National Population Health Survey 2022

(Household Interview and Health Examination)

MINISTRY OF HEALTH
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NATIONAL POPULATION HEALTH SURVEY 2022
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Foreword

The National Population Health Survey (NPHS) is a cross-sectional population health survey series to track the health and risk factors, as well as lifestyle practices of Singapore residents. This survey replaces the three population health surveys (i.e., National Health Survey (NHS), National Health Surveillance Survey (NHSS) and Health Behaviour Surveillance of Singapore (HBSS)) previously conducted by the Ministry of Health and Health Promotion Board respectively.

The NPHS is conducted annually to provide timely and regular information on the prevalence of non-communicable diseases such as diabetes mellitus, hypertension, hyperlipidaemia and related risk factors like smoking, alcohol consumption and physical inactivity from a representative sample of the resident population. The NPHS also captures information on practice of chronic disease and cancer screenings, mental health as well as influenza and pneumococcal vaccination among Singapore residents.

Overall, the results from NPHS 2022 showed a decline in the prevalence of diabetes and hyperlipidaemia among Singapore residents since 2017 while the prevalence of hypertension and obesity continued to increase. Screening for cancer and chronic disease screening has improved in 2022 compared to 2021 but remained lower than 2019 (pre-COVID-19 pandemic). In terms of risk factors, the proportion of residents engaging in sufficient total physical activity continued to decrease in 2022, likely due to the reduced commuting from hybrid work arrangements. While the prevalence of binge drinking has remained stable compared to 2021, the smoking prevalence has come down slightly in 2022. These findings from the survey will help the Ministry of Health and Health Promotion Board develop and evaluate health policies and programmes and improve the health of Singapore residents.

I would like to gratefully acknowledge and thank all who have, in one way or another, contributed to the successful completion of the survey. In particular, I would like to thank all respondents who have given their time to take part, and whose support makes this report possible.

PROFESSOR KENNETH MAK
Director-General of Health
September 2023

Executive Summary

The National Population Health Survey (NPHS) is a cross-sectional population health survey conducted annually by the Ministry of Health and Health Promotion Board to track the health and risk factors, as well as lifestyle practices of Singapore residents. This survey replaces the three population health surveys (i.e., National Health Survey (NHS), National Health Surveillance Survey (NHSS) and Health Behaviour Surveillance of Singapore (HBSS)) that were conducted in the earlier years.

The NPHS monitors the 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 health screening. The survey findings will be used by the Ministry of Health and Health Promotion Board to track progress towards national heath targets and for planning and evaluation of health policies, programmes, and health care services.

The NPHS consists of two components[1]: (i) Household Interview and (ii) Health Examination. This report presents the survey findings from the Household Interview of all Singapore residents aged 18 to 74 years as well as from the Health Examination which comprises mainly measured indicators such as obesity and chronic disease prevalence. The findings from the Household Interview are based on annual data while the findings from the Health Examination are aggregated over two years (i.e., NPHS 2021 and NPHS 2022) to ensure that there are enough data for a detailed analysis[2]. The reporting coverage in terms of age differs from previous national health surveys to reflect the growing size of the older population. While the survey results in the earlier publications of the national health surveys were based on Chinese, Malay and Indian residents aged 18 to 69 years, the NPHS report is based on all Singapore residents aged 18 to 74 years. Time-series data for the extended reporting coverage are available from 2007 onwards[3].

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[1] More details on the survey design, method and fieldwork are covered in "Survey Methodology".

[2] Data collection for the "Health Examination" component requires more efforts and a longer time duration for completion. This is because it requires respondents to attend a health examination/screening at designated locations and hence there are relatively fewer respondents as compared to the "Household Interview" component.

[3] Data from the earlier national health surveys are presented for trend analysis over a longer time period. However, there are differences in the survey design across the health surveys and caution should be exercised in examining differences across the survey series.

Trend analysis is presented when there are sufficient data (inclusive of NHS, NHSS and NPHS) to gauge the directional change of an indicator. Comparison of survey results between the pre-COVID-19 (2019) and COVID-19 (2020 to 2022) period is also carried out to highlight changes in health behaviour and health practices among Singapore residents possibly due to the COVID-19 pandemic[4].

Alcohol consumption

- The crude and age-standardised prevalence of regular alcohol consumption doubled significantly from 2007 to 2022 (crude: 1.2% in 2007, 2.5% in 2022; age-standardised: 1.2% in 2007, 2.4% in 2022).

- However, the prevalence of regular drinking did not change significantly between pre-COVID-19 (2019) and COVID-19 (2020 to 2022) period (crude: 2019 in 2.1%, 2020 in 2.2%, 2021 in 2.8%, 2022 in 2.5%).

- In 2022, 4.0% of the males and 1.1% of the females were regular drinkers. Regular alcohol consumption was most common among males in the 60 to 74 years age group (6.4%).

- The rise in both the crude and age-standardised prevalence of binge drinking was significant between 2007 and 2022 (crude: 4.3% in 2007, 9.4% in 2022; age-standardised: 4.2% in 2007, 9.9% in 2022).

- Even though the overall prevalence of binge drinking was trending downwards between pre-COVID-19 (2019) and COVID-19 (2020 to 2022) period, the decrease was not significant (10.2% in 2019, 10.5% in 2020, 9.6% in 2021, 9.4% in 2022).

- Binge drinking was more common among males (13.1%) than females (5.7%) in 2022. Males aged 40 to 49 years and females aged 30 to 39 years had the highest proportion of binge drinkers at 16.9% and 9.0% respectively.

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[4] NPHS 2020, 2021, and 2022 results are compared with NPHS 2019 results to highlight changes in the health behaviours and health practices among Singapore residents possibly due to COVID-19. Fieldwork for NPHS 2019 was conducted from August 2018 to July 2019 where COVID-19 pandemic had not started yet (pre-COVID-19). Fieldwork for NPHS 2020 was affected by COVID-19 as data were collected for only three-quarter of the survey year (July 2019 to March 2020) and fieldwork from April to June 2020 was cancelled due to the Circuit Breaker from 7 April to 1 June 2020 (inclusive). Fieldwork for NPHS 2021 and NPHS 2022 was carried out from July 2020 to June 2021 and July 2021 to August 2022 respectively.

