

Key Highlights from the National Population Health Survey 2020

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Introduction

The National Population Health Survey (NPHS) is a cross-sectional population health survey series that tracks health and risk factors, and lifestyle practices of Singapore residents. Conducted annually, the NPHS provides timely information on the prevalence of behavioural risk factors such as smoking and alcohol consumption, chronic diseases such as diabetes mellitus and hypertension, as well as preventive health behaviour such as the practice of regular health screening.

The survey findings are used by the Ministry of Health (MOH) and the Health Promotion Board (HPB) for planning and evaluation of health policies, programmes and health care services to improve the health of Singapore residents.

This article highlights some of the key findings and key trends observed from the NPHS 2020, conducted from July 2019 to March 2020¹. The survey findings represent those of Singapore residents, aged 18 to 74 years².

Prevalence and Trends of Health Behavioural Risk Factors in Singapore

Behavioural risk factors associated with health outcomes include physical activity levels, consumption of alcohol, smoking practices, and mental health.

Both MOH and HPB implement policies and programmes designed to nudge Singapore residents towards better health outcomes through

healthier choices and lifestyle improvements in the following areas.

Physical Activity

Physical activity is important for achieving and maintaining good health. For adults, it has been shown to reduce the risk of premature death and development of cardiovascular disease, hypertension, and diabetes mellitus. In addition, physical activity improves the quality of sleep, mental and cognitive health, and prevents unhealthy weight gain.

Older adults aged 65 years and over who are physically active are less likely to experience falls and fall-related injuries and have better functional capacity and mobility to live longer independently³.

The World Health Organization (WHO) recognises that participation in physical activity can be achieved across three domains: work-related activity, transportation-related activity, and leisure-time physical activity. WHO recommends that adults should do at least 150 minutes of moderate-intensity physical activity or at least 75 minutes of vigorous-intensity physical activity or an equivalent combination of moderate- and vigorous-intensity physical activity per week⁴.

Among Singapore residents, 76.4 per cent met the WHO-recommended guidelines. This, however, represented a decline compared to 80.1 per cent in 2019 and 80.9 per cent in 2017 (Chart 1). On the other hand, the proportion of Singapore residents who engaged in regular leisure time exercise⁵ had increased from 29.4 per cent in 2017 to 33.4 per cent in 2020.

1 The last quarter of fieldwork from April to June 2020 for NPHS 2020 was suspended due to the implementation of measures to mitigate the spread of COVID-19 during Singapore's Circuit Breaker period.

2 Findings on chronic disease screenings are limited to the age groups that are recommended for the respective screenings.

3 *Global action plan on physical activity 2018–2030: more active people for a healthier world*. Geneva: World Health Organization; 2018.

4 *WHO guidelines on physical activity and sedentary behaviour*. Geneva: World Health Organization; 2020.

5 Regular leisure time exercise refers to participation in any form of sports or exercise for at least 20 minutes per occasion, for three or more days a week.

