Alcohol use disorders module - evidence profile ALC3: Digital interventions for adults with alcohol use disorders or hazardous drinking

WHO mhGAP guideline update: Mental Health Gap Action Programme (mhGAP) guideline for mental, neurological and substance use disorders

2023

World Health Organization

Contents

Mental Health Gap Action Programme (mhGAP) guideline for mental, neurological and substance use disorders, available at: https://www.who.int/publications/i/item/9789240084278

1. Background

Harmful alcohol use impacts population health and linked to over 200 health conditions of alcohol consumers, as well as harm to other people. According to the WHO, harmful use of alcohol is the leading risk factor for premature death and disability for individuals aged between 15 and 49 attributable to about 3 million deaths annually (WHO, 2018).

There is good evidence on effective face-to-face prevention and treatments interventions for alcohol use disorders (WHO mhGAP, 2015; Magill et al. 2019; Vanderplasschen et al. 2019). However, the coverage of treatment for people with alcohol use disorders is extremely low in majority of countries, with only 7.1% of those with past-year substance use disorders received minimally adequate treatment (Degenhardt et al., 2017). Partially this can be explained by low capacity of treatment services and low help-seeking rate for drinkers with alcohol-related problems (Cohen et al. 2007).

For this reason, novel interventions should be considered to improve the access to and utilization of treatment services for this target group. Digital interventions have shown promising results for a variety of conditions including alcohol use disorders (Riper et al. 2018; Sundström, Blankers, and Khadjesari 2017). The benefits of digital interventions include the removal of barriers such as time constrains, distance, and stigmatization and can therefore lower the threshold to access support and treatment options.

Based on preliminary searches, we suggest that an update of an existing systematic review is required before the evidence summaries can be prepared.

2. Methodology

2.1. PICO question

The following main question is applied in the present review:
ALC3: In adults with alcohol use disorders or hazardous drinking, are digital interventions effective?
Moreover, the following PICO (population, intervention, comparator, outcome) definition will be applied:
Population (P): Adults with alcohol use disorders or adults with hazardous drinking
Intervention (I): Digital interventions
Comparator (C): Treatment as usual, waitlist, no treatment, head to head comparison
Outcomes (O): Alcohol use reduction

List critical outcomes:

- Number of weekly standard drinks

List important outcomes:

- Number of days of alcohol use last 30 days,
- days of abstinence last 30 days,
- number of binge drinking occasions last 30 days according to WHO criteria,
- AUDIT-C

2.2. Search strategy

We conducted a systematic literature search in the following bibliographic databases: PubMed, Embase, PsycInfo, CENTRAL. We used various combinations of key and index terms covering the concepts of problem drinking and digital interventions. The full search strings are given in Appendix II. Furthermore, we applied a filter for randomized controlled trials (RCTs) in these databases. Our initial selection was based on titles and abstracts. Subsequently, full texts of studies possibly meeting inclusion criteria were retrieved and evaluated. The identified interventions were delivered through various options (web-based, computerized, telemedicine, smartphone applications). For the sake of clarity, we will refer to the included interventions as “digital interventions”.

2.2.1. Selection criteria

Given the extensive scope of summarizing digital interventions targeting alcohol use reduction across a variety of target groups, we decided to base our systematic review on a previous relevant systematic review (Sundström et al. 2017), which has reviewed all available systematic reviews in the field of digital interventions for alcohol reduction from 2005 until 2015. We acknowledge that other systematic reviews have been published after 2015. However, we perceived that those studies focus commonly on a narrow subfield of digital interventions and alcohol use reduction, which translated to limited inclusion criteria, for example, related to specific type of interventions (e.g. mobile phone applications, text messaging, CBT) (Bendtsen et al. 2021; Kiluk et al. 2019; Riper et al. 2018; Song, Qian, and Yu 2019; Tofighi et al. 2017) or target groups (e.g. college or university students, older adults) (Cole, Prassel, and Carlson 2018; Kaner et al. 2017; Prosser, Gee, and Jones 2018).
Therefore, we conducted a new systematic review and meta-analysis to add relevant findings that have been reported in the literature. Specifically, our search included studies from January 2016 until December 2021. We included RCTs that compared digital interventions with active [e.g. TAU, motivational interviewing (MI), brief intervention (BI), psychoeducation] or non-active (e.g. waiting-list, assessment-only) control conditions. The RCTs had to focus upon adults with an alcohol use disorder or on hazardous drinking. Furthermore, studies had to include a measurement of alcohol use at posttreatment.

2.3. Data collection and analysis

Our initial selection was based on titles and abstracts. Subsequently, full texts of studies possibly meeting inclusion criteria were retrieved and evaluated. The search strategy and results was carefully documented. The flow of articles throughout the search and up to the final cohort of included studies is depicted through the PRISMA flow diagram. Outcome measures assessing alcohol use were extracted at post-treatment.

2.4. Selection and coding of identified records

For the purpose of organizing the obtained studies from our systematic searches we used the reference management software Endnote. A copy of the reference library in electronic format is supplied alongside the final report.

2.5. Quality assessment

The validity of all identified RCTs was assessed using the Cochrane Risk of bias tool.

2.6. Analysis of subgroups or subsets

N/A

3. Results

3.1. Systematic reviews and/or studies identified by the search process

Acosta, M. C., et al. (2017). "Web-Delivered CBT Reduces Heavy Drinking in OEF-OIF Veterans in Primary Care With Symptomatic Substance Use and PTSD." Behavior therapy 48(2): 262-276.

Anderson, P., et al. (2017). "Delivery of Brief Interventions for Heavy Drinking in Primary Care: outcomes of the ODHIN 5-Country Cluster Randomized Trial." Annals of family medicine 15(4): 335-340.

Andersson, C., et al. (2017). "Automated telephone interventions for problematic alcohol use in clinical and population samples: a randomized controlled trial." BMC research notes 10(1): 624.

Augsburger, M., et al. (2021). "Effects of a minimal-guided online intervention for alcohol misuse in Estonia: A Randomized Controlled Trial." Addiction (Abingdon, England).

Baldin, Y. C., et al. (2018). "Effectiveness of a web-based intervention in reducing binge drinking among nightclub patrons." Revista de saude publica 52: 2.

Baumgartner, C., et al. (2021). ""Take Care of You" - Efficacy of integrated, minimal-guidance, internet-based self-help for reducing co-occurring alcohol misuse and depression symptoms in adults: results of a three-arm randomized controlled trial." Drug and alcohol dependence 225: 108806.

Bedendo, A., et al. (2019). "Pragmatic randomized controlled trial of a web-based intervention for alcohol use among Brazilian college students: motivation as a moderating effect." Drug and alcohol dependence 199: 92-100.

Berman, A. H., et al. (2019). "Smartphone apps targeting hazardous drinking patterns among university students show differential subgroup effects over 20 weeks: Results from a randomized, controlled trial." Journal of Clinical Medicine 8(11).

Bertholet, N., et al. (2019). "Smartphone application for unhealthy alcohol use: pilot randomized controlled trial in the general population." Drug and alcohol dependence 195: 101-105.

Boß, L., et al. (2018). "Efficacy of a web-based intervention with and without guidance for employees with risky drinking: Results of a three-arm randomized controlled trial." Addiction 113(4): 635-646.

Braitman, A. L. and C. Lau-Barraco (2018). "Personalized Boosters After a Computerized Intervention Targeting College Drinking: a Randomized Controlled Trial." Alcoholism, clinical and experimental research 42(9): 1735-1747.

Brendryen, H., et al. (2017). "A Pilot Randomized Controlled Trial of an Internet-Based Alcohol Intervention in a Workplace Setting." International journal of behavioral medicine 24(5): 768-777.

Buckner, J. D., et al. (2019). "Online personalized normative feedback intervention to reduce event-specific drinking during Mardi Gras." Experimental and clinical psychopharmacology 27(5): 466-473.

Caudwell, K. M., et al. (2018). "Testing an Online, Theory-Based Intervention to Reduce Pre-drinking Alcohol Consumption and Alcohol-Related Harm in Undergraduates: a Randomized Controlled Trial." International journal of behavioral medicine 25(5): 592-604.