Cigarette Smoking

- The crude and age-standardised prevalence of daily smoking decreased significantly between 2007 and 2022 (crude: 13.3% in 2007, 9.2% in 2022; age-standardised: 13.3% in 2007, 9.2% in 2022).

- Although the overall crude prevalence of daily smoking decreased from 10.6% in 2019 to 9.2% in 2022, this decrease was not significant (2019: 10.6%, 2020: 10.1%, 2021: 10.4%, 2022: 9.2%).

- The prevalence of daily smoking was higher among males (16.0%) than females (2.7%) in 2022. Male daily smokers smoked an average of 13 cigarettes a day while female daily smokers smoked an average of 9 cigarettes a day.

- Daily smoking was most prevalent in adults aged 40 to 49 years (11.6%) and least prevalent among younger adults aged 18 to 29 years (5.1%) in 2022.

- About half (48.6%) of the daily smokers in 2022 had intention to quit smoking. However, only 14.4% of them planned to quit smoking within the next 12 months or less.

Physical Activity

- The downward trend in the proportion of residents having sufficient total physical activity between 2007 and 2022 was not significant (crude: 85.4% in 2007, 74.9% in 2022; age-standardised: 85.5% in 2007, 75.5% in 2022).

- However, there was a significant decrease from 2019 to 2022. The decrease is likely due to a reduction in commuting from hybrid work arrangements, which has not returned to pre-COVID-19 levels (crude: 84.6% in 2019; age-standardised: 84.9% in 2019).

- In 2022, more males (76.7%) compared with females (73.2%) were able to meet the recommended sufficient total physical activity level.

- Young adults in the 18 to 29 years age group (80.2%) had the largest proportion of having sufficient total physical activity while the older adults aged 60 to 74 years had the lowest proportion at 69.9% in 2022.

- The largest contributor to total physical activity per week was commuting (44.0%), followed by leisure-time physical activity (32.0%) and work-related physical activity (24.1%) in 2022.

- More than one in three (34.5%) Singapore residents aged 18 to 74 years reported having sufficient muscle-strengthening activities in 2022.

- This was more common among younger adults aged 18 to 29 years (45.8%), while the proportion dropped to around one-third for those aged 30 to 74 years old.
- Males (40.2%) had higher proportion with sufficient muscle-strengthening activities compared to females (29.1%).

Chronic Disease Screening

- The crude and age-standardised proportion of Singapore residents aged 40 to 74 years with no previously diagnosed chronic diseases (i.e., diabetes mellitus, high blood pressure, and high blood cholesterol ("DHL")) and were screened for these three conditions within the recommended screening frequencies displayed no significant upward trend over the period 2007 to 2022 (crude: 2007: 58.1%, 2022: 60.3%; age-standardised: 2007: 60.3%, 2022: 60.3%).
- Comparing with pre-COVID-19 (2019), the screening participation for residents with no previous diagnosis of DHL fell during the COVID-19 period (2020 to 2021) but rose in 2022, suggesting a positive trajectory towards regaining pre-COVID-19 screening levels (2019: 66.3%, 2020: 63.0%, 2021: 59.2%).
- For the individual chronic disease regardless of the co-morbidity with other chronic diseases, the crude proportion of residents who had diabetes screening increased significantly from 2007 (72.4%) to 2022 (77.4%) while the proportion for hypertension and hyperlipidaemia screening did not show similar upward trend over the same period (hypertension: 2007: 77.7%, 2022: 80.7%; hyperlipidaemia: 2007: 78.1%, 2022: 75.0%).
- In terms of age-standardised proportion of screening participation, all three chronic conditions did not display significant upward trend between 2007 and 2022 (diabetes: 2007: 73.2%, 2022: 76.6%; hypertension: 2007: 78.6%, 2022: 80.5%; hyperlipidaemia: 2007: 78.9%, 2022: 74.7%).
- Except for hypertension, the screening participation for diabetes and hyperlipidaemia picked up in 2022 after declining for the past two years (i.e. 2021 and 2020) (diabetes: 81.0% in 2019, 78.5% in 2020, 76.6% in 2021, 2022: 77.4%; hypertension: 86.0% in 2019, 83.3% in 2020, 82.4% in 2021, 80.7% in 2022; hyperlipidaemia: 77.9% in 2019, 76.5% in 2020, 72.5% in 2021, 75.0% in 2022).

Cancer Screening

- Although the crude and age-standardised screening participation for breast and cervical cancer showed a decreasing trend between 2007 and 2022, the decline was significant for cervical cancer (crude: 57.9% in 2007, 43.1% in 2022; age-standardised: 57.5% in 2007, 45.0% in 2022) but not so for breast cancer (crude: 41.0% in 2007, 37.6% in 2022; age-standardised: 41.2% in 2007, 38.5% in 2022).

- The crude and age-standardised screening participation for colorectal cancer rose significantly between 2007 and 2022 (crude: 14.6% in 2007 to 38.1% in 2022; age-standardised: 14.6% in 2007 to 37.6% in 2022).

- The screening participation for all three cancers dropped during the COVID-19 period (i.e. 2020, 2021) but were observed to be increasing towards pre-COVID-19 levels in 2022.

Breast Cancer Screening

- In 2022, close to two-fifths (37.6%) of Singapore women in the 50 to 69 years age group reported that they had gone for mammography in the last two years.

Cervical Cancer Screening

- More than two in five (43.1%) Singapore women aged 25 to 74 years reported that they had gone for cervical cancer screening (had done a Pap test in the past three years or HPV test in the past five years) in 2022.

- Singapore women aged 30 to 59 years were most likely to have undergone cervical cancer screening.

Colorectal Cancer Screening

- In 2022, 38.1% of Singapore residents aged 50 to 74 years had undergone colorectal screening within the recommended screening frequency.

- About one in five (21.5%) of these residents reported having undergone a Faecal Immunochemical Test (FIT) at least once in the past one year while about one in four (25.9%) had undergone a colonoscopy in the past 10 years.

- The practice of taking a FIT or a colonoscopy was more prevalent among males (40.0%) compared to females (36.3%).