CHART 1

PROPORTION OF SINGAPORE RESIDENTS WHO MET THE WHO-RECOMMENDED PHYSICAL ACTIVITY GUIDELINES, 2017, 2019 AND 2020

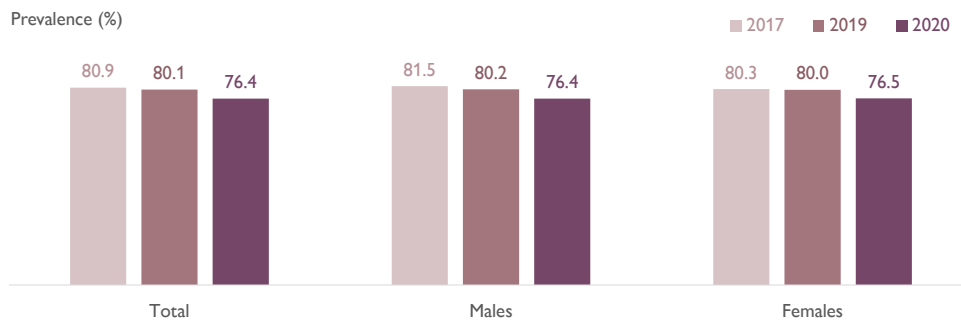
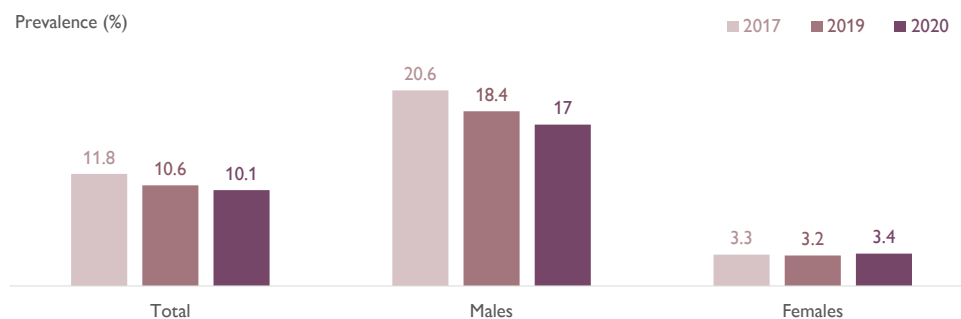


CHART 2

PREVALENCE OF DAILY SMOKING AMONG SINGAPORE RESIDENTS, 2017, 2019 AND 2020



In addition to the recommendations for aerobic physical activity, WHO recommends that adults should do muscle strengthening activities involving the major muscle groups on at least two days or more in a week⁶. In 2020, one in three (33.8 per cent) Singapore residents reported having sufficient muscle strengthening activities and met these recommendations.

Smoking

Tobacco use is the single greatest cause of preventable death globally. It typically leads to diseases affecting the heart and lungs, with cigarette smoking being a major risk factor for heart attack, stroke, chronic obstructive pulmonary disease and cancer. It also causes peripheral vascular disease and hypertension. Tobacco kills up to half of all smokers, and more than eight million people each year die from tobacco use⁷.

Among Singapore residents, the prevalence of daily cigarette smoking had declined from 11.8 per cent

in 2017 to 10.1 per cent in 2020. This decline was more pronounced among males than females, with the females’ prevalence remaining relatively constant at around three per cent in recent years (Chart 2).

Prevalence of daily smoking remained significantly higher among males than females.

Alcohol Consumption

Excessive alcohol consumption is associated with an increased risk of hypertension, stroke and certain cancers. It may lead to liver cirrhosis, inflammation of the pancreas and damage to the brain and heart. Excessive alcohol intake can also cause mental disorders such as alcohol dependence and other alcohol-induced disorders such as amnesia.

Globally, alcohol consumption contributes to three million deaths annually and the harmful use of alcohol accounts for 5.1 per cent of the global burden of disease⁸.

6 Muscle strengthening activity refers to activity or exercise that increases skeletal muscle strength, power, endurance and mass.

7 *Global Burden of Disease*. Washington, DC: Institute of Health Metrics; 2019.

8 *Global status report on alcohol and health 2018*. Geneva: World Health Organization; 2018.

In 2020, the prevalence of regular alcohol consumption⁹ among Singapore residents remained low at 2.2 per cent, with 3.4 per cent of the male residents and 1.0 per cent of the female residents reporting themselves as regular drinkers.

On the contrary, the prevalence of binge drinking increased from 8.8 per cent in 2017 to 10.5 per cent in 2020. Similar to the prevalence of daily smoking, binge drinking is more prevalent among males compared to females (Chart 3).

Mental Health

WHO defines mental health as a state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to contribute to

his or her community. The level of mental health of a person may be affected by multiple interrelated social, psychological, and biological factors. Unemployment, stressful work conditions, gender discrimination, family violence, social exclusion, unhealthy lifestyles could result in poor mental health¹⁰.

In 2020, the prevalence of poor mental health among Singapore residents, measured by the 12-item General Health Questionnaire (GHQ-12), was 13.4 per cent, an increase from 2017 (12.5 per cent). Poor mental health was more prevalent among females (14.8 per cent) compared to males (12.0 per cent) in 2020. Compared to 2017, the increase in prevalence of poor mental health was more pronounced in the females (13.5 per cent) than males (11.4 per cent) (Chart 4).