Chander, G., et al. (2021). "Computer delivered intervention for alcohol and sexual risk reduction among women attending an urban sexually transmitted infection clinic: A randomized controlled trial." Addictive Behaviors Reports 14.

Crombie, I. K., et al. (2018). "Texting to Reduce Alcohol Misuse (TRAM): main findings from a randomized controlled trial of a text message intervention to reduce binge drinking among disadvantaged men." Addiction (Abingdon, England).

Cucciare, M. A., et al. (2021). "Computer-delivered brief alcohol intervention for patients with liver disease: a randomized controlled trial." Addiction (Abingdon, England) 116(5): 1076-1087.

Deady, M., et al. (2016). "An Online Intervention for Co-Occurring Depression and Problematic Alcohol Use in Young People: primary Outcomes From a Randomized Controlled Trial." Journal of medical Internet research 18(3): e71.

Doumas, D. M., et al. (2017). "A Randomized Controlled Trial Testing the Efficacy of a Brief Online Alcohol Intervention for High School Seniors." Journal of studies on alcohol and drugs 78(5): 706-715.

Duroy, D., et al. (2016). "Impact of a computer-assisted Screening, Brief Intervention and Referral to Treatment on reducing alcohol consumption among patients with hazardous drinking disorder in hospital emergency departments. The randomized BREVALCO trial." Drug and alcohol dependence 165: 236-244.

Farren, C., et al. (2021). "A 6-Month Randomized Trial of a Smartphone Application, UControlDrink, in Aiding Recovery in Alcohol Use Disorder." European addiction research.

Fernandez, A. C., et al. (2019). "Alcohol use severity and age moderate the effects of brief interventions in an emergency department randomized controlled trial." Drug and alcohol dependence 194: 386-394.

Freyer-Adam, J., et al. (2019). "Can brief alcohol interventions in general hospital inpatients improve mental and general health over 2 years? Results from a randomized controlled trial." Psychological medicine 49(10): 1722-1730.

Frohlich, J. R., et al. (2021). "Efficacy of a minimally guided internet treatment for alcohol misuse and emotional problems in young adults: Results of a randomized controlled trial." Addictive Behaviors Reports 14.

Gajecki, M., et al. (2017). "Skills Training via Smartphone App for University Students with Excessive Alcohol Consumption: a Randomized Controlled Trial." International journal of behavioral medicine 24(5): 778-788.

Ganz, T., et al. (2018). "Effects of a stand-alone web-based electronic screening and brief intervention targeting alcohol use in university students of legal drinking age: a randomized controlled trial." Addictive behaviors 77: 81-88.

Gilbertson, R. J., et al. (2018). "Web-Based Alcohol Intervention in First-Year College Students: efficacy of Full-Program Administration Prior to Second Semester." Substance use & misuse 53(6): 1021-1029.

Graser, Y., et al. (2021). "Telephone- and Text Message–Based Continuing Care After Residential Treatment for Alcohol Use Disorder: A Randomized Clinical Multicenter Study." Alcoholism: clinical and experimental research 45(1): 224-233.

Guillemont, J., et al. (2017). "Effectiveness of a web-based intervention to reduce alcohol consumption among French hazardous drinkers: a randomized controlled trial." Health education research 32(4): 332-342.

Hammond, A. S., et al. (2021). "Digital delivery of a contingency management intervention for substance use disorder: a feasibility study with DynamiCare Health." Journal of substance abuse treatment 126: 108425.

Harder, V. S., et al. (2020). "A randomized clinical trial of mobile phone motivational interviewing for alcohol use problems in Kenya." Addiction (Abingdon, England) 115(6): 1050-1060.

Hunter, R., et al. (2017). "Randomised controlled non-inferiority trial of primary care-based facilitated access to an alcohol reduction website: cost-effectiveness analysis." BMJ open 7(11): e014577.

Ingersoll, K., et al. (2018). "A Pilot RCT of an Internet Intervention to Reduce the Risk of Alcohol-Exposed Pregnancy." Alcoholism, clinical and experimental research 42(6): 1132-1144.

Jaffe, A. E., et al. (2021). "Personalized normative feedback for hazardous drinking among college women: Differential outcomes by history of incapacitated rape." Psychology of addictive behaviors : journal of the Society of Psychologists in Addictive Behaviors.

Jaffe, A. E., et al. (2018). "Student engagement and comfort during a web-based personalized feedback intervention for alcohol and sexual assault." Addictive behaviors 82: 23-27.

Jo, S. J., et al. (2019). "Efficacy of a Web-Based Screening and Brief Intervention to Prevent Problematic Alcohol Use in Korea: results of a Randomized Controlled Trial." Alcoholism, clinical and experimental research 43(10): 2196-2202.

Johansson, M., et al. (2021). "Effects of internet-based cognitive behavioral therapy for harmful alcohol use and alcohol dependence as self-help or with therapist guidance: Three-armed randomized trial." Journal of medical Internet research 23(11).

Johansson, M., et al. (2021). "Internet-based therapy versus face-to-face therapy for alcohol use disorder, a randomized controlled non-inferiority trial." Addiction (Abingdon, England) 116(5): 1088-1100.

Kiluk, B. D., et al. (2016). "Randomized Trial of Computerized Cognitive Behavioral Therapy for Alcohol Use Disorders: efficacy as a Virtual Stand-Alone and Treatment Add-On Compared with Standard Outpatient Treatment." Alcoholism, clinical and experimental research 40(9): 1991-2000.

King, S. C., et al. (2020). "A comparison between telehealth and face-to-face delivery of a brief alcohol intervention for college students." Substance abuse 41(4): 501-509.

Leavens, E. L. S., et al. (2020). "Influencing college students' normative perceptions of protective behavioral strategies: a pilot randomized trial." Addictive behaviors 104: 106256.

Leeman, R. F., et al. (2016). "Randomized controlled trial of a very brief, multicomponent web-based alcohol intervention for undergraduates with a focus on protective behavioral strategies." Journal of consulting and clinical psychology 84(11): 1008-1015.

Linowski, S. A., et al. (2016). "Effectiveness of an Electronic Booster Session Delivered to Mandated Students." International quarterly of community health education 36(2): 123-129.

Lucht, M., et al. (2021). "Effect of a 1-year short message service in detoxified alcohol- dependent patients: a multi-center, open-label randomized controlled trial." Addiction (Abingdon, England) 116(6): 1431-1442.

McKay, J. R., et al. (2021). "Efficacy and comparative effectiveness of telephone and smartphone remote continuing care interventions for alcohol use disorder: A randomized controlled trial." Addiction.

Mellentin, A. I., et al. (2019). "A Mobile Phone App Featuring Cue Exposure Therapy As Aftercare for Alcohol Use Disorders: an Investigator-Blinded Randomized Controlled Trial." JMIR mhealth and uhealth 7(8): e13793.

Nayak, M. B., et al. (2019). "Randomized Trial of an Innovative Electronic Screening and Brief Intervention for Reducing Drinking Among Women of Childbearing Age." Journal of addiction medicine 13(6): 450-459.

Neighbors, C., et al. (2019). "Personalized normative feedback for heavy drinking: An application of deviance regulation theory." Behaviour research and therapy 115: 73- 82.

O'Donnell, R., et al. (2019). "Delivering Personalized Protective Behavioral Drinking Strategies via a Smartphone Intervention: a Pilot Study." International journal of behavioral medicine 26(4): 401-414.

Ondersma, S. J., et al. (2016). "A randomised trial of a computer-delivered screening and brief intervention for postpartum alcohol use." Drug and alcohol review 35(6): 710-718.

Paulus, D. J., et al. (2021). "Computer-delivered personalized feedback intervention for hazardous drinkers with elevated anxiety sensitivity: A pilot randomized controlled trial." Behaviour research and therapy 141.

Pedersen, E. R., et al. (2017). "A randomized controlled trial of a web-based, personalized normative feedback alcohol intervention for young-adult veterans." Journal of consulting and clinical psychology 85(5): 459-470.