Self-reported Vaccination

- The overall self-reported influenza vaccination coverage (flu injection in the past 12 months) among Singapore residents aged 18 to 74 years showed significant increasing trend between 2017 (13.1%) and 2022 (18.0%).

- Arising possibly from greater awareness about the importance of vaccination due to COVID-19, the proportion of older residents aged 65 to 74 years who had self-reported influenza vaccination rose significantly from 24.2% in 2019 to 32.4% in 2021, though further increase was not observed in 2022.

- The self-reported influenza vaccination coverage among males (18.5%) was higher than females (17.5%) in 2022.

- A significant increase in the self-reported pneumococcal vaccination among Singapore residents aged 65 to 74 years was observed over the period from 10.3% in 2019 to 26.5% in 2022.

- The self-reported pneumococcal vaccination coverage in 2022 was higher in males (26.9%) than females (26.1%).

Mental Health

- The crude and age-standardised prevalence of poor mental health, as measured by GHQ-12, among Singapore residents aged 18 to 74 years increased between 2017 (crude: 12.5%; age-standardised: 12.6%) and 2022 (crude: 17.0%; age-standardised: 17.8%), though these increases were not significant.

- More females (18.6%) had poor mental health compared to males (15.2%) in 2022.

- Younger adults aged 18 to 29 years (25.3%) had the highest proportion with poor mental health while the prevalence for other age groups were much lower, ranging from 10.5% for those in the 60 to 74 years age group to 19.4% in the 30 to 39 years age group.

- The proportion of residents who were willing to seek help from healthcare professionals ranged between 47.8% to 60.4% in the period between 2019 and 2022.

- The proportion of residents who were willing to seek help from informal support networks ranged between 69.1% to 79.7% in the period between 2019 and 2022.

- In 2022, Singapore residents aged 18 to 74 years were more willing to seek help informally from their social circle (79.7%) than formally from healthcare professionals (56.6%) if they were constantly unable to cope with stress.

- Females were more willing to seek help from healthcare professionals and informal support networks compared to males in 2022.

- Among the age groups, Singapore residents aged 60 to 74 years (48.1%) were the least willing to seek help from healthcare professionals while those aged 30 to 39 years (62.0%) were the most willing to seek help from healthcare professionals in 2022.

- Similarly, the proportion of Singapore residents aged 18 to 74 years who were willing to seek help from informal support networks decreased with age, it was highest among younger adults aged 18 to 29 years (88.1%) and lowest among older adults aged 60 to 74 years (68.4%) in 2022.

Chronic Diseases

- While the age-standardised prevalence of diabetes and hyperlipidaemia has been decreasing in recent years, the age-standardised prevalence for hypertension has been steadily increasing since 2010.

- Males tended to have higher prevalence of chronic diseases compared with females in general. For all three chronic diseases, the proportion of residents with chronic diseases increased with age.

Diabetes Mellitus

- While the crude prevalence of diabetes between 2010 (8.6%) and 2021-2022 (8.5%) remained stable, the age-standardised prevalence showed a declining trend (8.6% in 2010, 6.8% in 2021-2022). Both trends were not significant during this period.

- A higher proportion of males (9.7%) were diabetic compared to females (7.3%) during the period 2021-2022.

- Diabetes prevalence increased with age where the proportion of diabetics almost doubled with each successive age group from 1.9% among those aged 30 to 39 years to 21.8% among those aged 60 to 69 years. About one in every four (24.2%) older adults aged 70 to 74 years were diabetic.

- Among all residents with diabetes mellitus, close to one in five (18.8%) of them had not been previously diagnosed with diabetes.

- Among the known diabetics who attended health examination, about three in five (61.3%) did not meet the recommended target for glycaemic control (HbA1c ≤ 7%).

Hypertension (or High Blood Pressure)

- The crude prevalence of hypertension showed a significant increase from 2010 to 2021-2022 while the upward trend for the age-standardised prevalence was not significant in the same period (crude: 19.8% in 2010, 37.0% in 2021-2022; age-standardised: 19.8% in 2010, 32.4% in 2021-2022).

- More males (44.0%) were hypertensives compared with females (30.2%) during the period 2021-2022.

- Prevalence of hypertension increased with age; starting at around 8.1% for those aged 18 to 29 years to 76.8% among those aged 70 to 74 years.

- Among all residents with hypertension, more than half (53.5%) of them had not been previously diagnosed with hypertension.

- Among the known hypertensives who attended health examination, about two-thirds (64.8%) had poor control of their blood pressure.

Hyperlipidaemia (or High Blood Cholesterol)

- The increase in the crude prevalence of high blood cholesterol was significant from 2010 to 2021-2022 while the increase in the age-standardised prevalence was not significant (crude: 26.2% in 2010, 31.9% in 2021-2022; age-standardised: 26.2% in 2010, 28.9% in 2021-2022). In the recent time period, a significant decrease in crude prevalence was observed, dropping from 39.1% in the period 2019-2020 to 31.9% in 2021-2022.

- Males (36.2%) had higher prevalence of high blood cholesterol than females (27.9%) during the period 2021-2022.

- The prevalence of high blood cholesterol increased with age; from around one in 10 (9.6%) adults in the 18 to 29 years age group having the condition to more than one in two in the 60 to 74 years age group (60 to 69 years: 53.7%, 70 to 74 years: 55.1%).

- Among all residents with high blood cholesterol, 46.7% of them had not been previously diagnosed with this chronic condition.

Obesity

- Although the upward trends in the crude and age-standardised prevalence of obesity were not significant from 2010 to 2021-2022, the prevalence continued to increase since 2013 and superseded the prevalence of 10.5% seen in 2019-2020 and 2010 at 11.6% in 2021-2022 (crude: 2010: 10.5%, 2013: 8.6%, 2019-2020: 10.5%, 2021-2022: 11.6%; age-standardised: 2010: 10.5%, 2013: 8.6%, 2019-202: 10.7%, 2021-2022: 11.8%).

- Obesity was more common among males (13.1%) compared with females (10.2%) in 2021-2022.

- Among the age groups, obesity was highest among adults aged 40 to 49 years at 15.0%.

