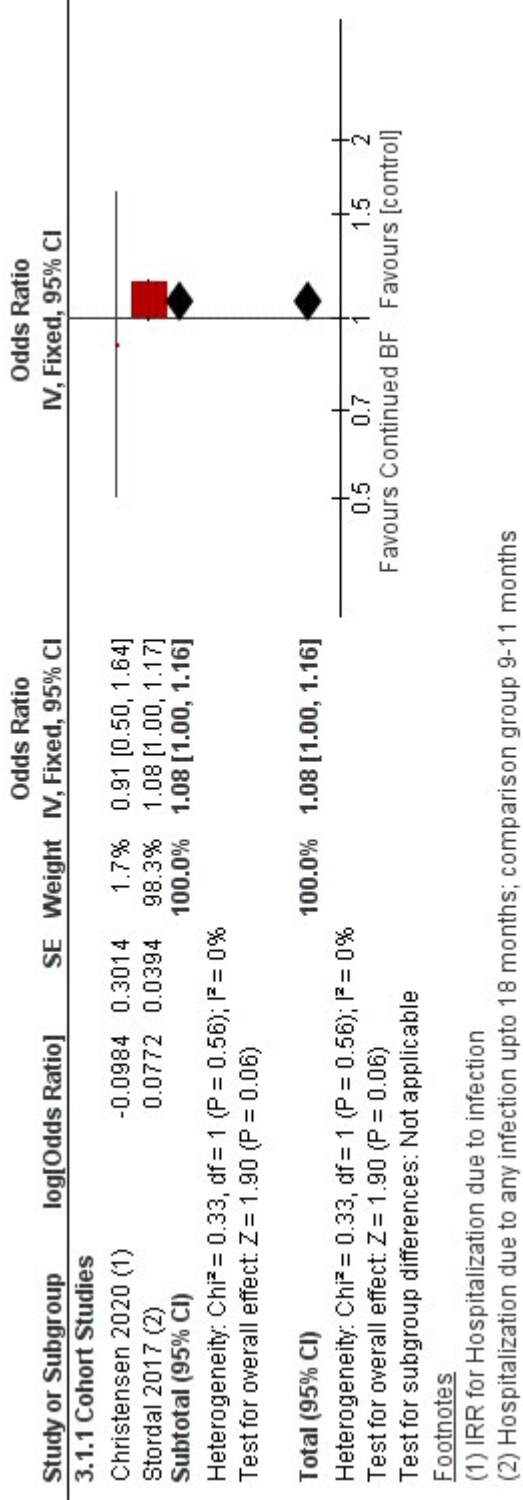
(8) adjusted data given for 6-12 months and >12 months of BF using No BF as the reference, BMI > 95th percentile

(9) Camaroes duration of breastfeeding <= 13 vs >13 months. Includes overweight and obese / BMI cut-offs 85th and 95th percentile respectively. The number of

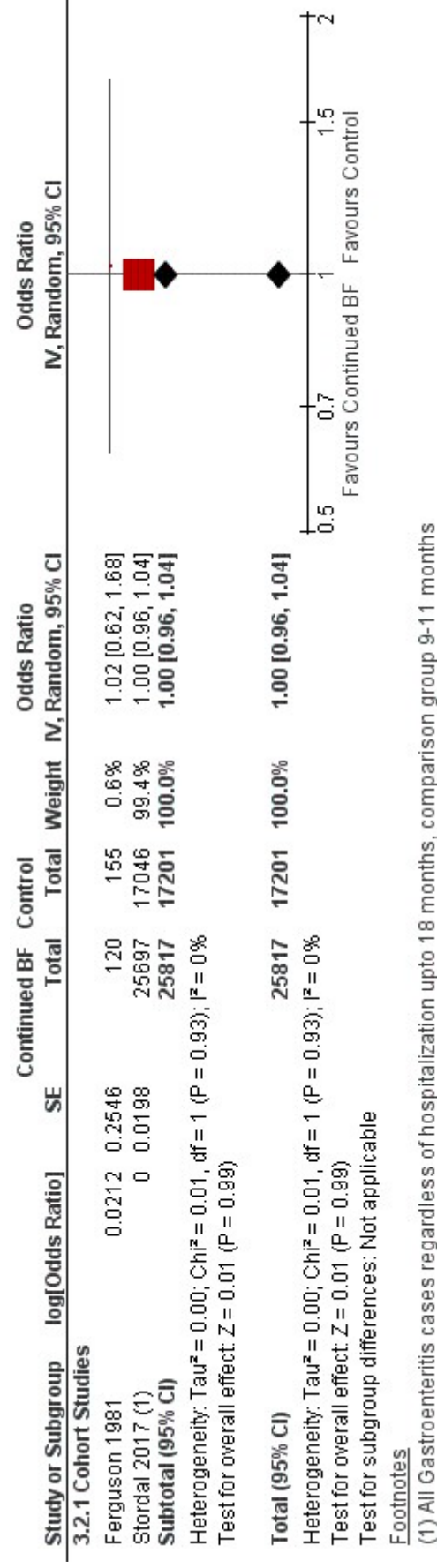
(12) Comparison group 9-12 months
(13) Unadjusted data, numbers given for HIGH BMI (>90th percentile for sex in the cohort) for 6-11 months, 12-17 months and >18 months of BF
(14) > 95th BMI percentile at 4 years of age
(15) BMI for age and gender $\geq$ 95th percentile using US National Reference, unadjusted values, comparison 10-11 mo
(16) BMI more than 85th percentile for age; comparison group 9-12 months
(17) Overweight defined as > 95% BMI; comparison group 6-12 months
(18) BMI $\geq$ 85th percentile; Comparison group < 12 months
(19) BMI above 95 th percentile; comparison group 7-12 months
(20) Abdominal Obesity defined as WHR ratio greater than 95th percentile
(21) Unadjusted values, using WHO reference
(22) Includes overweight and obese

Forest plot of comparison: 2 Outcomes in Children: Growth and Anthropometry, outcome: 2.23 Obesity and Overweight.

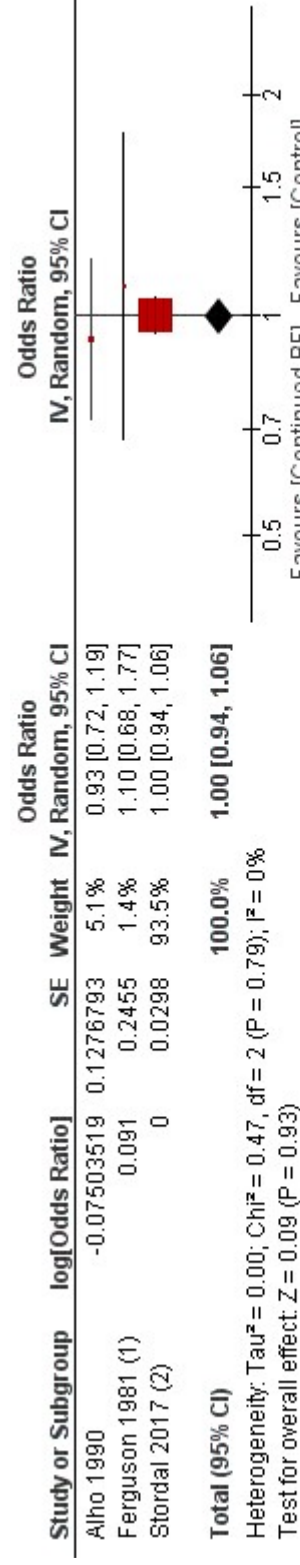
Figure 11 (Analysis 3.1)



Forest plot of comparison: 3 Outcomes in Children: Infections and Non-infectious morbidity, including micronutrient deficiency, outcome: 3.1 Infections.

Figure 12 (Analysis 3.2)

Forest plot of comparison: 3 Outcomes in Children: Infections and Non-infectious morbidity, including micronutrient deficiency, outcome: 3.2 Gastrointestinal Infections.

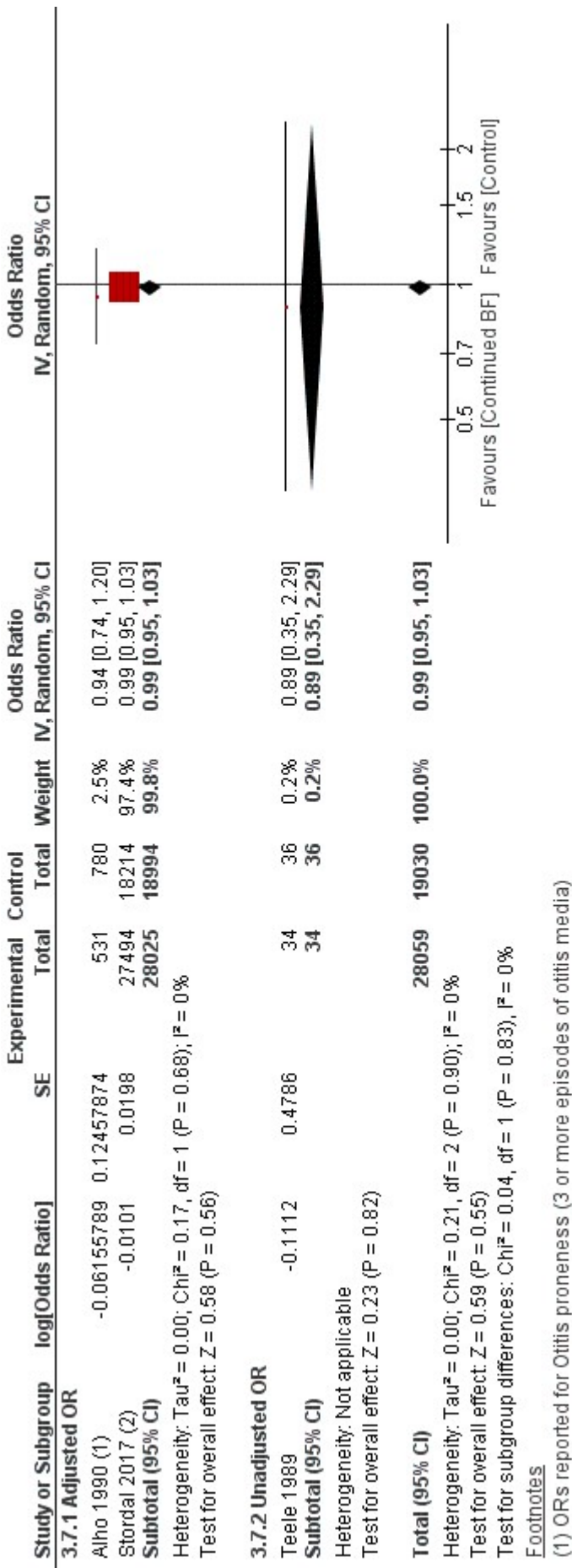
Figure 13 (Analysis 3.5)**Footnotes**

(1) Age 13-24 months; lower respiratory illness; comparison group 8-11 months

(2) All Respiratory Tract Infections (Upper and Lower) cases regardless of hospitalization upto 18 months, comparison group 9-11 months

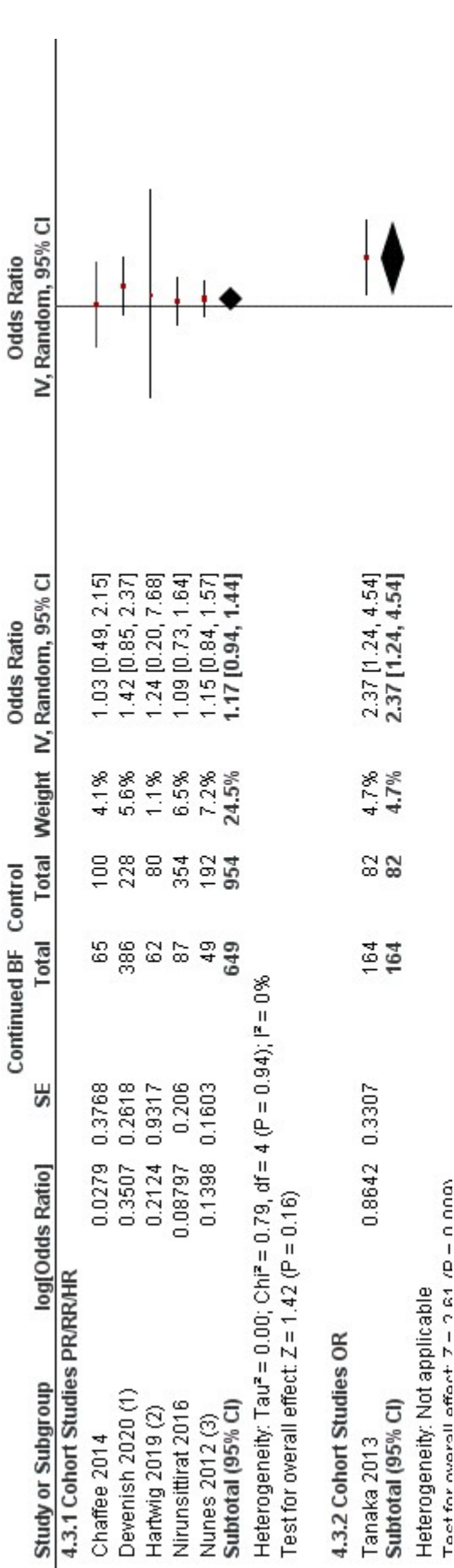
Forest plot of comparison: 3 Outcomes in Children: Infections and Non-infectious morbidity, including micronutrient deficiency, outcome: 3.5 Respiratory tract infections Cohort.

Figure 14 (Analysis 3.7)



Forest plot of comparison: 3 Outcomes in Children: Infections and Non-infectious morbidity, including micronutrient deficiency, outcome: 3.7 Acute Otitis Media Cohort OR.

Figure 15 (Analysis 4.3)



Forest plot of Odds Ratios (OR) and 95% Confidence Intervals (CI) for the effect of continued breastfeeding on dental caries.

4.3.3 Cross Sectional Studies PR

Haag 2019 (4)	0.4471	0.3474	35	153	4.4%	1.56 [0.79, 3.09]
Peres 2017	-0.1054	0.2069	129	741	6.5%	0.90 [0.60, 1.35]
Tanaka 2012	0.4747	0.1682	1142	498	7.0%	1.61 [1.16, 2.24]
Subtotal (95% CI)			1306	1392	17.9%	1.29 [0.86, 1.95]

Heterogeneity: $\text{Tau}^2 = 0.08$; $\text{Chi}^2 = 5.03$, $\text{df} = 2$ ($P = 0.08$); $I^2 = 60\%$ Test for overall effect: $Z = 1.23$ ($P = 0.22$)**4.3.4 Cross Sectional OR**

Olatosi 2014 (5)	1.4105	0.54	72	102	2.6%	4.10 [1.42, 11.81]
Vazquez-Nava 2008 (6)	1.28	0.184	210	475	6.8%	3.60 [2.51, 5.16]
Wong 2017	0.2617	0.333	572	798	4.6%	1.30 [0.68, 2.50]
Subtotal (95% CI)			854	1375	14.1%	2.62 [1.26, 5.43]

Heterogeneity: $\text{Tau}^2 = 0.29$; $\text{Chi}^2 = 7.59$, $\text{df} = 2$ ($P = 0.02$); $I^2 = 74\%$ Test for overall effect: $Z = 2.59$ ($P = 0.010$)**4.3.5 Cross Sectional Unadjusted**

Azevedo 2005 (7)	0.8129	0.2326	202	150	6.1%	2.25 [1.43, 3.56]
Helderman 2006 (8)	1.0986	1.4959	64	11	0.5%	3.00 [0.16, 56.29]
Iida 2007	0.5808	0.4416	216	274	3.4%	1.79 [0.75, 4.25]
Mwakayoka 2017 (9)	0.1011	0.296	404	92	5.1%	1.11 [0.62, 1.98]
Retnakumari 2012 (10)	0.8951	0.3731	139	38	4.1%	2.45 [1.18, 5.09]
Sankeshwari 2012	-0.1798	0.1414	448	393	7.4%	0.84 [0.63, 1.10]
Shrutha 2013	0.4949	0.1086	1321	473	7.9%	1.64 [1.33, 2.03]
Sowole 2006	0.4055	0.3537	151	134	4.4%	1.50 [0.75, 3.00]
Subtotal (95% CI)			2945	1565	38.9%	1.51 [1.09, 2.09]

Heterogeneity: $\text{Tau}^2 = 0.12$; $\text{Chi}^2 = 23.13$, $\text{df} = 7$ ($P = 0.002$); $I^2 = 70\%$ Test for overall effect: $Z = 2.46$ ($P = 0.01$)**Total (95% CI)**Heterogeneity: $\text{Tau}^2 = 0.13$; $\text{Chi}^2 = 64.36$, $\text{df} = 19$ ($P < 0.00001$); $I^2 = 70\%$ Test for overall effect: $Z = 4.00$ ($P < 0.0001$)Test for subgroup differences: $\text{Chi}^2 = 8.39$, $\text{df} = 4$ ($P = 0.08$), $I^2 = 52.3\%$ **Footnotes**(1) Estimate comparison between breastfeeding duration 6-12 mo as ref (PR 1) and ≥ 12 months