Rubin, A., et al. (2021). "Computerized Relational Agent to Deliver Alcohol Brief Intervention and Referral to Treatment in Primary Care: a Randomized Clinical Trial." Journal of general internal medicine.

Schaub, M. P., et al. (2021). "The Effectiveness of a Web-Based Self-Help Program to Reduce Alcohol Use Among Adults With Drinking Patterns Considered Harmful, Hazardous, or Suggestive of Dependence in Four Low- and Middle-Income Countries: randomized Controlled Trial." Journal of medical Internet research 23(8): e21686.

Sharpe, S., et al. (2018). "Effect of a text message intervention to reduce hazardous drinking among injured patients discharged from a trauma ward: a randomized controlled trial." npj Digital Medicine 1(1).

Strohman, A. S., et al. (2016). "Randomized controlled trial of computerized alcohol intervention for college students: role of class level." American journal of drug and alcohol abuse 42(1): 15-24.

Sundström, C., et al. (2020). "High- versus low-intensity internet interventions for alcohol use disorders: results of a three-armed randomized controlled superiority trial." Addiction (Abingdon, England) 115(5): 863-874.

Sundström, C., Blankers, M., and Khadjesari, Z. 2017. “Computer-Based Interventions for Problematic Alcohol Use: A Review of Systematic Reviews.” International Journal of Behavioral Medicine 24(5):646–58. doi: 10.1007/S12529-016-9601-8/TABLES/2.

Tahaney, K. D. and T. P. Palfai (2017). "Text messaging as an adjunct to a web-based intervention for college student alcohol use: a preliminary study." Addictive behaviors 73: 63-66.

Wallace, P., et al. (2017). "Randomised controlled non-inferiority trial of primary care-based facilitated access to an alcohol reduction website." BMJ open 7(11): e014576.

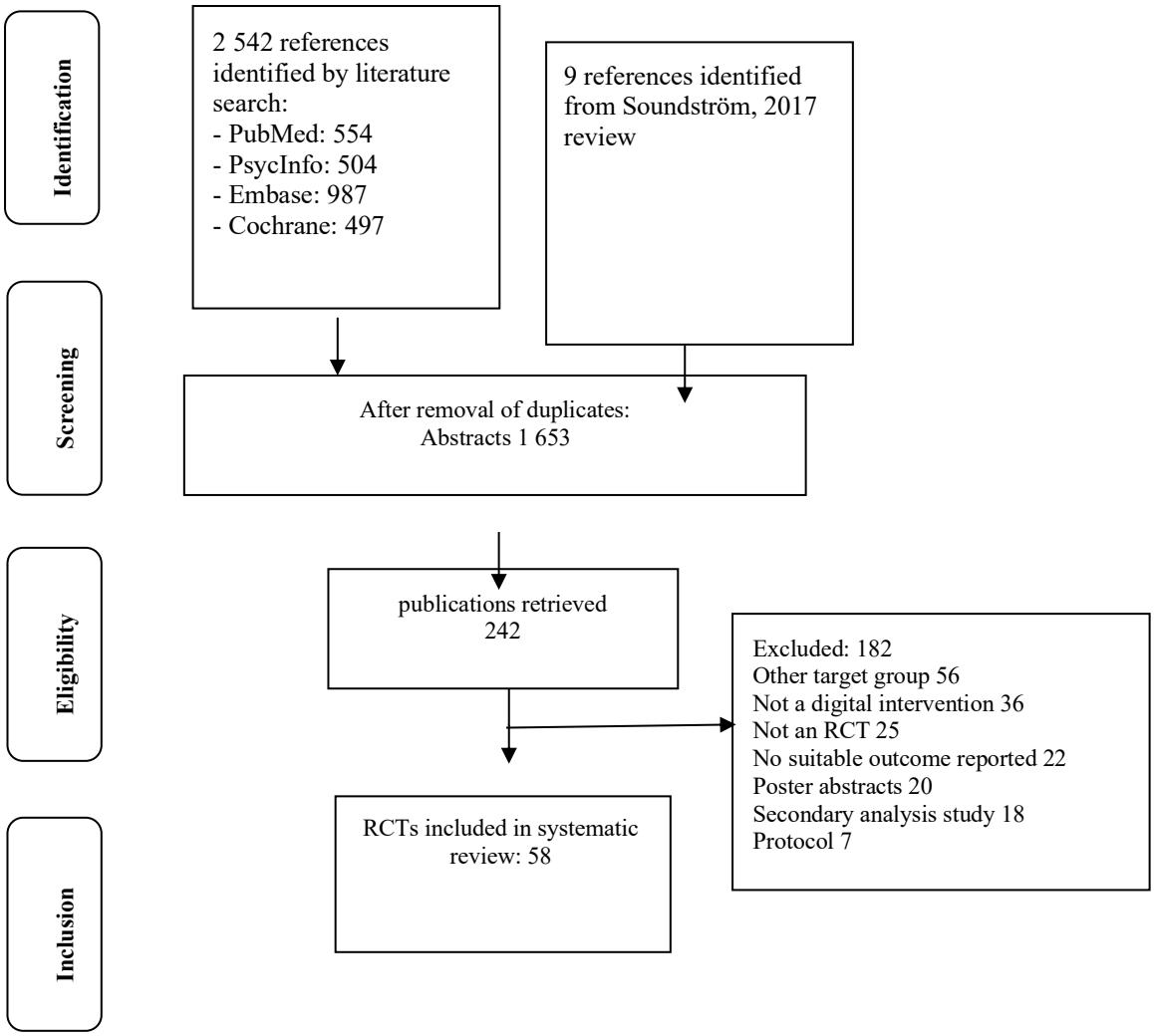
Wilks, C. R., et al. (2018). "A randomized controlled trial of an Internet delivered dialectical behavior therapy skills training for suicidal and heavy episodic drinkers." Journal of affective disorders 232: 219-228.

Wray, T. B., et al. (2019). "A Preliminary Randomized Controlled Trial of Game Plan, A Web Application to Help Men Who Have Sex with Men Reduce Their HIV Risk and Alcohol Use." AIDS and behavior 23(6): 1668-1679.

Zill, J. M., et al. (2019). "The Effectiveness of an Internet Intervention Aimed at Reducing Alcohol Consumption in Adults." Deutsches Arzteblatt international 116(8): 127-133.

3.2. List of studies included and excluded

Fig. 1. Flowchart for inclusion of studies in systematic review



3.2.1. Included in GRADE tables/footnotes

Sundström, C., Blankers, M., and Khadjesari, Z. 2017. “Computer-Based Interventions for Problematic Alcohol Use: A Review of Systematic Reviews.” International Journal of Behavioral Medicine 24(5):646–58. doi: 10.1007/S12529-016-9601-8/TABLES/2.

Boumparis, N., Khazaal, Y., Krupchanka, D., & Schaub, M. P., (2022). Digital interventions for problem drinkers: a systematic review and meta-analysis [Unpublished manuscript].

3.2.2. Excluded from GRADE tables/footnotes

N/A

Table 1. PICO Table

Serial Number	Intervention/ Comparison	Outcomes	Systematic reviews (Name, Year)	Justification/Explanation for systematic review
1	**Digital interventions for alcohol use reduction**	Reduction in alcohol use	Sundström et al., 2017	Given the extensive scope of summarizing digital interventions targeting alcohol use reduction across a variety of target groups, we decided to base our decisions based on the Sundström et al. 2017 review, which reviewed all available systematic reviews in the field of digital interventions for alcohol reduction from 2005 until 2015.
1	**Digital interventions for alcohol use reduction**	Reduction in alcohol use	Boumparis et al., 2022	We conducted a systematic review and meta-analysis in the field of digital interventions for alcohol use reduction based on all available evidence from 2016 until 2021.