High Risk BMI[5]

- The crude and age-standardised prevalence of high risk BMI remained largely stable from 2010 to 2021-2022 (crude: 2010: 22.7%, 2021-2022: 22.3%; age-standardised: 2010: 22.7%, 2021-2022: 22.4%).

- High risk BMI was more prevalent among males (25.2%) compared with females (19.5%).

- High risk BMI was also more common among adults aged 40 to 59 years (40 to 49 years: 27.2%; 50 to 59 years: 26.6%), more than 1.5 times that of those aged 18 to 29 years old (16.1%).

Abdominal Obesity

- The crude prevalence of abdominal obesity increased significantly from 39.1% in 2010 to 43.3% in 2021-2022 while the increasing trend in the age-standardised prevalence was not significant in the same period.

- The prevalence of abdominal obesity was slightly higher in females (43.8%) than males (42.9%).

- The prevalence of abdominal obesity increased with age, with the highest prevalence observed among adults aged 50 to 74 years (50 to 59 years: 53.9%, 60 to 74 years: 54.5%).

Chronic Kidney Disease (Renal Impairment)

- The crude prevalence of CKD increased significantly from 8.7% in the period 2019-2020 to 13.8% in 2021-2022. The age-standardised prevalence of CKD was 11.4% in 2021-2022, much higher than 7.3% in 2019-2020.

- The crude prevalence of CKD among males (13.6%) and females (14.0%) was similar.

- The prevalence of CKD increased with age, from 5.9% among those aged 18 to 39 years, 10.8% among those aged 40 to 54 years, 21.6% among those aged 55 to 69 years to 36.0% for those aged 70 to 74 years.

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[5] 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 Asians where having a BMI equal to or greater than 27.5 kg/m^2 was considered as having high risk BMI (i.e., BMI ≥ .27.5 kg/m^2).

- The prevalence of CKD among residents with diabetes (42.3%) was about four-fold higher than those without diabetes (10.0%). Among residents with pre-diabetes, their prevalence of CKD (21.8%) was twice as high as those without diabetes (10.0%).
- Similarly, for residents with hypertension, their prevalence of CKD (24.2%) was 3.5-fold elevated compared to those without hypertension (6.9%).

Chapter 1
Alcohol Consumption

Key Points

- 2.5% of Singapore residents aged 18 to 74 years consumed alcohol regularly in 2022, with 4.0% of the males and 1.1% of the females being regular drinkers.
- Regular alcohol consumption was most common among males in the 60 to 74 years age group (6.4%).
- The prevalence of binge drinking was 9.4% in 2022, and it was more common among males (13.1%) than females (5.7%).
- Males aged 40 to 49 years and females aged 30 to 39 years had the highest proportion of binge drinkers at 16.9% and 9.0% respectively.

Introduction

Alcohol is a toxic and psychoactive substance with dependence producing properties. Alcohol consumption is a major contributor to the global burden of disease. Several diseases such as liver and pancreas disease, neuropsychiatric disease, cardiovascular diseases and certain cancers, are entirely or partially caused by alcohol consumption. In addition to these disease risks that affect the drinkers in the long run, alcohol consumption can also affect social behaviours and cause harm to both the drinkers and the other people around. The impact of alcohol intake is largely determined by the pattern of drinking and volume of alcohol consumed *(WHO 2018)*.

Definition

Alcohol consumption was classified according to the frequency of alcohol intake in Table 1.1.

Table 1.1: Classification of alcohol consumption
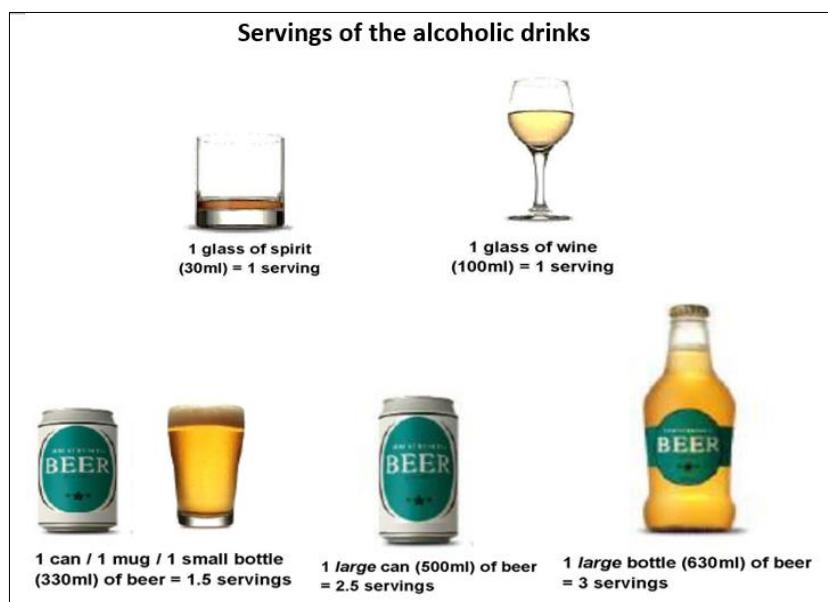
Classification	Frequency of alcohol consumption
Regular drinker	> 4 days a week
Frequent drinker	1 – 4 days a week
Occasional drinker	≤ 3 days a month

Binge drinking was defined as consumption of at least five alcoholic drinks[6] for males or at least four alcoholic drinks for females in any single drinking session during the past month preceding the survey.

Method Used

An interviewer-administered questionnaire was used. Respondents were shown a card with pictures of standard alcoholic drinks (Diagram 1) and asked questions on alcohol consumption within the past 12 months at the time of the survey.

Diagram 1: Alcohol card

Alcohol Consumption

The survey found that among Singapore residents aged 18 to 74 years, 2.5% consumed alcohol regularly, 10.4% frequently and 32.1% occasionally, while 55.0% were non-drinkers (Table 1.2).

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[6] 1 alcoholic drink refers to 1 glass (~100 mls) of wine or 1 measure (~30 mls) of spirits.1 can/ mug/ small bottle (330ml) of beer represents 1.5 servings of alcoholic drink.

