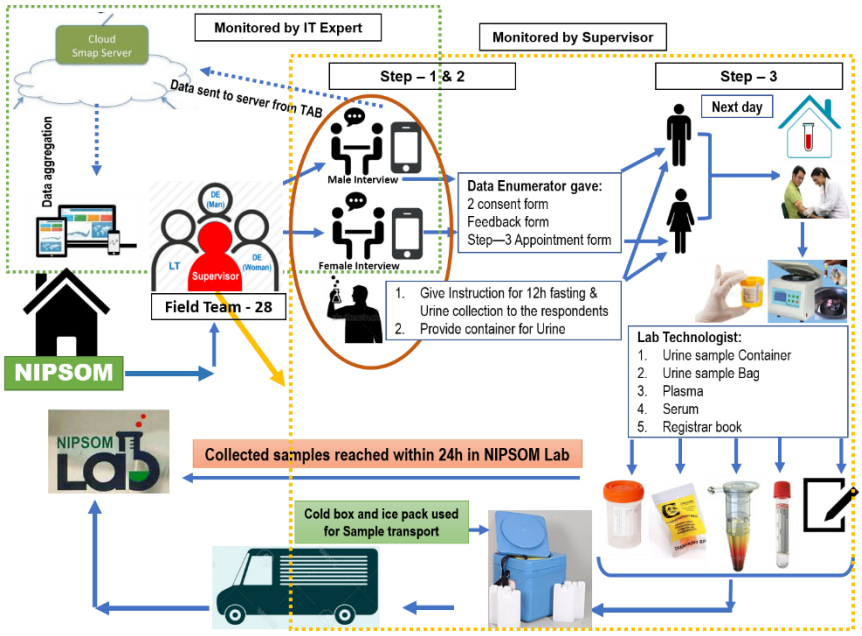
Bangladesh NCD Risk Factor Survey 2018

INTRODUCTION: Non-communicable diseases (NCDs), also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioral factors. Globally, more than seventy percent deaths occur due to these pandemic NCDs. Most of the NCDs are preventable if the risk factors can be minimized. So information regarding distribution and determinants of those diseases and their risk factors is essential for launching appropriate community programs to reduce mortality and to prevent disabilities from NCDs. STEPwise Surveillance for NCD risk factors (STEPS) is a WHO-developed, standardized framework for monitoring the magnitude of NCD risk factors in a country. It comprises of 3 steps: STEP 1 determines behavioral risk factors by questionnaire assessment, STEP 2 figures out anthropometric risk factors by physical measurements and STEP 3 finds out biochemical risk factors by biochemical measurements. In 2018, STEPS is conducted by National Institute of Preventive and Social Medicine (NIPSOM) with technical assistance of WHO and financial assistance of NCDC, DGHS, MoHFW, Government of Bangladesh. All the 3 (Three) steps of STEPS are completed for the 1st time in this country by this countrywide population survey.

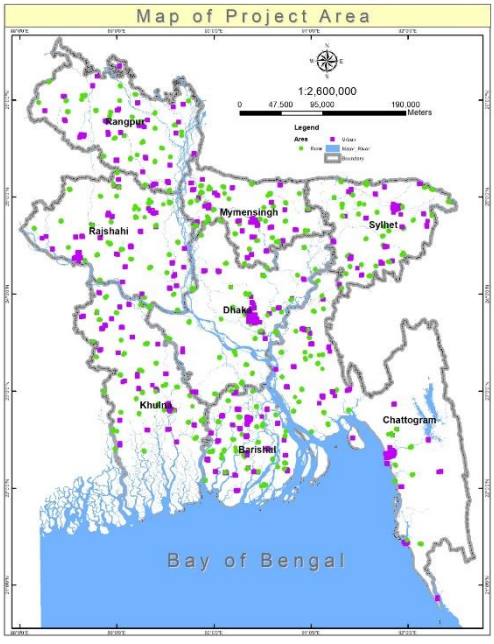
METHODS

A cross–sectional survey is carried out from September 2017 to June 2018 among adult population aged l8-69 years including men and women residing in the households of all the divisions of Bangladesh. Sampling is done by multistage, geographically stratified probability based sampling on the basis of Primary Sampling Unit (PSU) developed by Bangladesh Bureau of Statistics (BBS) for census 2011 and updated in 2017. The sample size is calculated considering prevalence of different NCD risk factors, relative precision rate and feasibility of the survey.