3.3. Narrative description of studies that contributed to GRADE analysis

Soundström, 2017

Purpose: The aim of this review is to provide an overview of knowledge and knowledge gaps in the field of computer-based alcohol interventions by (1) collating evidence on the effectiveness of computer-based alcohol interventions in different populations and (2) exploring the impact of four specified moderators of effectiveness: therapeutic orientation, length of intervention, guidance and trial engagement. **Methods:** A review of systematic reviews of randomized trials reporting on effectiveness of computer-based alcohol interventions published between 2005 and 2015. **Results:** Fourteen reviews met the inclusion criteria. Across the included reviews, it was generally reported that computer-based alcohol interventions were effective in reducing alcohol consumption, with mostly small effect sizes. There were indications that longer, multisession interventions are more effective than shorter or single session interventions. Evidence on the association between therapeutic orientation of an intervention, guidance or trial engagement and reductions in alcohol consumption is limited, as the number of reviews addressing these themes is low. None of the included reviews addressed the association between therapeutic orientation, length of intervention or guidance and trial engagement. **Conclusions:** This review of systematic reviews highlights the mostly positive evidence supporting computer-based alcohol interventions as well as reveals a number of knowledge gaps that could guide future research in this field.

Boumparis et al., 2022

Background: We assessed the effects of digital interventions on alcohol use reduction in comparison with non-active and active comparators. **Methods:** Systematic review with separate meta-analyses based on the suitable comparator. Forty-nine randomized controlled trials met the inclusion criteria for the systematic review and meta-analyses. Primary outcome was drug use at post-treatment. Hedges's g was calculated for all comparisons. Risk of bias was examined with the Cochrane risk-of-bias tool 2. **Results:** The risk of bias varied across the included studies. The meta-analyses showed significantly reduced cannabis use at post-treatment (17 comparisons, N = 1 629, g = 0.24; 95% CI: 0.18- 0.29, P < 0.001) as compared with non-active comparisons and active comparisons (5 comparisons, N = 946, g = 0.25; 95% CI: 0.12- 0.38, P < 0.001). For the reduction of any drug use, we did not find a significant reduction (6 comparisons, N = 1 325, g = 0.19, P = 0.106) for non-active comparisons, whereas we did find a significant reduction for active comparators (6 comparisons, N = 1760, g = 0.30; 95% CI: 0.20- 0.41, P < 0.001). For opioid use reduction, we found a significant effect (5 comparisons, N = 668, g = 0.40; 95% CI: 0.25-0.56, P < 0.001) compared to active comparisons. For stimulant use reduction, we did not find a significant effect (4 comparisons, N = 875, g = 0.32, P = 0.190) for non-active comparisons, while we did find a significant effect compared to active comparators (3 comparisons, N = 247, g = 0.34; 95% CI: 0.09-0.59, P = 0.007). **Conclusions:** Digital interventions showed small, significant reduction effects on diverse target populations based on different comparators at post-treatment. However, given the small number of available studies for certain substances, the findings should be interpreted with caution.

3.4. Grading the Evidence

Table 2: Effects of digital interventions for adult problem drinkers

Author(s): Sundström, C., Blankers, M., & Khadjesari, Z.
Question: Effects of digital interventions in reducing alcohol use in various populations
Population: Adult problem drinkers
Reference List: Sundström et al., 2017

	Certainty assessment								Effect	Certainty	Importance
Study	**№ of studies**	**Study design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**№ of patients**	**Absolute (95% CI)**		
Reduction in alcohol use in mixed populations											
Rooke et al. 2010	34	Systematic review and meta-analysis	very serious	not serious	not serious	not serious	none	10 632	d = 0.26 CI: NR	⨁⨁◯◯ LOW	CRITICAL
White et al. 2010	17	Systematic review and meta-analysis	very serious	not serious	not serious	not serious	none	4 338	d = 0.42 CI: NR	⨁◯◯◯ VERY LOW	CRITICAL
Khadjesari et al. 2010	24	Systematic review and meta-analysis	very serious	not serious	not serious	not serious	none	NR	-26g of ethanol per week CI: −41 to −11)	⨁⨁◯◯ LOW	CRITICAL
Reduction in alcohol use in student populations											
Carey et al. 2009	35	Systematic review and meta-analysis	very serious	not serious	not serious	not serious	none	NR	d = 0.07 CI :−0.02, 0.16	⨁◯◯◯ VERY LOW	CRITICAL

	Certainty assessment								Effect	Certainty	Importance
Study	№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	№ of patients	Absolute (95% CI)		
Tait et al. 2010	14	Systematic review and meta-analysis	very serious	not serious	not serious	not serious	none	2 838	d = 0.22 CI: NR	⨁◯◯◯ VERY LOW	CRITICAL
Dotson et al. 2015	8	Systematic review and meta-analysis	very serious	not serious	Serious	not serious	none	2 050	d = 0.29 CI : 0.16 to 0.42	⨁◯◯◯ VERY LOW	CRITICAL
Dedert et al. 2015,	28	Systematic review and meta-analysis	very serious	not serious	not serious	not serious	none	NR	-25g of ethanol per week CI :−51.9 to 1.9	⨁⨁◯◯ LOW	CRITICAL
Reduction in alcohol use in adult (non-student) populations											
Riper et al. 2011	9	Systematic review and meta-analysis	very serious	not serious	Serious	not serious	none	1 553	g = 0.44 CI: 0.17–0.71	⨁◯◯◯ VERY LOW	CRITICAL
Riper et al. 2014	16	Systematic review and meta-analysis	very serious	not serious	not serious	not serious	none	5 612	g = 0.20 CI : 0.13–0.27	⨁⨁◯◯ LOW	CRITICAL

Table 3: Effects of digital interventions for adult illicit substance users compared to non-active comparators

Author(s): Boumparis, N., Khazaal, Y., Krupchanka, D., & Schaub, M. P.
Question: Digital interventions compared to nonactive comparators for alcohol use reduction
Population: Adults problem drinkers
Reference List: Boumparis et al., 2022

Certainty assessment								Effect	Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	№ of patients	Absolute (95% CI)		
Reduction in alcohol use compared to non-active comparators										
33	RCT	very serious[a]	not serious[b]	not serious[c]	not serious[d]	none[e]	15 041	g = 0.16 CI: 0.11 to 0.22	⊕⊕◯◯ LOW	CRITICAL

a. The proportion of information from studies at high risk of bias is sufficient to affect the interpretation of results. Downgraded by two.
b. No inconsistency. Heterogeneity is low.
c. Indirectness does not appear to be an issue. Populations, interventions, comparators and outcomes are highly relevant and comparable.
d. imprecision does not appear to be an issue. Large enough sample size to calculate a precise effect estimate.
e. Publication bias unlikely.
f. Some imprecision exists. The number of available studies is small and the confidence intervals of the effect estimate are large. Downgraded by one.

Table 4: Effects of digital interventions for adult illicit substance users compared to active comparators

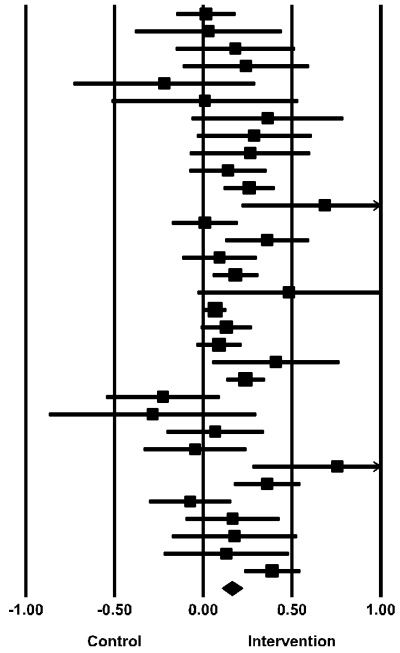
Author(s): Boumparis, N., Khazaal, Y., Krupchanka, D., & Schaub, M. P.
Question: Digital interventions compared to active comparators for alcohol use reduction
Population: Adults problem drinkers
Reference List: Boumparis et al., 2022

Certainty assessment								Effect	Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	№ of patients	Absolute (95% CI)		
Reduction in alcohol use compared to active comparators										
16	RCT	very serious[a]	not serious[b]	not serious[c]	not serious[d]	none[e]	5 231	g = 0.13 CI: CI 0.06- 0.19	⨁⨁◯◯ LOW	CRITICAL

a. The proportion of information from studies at high risk of bias is sufficient to affect the interpretation of results. Downgraded by two.
b. No inconsistency. Heterogeneity is low.
c. Indirectness does not appear to be an issue. Populations, interventions, comparators and outcomes are highly relevant and comparable.
d. Imprecision does not appear to be an issue. Large enough sample size to calculate a precise effect estimate.
e. Publication bias unlikely.