Table 1.2: Alcohol consumption (%) among Singapore residents aged 18 to 74 years by sex, 2022

Alcohol Consumption	Total	Males	Females
Non-drinker	55.0	46.3	63.5
Occasional drinker	32.1	35.4	28.9
Frequent drinker	10.4	14.4	6.5
Regular drinker	2.5	4.0	1.1

Note: Data might not sum to 100% due to rounding.

Prevalence of Regular Alcohol Consumption
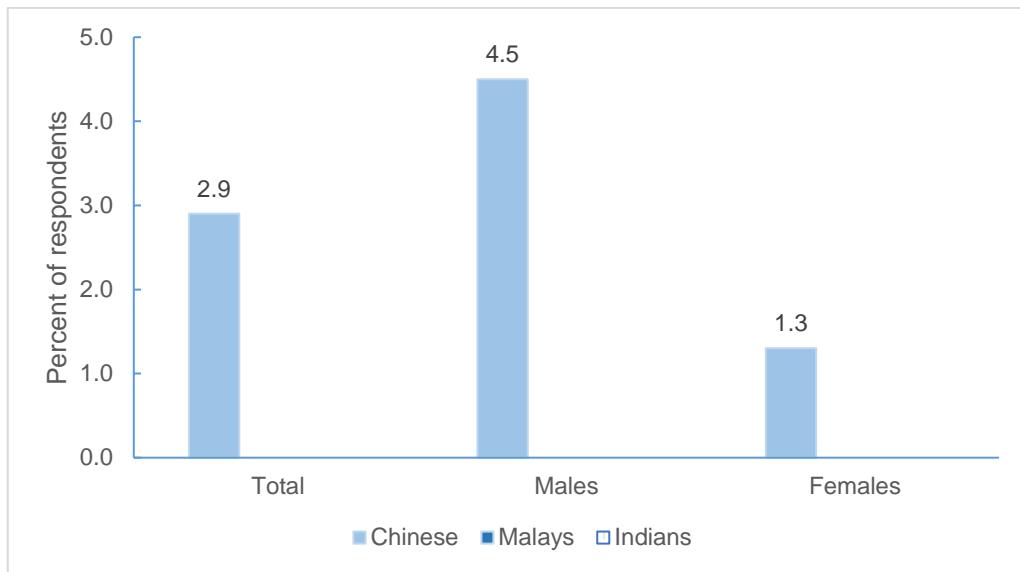
Among Singapore residents aged 18 to 74 years, 4.0% of the males and 1.1% of the females consumed alcohol regularly (Table 1.3). Regular alcohol consumption was most common among males in the 60 to 74 years age group (6.4%). Among the ethnic groups, regular drinking was most common in Chinese (2.9%) (Graph 1.1). A slightly higher proportion of residents with primary education (3.8%) and secondary education (2.7%) were regular drinkers, compared to those with post-secondary education (2.2%) (Table 1.4).

Table 1.3: Age-specific crude prevalence (%) of regular alcohol consumption among Singapore residents aged 18 to 74 years by sex, 2022

Age (years)	Total	Males	Females
18-29	s	s	s
30-39	1.9	2.3	1.6
40-49	3.5	5.8	1.4
50-59	3.2	4.4	2.0
60-74	3.3	6.4	s
18-74	2.5	4.0	1.1

s: Data have been suppressed due to small counts or high sampling variability.

Graph 1.1: Crude prevalence (%) of regular alcohol consumption among Singapore residents aged 18 to 74 years by sex and ethnicity, 2022

Note: Data for Malays and Indians have been suppressed due to small counts or high sampling variability.

Trends in Regular Drinking

The crude and age-standardised prevalence of regular alcohol consumption doubled significantly from 2007 to 2022 (Table 1.4). Likewise, a significant rise in prevalence of regular drinking was also observed among adults aged 40 to 49 years, in both sexes, among Chinese and across all education levels in the same period. Comparing between pre-COVID-19 (2019) and COVID-19 (2020 to 2022) period, the prevalence of regular drinking did not change significantly.

Table 1.4: Crude prevalence (%) of regular alcohol consumption among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2007 to 2022

	NHSS 2007	NHSS 2013	NPHS 2017	NPHS 2019	NPHS 2020	NPHS 2021	NPHS 2022
Total	1.2	1.2	2.2 (1.6, 2.7)	2.1 (1.6, 2.6)	2.2 (1.7, 2.6)	2.8 (2.1, 3.4)	2.5[b] (2.1, 2.9)
ASR	1.2	1.2	2.1	1.9	2.1	2.7	2.4[b]
18-29	s	s	s	s	s	s	s
30-39	0.9	s	s	1.1 (0.5, 1.8)	1.8 (0.9, 2.8)	1.7 (1.0, 2.5)	1.9 (1.2, 2.7)
40-49	1.2	2.0	2.3 (1.1, 3.4)	2.1 (1.0, 3.1)	2.0 (1.2, 2.8)	2.7 (1.6, 3.9)	3.5[b] (2.5, 4.5)
50-59	1.9	1.5	3.8 (2.1, 5.4)	2.4 (1.3, 3.4)	3.4 (2.2, 4.6)	3.9 (2.7, 5.1)	3.2 (2.0, 4.4)
60-74	s	1.4	3.7 (2.0, 5.4)	4.3 (2.7, 5.9)	3.0 (2.1, 3.8)	3.2 (2.3, 4.1)	3.3 (2.3, 4.3)
Males	2.1	2.0	3.7 (2.7, 4.8)	3.6 (2.6, 4.5)	3.4 (2.7, 4.1)	4.6 (3.3, 5.8)	4.0[b] (3.3, 4.7)
Females	s	0.4	s	0.7 (0.3, 1.0)	1.0 (0.6, 1.4)	1.1 (0.7, 1.4)	1.1[b] (0.7, 1.5)
Primary	1.5	1.8	s	3.3 (1.9, 4.6)	3.2 (1.9, 4.4)	2.9 (1.8, 4.0)	3.8[b] (2.4, 5.3)
Secondary	1.3	1.6	2.6 (1.4, 3.7)	2.3 (1.4, 3.1)	1.9 (1.3, 2.5)	2.5 (1.8, 3.3)	2.7[b] (1.9, 3.4)
Post-secondary	1.0	0.8	1.9 (1.1, 2.7)	1.7 (1.1, 2.3)	2.1 (1.5, 2.6)	2.9 (1.9, 3.8)	2.2[b] (1.7, 2.7)
Chinese	1.3	1.3	2.3 (1.6, 2.9)	2.2 (1.6, 2.8)	2.4 (1.9, 2.9)	3.2 (2.3, 4.0)	2.9[b] (2.4, 3.4)
Malays	s	s	s	s	s	s	s
Indians	s	1.0	s	s	s	2.3 (1.2, 3.3)	s

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) s: Data have been suppressed due to small counts or high sampling variability.