(2) RR of dental caries in 12-23 months compared with 6-11 mo

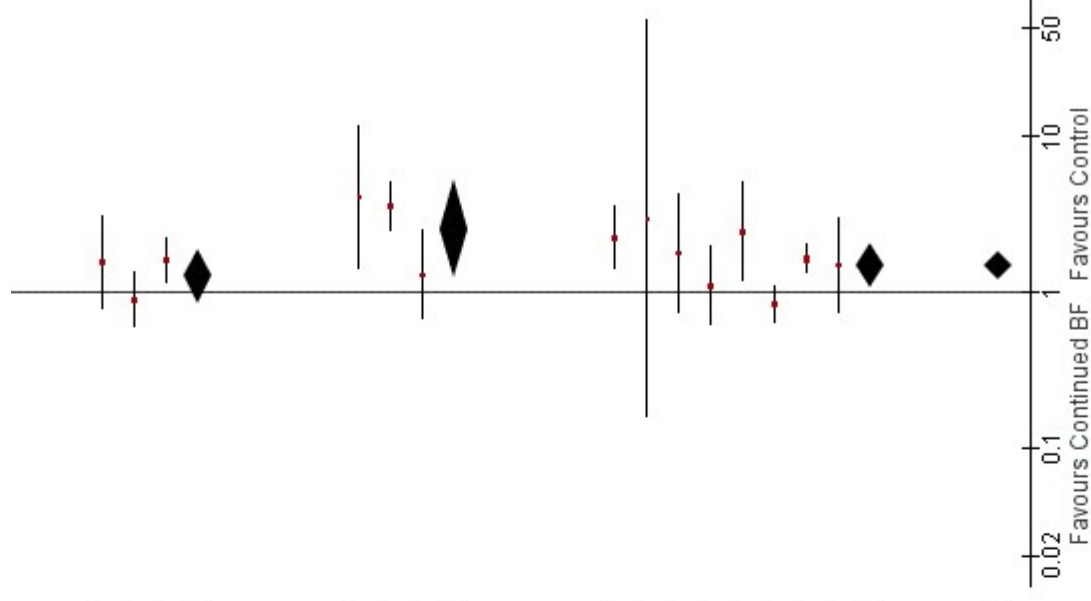
(3) Children breastfed < 12 months versus those being breastfed at the time of examination (IDR)(4) Comparison group < 12 months

(5) Adjusted ORs

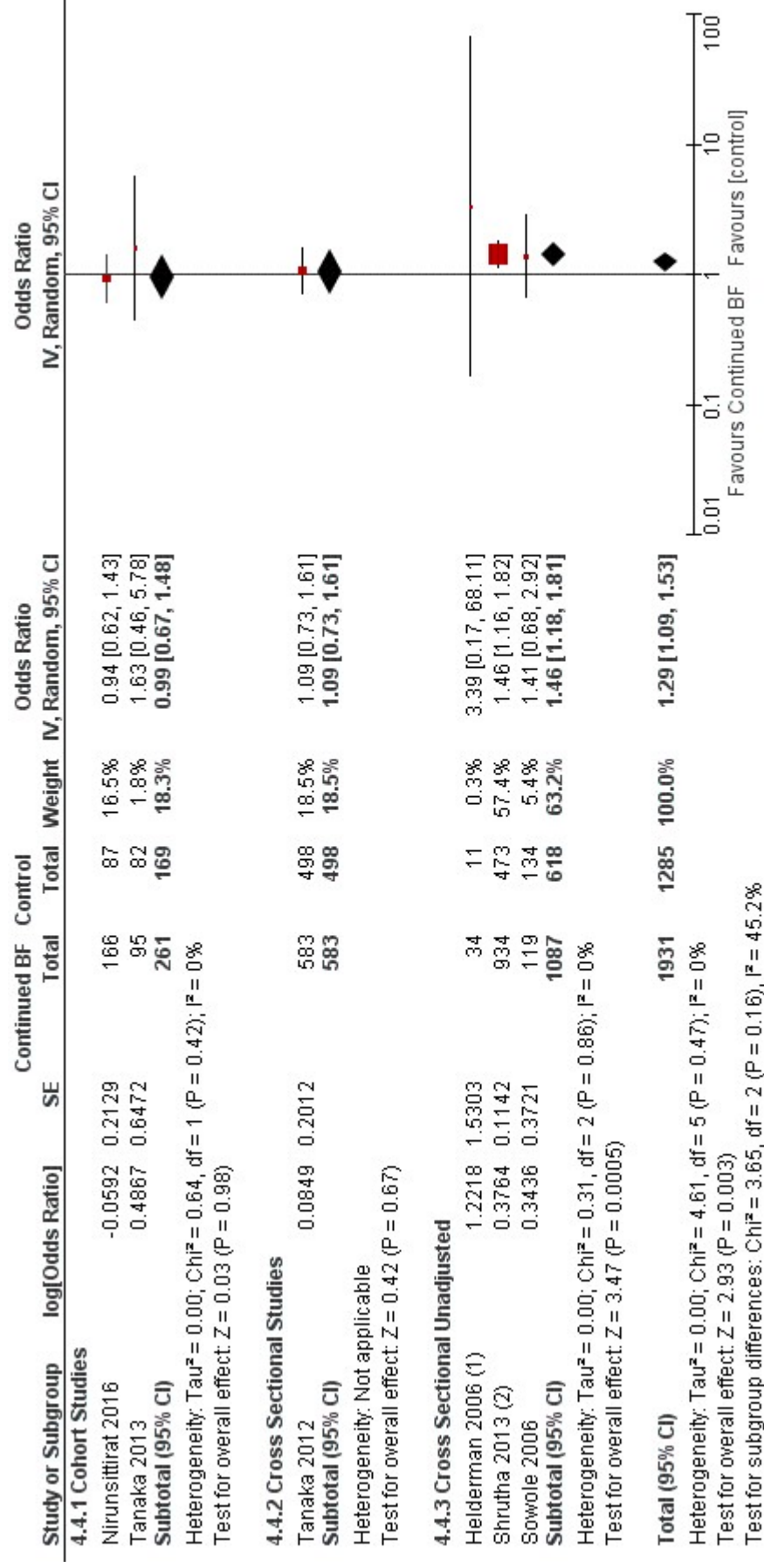
(6) Compares BF duration more than 1 year with less than 1 year

(7) Unadjusted data given for 0-12 and > 12 months of BF duration.(8) Comparison Group < 12 months

(9) Less than 1 year feed compared with more than 1 year; dmft1 considered as caries

(10) Comparison group ≤ 1 year

Forest plot of comparison: 4 Outcomes in Children, outcome: 4.3 Dental Caries.

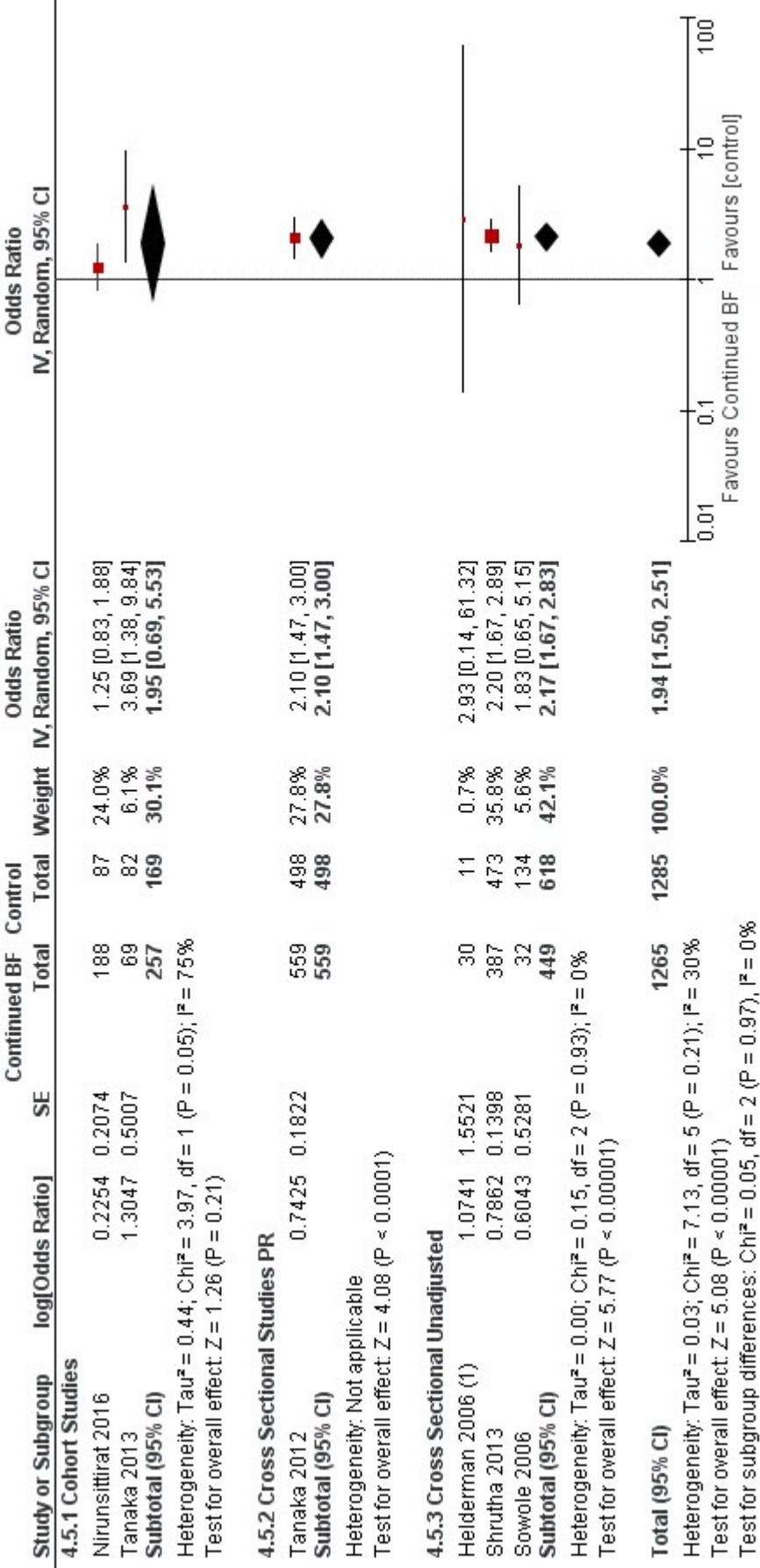
Figure 16 (Analysis 4.4)**Footnotes**

(1) Comparison group < 12 months

(2) Comparison group 6-12 months

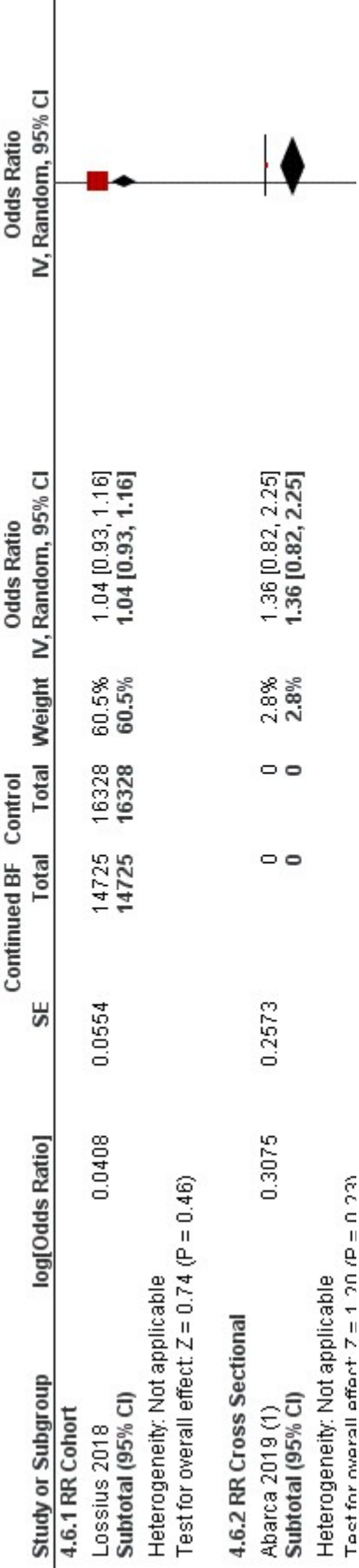
Forest plot of comparison: 4 Outcomes in Children, outcome: 4.4 Dental Caries 12-18 months.

Figure 17 (Analysis 4.5)



Forest plot of comparison: 4 Outcomes in Children, outcome: 4.5 Dental Caries 18-24 months.

Figure 18 (Analysis 4.6)



Forest plot of comparison: 4 Outcomes in Children: Bone Health and Allergies, outcome: 4.6 Asthma.

4.6.3 OR Cross Sectional

Al-Makoshi 2013 (2)	0.34347343	0.53677527	0	0	0.6%	1.41 [0.49, 4.04]
Miyake 2007 (3)	-0.01923	0.0853	3592	5851	25.5%	0.98 [0.83, 1.16]
Obihara 2005	0.4776	0.7734	228	153	0.3%	1.61 [0.35, 7.34]
Subtotal (95% CI)			3820	6004	26.5%	1.00 [0.84, 1.17]

Heterogeneity: $\text{Tau}^2 = 0.00$; $\text{Chi}^2 = 0.84$, $df = 2$ ($P = 0.66$); $I^2 = 0\%$ Test for overall effect: $Z = 0.05$ ($P = 0.96$)**4.6.4 OR Cohort**

Fredriksson 2007 (4)	-0.0723	0.1653	240	434	6.8%	0.93 [0.67, 1.29]
Subtotal (95% CI)			240	434	6.8%	0.93 [0.67, 1.29]

Heterogeneity: Not applicable

Test for overall effect: $Z = 0.44$ ($P = 0.66$)**4.6.5 OR Cross Sectional Unadjusted**

Fonseca 2010	-0.0881	0.336	199	393	1.6%	0.92 [0.47, 1.77]
Krenz-Niedbala 2015 (5)	0.6043	0.3236	177	201	1.8%	1.83 [0.97, 3.45]
Subtotal (95% CI)			376	594	3.4%	1.30 [0.66, 2.57]

Heterogeneity: $\text{Tau}^2 = 0.13$; $\text{Chi}^2 = 2.20$, $df = 1$ ($P = 0.14$); $I^2 = 55\%$ Test for overall effect: $Z = 0.76$ ($P = 0.45$)**Total (95% CI)**

19161	23360	100.0%	1.04 [0.95, 1.13]

Heterogeneity: $\text{Tau}^2 = 0.00$; $\text{Chi}^2 = 5.84$, $df = 7$ ($P = 0.56$); $I^2 = 0\%$ Test for overall effect: $Z = 0.85$ ($P = 0.40$)Test for subgroup differences: $\text{Chi}^2 = 2.21$, $df = 4$ ($P = 0.70$), $I^2 = 0\%$ **Footnotes**

(1) Lifetime Asthma Prevalence, adjusted for all covariates. The number of participants not provided in the study----- "Zero denotes here lack of information, and NOT the..."

(2) Number of children according to the duration of BF is not given separately, total number analysed was 622. The number of participants not provided in the study----- "Zero..."