CHART 3

PREVALENCE OF BINGE DRINKING AMONG SINGAPORE RESIDENTS, 2017, 2019 AND 2020

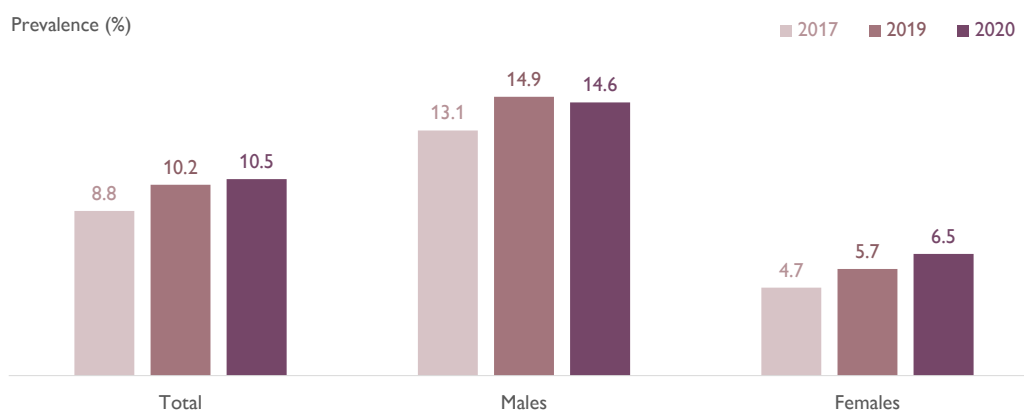
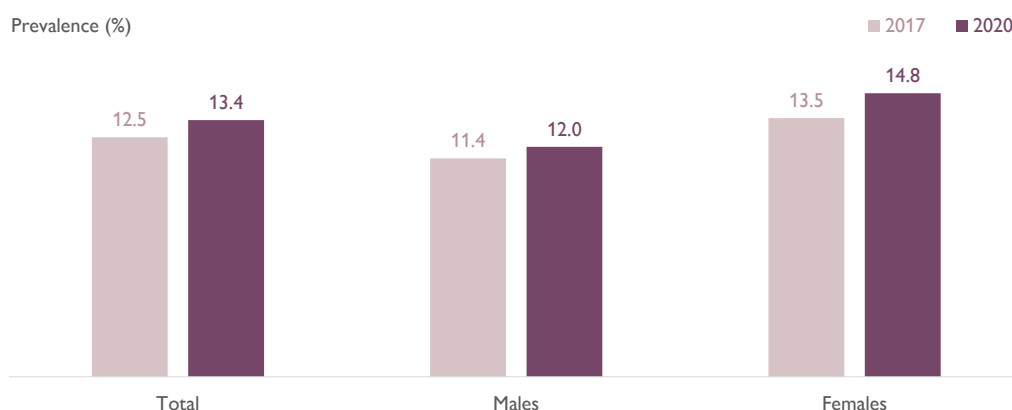


CHART 4

PREVALENCE OF POOR MENTAL HEALTH AMONG SINGAPORE RESIDENTS, 2017 AND 2020



⁹ Regular alcohol consumption refers to the consumption of alcohol on more than 4 days in a week.

¹⁰ WHO. *Mental Health: Strengthening Mental Health Promotion*. Fact sheet No. 220. September 2007. Geneva: World Health Organization; 2007.

Prevalence and Trends of Chronic Diseases¹¹ in Singapore

Non-communicable diseases (NCDs) tend to be chronic in nature, often requiring long-term treatment and care with long-term health consequences. They arise from a combination of genetic, physiological, environmental and behavioural factors.

The main types of NCD are cardiovascular diseases, cancers, chronic respiratory diseases and diabetes. Metabolic risk factors contribute to four key metabolic changes that increase the risk of NCDs. These include elevated blood pressure, hyperglycemia (high blood glucose levels), hyperlipidemia (high levels of fat or cholesterol in the blood), and overweight/ obesity¹².