Fig. 2: Risk of Bias

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Duroy, 2016	0.014	0.084	0.007	-0.149	0.178	0.173	0.862
Leeman, 2016	0.028	0.209	0.044	-0.382	0.439	0.134	0.893
Linowski, 2016	0.180	0.170	0.029	-0.154	0.514	1.058	0.290
Ondersma, 2016	0.240	0.180	0.032	-0.113	0.592	1.332	0.183
Strohman, 2016	-0.219	0.260	0.068	-0.729	0.290	-0.844	0.399
Anderson, 2017b	0.008	0.266	0.071	-0.514	0.530	0.029	0.977
Brendryen, 2017	0.362	0.217	0.047	-0.063	0.787	1.669	0.095
Doumas, 2017	0.287	0.164	0.027	-0.034	0.608	1.752	0.080
Gajecki, 2017	0.264	0.171	0.029	-0.072	0.600	1.539	0.124
Guillemont, 217	0.139	0.109	0.012	-0.075	0.353	1.271	0.204
Pedersen, 2017	0.258	0.072	0.005	0.118	0.399	3.600	0.000
Tahaney, 2017	0.684	0.237	0.056	0.220	1.148	2.889	0.004
Baldin, 2018	0.008	0.093	0.009	-0.173	0.190	0.088	0.930
Boß, 2018	0.360	0.119	0.014	0.127	0.593	3.025	0.002
Braitman, 2018	0.091	0.106	0.011	-0.117	0.299	0.858	0.391
Ganz, 2018	0.181	0.064	0.004	0.055	0.307	2.808	0.005
Wilks, 2018	0.481	0.261	0.068	-0.030	0.992	1.845	0.065
Bedendo, 2019	0.067	0.031	0.001	0.007	0.127	2.177	0.029
Berman, 2019	0.128	0.072	0.005	-0.013	0.270	1.780	0.075
Bertholet, 2019	0.088	0.064	0.004	-0.038	0.214	1.373	0.170
Buckner, 2019	0.408	0.182	0.033	0.052	0.765	2.244	0.025
Jo, 2019	0.237	0.054	0.003	0.132	0.342	4.425	0.000
Nayak, 2019	-0.227	0.162	0.026	-0.545	0.091	-1.401	0.161
O'Donnell, 2019	-0.287	0.296	0.088	-0.867	0.294	-0.967	0.334
Harder, 2020	0.067	0.138	0.019	-0.204	0.338	0.482	0.630
Leavens, 2020	-0.047	0.146	0.021	-0.334	0.239	-0.323	0.746
Sundström, 2020	0.756	0.244	0.059	0.278	1.233	3.099	0.002
Baumgartner, 2021	0.359	0.094	0.009	0.174	0.544	3.806	0.000
Chander, 2021	-0.075	0.116	0.014	-0.303	0.153	-0.645	0.519
Frohlich, 2021	0.165	0.134	0.018	-0.098	0.428	1.231	0.218
Graser, 2021	0.176	0.178	0.032	-0.173	0.525	0.988	0.323
Paulus, 2021	0.129	0.178	0.032	-0.220	0.478	0.724	0.469
Schaub, 2021	0.388	0.079	0.006	0.233	0.542	4.918	0.000
	0.164	0.029	0.001	0.107	0.221	5.621	0.000



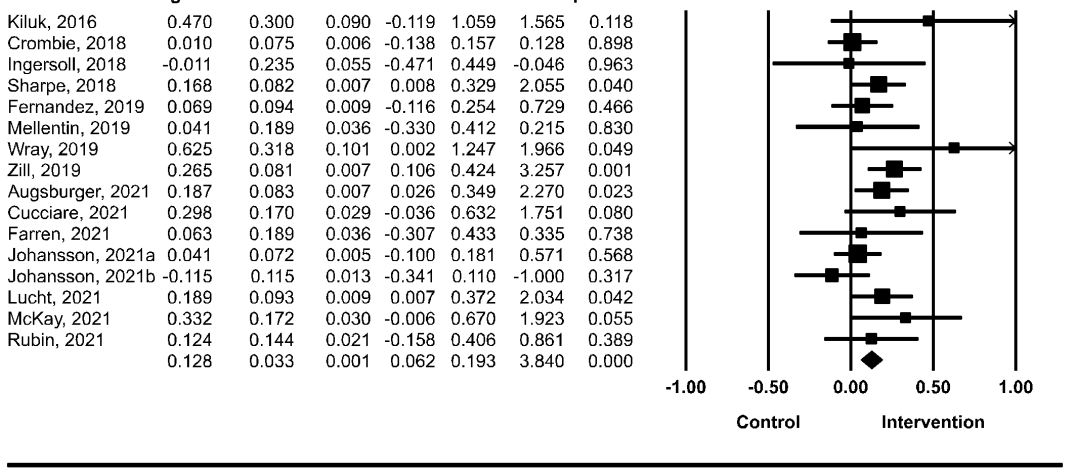


Table 5. Subgroup analyses

Alcohol use reduction – non-active comparators						
		N comparisons	**Hedge's g**	**95% CI**	**P**	**P[a]**
Guidance	Unguided	26	0.16	0.10 - 0.22	< 0.001	0.770
	Guided	7	0.19	0.02 - 0.35	0.027	
Alcohol use reduction – active comparators						
Guidance	Unguided	9	0.11	0.03 - 0.18	0.004	0.047
	Guided	7	0.16	0.03 - 0.29	0.013	
Recruitment criteria	DSM-IV diagnosis	6	0.12	-0.04 - 0.28	0.136	0.884
	Cut-off criterion	10	0.13	0.06 - 0.20	< 0.001	

[a]The P-values in this column indicate if the difference between the effect sizes in the subgroups are significant.

3.5. Additional evidence not mentioned in GRADE tables

N/A

4. From Evidence to Recommendations

4.1. Summary of findings

Table 6. Summary of findings table

GRADE Table	Source	Outcome	Number of Studies	Effects	Certainty of Evidence
GRADE Table 1 Effects of digital interventions for adult problem drinkers	Rooke et al. 2010	Alcohol use reduction	34	d = 0.26 CI: NR	⊕⊕◯◯ LOW
	White et al. 2010		17	d = 0.42 CI: NR	⊕◯◯◯ VERY LOW
	Khadjesari et al. 2010		24	-26g of ethanol per week CI: −41 to −11)	⊕⊕◯◯ LOW
	Carey et al. 2009		35	d = 0.07 CI: −0.02, 0.16	⊕◯◯◯ VERY LOW
	Tait et al. 2010		14	d = 0.22 CI :NR	⊕◯◯◯ VERY LOW
	Dotson et al. 2015		8	d = 0.29 CI: 0.16 to 0.42	⊕◯◯◯ VERY LOW
	Dedert et al. 2015,		28	-25g of ethanol per week CI :−51.9 to 1.9	⊕⊕◯◯ LOW
	Riper et al. 2011		9	g = 0.44 CI: 0.17–0.71	⊕◯◯◯ VERY LOW
	Riper et al. 2014		16	g = 0.20 CI: 0.13–0.27	⊕⊕◯◯ LOW

4.2. Evidence to decision

Table 7. Evidence to decision table

Please note * indicates evidence from overarching qualitative review by Gronholm et al, 2023