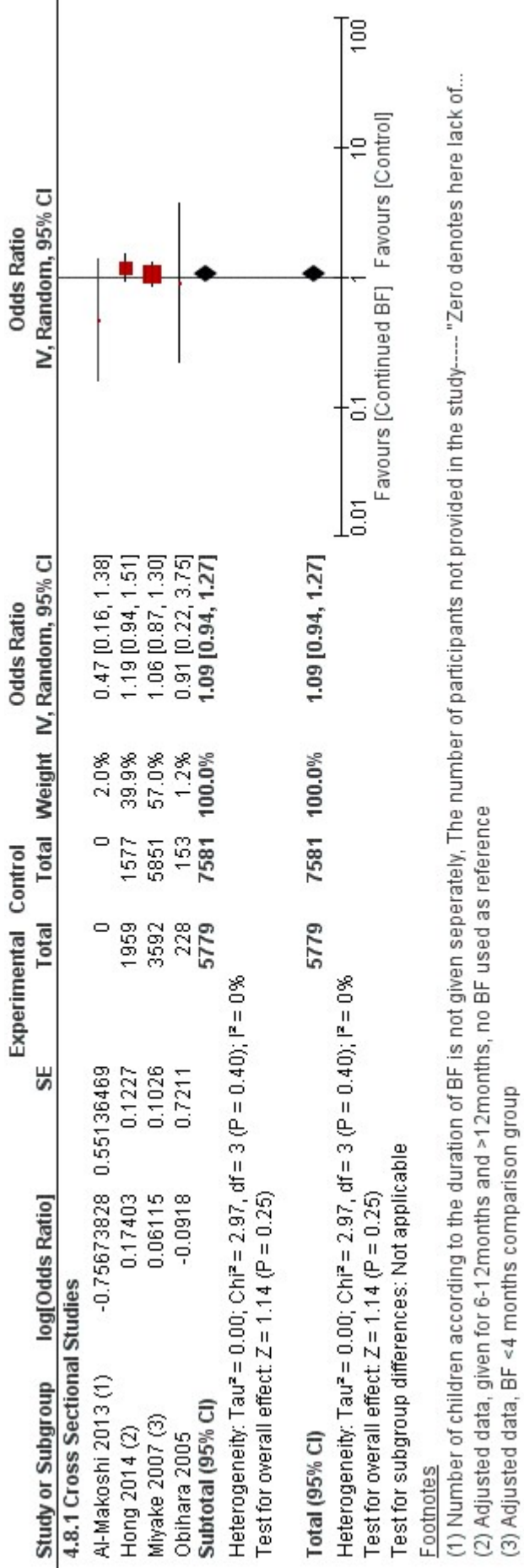
(3) Adjusted data, values given for wheeze episodes in last 12 months, BF < 4months comparison group

(4) Adjusted values, 4-6 months - comparison group

(5) Comparison group 7-12 months

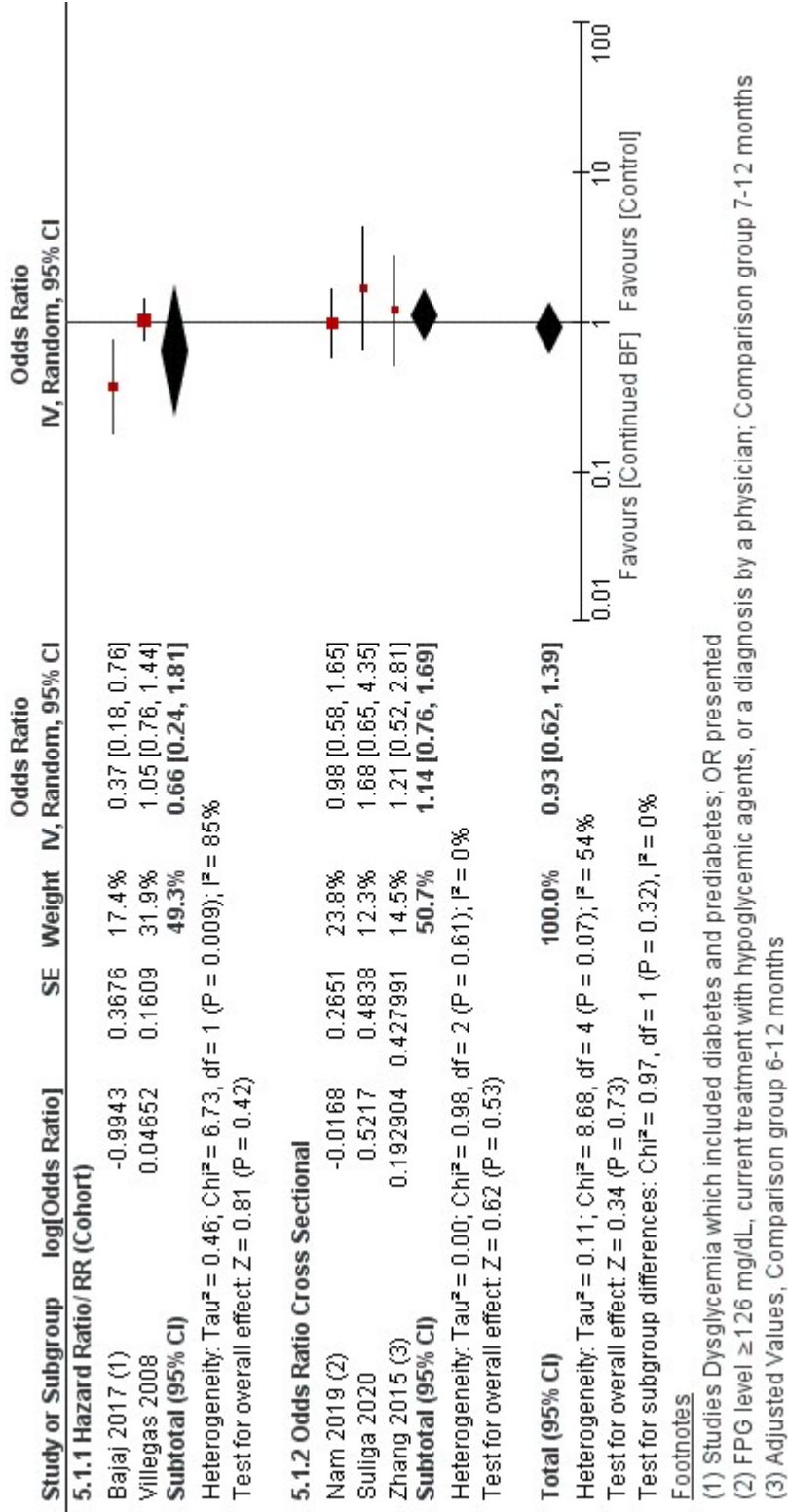
Forest plot of comparison: 4 Outcomes in Children: Bone Health and Allergies, outcome: 4.6 Asthma.

Figure 19 (Analysis 4.8)



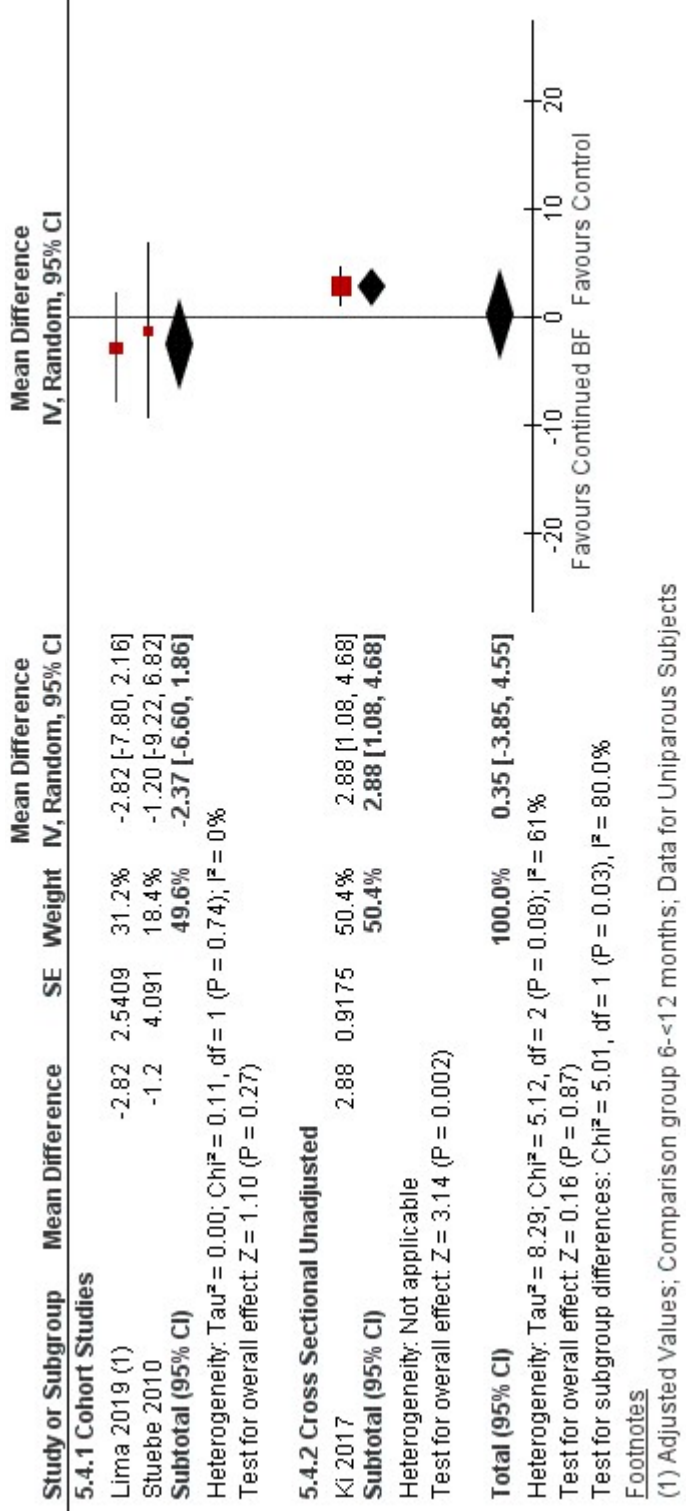
Forest plot of comparison: 4 Outcomes in Children: Bone Health, Oral Health and Allergies, outcome: 4.8 Eczema.

Figure 20 (Analysis 5.1)



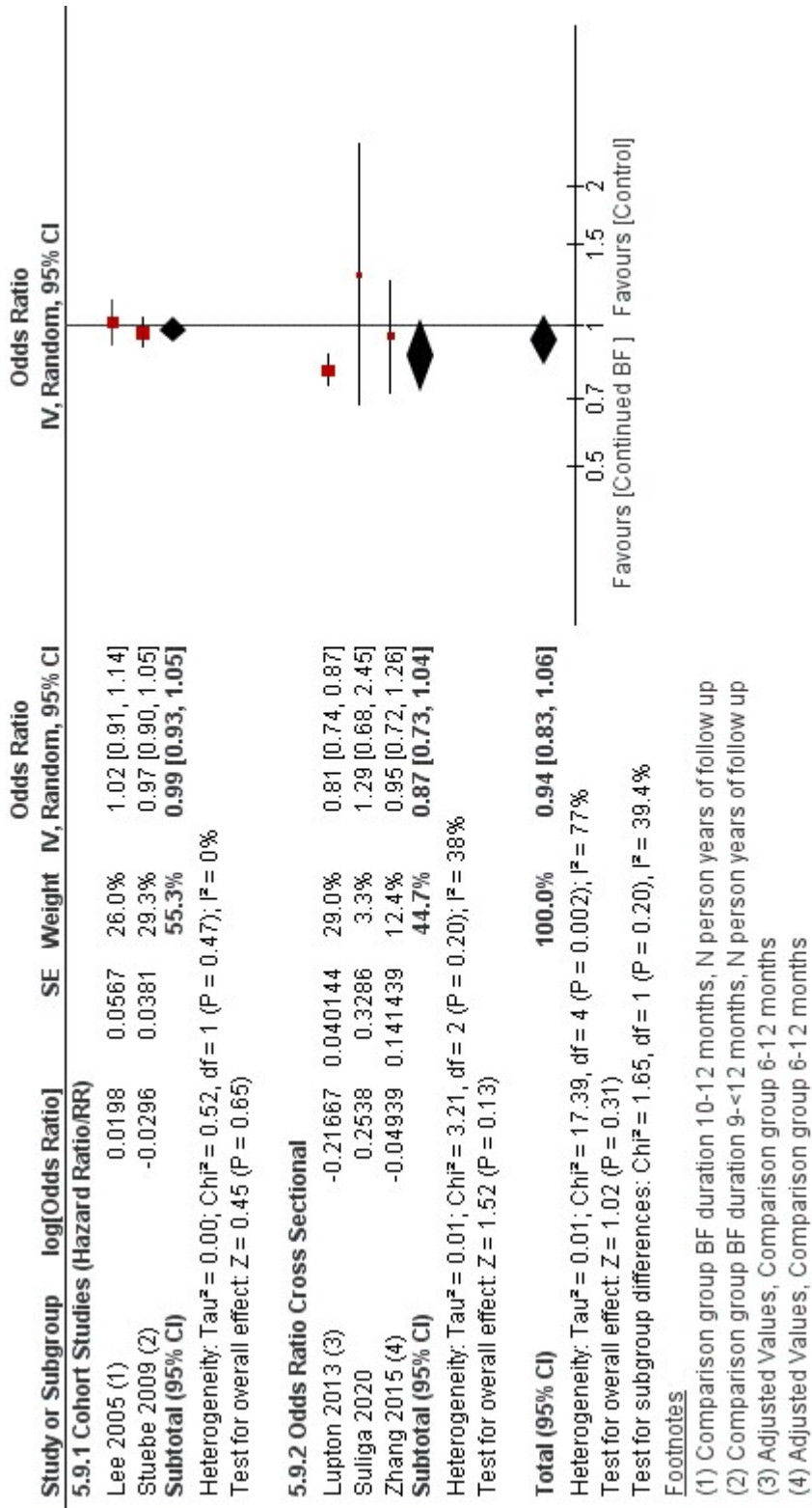
Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.1 Diabetes.

Figure 21 (Analysis 5.4)



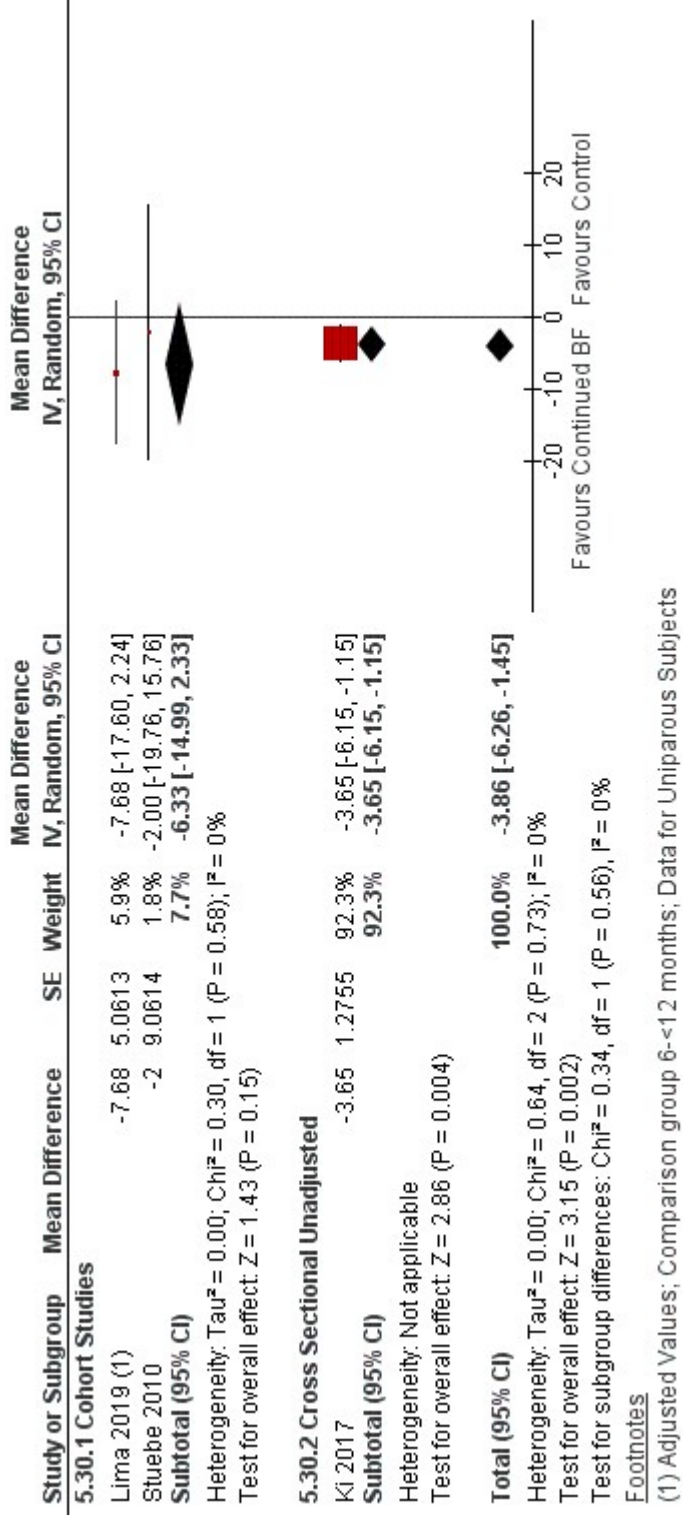
Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.4 Blood Glucose (mg/dL).