High Blood Pressure

Hypertension or high blood pressure is a condition in which the blood vessels have persistently raised pressure. It is a serious medical condition that significantly increases the risk of diseases of the heart, brain, kidneys and other organs. Most people with hypertension are unaware of the problem as there may

be no warning signs or symptoms. An estimated 1.4 billion people worldwide suffer from high blood pressure, and only 14 per cent have it under control¹³.

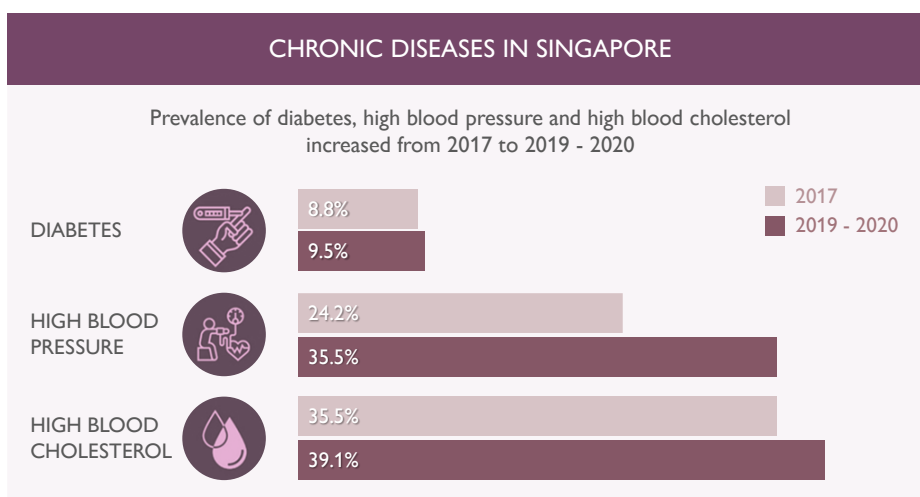
In Singapore, the prevalence of hypertension¹⁴ for the period 2019-2020 was 35.5 per cent, an increase from 2017 (24.2 per cent) (Chart 5), with the prevalence among males (41.0 per cent) higher than females (30.2 per cent).

Diabetes

Diabetes mellitus represents a group of metabolic disorders characterised by high blood sugar (hyperglycemia) resulting from defects in insulin secretion, insulin action, or both. Diabetes mellitus can lead to death and disability through long-term complications including blindness, kidney failure, coronary heart disease and stroke¹⁵.

For the period 2019-2020, the prevalence of diabetes¹⁶ among Singapore residents was 9.5 per cent, an increase from 2017 (8.8 per cent) and was more prevalent in males (10.6 per cent) than in females (8.4 per cent).

CHART 5
PREVALENCE OF CHRONIC DISEASES AMONG SINGAPORE RESIDENTS, 2017 AND 2019 - 2020



11 Prevalence of chronic diseases is aggregated over a period of two survey cycles (i.e., NPHS 2019 and NPHS 2020) to ensure that there are enough data for a detailed analysis. These indicators are based on self-reported doctor diagnosed chronic disease or chronic disease diagnosed during health examination/screening which requires more efforts and longer duration for completion.

12 WHO. *Noncommunicable Diseases*. Fact sheet. 13 April 2021. Geneva: World Health Organization; 2021.

13 *Guideline for the pharmacological treatment of hypertension in adults*. Geneva: World Health Organization; 2021.

14 Hypertension was defined as a systolic blood pressure equal to or above 140 mmHg or a diastolic blood pressure equal to or above 90 mmHg. (*A Global Brief on Hypertension*. Geneva: World Health Organization; 2013).

15 Ministry of Health, Singapore. *Diabetes Mellitus MOH Clinical Practice Guidelines 1/2014*. Ministry of Health, Singapore 2014.

16 Diabetes mellitus was defined as a fasting plasma glucose level equal to or above 7.0 mmol/l or equal to or above 126mg/dl. (*Definition and Diagnosis of Diabetes Mellitus and Intermediate Hyperglycaemia: Report of a WHO/IDF Consultation*. Geneva: World Health Organization; 2006).