	CRITERIA, QUESTIONS	JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Priority of the problem	Is the problem a priority? The more serious a problem is, the more likely it is that an option that addresses the problem should be a priority (e.g. diseases that are fatal or disabling are likely to be a higher priority than diseases that only cause minor distress). The more people who are affected, the more likely it is that an option that addresses the problem should be a priority.			
	• Are the consequences of the problem serious (that is, severe or important in terms of the potential benefits or savings)? • Is the problem urgent? • Is it a recognized priority (such as based on a political or policy decision)? [Not relevant when an individual patient perspective is taken]	☐ No ☐ Probably no ☐ Probably yes ☒ **Yes** ☐ Varies ☐ Don't know	Harmful alcohol use impacts population health and linked to over 200 health conditions of alcohol consumers, as well as harm to other people. According to the WHO, harmful use of alcohol is the leading risk factor for premature death and disability for individuals aged between 15 and 49 attributable to about 3 million deaths annually (WHO, 2018).	
Desirable Effect	How substantial are the desirable anticipated effects? The larger the benefit, the more likely it is that an option should be recommended.			
	• Judgements for each outcome for which there is a desirable effect • How substantial (large) are the desirable anticipated effects (including health and other benefits) of the option (taking into account the severity or importance of the desirable consequences and the number of people affected)?	☐ Trivial ☒ **Small** ☐ Moderate ☐ Large ☐ Varies ☐ Don't know	In adults with alcohol use disorders or hazardous drinkers, digital interventions when compared to non-active (waitlist, assessment-only) and active (treatment as usual, brief interventions) comparator, show effect for reducing alcohol use (low certainty)	

	CRITERIA, QUESTIONS	JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Undesirable Effects	How substantial are the undesirable anticipated effects? The greater the harm, the less likely it is that an option should be recommended.			
	• Judgements for each outcome for which there is an undesirable effect • How substantial (large) are the undesirable anticipated effects (including harms to health and other harms) of the option (taking into account the severity or importance of the adverse effects and the number of people affected)?	☐ Large ☐ Moderate ☐ Small ☒ **Trivial** ☐ Varies ☐ Don't know	Not identified in the current review	
Certainty of evidence	What is the overall certainty of the evidence of effects? The less certain the evidence is for critical outcomes (those that are driving a recommendation), the less likely that an option should be recommended (or the more important it is likely to be to conduct a pilot study or impact evaluation, if it is recommended).			
	• What is the overall certainty of this evidence of effects, across all of the outcomes that are critical to making a decision? • See GRADE guidance regarding detailed judgements about the quality of evidence or certainty in estimates of effects	☐ Very low ☒ **Low** ☐ Moderate ☐ High ☐ No included studies	While there is a growing number of digital interventions developed in recent years for treatment of substance use disorders, there is a lack of standardization of interventions what contributes to heterogeneity and complicates comparison across studies	
Values	Is there important uncertainty about or variability in how much people value the main outcomes? The more likely it is that differences in values would lead to different decisions, the less likely it is that there will be a consensus that an option is a priority (or the more important it is likely to be to obtain evidence of the values of those affected by the option). Values in this context refer to the relative importance of the outcomes of interest (how much people value each of those outcomes). These values are sometimes called “utility values”.			
	• Is there important uncertainty about how much people value each of the main outcomes? • Is there important variability in how much people value each of the main outcomes?	☐ Important uncertainty or variability ☒ **Possibly important uncertainty or variability** ☐ Probably no important uncertainty	Gronholm et al 2023. *The review very briefly outlined the perceived benefits and attitudes of patients towards health outcomes. Some patients reported such incentives/benefits as improvement in health and positive perception of health along with positive changes in	

	CRITERIA, QUESTIONS	JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
		or variability ☐ No important uncertainty or variability	family. However, some of the factors that contributed to the uncertainty were stigma, costs of services, limited availability and confidentiality concerns.	
Balance of effects	Does the balance between desirable and undesirable effects favour the intervention or the comparison? The larger the desirable effects in relation to the undesirable effects, taking into account the values of those affected (i.e. the relative value they attach to the desirable and undesirable outcomes) the more likely it is that an option should be recommended.			
	• Judgements regarding each of the four preceding criteria • To what extent do the following considerations influence the balance between the desirable and undesirable effects: - How much less people value outcomes that are in the future compared to outcomes that occur now (their discount rates)? - People's attitudes towards undesirable effects (how risk averse they are)? - People's attitudes towards desirable effects (how risk seeking they are)?	☐ Favours the comparison ☐ Probably favours the comparison ☐ Does not favour either the intervention or the comparison ☒ **Probably favours the intervention** ☐ Favours the intervention ☐ Varies ☐ Don't know	.	
Resources required	How large are the resource requirements (costs)? The greater the cost, the less likely it is that an option should be a priority. Conversely, the greater the savings, the more likely it is that an option should be a priority.			
	• How large is the difference in each item of resource use for which fewer resources are required? • How large is the difference in each item of resource	☐ Large costs ☐ Moderate costs ☐ Negligible costs	While there is a lack of information on costs and cost-effectiveness, setting up and sustaining digital health solutions can be	

	CRITERIA, QUESTIONS	JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
	use for which more resources are required? • How large an investment of resources would the option require or save?	and savings ☐ Moderate savings ☐ Large savings ☒ **Varies** ☐ Don't know	costly, while costs for individual users usually not very high.	
Certainty of evidence of required resources	What is the certainty of the evidence of resource requirements (costs)?			
	• Have all-important items of resource use that may differ between the options being considered been identified? • How certain is the evidence of differences in resource use between the options being considered (see GRADE guidance regarding detailed judgements about the quality of evidence or certainty in estimates)? • How certain is the cost of the items of resource use that differ between the options being considered? • Is there important variability in the cost of the items of resource use that differ between the options being considered?	☐ Very low ☐ Low ☐ Moderate ☐ High ☒ **No included studies**		
Cost effectiveness	Does the cost-effectiveness of the intervention favour the intervention or the comparison? The greater the cost per unit of benefit, the less likely it is that an option should be a priority.			
	• Judgements regarding each of the six preceding criteria • Is the cost effectiveness ratio sensitive to one-way sensitivity analyses? • Is the cost effectiveness ratio sensitive to multivariable sensitivity analysis? • Is the economic evaluation on which the cost effectiveness estimate is based reliable? • Is the economic evaluation on which the cost effectiveness estimate is based applicable to the setting(s) of interest?	☐ Favours the comparison ☐ Probably favours the comparison ☐ Does not favour either the intervention or the comparison ☐ Probably favours the intervention ☐ Favours the intervention	No reviews examining cost effectiveness identified	

	CRITERIA, QUESTIONS	JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
		☐ Varies ☒ **No included studies**		
Health equity, equality and non-discrimination	What would be the impact on health equity, equality and non-discrimination? (WHO INTEGRATE) Health equity and equality reflect a concerted and sustained effort to improve health for individuals across all populations, and to reduce avoidable systematic differences in how health and its determinants are distributed. Equality is linked to the legal principle of non-discrimination, which is designed to ensure that individuals or population groups do not experience discrimination on the basis of their sex, age, ethnicity, culture or language, sexual orientation or gender identity, disability status, education, socioeconomic status, place of residence or any other characteristics. All recommendations should be in accordance with universal human rights standards and principles. The greater the likelihood that the intervention increases health equity and/or equality and that it reduces discrimination against any particular group, the greater the likelihood of a general recommendation in favour of this intervention.			
	• How are the condition and its determinants distributed across different population groups? Is the intervention likely to reduce or increase existing health inequalities and/or health inequities? Does the intervention prioritize and/or aid those furthest behind? • How are the benefits and harms of the intervention distributed across the population? Who carries the burden (e.g. all), who benefits (e.g. a very small sub-group)? • How affordable is the intervention for individuals, workplaces or communities? • How accessible - in terms of physical as well as informational access - is the intervention across different population groups? • Is there any suitable alternative to addressing the condition, does the intervention represent the only available option? Is this option proportionate to the need, and will it be subject to periodic review?	☐ Reduced ☐ Probably reduced ☐ Probably no impact ☐ Probably increased ☐ Increased ☒ Varies ☐ Don't know	There is not enough data to understand the role of digital interventions for equity, equality and non-discrimination of people using substances: while there is a potential of increasing access to care, it is also possible that not all people can benefit it, what is addressed as problem of “digital divide”, which requires further research.	