Figure 22 (Analysis 5.9)



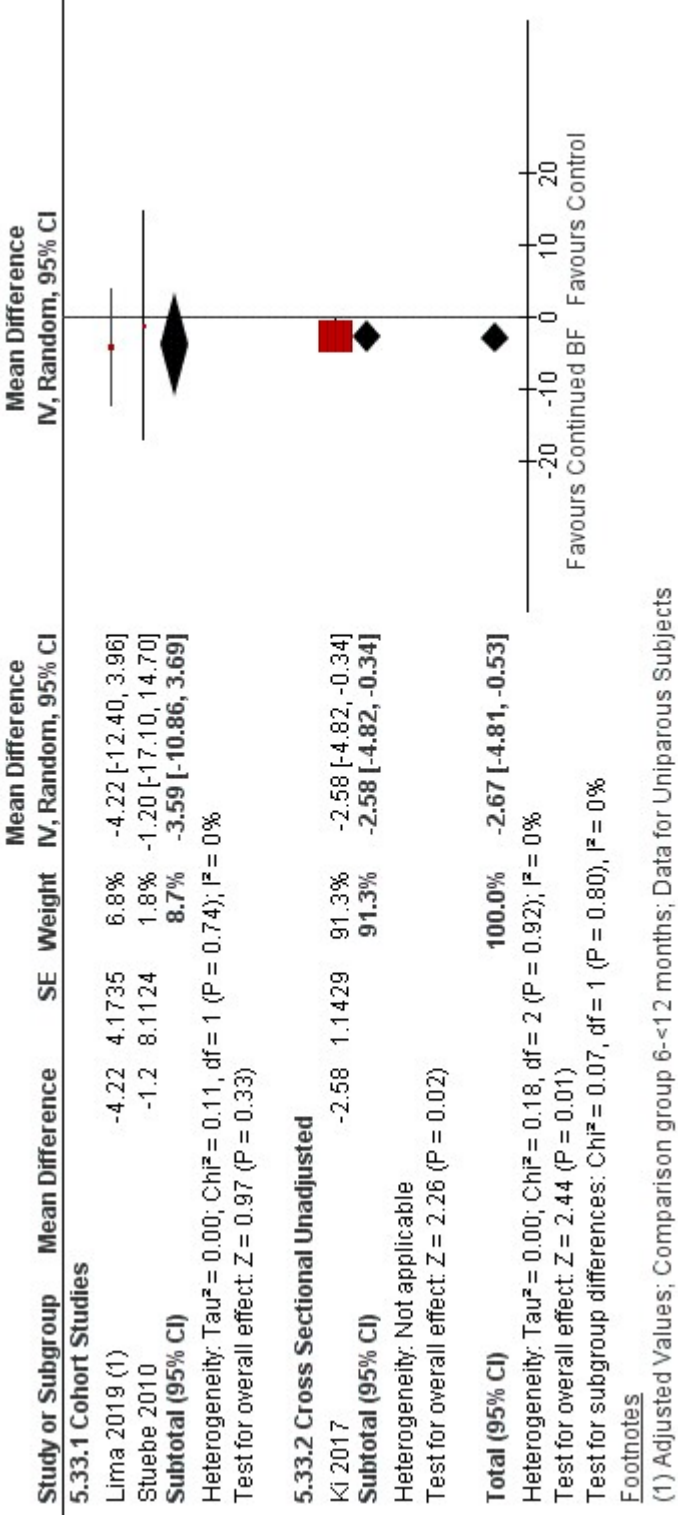
Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.9 Hypertension.

Figure 23 (Analysis 5.30)



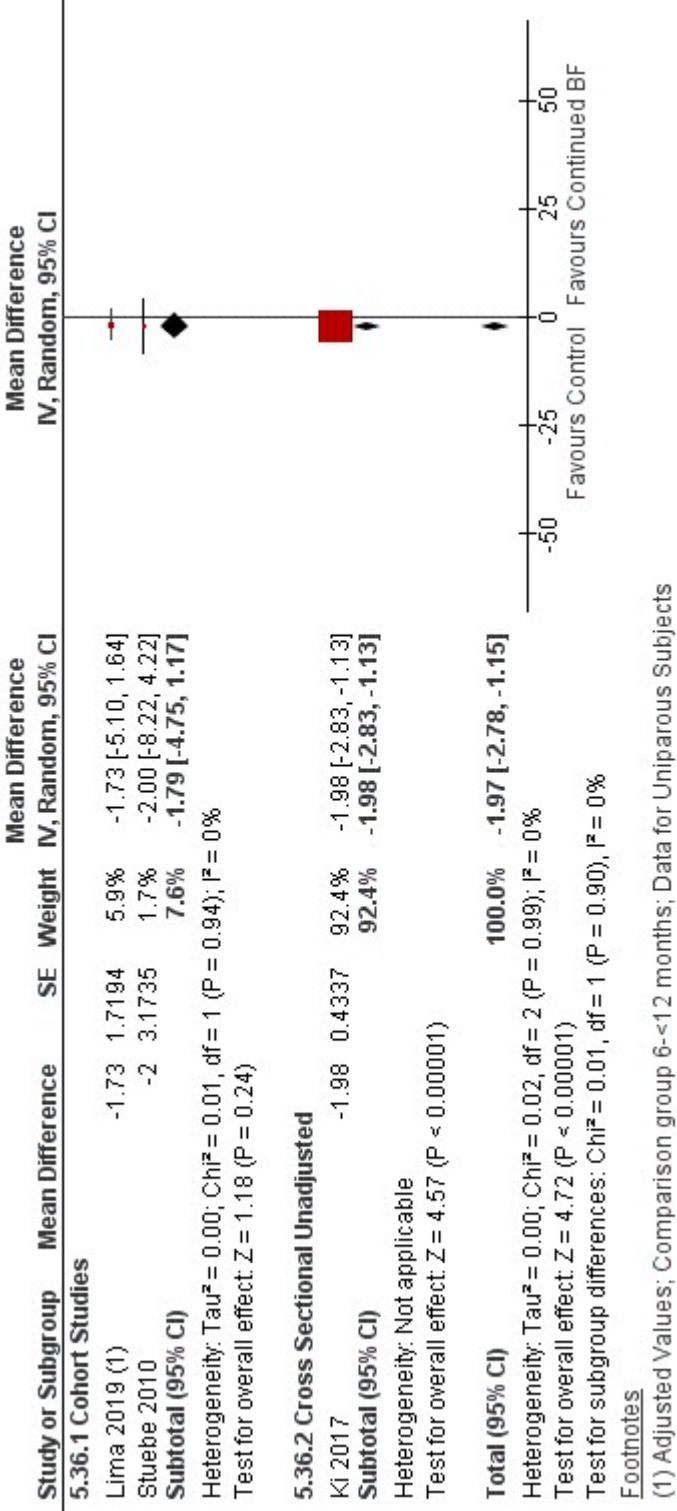
Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.30 Cholesterol (mg/dL).

Figure 24 (Analysis 5.33)



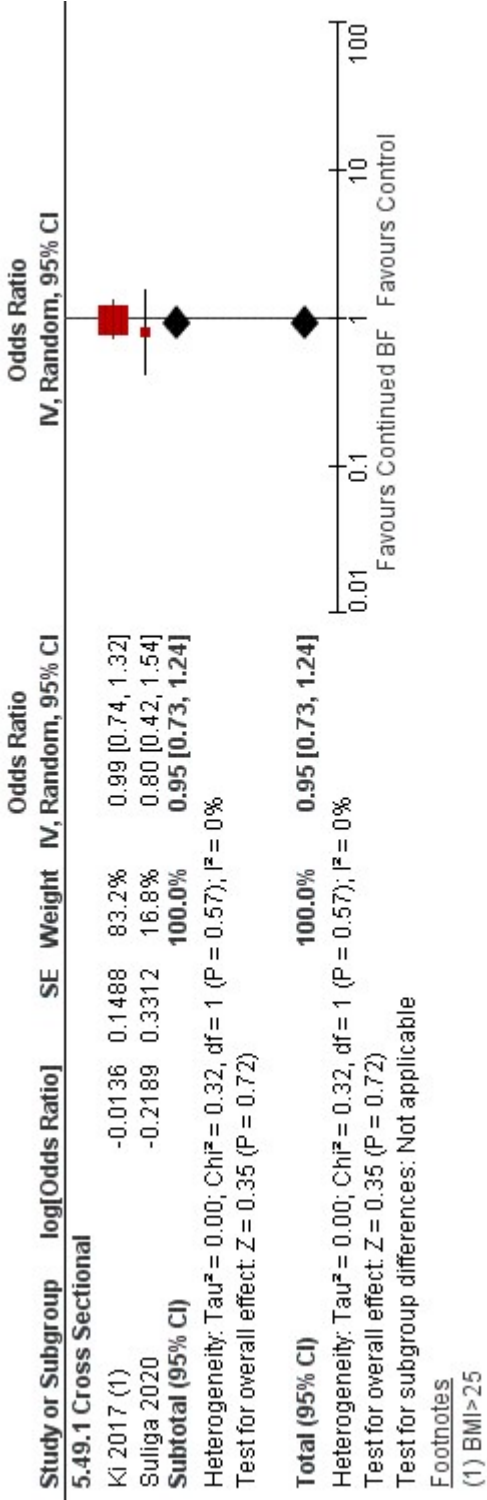
Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.33 LDL (mg/dL).

Figure 25 (Analysis 5.36)



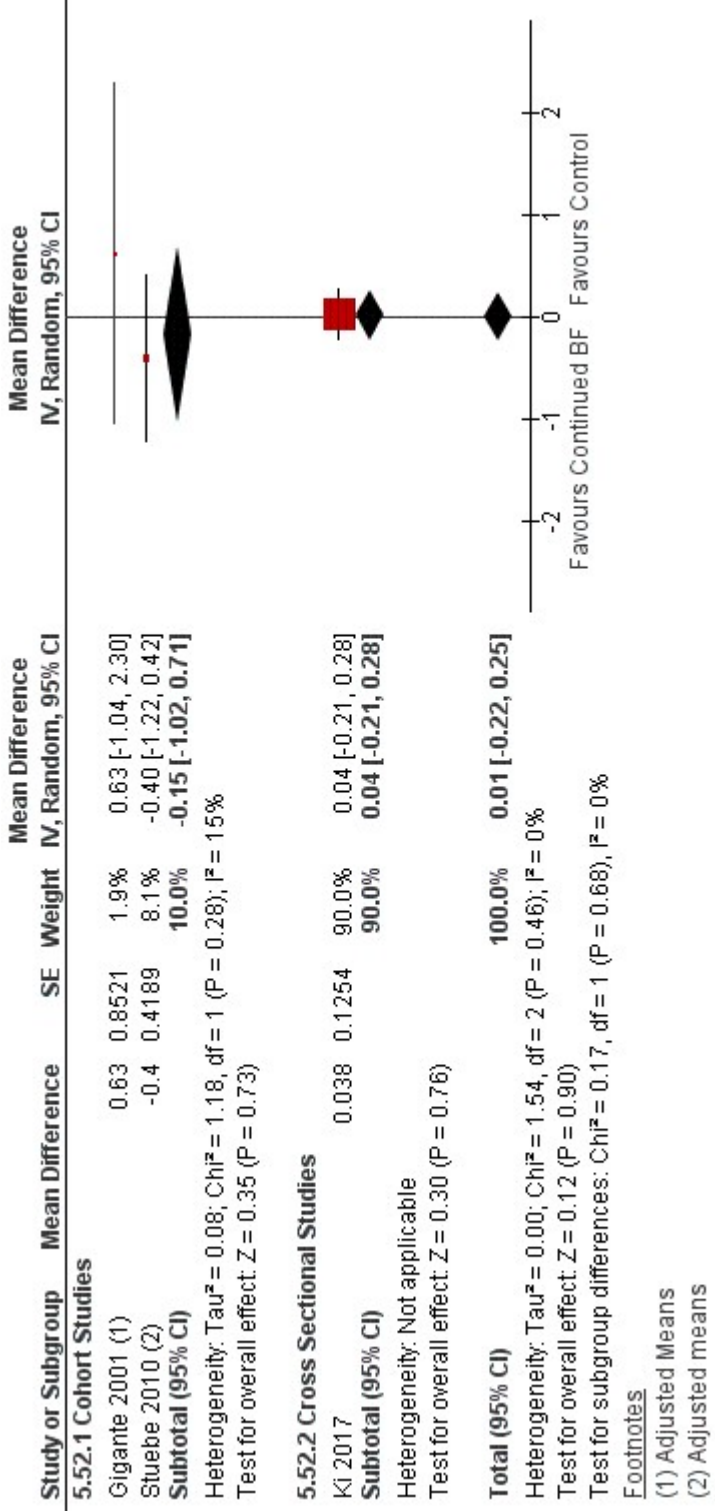
Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.36 HDL (mg/dL).

Figure 26 (Analysis 5.49)



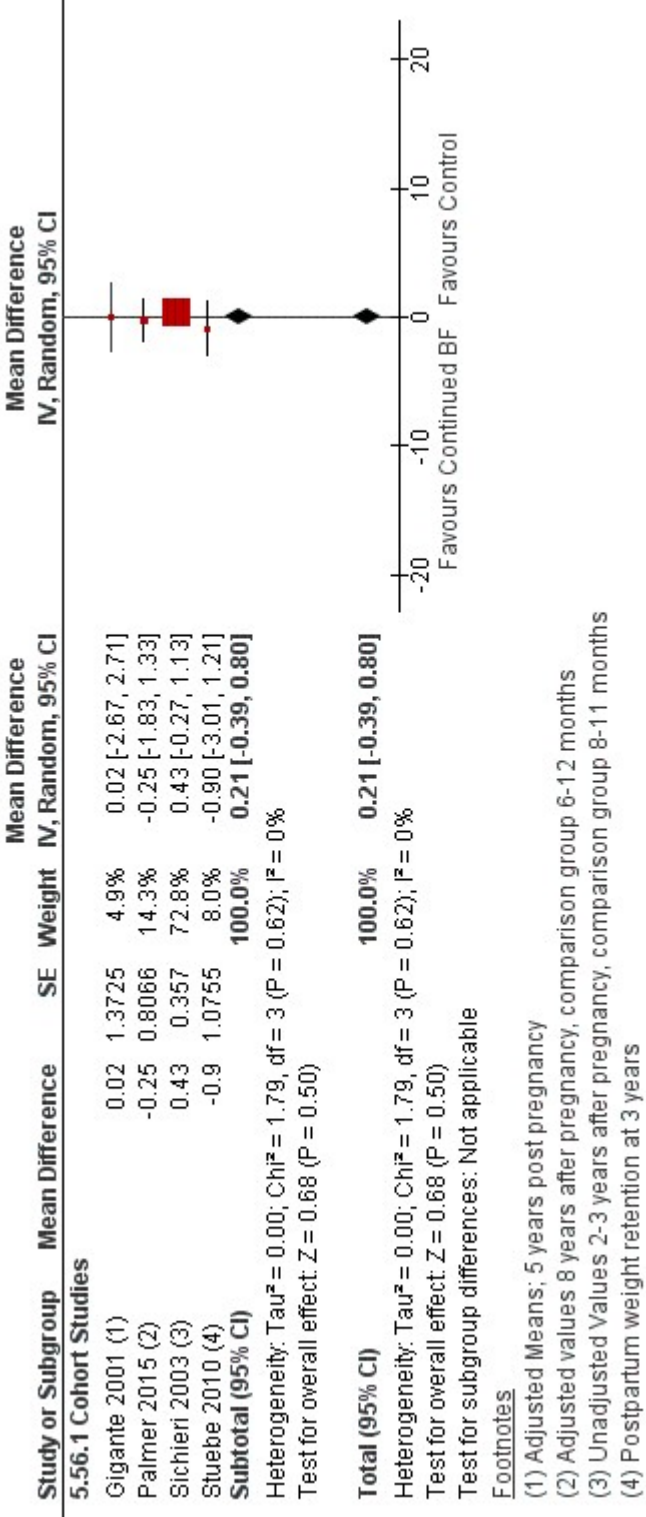
Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.49 Overweight and Obesity.

Figure 27 (Analysis 5.52)



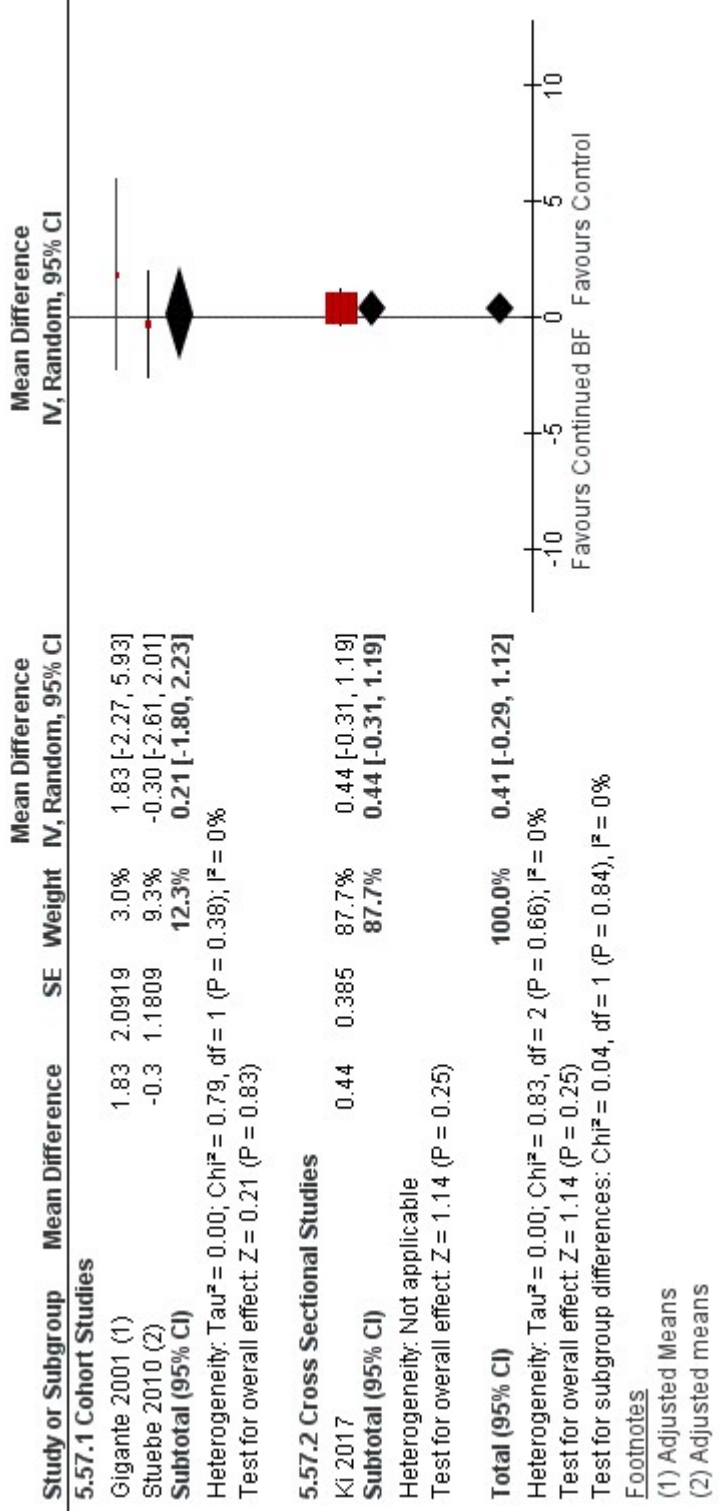
Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.52 BMI.