(3) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(4) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(5) [b] Indicate statistically significant linear upward trend between 2007 and 2022 with p-value <0.05.

Prevalence of Binge Drinking
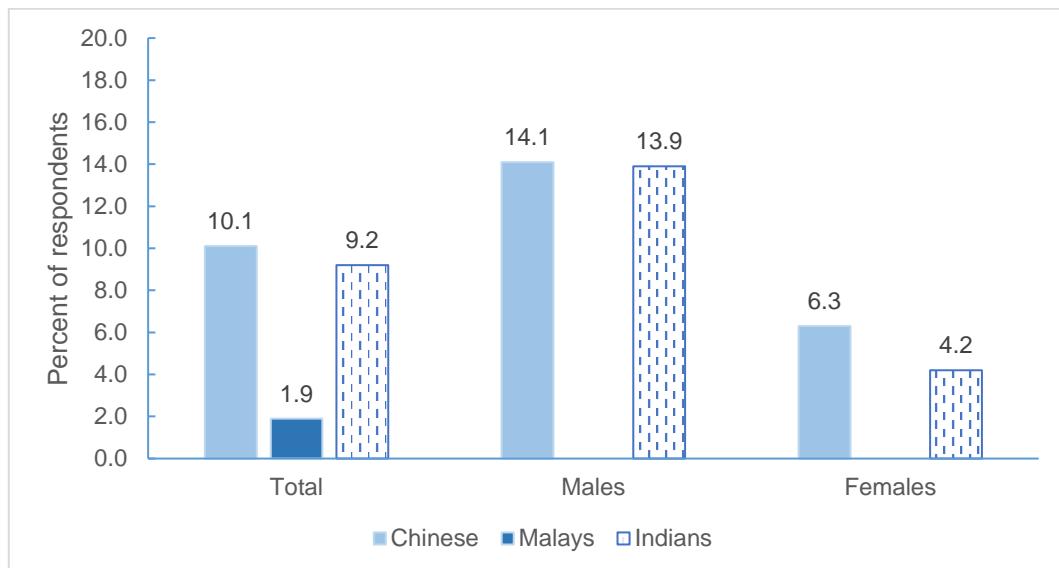
Among Singapore residents aged 18 to 74 years, the prevalence of binge drinking was 9.4% (Table 1.5). Binge drinking was more prevalent among males (13.1%) than females (5.7%). The highest proportion of binge drinkers for males was in the 40 to 49 years age group (16.9%) and for females in the 30 to 39 years age group (9.0%). Among the ethnic groups, the prevalence of binge drinking was higher in Chinese (10.1%) and Indians (9.2%) than Malays (1.9%) (Graph 1.2). The proportion of binge drinkers was higher among those with post-secondary education (11.0%), compared to those with lower education levels (primary education and secondary education, both at 6.6%) (Table 1.6).

Table 1.5: Age-specific crude prevalence (%) of binge drinking among Singapore residents aged 18 to 74 years by sex, 2022

Age (years)	Total	Males	Females
18-29	10.5	12.3	8.7
30-39	12.6	16.5	9.0
40-49	11.2	16.9	5.8
50-59	9.0	12.7	5.3
60-74	4.5	8.3	s
18-74	9.4	13.1	5.7

s: Data have been suppressed due to small counts or high sampling variability.

Graph 1.2: Crude prevalence (%) of binge drinking among Singapore residents aged 18 to 74 years by sex and ethnicity, 2022

Note: Data for Malay males and females have been suppressed due to small counts or high sampling variability.

Trends in Binge Drinking

The rise in both the crude and age-standardised prevalence of binge drinking was significant between 2007 and 2022 (Table 1.6). This upward trend was also observed in all age groups except those aged 18 to 29 years and 60 to 74 years, in both sexes, among Chinese and Malays; and those with primary and post-secondary education over the same period between 2007 and 2022.

Even though the overall prevalence of binge drinking was trending downwards between the pre-COVID-19 (2019) and COVID-19 (2020 to 2022) period, the decrease was not significant. The only exception was among males where the prevalence of binge drinking had decreased significantly from 14.9% in 2019 to 13.1% in 2022.

Table 1.6: Crude prevalence (%) of binge drinking among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2007 to 2022

	NHSS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2013	2017	2019	2020	2021	2022
Total	4.3	7.4	8.8 (7.6, 10.0)	10.2 (9.1, 11.3)	10.5 (9.5, 11.5)	9.6 (8.6, 10.6)	9.4[b] (8.6, 10.2)
ASR	4.2	7.3	9.1	10.7	11.2	10.3	9.9[b]
18-29	8.1	14.6	12.4 (9.2, 15.6)	16.6 (13.5, 19.7)	17.1 (13.8, 20.3)	15.6 (12.0, 19.3)	10.5 (8.5, 12.5)
30-39	4.6	7.7	10.6 (7.5, 13.7)	13.8 (10.9, 16.6)	14.5 (12.0, 17.0)	12.8 (10.7, 14.9)	12.6[b] (10.7, 14.5)
40-49	3.7	5.3	9.3 (6.8, 11.7)	8.8 (6.8, 10.7)	9.6 (7.7, 11.6)	9.7 (7.9, 11.5)	11.2[b] (9.4, 13.0)
50-59	2.3	4.9	7.3 (5.0, 9.7)	6.9 (5.0, 8.8)	6.8 (5.1, 8.5)	6.4 (4.9, 7.8)	9.0[b] (7.1, 10.9)
60-74	s	3.2	4.0 (2.4, 5.7)	5.0 (3.4, 6.6)	4.9 (3.5, 6.2)	4.3 (3.2, 5.3)	4.5 (3.4, 5.6)
Males	6.4	10.7	13.1 (11.1, 15.1)	14.9 (13.1, 16.6)	14.6 (13.0, 16.3)	13.8 (12.1, 15.5)	13.1[be] (11.9, 14.4)
Females	2.2	4.2	4.7 (3.4, 6.0)	5.7 (4.6, 6.8)	6.5 (5.3, 7.7)	5.6 (4.5, 6.7)	5.7[b] (4.9, 6.6)
Primary	3.1	2.7	4.2 (2.3, 6.2)	5.4 (3.6, 7.2)	4.4 (2.9, 5.9)	4.8 (3.2, 6.3)	6.6[b] (4.7, 8.5)
Secondary	4.5	5.7	8.4 (6.5, 10.4)	7.3 (5.9, 8.7)	7.5 (6.0, 8.9)	6.6 (5.4, 7.8)	6.6 (5.3, 8.0)
Post-secondary	4.5	9.8	10.3 (8.6, 12.0)	12.5 (10.9, 14.2)	13.0 (11.5, 14.5)	11.7 (10.2, 13.1)	11.0[b] (9.9, 12.0)