	CRITERIA, QUESTIONS	JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
Feasibility	Is the intervention feasible to implement? The less feasible (capable of being accomplished or brought about) an option is, the less likely it is that it should be recommended (i.e. the more barriers there are that would be difficult to overcome).			
	• Can the option be accomplished or brought about? • Is the intervention or option sustainable? • Are there important barriers that are likely to limit the feasibility of implementing the intervention (option) or require consideration when implementing it?	☐ No ☐ Probably no ☐ Probably yes ☐ Yes ☒ **Varies** ☐ Don't know	Feasibility is impacted by resources available especially in LMIC and setting up and sustaining digital health solutions can be costly	
Human rights and sociocultural acceptability	Is the intervention aligned with human rights principles and socioculturally acceptable? (WHO INTEGRATE) This criterion encompasses two distinct constructs: The first refers to an intervention's compliance with universal human rights standards and other considerations laid out in international human rights law beyond the right to health (as the right to health provides the basis of other criteria and sub-criteria in this framework). The second, sociocultural acceptability, is highly time-specific and context-specific and reflects the extent to which those implementing or benefiting from an intervention as well as other relevant stakeholder groups consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention. The greater the sociocultural acceptability of an intervention to all or most relevant stakeholders, the greater the likelihood of a general recommendation in favour of this intervention.			
	• Is the intervention in accordance with universal human rights standards and principles? • Is the intervention socio-culturally acceptable to patients/beneficiaries as well as to those implementing it? To which extent do patients/beneficiaries value different non-health outcomes? • Is the intervention socioculturally acceptable to the public and other relevant stakeholder groups? Is the intervention sensitive to sex, age, ethnicity, culture or language, sexual orientation or gender identity, disability status, education, socioeconomic status, place of residence or any other relevant characteristics? • How does the intervention affect an individual's, population group's or organization's autonomy, i.e. their ability to make a competent, informed and voluntary decision? • How intrusive is the intervention, ranging from low	☐ No ☐ Probably no ☒ **Probably yes** ☐ Yes ☐ Varies ☐ Don't know		

CRITERIA, QUESTIONS		JUDGEMENT	RESEARCH EVIDENCE	ADDITIONAL CONSIDERATIONS
	intrusiveness (e.g. providing information) to intermediate intrusiveness (e.g. guiding choices) to high intrusiveness (e.g. restricting or eliminating choices)? Where applicable, are high intrusiveness and/or impacts on the privacy and dignity of concerned stakeholders justified?			

4.3. Summary of judgements

Table 8. Summary of judgements

Priority of the problem	- Don't know	- Varies		- No	- Probably No	- Probably Yes	✓ **Yes**
Desirable effects	- Don't know	- Varies		- Trivial	✓ **Small**	- Moderate	- Large
Undesirable effects	- Don't know	- Varies		- Large	- Moderate	- Small	✓ **Trivial**
Certainty of the evidence	- No included studies			- Very low	✓ **Low**	- Moderate	- High
Values				- Important uncertainty or variability	✓ **Possibly important uncertainty or variability**	- Probably no important uncertainty or variability	- No important uncertainty or variability
Balance of effects	- Don't know	- Varies	- Favours comparison	- Probably favours comparison	- Does not favour either	✓ **Probably favours intervention**	- Favours intervention
Resources required	- Don't know	✓ **Varies**	- Large costs	- Moderate costs	- Negligible costs or savings	- Moderate savings	- Large savings
Certainty of the evidence on required resources	✓ **No included studies**			- Very low	- Low	- Moderate	- High
Cost–effectiveness	✓ **No included studies**	- Varies	- Favours comparison	- Probably favours comparison	- Does not favour either	- Probably favours intervention	- Favours intervention
Equity, equality and non-discrimination	- Don't know	✓ **Varies**	- Reduced	Probably reduced	- Probably no impact	- Probably increased	- Increased
Feasibility	- Don't know	✓ **Varies**		- No	- Probably No	- Probably Yes	- Yes
Human rights and sociocultural acceptability	- Don't know	- Varies		- No	- Probably No	✓ **Probably Yes**	- Yes

✓Indicates category selected, -Indicates category not selected

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Appendix I: mhGAP process note

mhGAP Guideline Update: Notes on process for identifying level of evidence review required v2_0 (13/12/2021)

This document is intended to provide guidance to focal points on the level of evidence review required as part of the evidence retrieval process for the mhGAP guideline update process. As a general rule, the update process should be informed by existing high quality systematic reviews.

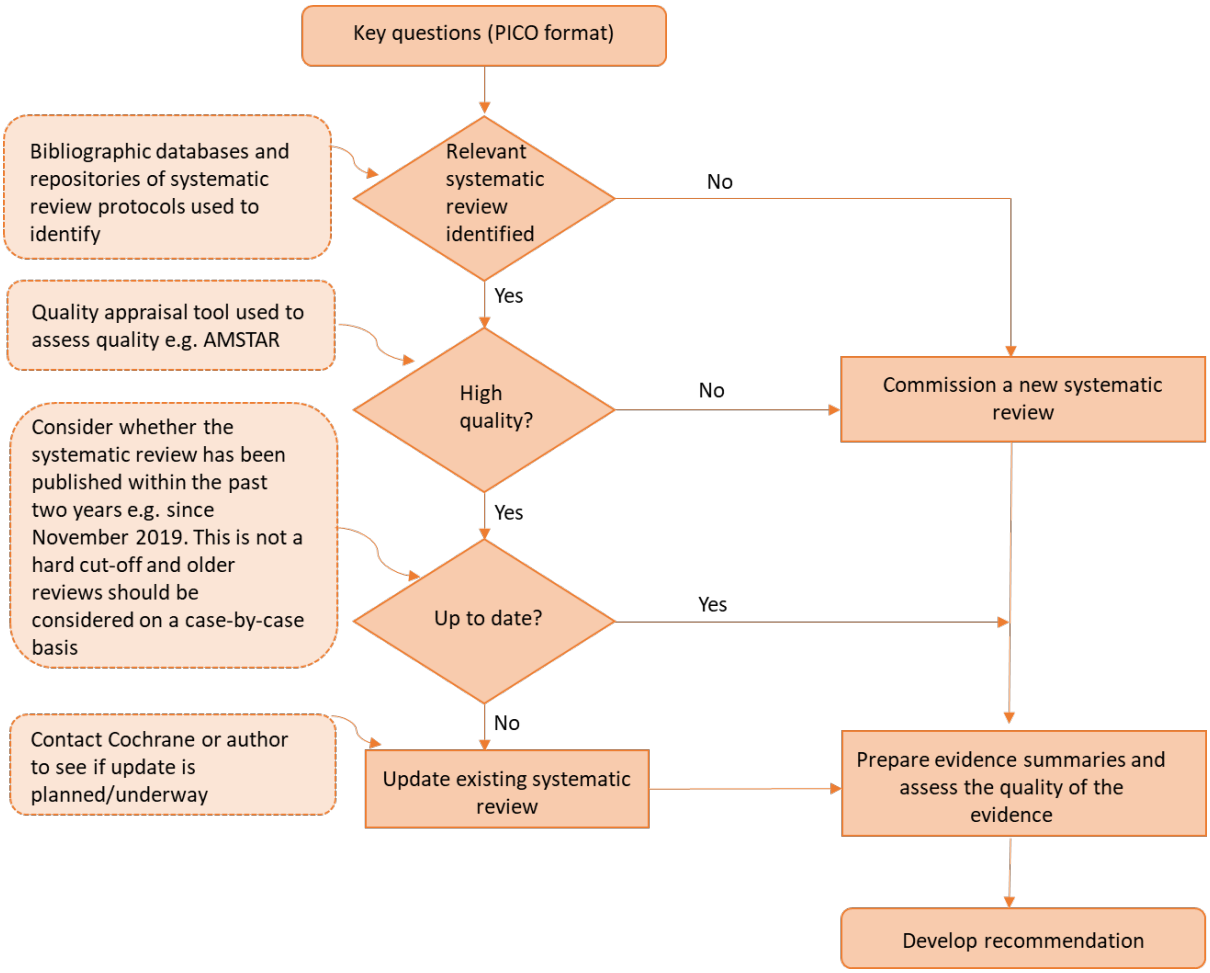
The process for evidence retrieval and synthesis is fully outlined in chapter 8 of the WHO handbook for guideline development https://apps.who.int/iris/handle/10665/145714.