Figure 28 (Analysis 5.56)



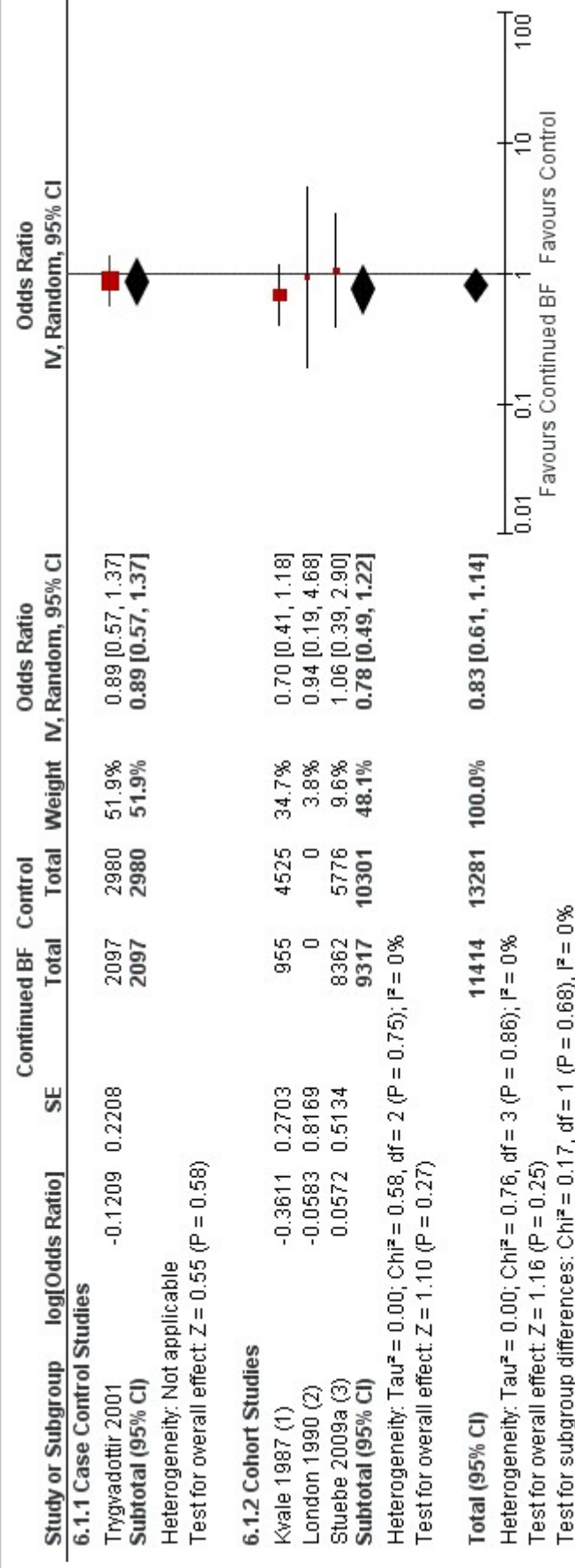
Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.56 Weight Gain.

Figure 29 (Analysis 5.57)



Forest plot of comparison: 5 Maternal Outcomes Breastfeeding Duration per child: Diabetes and Cardiovascular Health, outcome: 5.57 Waist Circumference.

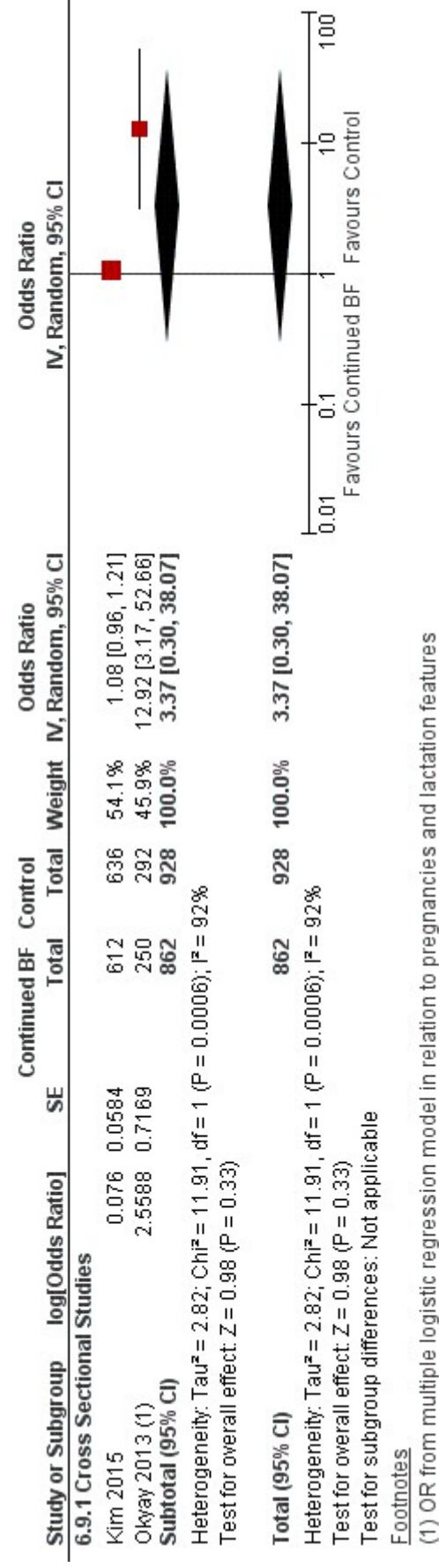
Figure 30 (Analysis 6.1)



Footnotes
(1) Comparison groups 10-12 months, unadjusted values
(2) Exact no. of participants having 1 child is not given., adjusted values, comparison with no feeding, The number of participants not provided in the study-----
(3) Incident cases of Invasive breast cancer in woman with only one child, adjusted values, Comparison group 9-11 months; N person years

Forest plot of comparison: 6 Maternal Outcomes Breastfeeding Duration per child: Cancer, Bone Health, Mental Health, outcome: 6.1 Breast Cancer.

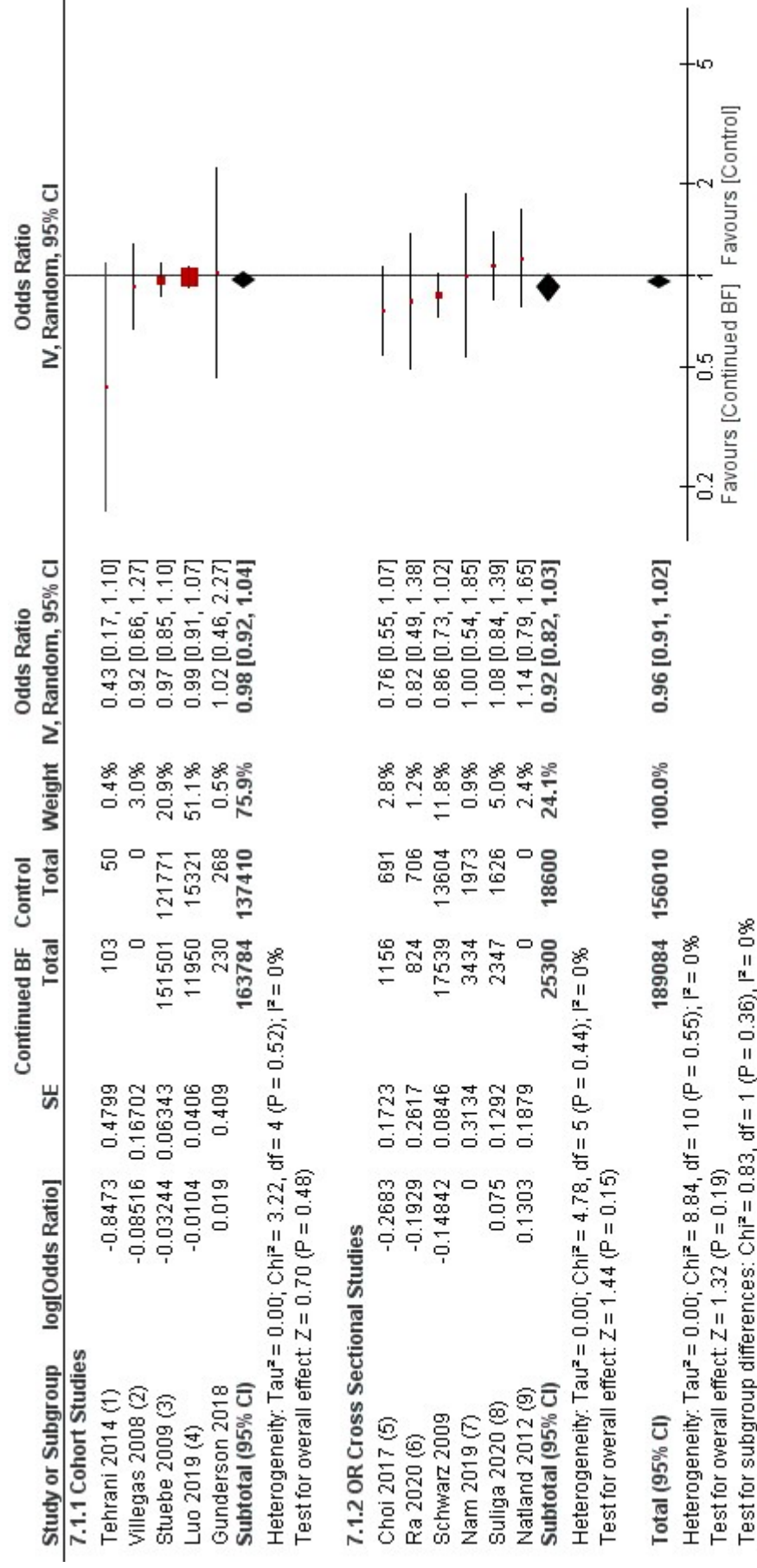
Figure 31 (Analysis 6.9)



Footnotes
(1) OR from multiple logistic regression model in relation to pregnancies and lactation features

Forest plot of comparison: 6 Maternal Outcomes Breastfeeding Duration per child: Cancer, Bone Health, Mental Health, outcome: 6.9 Osteoporosis.

Figure 32 (Analysis 7.1)

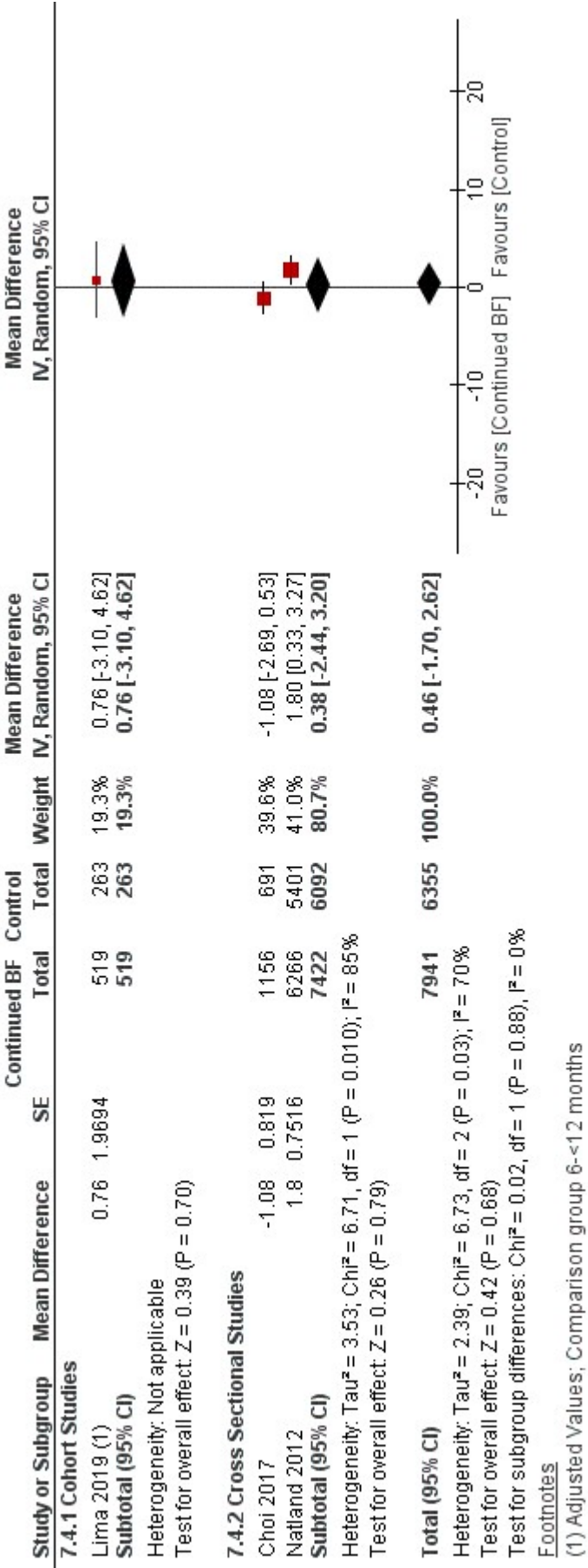


Footnotes

- (1) Fasting glucose of 100 mg/dL or more or treatment with diabetes medication
- (2) The number of participants not provided in the study----- "Zero denotes here lack of information, and NOT the number of participants"
- (3) N is person years of follow up
- (4) Self reported cases
- (5) Fasting glucose more than 100 or taking medications for DM
- (6) Fasting glucose more than 100 or taking medications for DM
- (7) FPG level ≥ 126 mg/dL, current treatment with hypoglycemic agents, or a diagnosis by a physician; Comparison group 1-12 months
- (8) Fasting glucose > 100 mg/dL or drug treatment of elevated glucose or previously diagnosed type 2 diabetes
- (9) The number of participants not provided in the study----- "Zero denotes here lack of information, and NOT the number of participants"

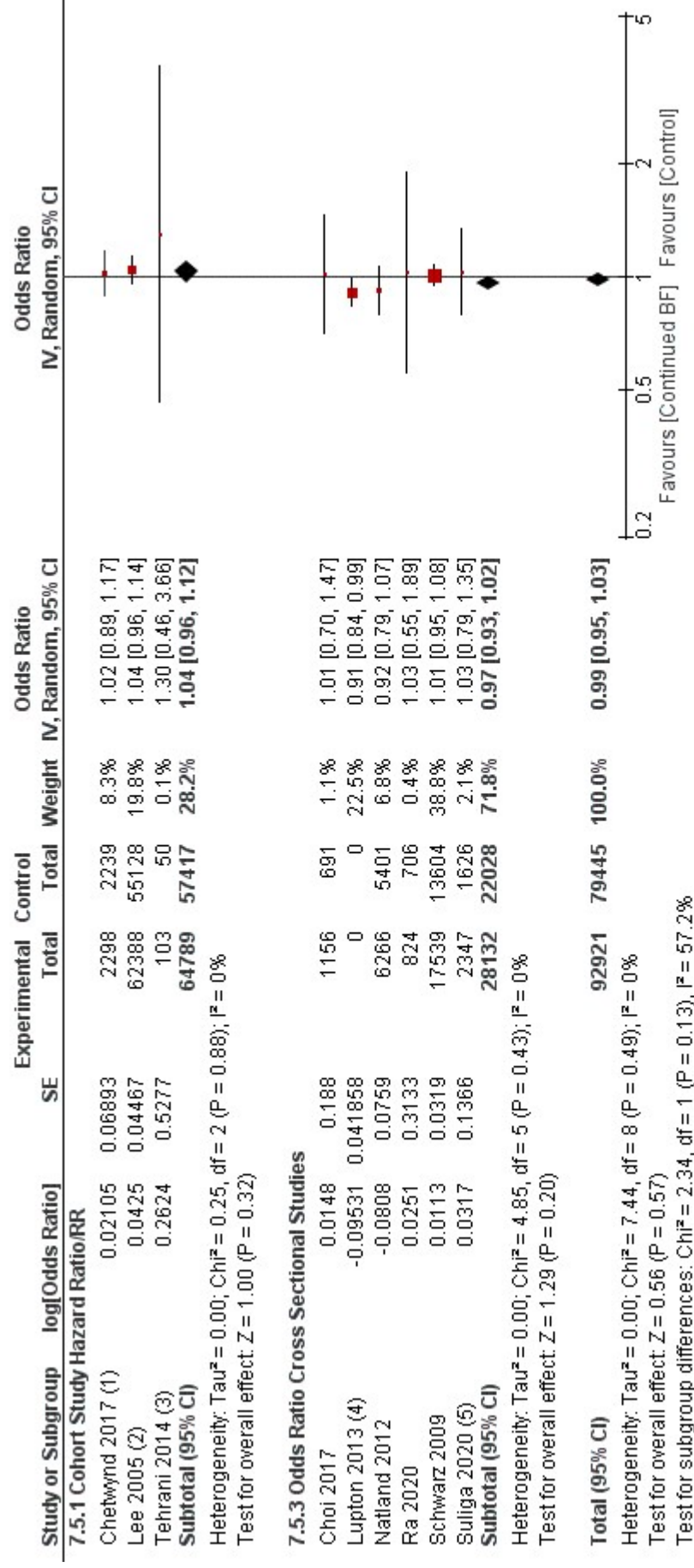
Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.1 Diabetes.