High Blood Cholesterol

Hyperlipidaemia or high blood cholesterol is a major risk factor for coronary heart disease. Elevated blood cholesterol causes atherosclerosis and increases the risk for coronary heart disease. High LDL-cholesterol is an important independent risk factor for the development of coronary heart disease. Population-based approach through the adoption of healthier lifestyle behaviours such as reduced intake of saturated fats and cholesterol, being more physically active, and better weight control as well as clinical management of those persons at increased risk are important factors in lowering the LDL-cholesterol levels in the population.

The prevalence of high blood cholesterol¹⁷ among Singapore residents was 39.1 per cent, an increase from 2017 (35.5 per cent). Although the prevalence of high blood cholesterol was higher among males than females, the prevalence in males remained stable from 2017 to 2019-2020, while the prevalence in females increased from 28.5 per cent in 2017 to 35.8 per cent in 2020.

Obesity

Obesity¹⁸ increases the risk of chronic diseases such as diabetes mellitus, hypertension and hyperlipidaemia, cardiovascular diseases and certain cancers. Aside from genetic factors, obesity can also result from modifiable lifestyle factors such as excessive food intake that are high in fats and sugars, as well as the lack of physical activity¹⁹. For 2019-2020, the prevalence of obesity had returned to the previous level seen in 2010 (10.5 per cent) after a decrease in 2013 (8.6 per cent) and 2017 (8.6 per cent), with obesity being more common among males (11.9 per cent) than females (9.3 per cent).

Recognising that the risk for cardiovascular diseases and diabetes mellitus starts from a lower BMI for Asian populations, the WHO expert consultation recommended an additional classification of BMI for public health action among Asians²⁰. Based on this classification, Singapore residents having a BMI equal to or greater than 27.5 kg/m² are considered as having

high risk BMI. For 2019-2020, 20.7 per cent of Singapore residents had high risk BMI, an increase from 18.7 per cent in 2017, nearing the prevalence observed in 2010 (22.7 per cent).

Chronic Disease Screening

Health screening is an effective strategy for disease prevention in the population. It is important to go for appropriate and regular health screening as it helps to detect risk factors or diseases early even when there are no symptoms. Early detection of diabetes mellitus, high blood pressure and high blood cholesterol could result in better treatment, fewer complications and increased chances of better outcomes²¹.

Health screening practice was relatively common among Singapore residents aged 40 to 74 years who were not diagnosed by a doctor to be suffering from any chronic diseases (diabetes, high blood pressure and high blood cholesterol (DHL)). In 2020, screening participation was at 63.0 per cent, a slight decline from 66.4 per cent in 2017. The decrease in screening participation was more pronounced in females than males, from 66.8 per cent and 65.9 per cent for females and males respectively in 2017, to 62.2 per cent and 63.9 per cent for females and males respectively in 2020.

Conclusion

The results from NPHS 2020 showed that, compared to 2017, more Singapore residents had been diagnosed with chronic diseases especially hypertension and hyperlipidaemia; and more were obese. Fewer residents screened for chronic diseases. In terms of risk factors, the proportion of Singapore residents who engaged in regular exercise had increased. Smoking prevalence continued to decline, while the prevalence of binge drinking increased slightly. These findings help MOH and HPB develop and evaluate policies and programmes to improve the health of Singapore residents.

For more information and detailed reports on the NPHS, please visit www.go.gov.sg/nphs.

17 High blood cholesterol was defined as a LDL-cholesterol level equal or above 4.1 mmol/l or equal or above 160mg/dl. (*Lipids MOH Clinical Practice Guidelines 2/2016*. Ministry of Health, Singapore 2016).

18 A person who is obese is defined as having a Body Mass Index (BMI) of 30 kg/m² and above. Data on measured height and weight collected during health examination/screening and are aggregated over a period of two survey cycles (i.e. NPHS 2019 and NPHS 2020) to ensure that there are enough data for a detailed analysis.

19 Hruby A, Hu F.B. *The epidemiology of obesity: A big picture*. Pharmacoeconomics. 2015.

20 WHO. *Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies*. Lancet 2004; 363: 157-163.

21 Health Promotion Board, Singapore. *Screen for Life Booklet*, October 2019.