Three main categories of evidence review are proposed in this document:

1) Existing relevant, up to date, high quality systematic review(s) provide the evidence required. **An existing systematic review is sufficient to prepare the evidence summaries**. It may be possible to include more than one systematic review for the same PICO, as different reviews may match different outcomes of a PICO. However, if more than one systematic review is available for the same PICO outcome, one review should be selected, based on quality, relevance, search comprehensiveness and date of last update. The selection process should be transparently reported, with justification of choices.
2) Existing high quality systematic reviews are either out of date or do not fully address the PICO, though it is considered that the review can be updated to meet these requirements. **An update of an existing systematic review is required before the evidence summaries can be prepared**. The update process may require addition of new studies published after the review, or inclusion of outcomes not covered by the existing reviews.
3) Existing systematic reviews are either not of sufficiently high quality or cannot be updated to fully address the PICO. **A new systematic review is required before the evidence summaries can be prepared**

Figure 1 below details the process to identify which level of evidence review is required to support the evidence retrieval process for a PICO.

Fig. 5. Is a new systematic review needed



All key questions are currently in PICO format as presented in the Appendix of the planning proposal PICOs. Subsequent steps include the following:

1. **Identify and evaluate existing systematic reviews**: Identify one or more systematic review(s) to address each PICO question. Existing systematic reviews will inform the guideline development process, whether or not a new systematic review or an update of an existing review is required, and the evidence review team will detail existing systematic reviews in each case. The method for identifying existing systematic reviews should be fully detailed in the evidence summary and include the following sources:
    a. Search of bibliographic databases, such as PubMed/MEDLINE, Embase, PsychInfo, Cochrane Central Register of Controlled Trials (CENTRAL), CINAHIL, Scopus, African Index Medicus, Index Medicus for the Eastern Mediterranean Region, Index Medicus for the South-East Asian Region, Latin American and Caribbean Health Sciences Literature, and Western Pacific Region Index Medicus.
    b. Search of repositories of systematic reviews protocols, including PROSPERO, Open Science Framework (OSF), and Cochrane.
2. **Assess if systematic review is up to date:** It is preferred that identified systematic reviews have been published within the past two years e.g. since November 2019. This is not a hard cut-off and older reviews should be considered on a case-by-case basis, particularly those covering the time period since the last update of the mhGAP guideline in 2015. It is acknowledged that COVID has led to a pausing of many mental health research activities over the past two years, and this may also impact the availability of systematic reviews within the preferred two year

period. For any reviews that fall outside the two year period, the guideline methodologist will advise on suitability.

3. **Appraise quality of systematic review:** Use the AMSTAR-2 quality appraisal tool to assess the quality of the identified systematic review(s) https://amstar.ca/docs/AMSTAR-2.pdf . This includes consideration of the extent to which the PICO is fully addressed by the systematic review(s) identified.

By following the process outlined in figure 1, and steps 1-3 above, the FP and evidence review team will have sufficient evidence to assess which of the three main categories of evidence review apply to each PICO under consideration:

1) Existing systematic reviews are sufficient to prepare the evidence summaries
2) An update of an existing systematic review is required before the evidence summaries can be prepared
3) A new systematic review is required before the evidence summaries can be prepared

Appendix II: Search terms used to identify systematic reviews

Search string for PubMed:
"Alcohol Abstinence"[Mesh] OR "Alcohol-Related Disorders"[Mesh] OR "Alcohol Drinking"[Mesh] OR "Alcoholism"[Mesh] OR "Binge Drinking"[Mesh] OR "Alcohol"[Mesh] OR “heavy drinking”[Mesh] OR “hazardous drinking”[Mesh] OR “harmful drinking”[Mesh] OR “excessive drinking”[Mesh] OR “problem drinking”[Mesh] OR “risky drinking”[Mesh] OR "Alcohol Abstinence"[All Fields] OR "Alcohol-Related Disorders"[All Fields] OR "Alcohol Drinking"[All Fields] OR "Alcoholism"[All Fields] OR "Binge Drinking"[All Fields] OR "alcohol"[All Fields] OR “heavy drinking”[All Fields] OR “hazardous drinking”[All Fields] OR “harmful drinking”[All Fields] OR “excessive drinking”[All Fields] OR “problem drinking”[All Fields] OR “risky drinking”[All Fields]
AND
“Internet"[Mesh] OR “internet”[All Fields] OR “online”[All Fields] OR “web”[All Fields] OR “e-health”[All Fields] OR “Mobile Applications"[Mesh] OR “mobile phone”[All Fields] OR “smartphone”[All Fields] OR “mobile device”[All Fields] OR "Computers"[Mesh] OR “computer”[All Fields] OR “app”[All Fields] OR "Therapy, Computer-Assisted"[Mesh] OR “computer-assisted”[All Fields] OR "Drug Therapy, Computer-Assisted"[Mesh] OR “telemedicine”[All Fields] OR "Telemedicine"[Mesh]
AND
Randomization filter

Search string for Embase:
“Alcohol Abstinence”/exp OR “Alcohol-Related Disorders”/exp OR “Alcohol Drinking”/exp OR “Alcoholism”/exp OR “Binge Drinking”/exp OR “Alcohol Abstinence” OR “Alcohol-Related Disorders” OR “Alcohol Drinking” OR “Alcoholism” OR “Binge Drinking” OR “alcohol” OR “heavy drinking” OR “hazardous drinking” OR “harmful drinking” OR “excessive drinking” OR “problem drinking” OR “risky drinking”
AND
“Internet” OR “internet” OR “online” OR “web” OR “e-health” OR “Mobile Applications” OR “mobile phone” OR “smartphone” OR “mobile device” OR “computer” OR “app” OR “Computer-Assisted” OR “telemedicine”
AND
“randomized controlled trial”/de

Search string for PsycInfo
DE "Alcohol Abstinence" OR DE "Alcohol-Related Disorders" OR DE "Alcohol Drinking" OR DE "Alcoholism" OR DE "Binge Drinking" OR "Alcohol Abstinence" OR "Alcohol-Related Disorders" OR "Alcoholism" OR "Alcohol Drinking" OR "Binge Drinking" OR "alcohol" OR “heavy drinking” OR “hazardous drinking” OR “harmful drinking” OR “excessive drinking” OR “problem drinking” OR “risky drinking”
AND
DE “Internet" OR “internet” OR “online” OR “web” OR “e-health” OR DE “Mobile Applications” OR “mobile phone” OR “smartphone” OR “mobile device” OR DE "Computers” OR “computer” OR “app” OR "Computer-Assisted” OR "Telemedicine"
AND
Randomized Controlled Trial.pt. OR Pragmatic Clinical Trial.pt. OR exp Randomized Controlled Trials as Topic/ OR "Randomized Controlled Trial (topic)"/ OR Randomized Controlled Trial/ OR Randomization/ OR Random Allocation/ OR Double-Blind Method/ OR Double Blind Procedure/ OR Double-Blind Studies/ OR Single-Blind Method/ OR Single Blind Procedure/ OR Single-Blind Studies/ OR Placebos/ OR Placebo/ OR (random* or sham or placebo*).ti,ab,hw. OR ((singl* or doubl*) adj (blind* or dumm* or mask*)).ti,ab,hw. OR ((tripl* or trebl*) adj (blind* or dumm* or mask*)).ti,ab,hw.

Search string for CENTRAL

“Alcohol Abstinence” OR “Alcohol-Related Disorders” OR “Alcohol Drinking” OR “Alcoholism” OR “Binge Drinking” OR “alcohol” OR “heavy drinking” OR “hazardous drinking” OR “harmful drinking” OR “excessive drinking” OR “problem drinking” OR “risky drinking”

AND

“Internet" OR “online” OR “web” OR “e-health” OR “Mobile Applications” OR “mobile phone” OR “smartphone” OR “mobile device” OR “computer” OR “app” OR "Computer-Assisted” OR "Telemedicine"