Figure 33 (Analysis 7.4)



Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.4 Blood Glucose (mg/dL).

Figure 34 (Analysis 7.5)



Footnotes

(1) Adjusted data given for 7-11 months, 12-17 months and 13-18 months against no BF, data for 12-24 months imputed from this data

(2) Comparison group BF duration 7-12 months, N person years of follow up

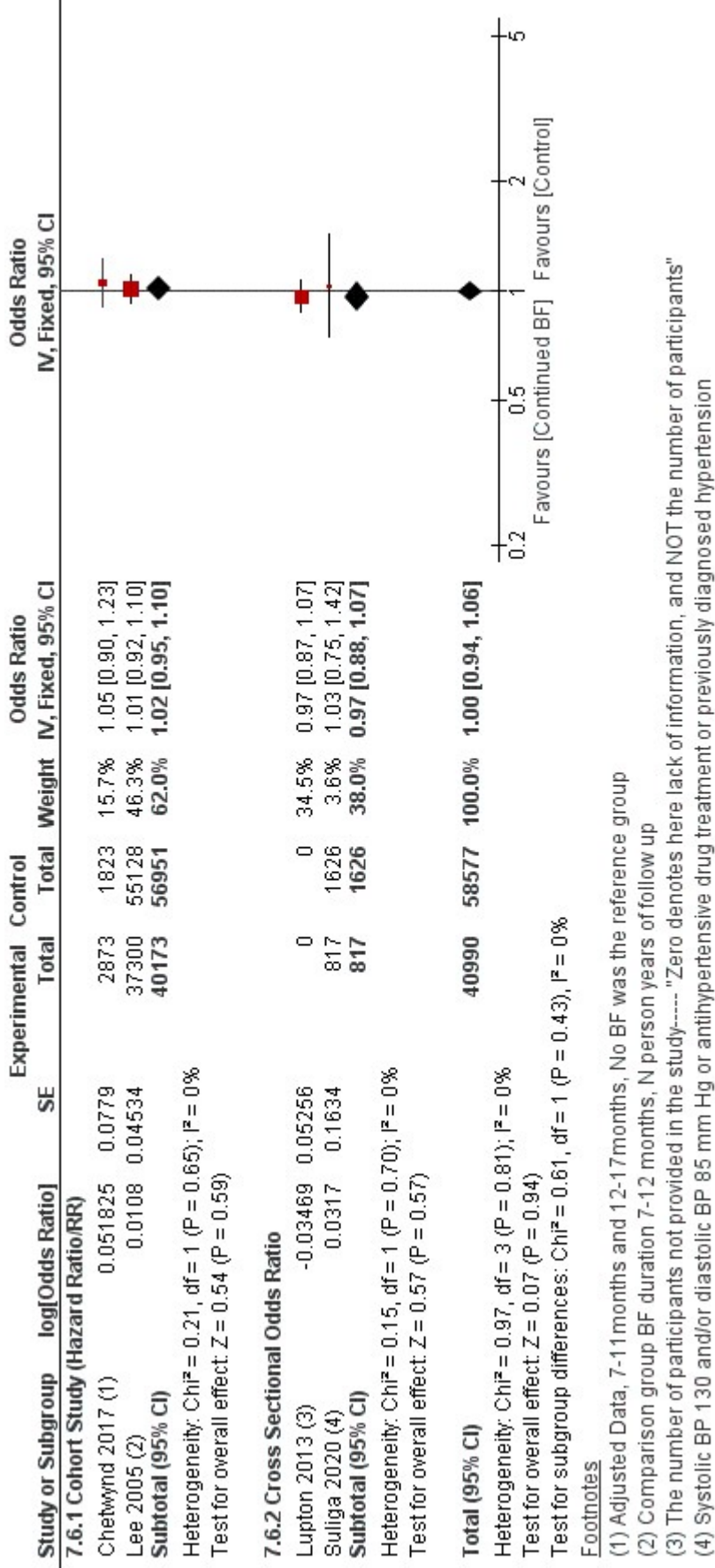
(3) SBP > 130 or DBP > 85 or on medication

(4) Adjusted Values, Comparison group 6-12 months, The number of participants not provided in the study----- "Zero denotes here lack of information, and NOT the..."

(5) Systolic BP 130 and/or diastolic BP 85 mm Hg or antihypertensive drug treatment or previously diagnosed hypertension

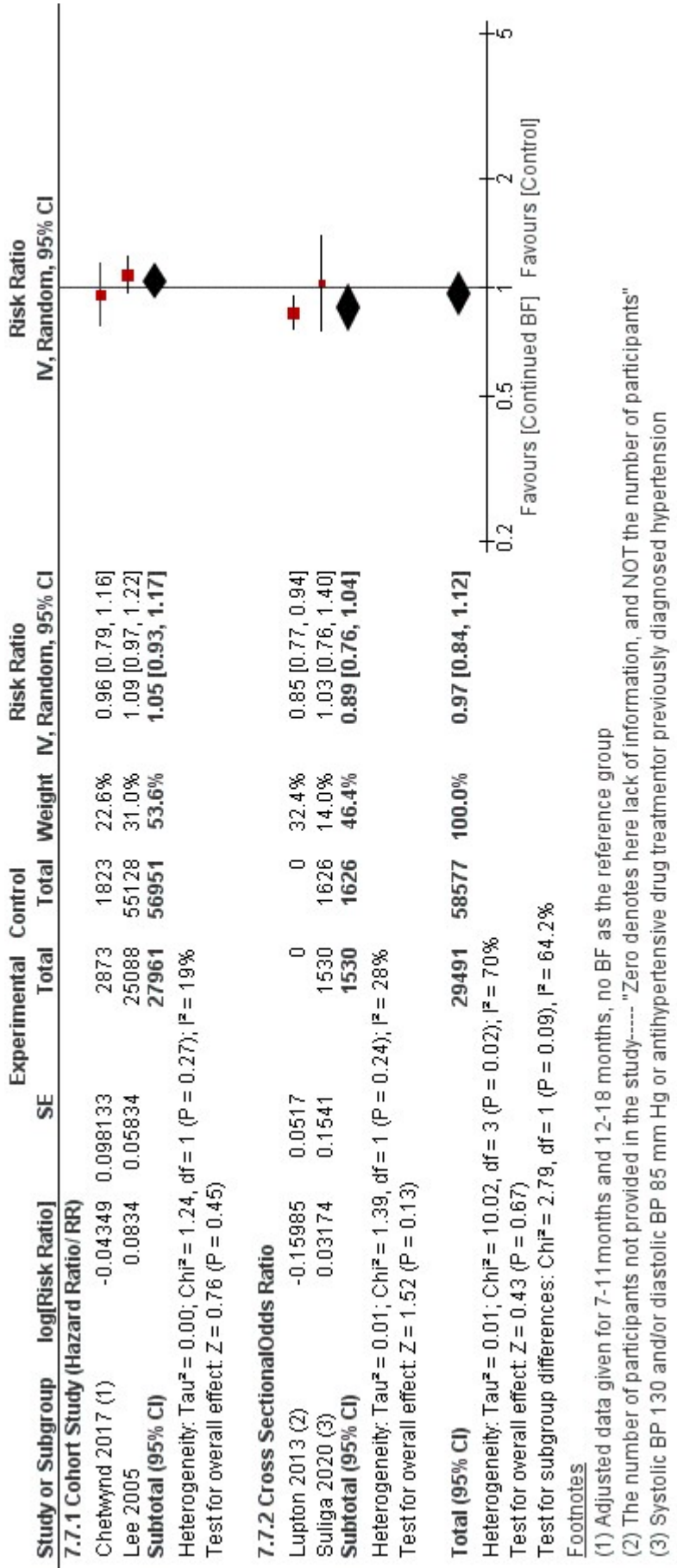
Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.5 Hypertension.

Figure 35 (Analysis 7.6)



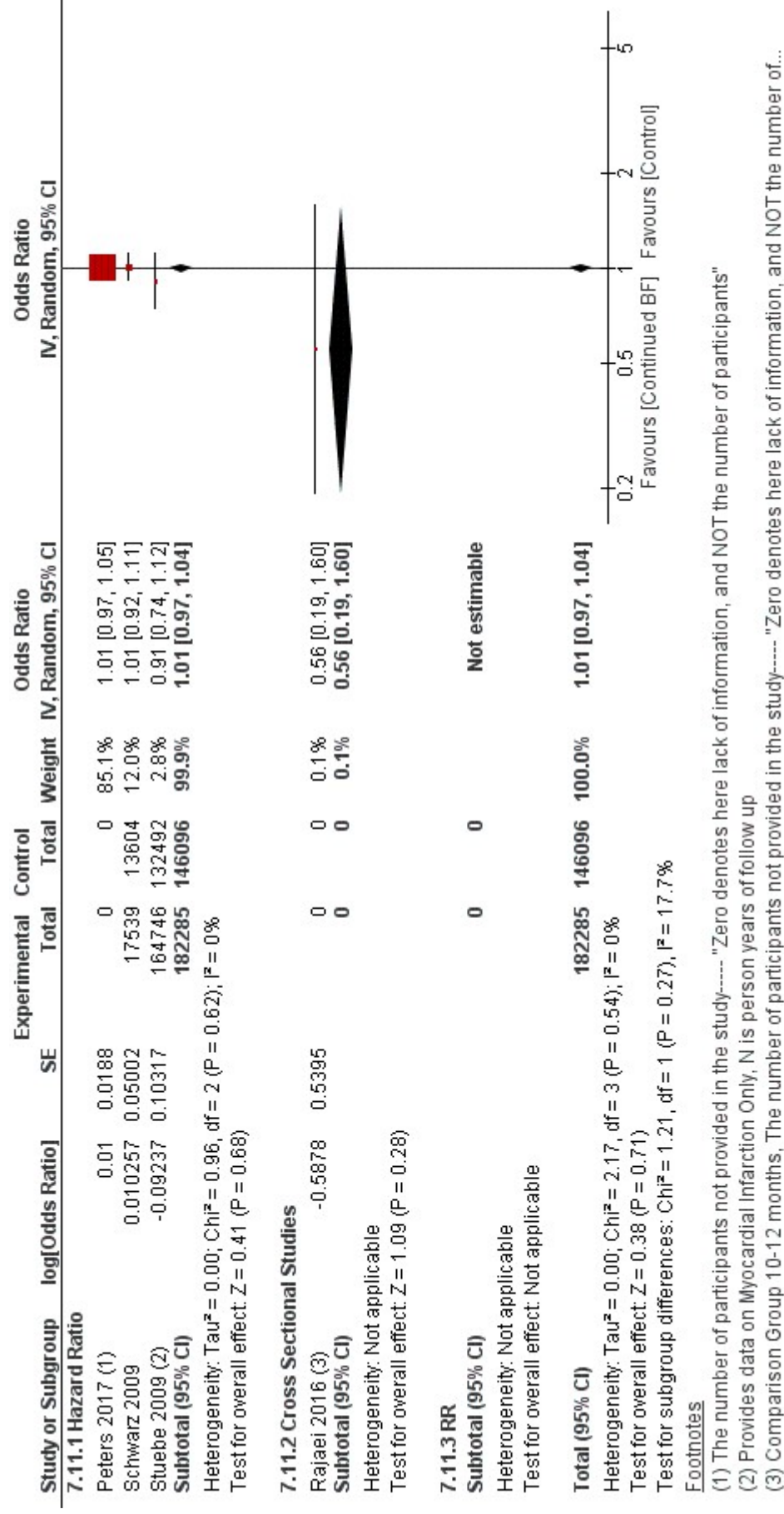
Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.6 Hypertension 12-18 months.

Figure 36 (Analysis 7.7)



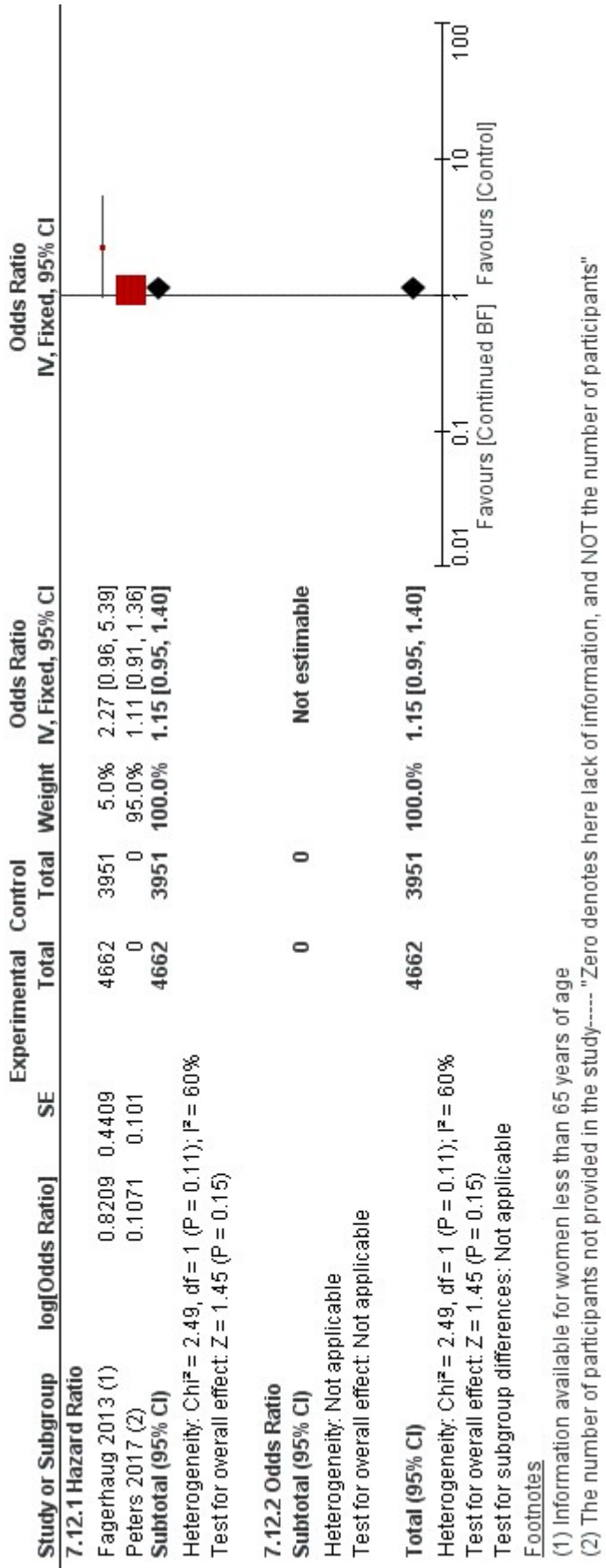
Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.7 Hypertension 18-24 months.