To calculate the final sample size, the design effect and non-response rate at the household and individual level are considered. Considering the findings of demographic health survey and previous BBS surveys, the person non-response rate and household non-coverage rate, hard to reach area and non-clearance of local administration, the adjusted sample size is 9,900 adults of 495 PSUs. Based-on eligibility, refusal etc. finally, STEP 1 (Behavioral data) are collected from 8185 respondents, STEP 2 (Anthropometric data) are collected from 7208 respondents, and STEP 3 (Biochemical data i.e. Blood and Urine samples) are collected from 7056 and 7028 respondents respectively. Both the blood and urine samples are collected from 6901respondents. Quality control of data was ensured and ethical issues were strictly maintained in all stages of the survey.



Flowchart of Data Collection: From Field to NIPSOM



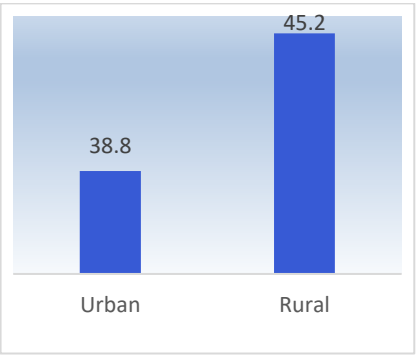
Map: Urban and Rural PSUs

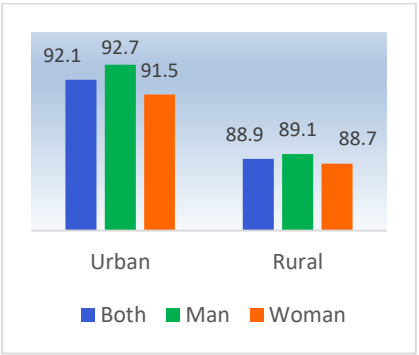
National Institute of Preventive and Social Medicine (NIPSOM)

NCDC, DGHS, MoHFW, Bangladesh

World Health Organization

Results for adults aged 18-69 years (95% CI)	Both Sexes	Men	Women
STEP 1: Behavioral Risk Factors			
Questionnaire Assessments			
Diet			
Mean number of days **fruits** consumed in a typical week	**1.6** (1.5 – 1.7)	**1.7** (1.6 – 1.8)	**1.5** (1.4 – 1.6)
Mean number of servings of **fruits** consumed on average per day	**0.4** (0.3 – 0.4)	**0.4** (0.3 – 0.4)	**0.4** (0.3 – 0.4)
Mean number of days **vegetables** consumed in a typical week	**5.9** (5.8 – 6.0)	**5.7** (5.6 – 5.8)	**6.1** (6.0 – 6.2)
Mean number of servings of **vegetables** consumed on average per day	**2.3** (2.2 – 2.4)	**2.2** (2.0 – 2.3)	**2.4** (2.2 – 2.5)
Percentage who eat **<5 servings** of **fruits** and/or **vegetables** on average per day	**89.6** (88.1 – 91.2)	**90.0** (87.6 – 92.3)	**89.3** (87.4 – 91.2)
Percentage who always or often add **salt** to their food before eating or as they are eating	**48.2** (45.7 – 50.8)	**44.9** (41.8 – 47.9)	**51.5** (48.6 – 54.5)
Percentage who always or often add **salty sauce** to their food before eating or as they are eating	**1.8** (1.3 – 2.2)	**2.3** (1.4 – 3.1)	**1.3** (0.9 – 1.8)
Physical Activity			
Percentage with **insufficient physical activity** (WHO defined as <150 minutes of moderate-intensity activity per week, or equivalent)	**29.1** (27.0 – 31.3)	**34.1** (31.1 – 37.1)	**24.3** (21.4 – 27.1)
Median (inter quartile range) total physical activity on average in minutes per day	**132.0** (53.6 – 330.0)	**235.0** (68.6 – 557.1)	**100.0** (42.9 – 180.0)
Percentage not engaging in vigorous activity	**28.2** (26.0 – 30.4)	**44.1** (41.1 – 47.2)	**12.7** (10.5 – 14.8)
Cervical Cancer Screening			
Percentage of women respondents who have ever had a **screening test for cervical cancer** among all female respondents	…	…	**4.3%** (3.3 – 5.2)
Oral Health			
Percentage of respondents who have p**ain, swelling, bleeding or discomfort of the teeth, gums or mouth** during the past 12 months	**39.5**	**35.3**	**38.0**
Percentage of respondents who have **never received dental care**	**71.0** (69.1-72.8)	**71.0** (68.5-72.8)	**70.9** (68.7-73.2)
Tobacco Use			
Percentage who currently smoke tobacco	**23.9**	**46.6**	**1.0**
Percentage who currently smoke tobacco daily	**22.3** (20.9 – 23.8)	**44.4** (41.8 – 47.0)	**0.9** (0.4 – 1.3)
Percentage who currently use smokeless tobacco	**26.2**	**25.6**	**26.8**
Percentage who currently use smokeless tobacco daily	**23.9** (22.1 – 25.6)	**22.3** (19.9 – 24.7)	**25.4** (23.0 – 27.7)
Percentage who currently consume **tobacco in any form** (Prevalence)	**43.7** (41.6 – 45.8)	**59.6** (56.9 – 62.3)	**28.3** (25.7 – 30.8)
For those who smoke tobacco daily			
Mean **age at started** smoking (years)	**18.0**	**17.9**	**24.5**
Percentage of current smokers smoking manufactured cigarettes	**99.3**	**99.2**	**100.0**
Mean number of manufactured cigarettes smoked per day (by smokers of manufactured cigarettes)	**7.3** (6.7 – 7.8)	**7.4** (6.8 – 8.0)	**1.4** (-- - --)