Table 1.6: Crude prevalence (%) of binge drinking among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2007 to 2022 (continued)

	NHSS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2013	2017	2019	2020	2021	2022
Chinese	4.7	8.6	9.4 (8.0, 10.9)	11.5 (10.1, 12.8)	11.6 (10.3, 12.8)	10.2 (9.0, 11.4)	10.1[b] (9.2, 11.1)
Malays	1.1	1.5	s	2.3 (1.0, 3.6)	1.7 (0.7, 2.7)	2.1 (1.0, 3.2)	1.9[b] (0.8, 3.0)
Indians	4.5	6.6	13.4 (9.2, 17.6)	10.5 (7.8, 13.1)	11.4 (7.9, 14.8)	10.6 (6.3, 14.8)	9.2 (6.8, 11.7)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) s: Data have been suppressed due to small counts or high sampling variability.

(3) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(4) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(5) [b] Indicate statistically significant linear upward trend between 2007 and 2022 with p-value <0.05.

(6) [e] Indicate statistically significant linear downward trend between 2019 and 2022 with p-value <0.05.

Chapter 2
Cigarette Smoking

Key Points

- 9.2% of Singapore residents aged 18 to 74 years smoked cigarettes daily in 2022.

- More males (16.0%) smoked daily than females (2.7%).

- Daily smoking was most prevalent in adults aged 40 to 49 years (11.6%) and least prevalent among younger adults aged 18 to 29 years (5.1%) in 2022.

- Male daily smokers smoked an average of 13 cigarettes a day while female daily smokers smoked an average of 9 cigarettes a day.

- About half (48.6%) of the daily smokers had intention to quit smoking. However, only 14.4% of them planned to quit smoking within the next 12 months or less.

Introduction

Tobacco use is a source of preventable morbidity and mortality. Active smoking increases the risk of several diseases such as respiratory diseases, cardiovascular diseases and certain cancers. In addition to these disease risks that affect the smokers, smoking also implicates the other people around who are exposed to second-hand smoke. Cigarette smoking is the most common form of smoking. The impact of tobacco use is largely determined by the pattern of smoking and number of cigarettes smoked *(US Department of Health and Human Services, 2014)*.

Definition

Smoking status was classified according to the frequency of cigarette smoking as shown in Table 2.1, which followed the World Health Organization (WHO) classification criteria *(WHO, 1998)*.

Table 2.1: Classification of smoking status

Classification	Frequency of cigarette smoking
Daily smoker	Smokes cigarettes at least once a day (including people who smoke every day but have to stop temporarily because of religious fasting or medical reasons)
Occasional smoker	Smokes cigarettes but not every day
Ex-smoker	Formerly a daily smoker, but currently does not smoke at all
Non-smoker	Never smoked before or smoked too little in the past to be regarded as an ex-smoker

Method Used

An interviewer-administered questionnaire was used. The questionnaire was based on WHO's recommended core questions for assessing smoking status *(WHO,1998).*

Smoking Status

The survey showed that among Singapore residents aged 18 to 74 years, 9.2% were daily smokers, 2.8% were occasional smokers, 8.5% were ex-smokers and 79.5% were non-smokers (Table 2.2).

**Table 2.2: Smoking status (%) of Singapore residents
aged 18 to 74 years by sex, 2022**

Smoking Status	Total	Males	Females
Daily smoker	9.2	16.0	2.7
Occasional smoker	2.8	4.5	1.1
Ex-smoker	8.5	13.8	3.4
Non-Smoker	79.5	65.7	92.8
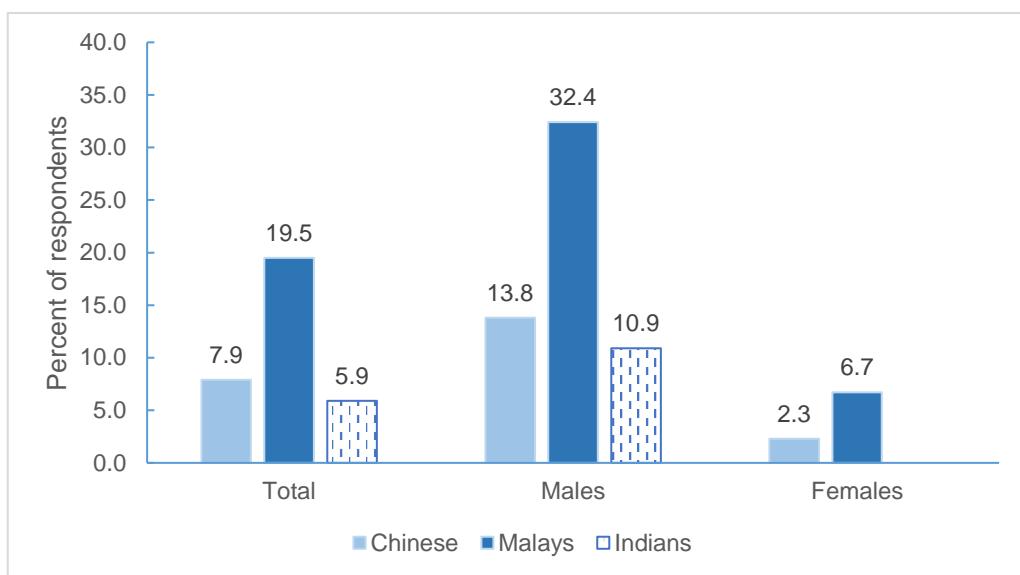
Prevalence of Daily Smoking