Figure 37 (Analysis 7.11)



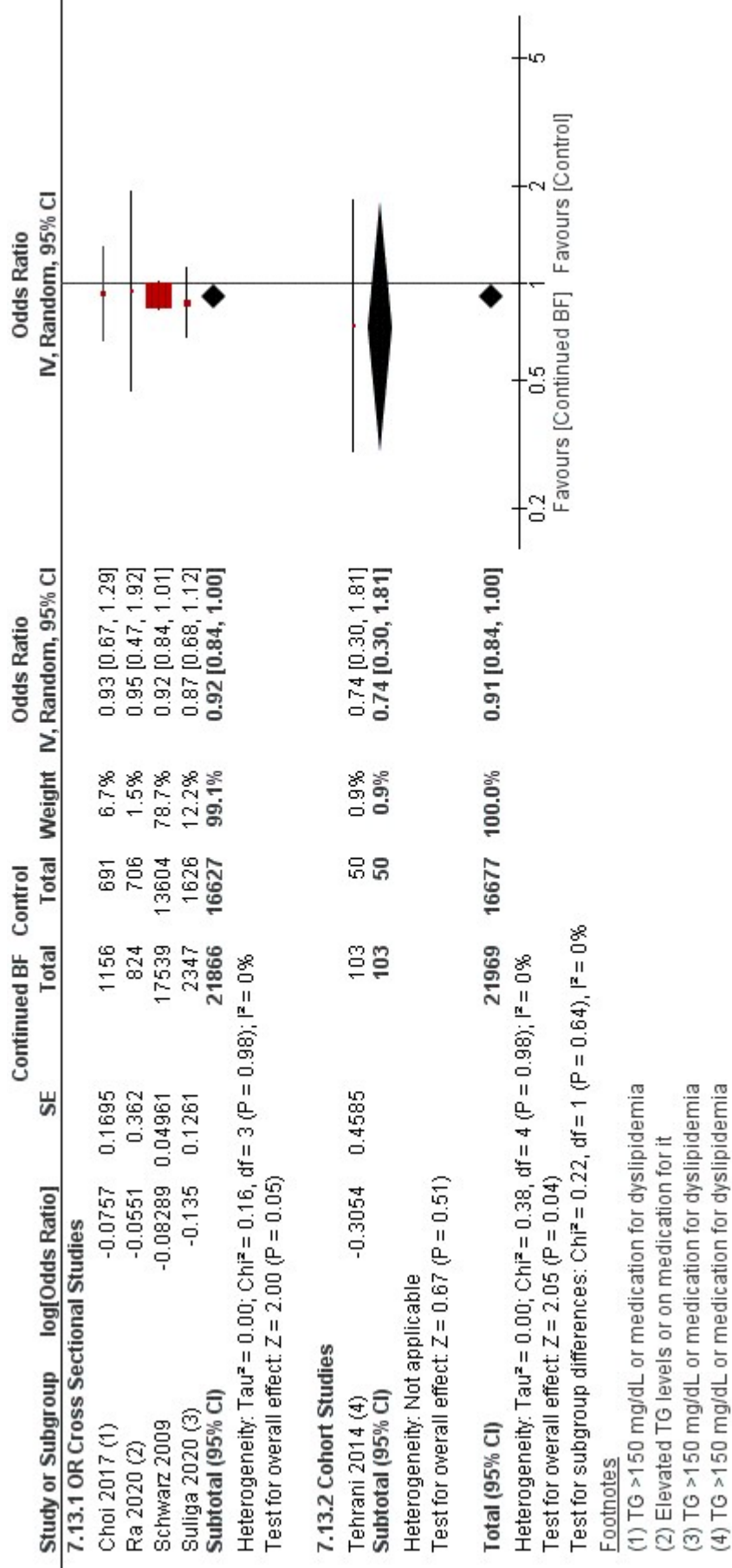
Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.11 All Cardiovascular Disease.

Figure 38 (Analysis 7.12)



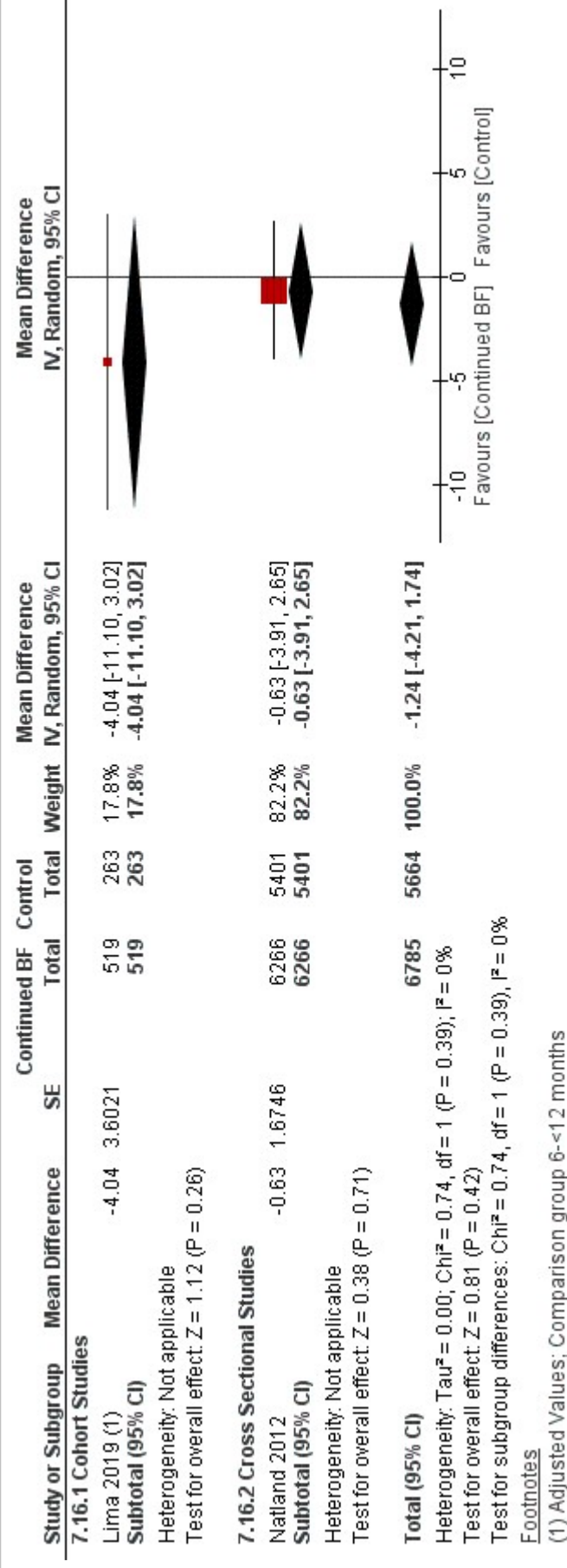
Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.12 Cardiovascular Mortality.

Figure 39 (Analysis 7.13)



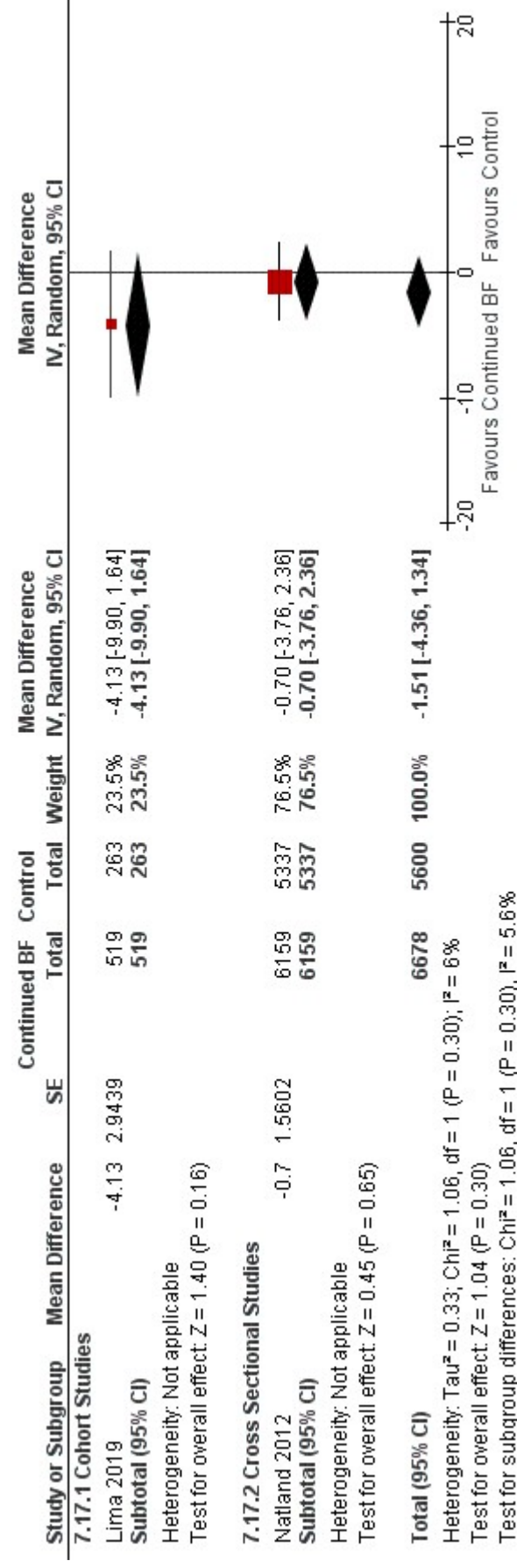
Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.13 Hyperlipidemia.

Figure 40 (Analysis 7.16)



Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.16 Cholesterol (mg/dL).

Figure 41 (Analysis 7.17)



Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.17 LDL (mg/dL).

Figure 42 (Analysis 7.18)

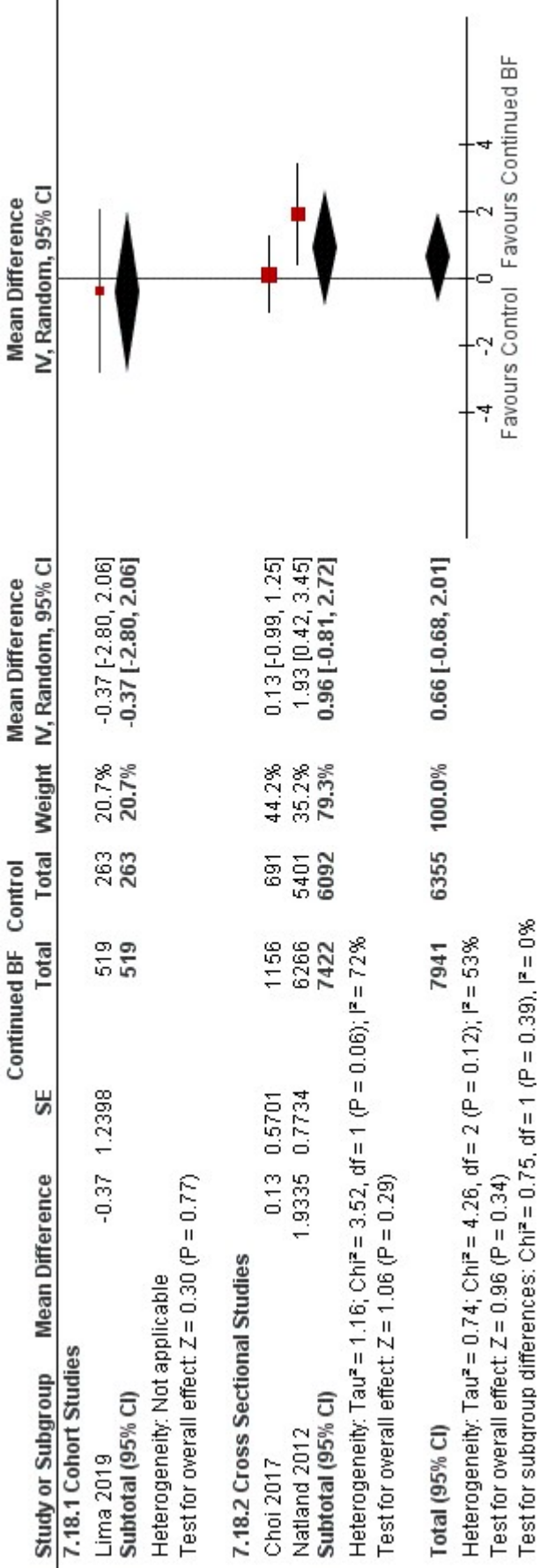
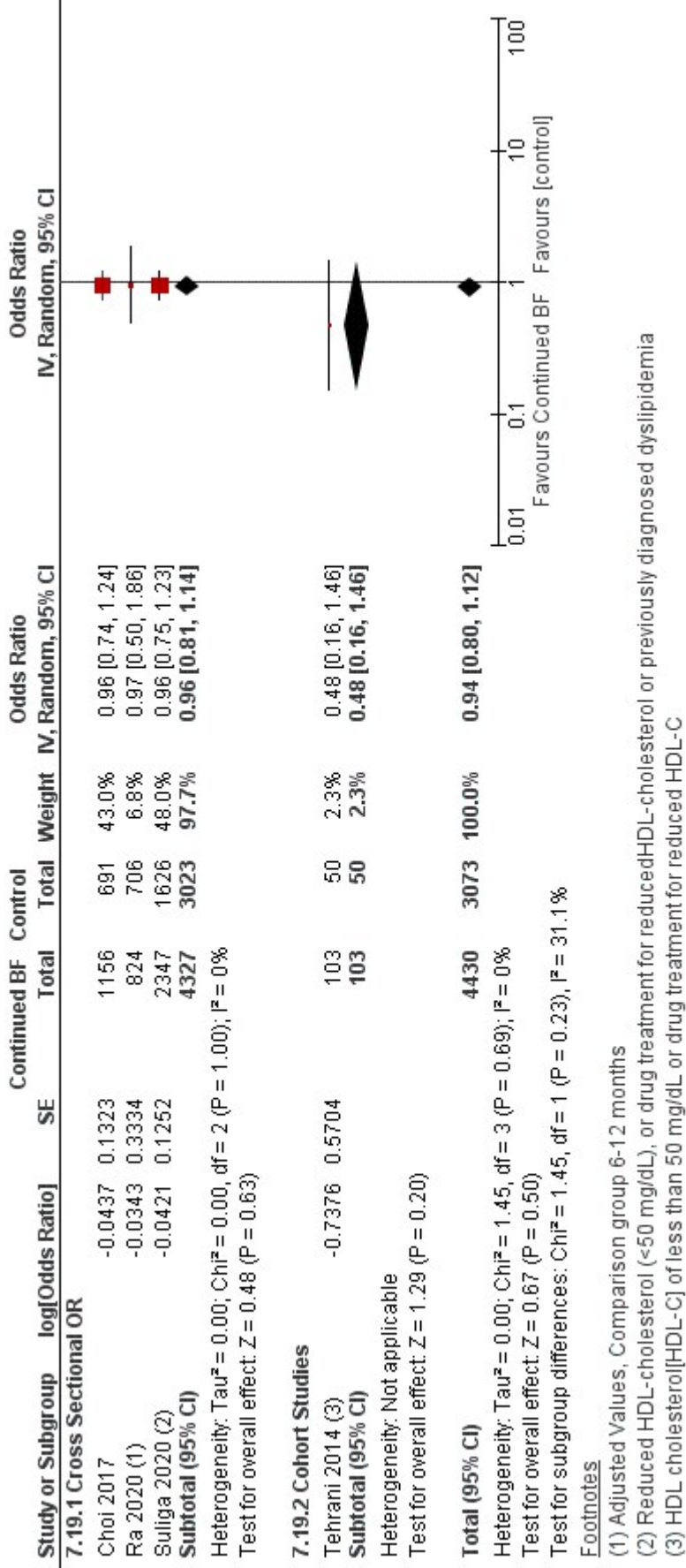
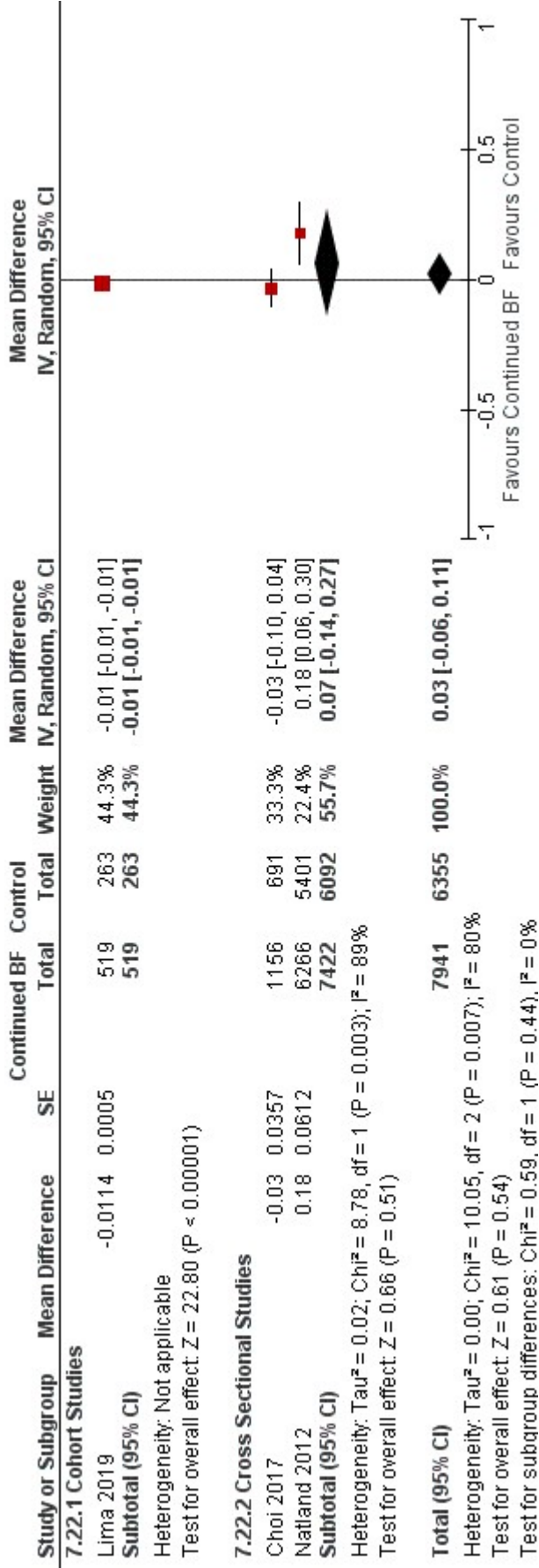