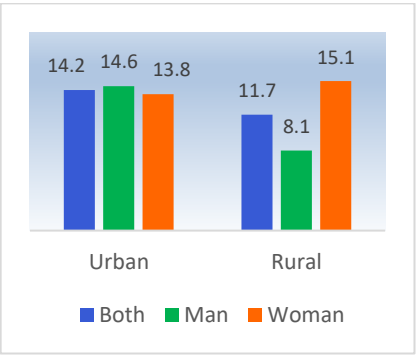


Figure-1: Tobacco use in any form

Figure-2: Inadequate intake of fruits and/or vegetables (<5 servings per day)

Figure-3: Insufficient physical activity

Results for adults aged 18-69 years (95% CI)	Both Sexes	Men	Women
Alcohol Consumption			
Percentage who are lifetime abstainers	**91.4** (90.1 – 92.6)	**82.9** (80.5 – 85.3)	**99.6** (99.3 – 99.9)
Percentage who currently drink (drank alcohol in the past 30 days)	**1.5** (0.9 – 2.0)	**2.9** (1.8 - 4.1)	**0.0** (-- - --)
Percentage who engage in heavy episodic drinking (6 or more drinks on any occasion in the past 30 days)	**0.8**	**1.5**	**0.0**
Percentage who engage in heavy episodic drinking (6 or more drinks on any occasion in the past 30 days) among the current drinkers	**52.2**	**52.2**	**55.1**
History of blood glucose measurement and medication for diabetes			
Never measured **blood glucose** in lifetime	**74.9**	**77.4**	**72.5**
Percentage who are currently on **medication for diabetes (among respondents who have been told by a doctor or health care provider they have raised blood sugar)**	**58.5**	**64.0**	**54.3**
STEP 2: Anthropometric Risk Factors			
Physical Measurements			
Mean Body Mass Index - BMI (kg/m^2)	**22.7**	**21.9**	**23.5**
Percentage who are **overweight** (BMI 25.0-29.9 kg/m^2)	**20.5** (18.8 – 21.8)	**16.0** (14.0 – 17.6)	**25.1** (22.7 – 27.0)
Percentage who are **obese** (BMI ≥ 30 kg/m^2)	**5.4** (4.7 – 6.3)	**2.3** (1.6 – 3.0)	**8.6** (7.3 – 10.1)
Prevalence (%) of **Central Obesity** (Based on waist circumference in cm)	----	**14.7**	**41.1** (44.4 – 45.9)
Mean systolic blood pressure - SBP (mmHg), including those currently on medication for raised BP	**120.0** (119.3 – 120.8)	**120.5** (119.7 – 121.3)	**119.5** (118.4 – 120.6)
Mean diastolic blood pressure - DBP (mmHg), including those currently on medication for raised BP	**78.2** (77.6 – 78.8)	**76.6** (75.9 – 77.2)	**79.8** (79.0 – 80.5)
Prevalence (%) of **Hypertension** among all population	**21.0%**	**17.9%**	**24.1%**
Percentage of **newly diagnosed hypertension** by this survey	**7.9** (6.8 – 8.9)	**6.0** (4.9 – 7.2)	**9.6** (8.1 – 11.1)
STEP 3: Biochemical Risk Factors			
Biochemical Measurements			
Mean fasting blood glucose, including those currently on medication for raised blood glucose (mmol/L)	**5.4** (5.4 – 5.5)	**5.4** (5.3 – 5.5)	**5.4** (5.3 – 5.5)
Percentage with impaired fasting glycaemia as defined below [plasma venous value ≥6.1 mmol/L (110 mg/dl) and <7.0 mmol/L (126 mg/dl)]	**6.6** (5.3 – 7.9)	**5.9** (4.8 – 7.1)	**7.5** (5.7 – 9.3)
Percentage with raised fasting blood glucose as defined below or currently on medication for raised blood glucose [plasma venous value ≥7.0 mmol/L (126 mg/dl)] **(Prevalence of DM)**	**8.3** (7.5 – 9.3)	**8.9** (7.7 – 10.4)	**7.9** (6.6 – 9.1)
Mean total blood cholesterol, including those currently on medication for raised cholesterol [choose accordingly: mmol/L or mg/dl]	**4.4** (4.4 – 4.5)	**4.4** (4.3 – 4.4)	**4.4** (4.3 – 4.4)
Percentage with raised total cholesterol (≥ 5.0 mmol/L or ≥ 190 mg/dl or currently on medication for raised cholesterol) **(Prevalence of dyslipidemia)**	**28.4** (26.8 – 30.0)	**27.4** (25.2 – 29.6)	**29.3** (27.2 – 31.3)
Mean intake of salt (in grams) per day (Based on Urinary Na+)	**9.0**	**9.0**	**9.0**
Cardiovascular Disease (CVD) risk			
Percentage aged 40-69 years with a 10-year CVD risk ≥30%, or with existing CVD*	**15.5** (13.5 – 17.5)	**14.3** (11.8 – 16.7)	**16.7** (13.5 – 20.0)

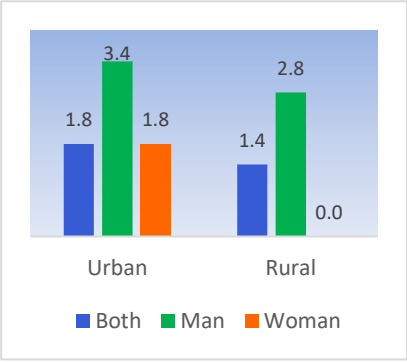


Figure-4: Prevalence (%) of alcohol drinking alcohol in the past 30 days

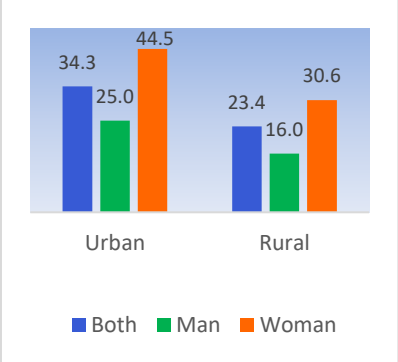


Figure-5: Prevalence (%) of overweight and obesity (BMI ≥25 (kg/m2)

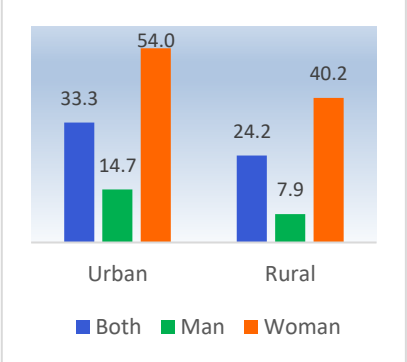


Figure-6: Prevalence (%) of abdominal obesity (waist circumference ≥94 cm in men, ≥80 cm in women)

Results for adults aged 18-69 years (95% CI)	Both Sexes	Men	Women
Summary of Combined Risk Factors*			
• Current daily smokers • Less than 5 servings of fruits & vegetables per day • Insufficient physical activity • Overweight (BMI ≥ 25 kg/m^2)	• Raised BP (SBP ≥ 140 and/or DBP ≥ 90 mmHg or currently on medication for raised BP) • Raised total cholesterol (≥5.0 mmol/L) and/or currently on medication		
Percentage with none of the above risk factors aged 18 to 69 years	**3.0** (2.3 – 3.6)	**1.9** (1.0 – 2.7)	**4.0** (3.1 – 5.0)
Percentage with one or two of the above risk factors aged 18 to 69 years	**70.9** (69.0 – 72.7)	**68.5** (66.1 – 70.9)	**73.1** (71.0 – 75.3)
Percentage with three or more of the above risk factors, aged 60 to 69 years	**40.1** (33.4 – 46.8)	**39.4** (30.7 – 48.2)	**40.9** (30.7 – 51.0)
Percentage with three or more of the above risk factors, aged 18 to 69 years	**26.2** (24.4 – 28.0)	**29.6** (27.3 – 32.0)	**22.8** (20.7 – 25.0)