Figure 43 (Analysis 7.19)



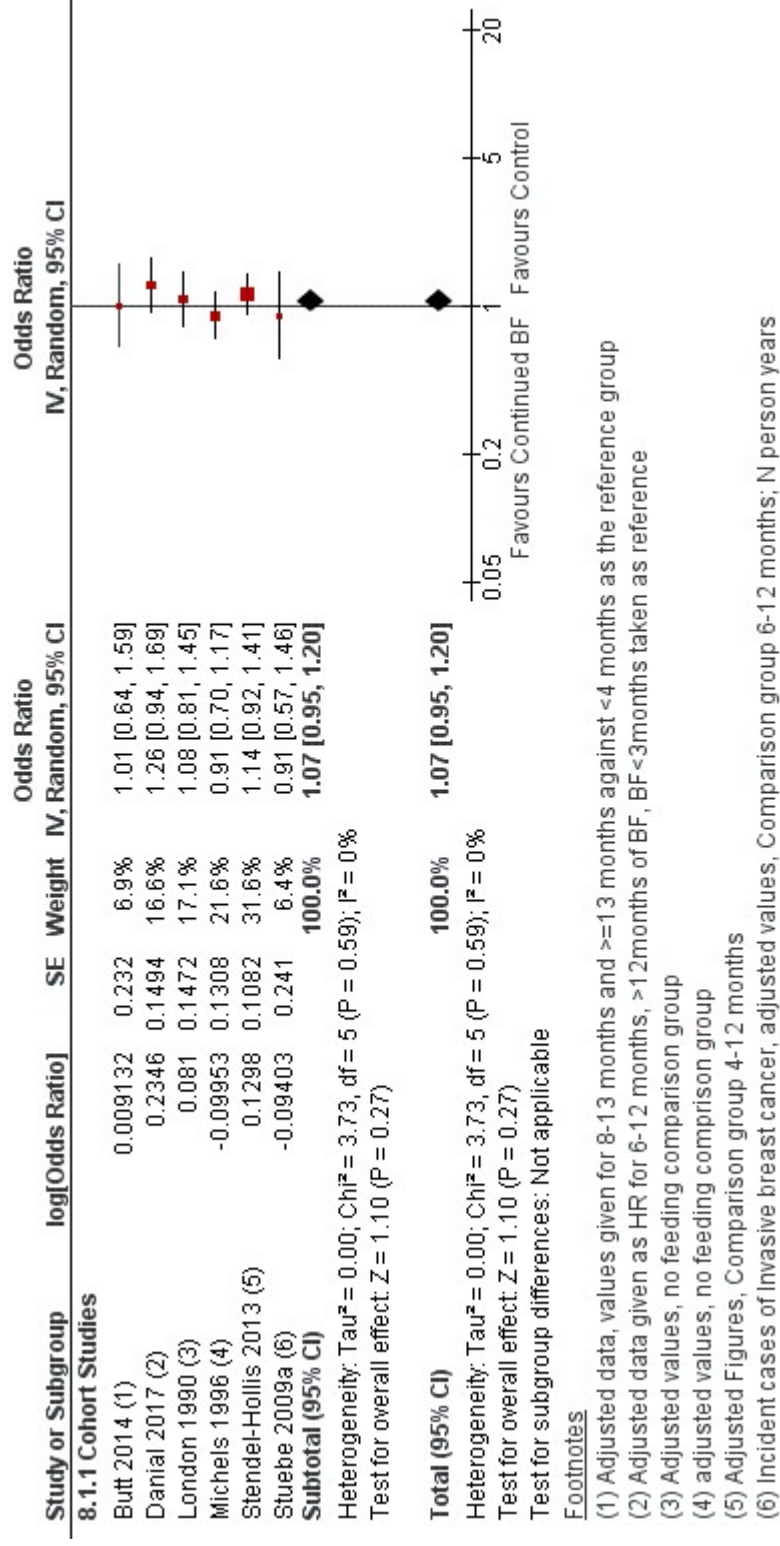
Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.19 Low HDL.

Figure 44 (Analysis 7.22)



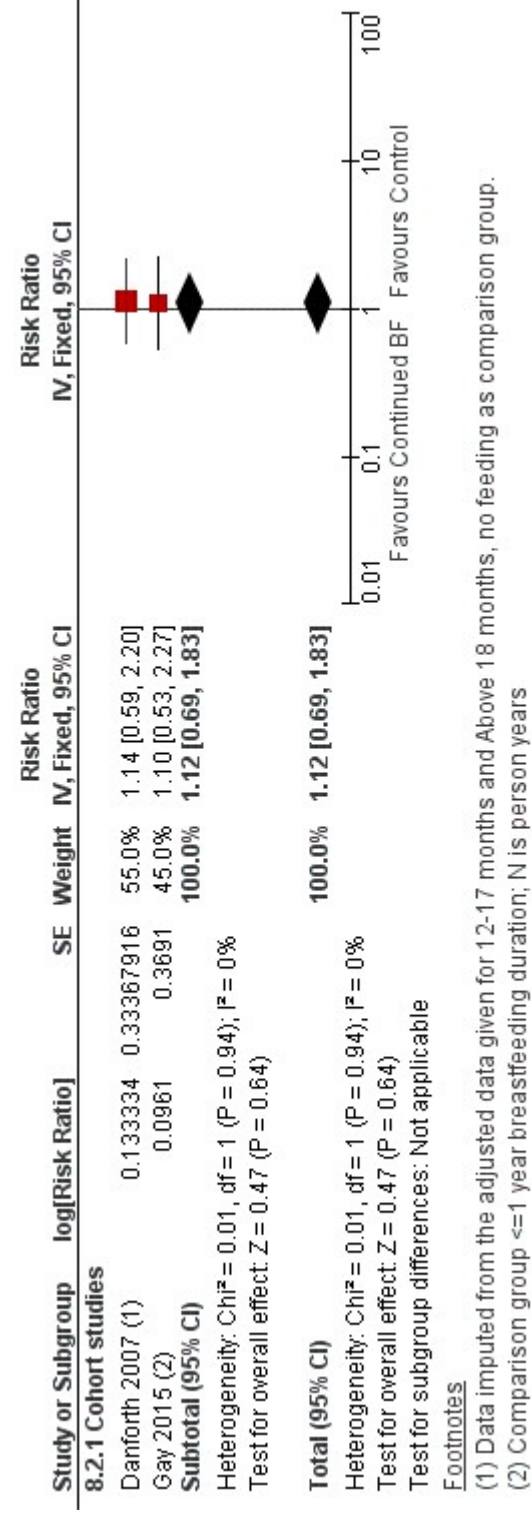
Forest plot of comparison: 7 Maternal Outcomes - Cumulative Breastfeeding: Diabetes and Cardiovascular Health, outcome: 7.22 Triglyceride (mmol/L).

Figure 45 (Analysis 8.1)

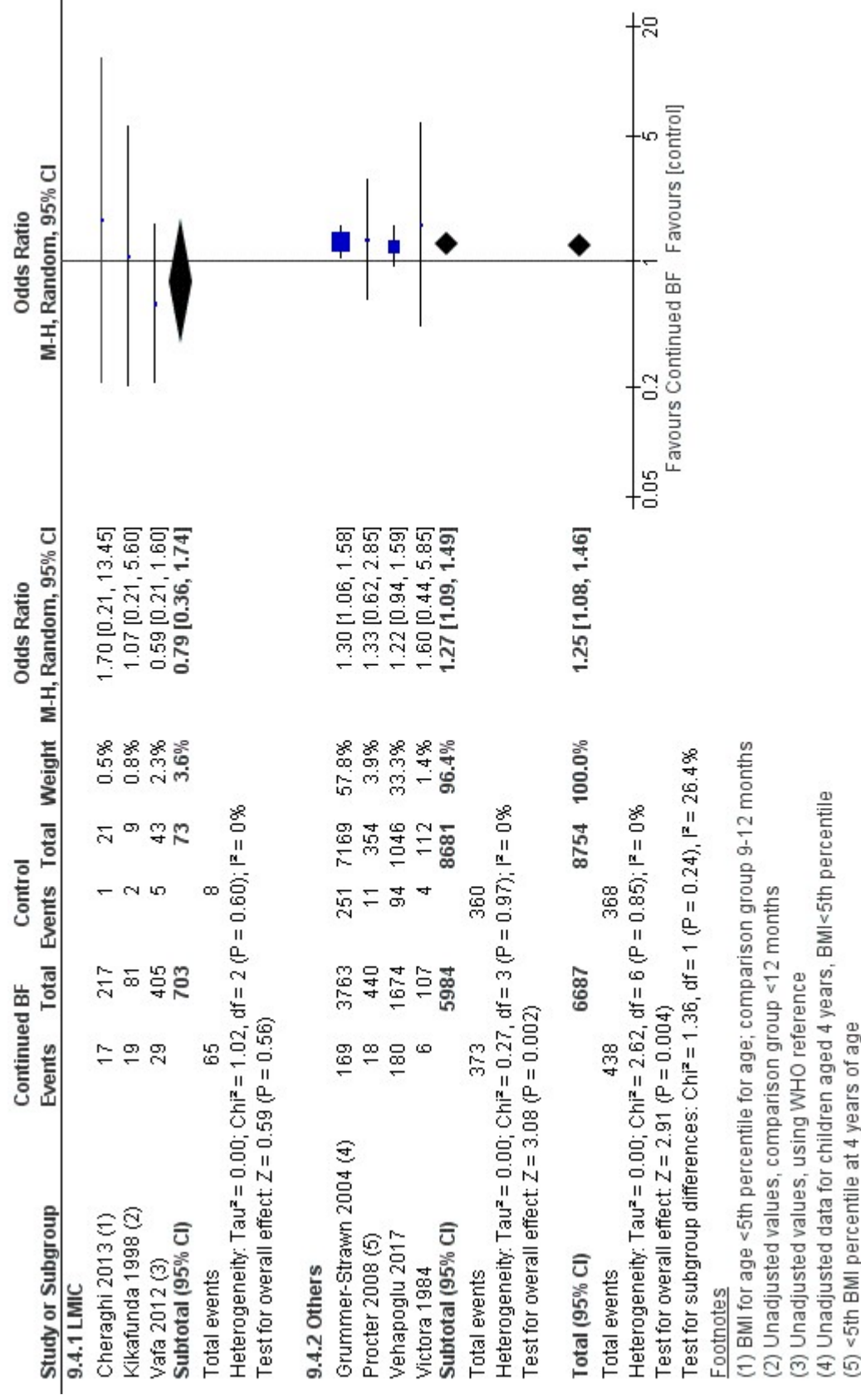


Forest plot of comparison: 8 Maternal Outcomes - Cumulative Breastfeeding: Cancer, Bone Health, outcome: 8.1 Breast Cancer.

Figure 46 (Analysis 8.2)

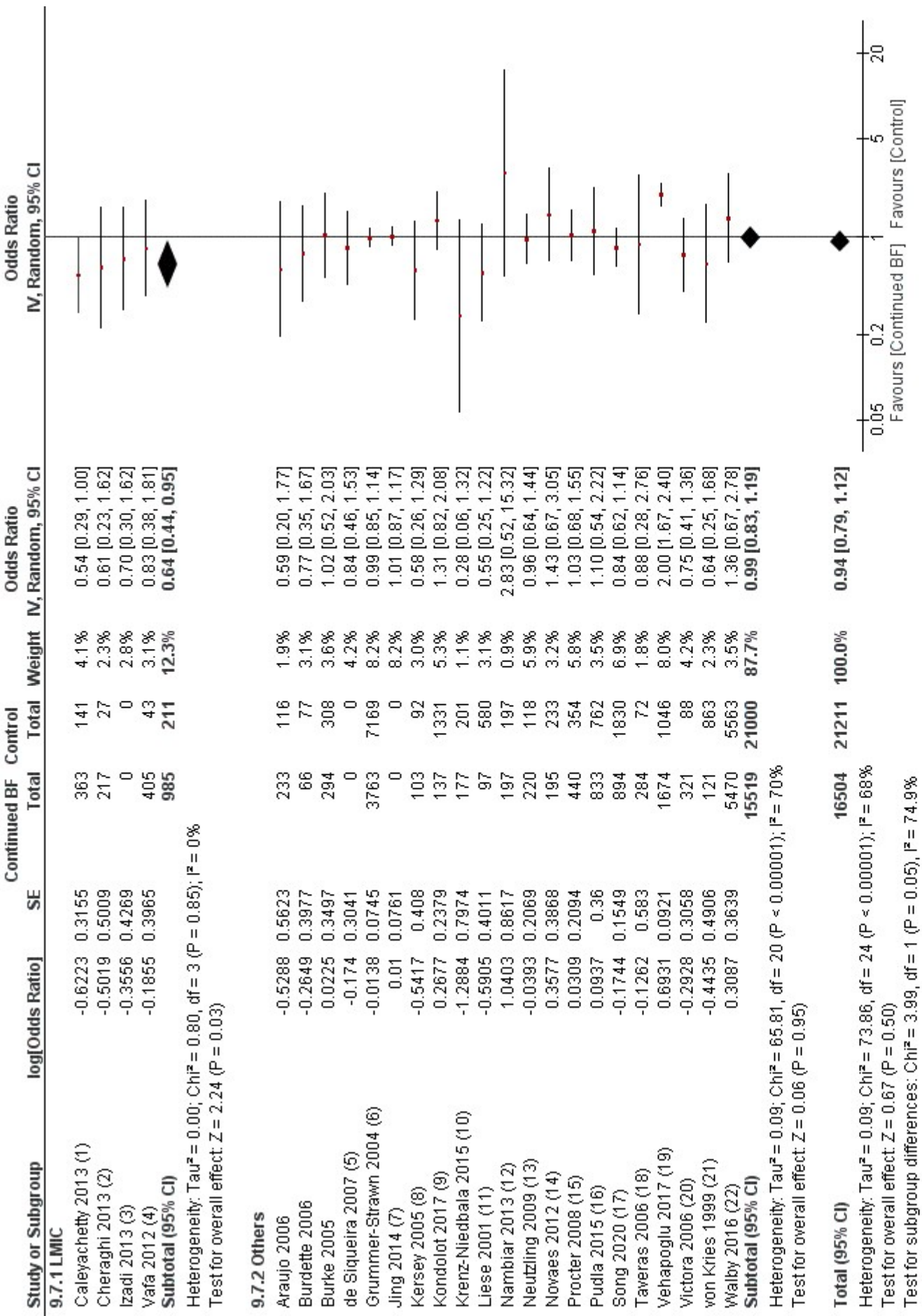


Forest plot of comparison: 8 Maternal Outcomes - Cumulative Breastfeeding: Cancer, Bone Health, outcome: 8.2 Ovarian Cancer.

Figure 47 (Analysis 9.4)

Forest plot of comparison: 9 Subgroup Analysis, outcome: 9.4 Underweight LMIC versus Others.

Figure 48 (Analysis 9.7)



Footnotes

- (1) Unadjusted data, numbers given for HIGH BMI (>90th percentile for sex in the cohort) for 6-11 months, 12-17 months and >18 months of BF
- (2) BMI more than 85th percentile for age; comparison group 9-12 months
- (3) BMI 85-95th centile, The number of participants not provided in the study----- "Zero denotes here lack of information, and NOT the number of participants"

- (4) Unadjusted values, using WHO reference
- (5) Obesity defined as body mass index at or above the 85th centile plus sub scapular and triceps skin folds at or above the 90th centile using the sex and age specific... (6) adjusted data given for 6-12 months and >12 months of BF using No BF as the reference, BMI>95th percentile
- (7) Compares duration of breastfeeding >= 12 vs <12 months; includes overweight and obesity (BMI cutoffs 85th and 95th percentile respectively), The number of...
- (8) Overweight defined as > 95% BMI; comparison group 6-12 months
- (9) BMI >=85th percentile; Comparison group < 12 months
- (10) BMI above 95 th percentile; comparison group 7-12 months
- (11) Overweight was defined using the 90th age and sex-specific percentile of the German BMI-for-age reference values
- (12) Abdominal Obesity defined as WHR ratio greater than 95th percentile
- (13) PR for Overweight (BMI >=85th centile) at 11 years of age; comparison group 9-11.9 months
- (14) Obesity defined as BMI/age > 2 SD
- (15) > 95th BMI percentile at 4 years of age
- (16) Adjusted values for 7-14 years
- (17) Adjusted OR for Overweight/Obesity
- (18) BMI for age and gender >=95th percentile using US National Reference, unadjusted values, comparison 10-11 mo
- (19) Includes overweight and obese
- (20) Overweight defined as body mass index at or above the 85th centile of the sex and age specific value; comparison group 9-12 months
- (21) Overweight defined as as body mass index above the 90th centile with reference of German school children in Bavaria
- (22) Comparison group 9-12 months

Forest plot of comparison: 9 Subgroup Analysis, outcome: 9.7 Obesity and Overweight LMIC versus Others.