POLICY RECOMMENDATIONS

This second nationally representative survey provides essential information on key indicators of NCD risk factors and creates an opportunity for policy makers, program managers, academicians, development partners and researchers to adopt necessary interventions to combat the burden of NCDs in Bangladesh. Inadequate intake of fruit and vegetables, use of tobacco, low physical activity, obesity (especially central), high blood pressure, diabetes mellitus, extra salt intake, dyslipidemia and binge drinking among drinkers are identified risk factors for NCDs in Bangladeshi adults. Majority (70.9%) has one or two risk factors and substantial proportion of people have three or more risk factors. Based on these findings, the specific recommendations are:

1. To raise awareness of the people on the NCDs and its' risk factors through health education interventions and mass media communication.
2. To prevent and control NCDs, primary health care (PHC) should be prioritized and strengthened as per Astana Declaration 2018; thereby Universal Health Care (UHC) must be established.
3. To promote availability and accessibility to fruits and vegetables round the year by effective strategies throughout the country.
4. To promote physical activities, viable environment should be established in both urban and rural settings.
5. To reduce tobacco use, necessary amendments and enforcement of the Acts in the alignment of WHO Framework Convention on Tobacco Control are essential.
6. To reduce the burden of NCDs, specific program on early detection and treatment of hypertension, diabetes and dislipidaemia should be launched at all levels in the country.
7. To improve oral health status of the people, community based interventions on oral hygiene, dental care and health service utilization should be commenced.
8. To design and implement NCD services in the context of Bangladesh, research activities like Cohort Study should be carried out.
9. To ensure long term treatment of NCDs as chronic diseases, patient tracking and referral system must be strengthened using unique individual heath ID of the country people. NCD case records should also be maintained in that alignment.
10. To provide effective NCD services, availability, accessibility, affordability and equity including medication services must be ensured at all levels in the country.

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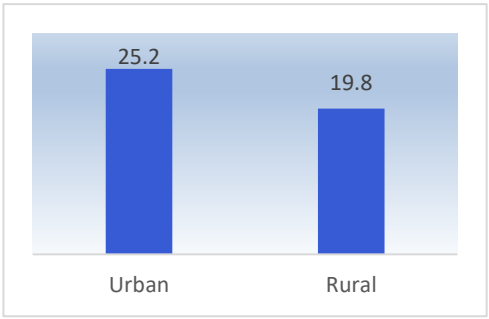

Figure-7: Prevalence (%) of hypertension (≥140/90mmHg or on drug treatment)

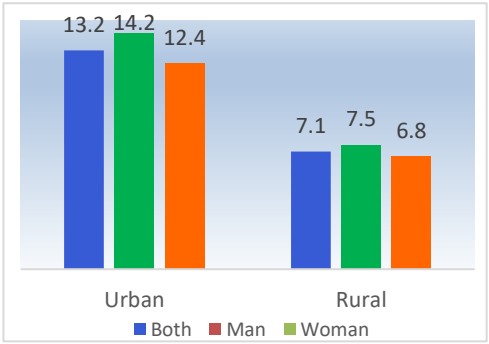

Figure-8: Prevalence (%) of diabetes (high blood glucose and/or on medication)

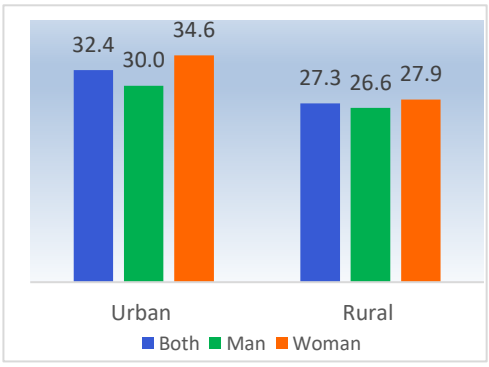

Figure-9: Percentage (%) of raised total cholesterol (≥190 mg/dl and/or on medications)

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