The prevalence of daily smoking among Singapore residents aged 18 to 74 years was 16.0% among males and 2.7% among females (Table 2.3). Daily smoking was most prevalent in the 40 to 49 years age group for both sexes (males: 20.0%, females: 3.8%). Daily smoking prevalence was higher among Malays (19.5%) than Chinese (7.9%) and Indians (5.9%) (Graph 2.1). The prevalence of daily smoking among Singapore residents with primary education (17.5%) was about three times higher than residents with post-secondary education (5.7%) (Table 2.4).

Table 2.3: Age-specific crude prevalence (%) of daily smoking among Singapore residents aged 18 to 74 years by sex, 2022

Age (years)	Total	Males	Females
18-29	5.1	7.9	2.3
30-39	8.7	14.6	3.3
40-49	11.6	20.0	3.8
50-59	11.4	19.6	3.4
60-74	9.4	17.8	1.2
18-74	9.2	16.0	2.7

Graph 2.1: Crude prevalence (%) of daily smoking among Singapore residents aged 18 to 74 years by sex and ethnicity, 2022

Note: Data for Indian females have been suppressed due to small counts or high sampling variability.

Age of Initiation and Onset of Daily Smoking Among Daily Smokers

Among Singapore residents who are daily smokers, the mean age of initiation, or the age at which they first tried smoking, was 17 years old. The mean age at which they established their habit of daily smoking was 19 years old. Among the younger daily smokers aged 18 to 24 years, the mean age of initiation and age at which they established their daily smoking habit was 16 and 18 years old respectively.

Smoking Intensity of Daily Smokers

The mean number of cigarettes smoked per day among the daily smokers was 12 cigarettes. Male daily smokers on average smoked more cigarettes per day (13 cigarettes) than female daily smokers (9 cigarettes). Daily smokers in the 50 to 59 years and 60 to 74 years age groups on average smoked the highest number of cigarettes per day (13 cigarettes), compared to the other age groups.

Quit Intention of Daily Smokers

About half (48.6%) of the daily smokers had intention to quit smoking. However, only about one in seven (14.4%) daily smokers planned to quit smoking within the next 12 months or less. Slightly more than one in four (28.4%) daily smokers indicated that they did not plan to quit smoking at all but planned to cut down on the number of cigarettes smoked. Slightly more than one in five (23.0%) daily smokers did not plan to quit smoking or reduce the number of cigarettes smoked. Daily smokers who had abstained from smoking for a period of at least 24 hours in the past 12 months reported that on average they had tried quitting smoking three times during the past 12 months preceding the survey.

Trends in Daily Smoking

The crude and age-standardised prevalence of daily smoking decreased significantly between 2007 and 2022 (Table 2.4). This downward trend was also significant in younger adults aged 18 to 29 years, in both males and females, among the Chinese, those with secondary and post-secondary education over the same period.

Although the overall crude prevalence of daily smoking decreased from 10.6% in 2019 to 9.2% in 2022, this decrease was not significant. However, there was a significant decrease in daily smoking prevalence among residents with secondary education over the last four years from 16.7% in 2019 to 14.6% in 2022.

Table 2.4: Crude prevalence (%) of daily smoking among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2007 to 2022

	NHSS	NHS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2010	2013	2017	2019	2020	2021	2022
Total	13.3	13.9	13.1	11.8 (10.6, 13.0)	10.6 (9.5, 11.7)	10.1 (9.2, 11.0)	10.4 (9.6, 11.2)	9.2[c] (8.5, 10.0)
ASR	13.3	13.9	13.2	12.0	10.6	10.3	10.7	9.2[c]
18-29	17.4	16.0	12.6	9.8 (7.1, 12.5)	8.4 (6.5, 10.2)	8.8 (6.8, 10.8)	8.3 (6.2, 10.4)	5.1[c] (3.8, 6.5)
30-39	12.5	16.0	14.7	12.6 (9.5, 15.7)	11.4 (9.3, 13.5)	9.9 (7.9, 11.8)	12.8 (10.9, 14.7)	8.7 (7.1, 10.4)[a]
40-49	12.8	14.3	15.4	14.5 (11.6, 17.4)	10.6 (8.7, 12.5)	10.6 (8.5, 12.7)	11.6 (9.5, 13.7)	11.6 (9.9, 13.3)
50-59	12.7	11.4	13.3	11.9 (9.2, 14.6)	12.6 (10.0, 15.2)	13.4 (10.8, 16.0)	11.3 (9.4, 13.3)	11.4 (9.5, 13.3)
60-74	9.8	10.1	8.5	10.2 (7.5, 12.8)	10.2 (8.0, 12.4)	8.0 (6.5, 9.5)	8.3 (6.9, 9.6)	9.4 (7.9, 10.8)
Males	23.1	24.0	23.0	20.6 (18.5, 22.8)	18.4 (16.3, 20.5)	17.0 (15.4, 18.6)	17.8 (16.3, 19.3)	16.0[c] (14.7, 17.3)
Females	3.8	4.1	3.6	3.3 (2.3, 4.3)	3.2 (2.4, 3.9)	3.4 (2.5, 4.3)	3.3 (2.6, 4.0)	2.7[c] (2.2, 3.3)
Primary	16.3	19.4	15.8	17.2 (13.6, 20.9)	18.3 (15.2, 21.4)	16.5 (13.7, 19.3)	16.5 (13.5, 19.5)	17.5 (14.7, 20.3)
Secondary	18.0	18.1	19.6	17.5 (14.8, 20.2)	16.7 (14.3, 19.0)	16.4 (14.2, 18.6)	15.5 (13.6, 17.3)	14.6[ce] (12.9, 16.4)
Post-secondary	8.4	9.3	8.3	6.9 (5.6, 8.2)	6.1 (5.1, 7.1)	6.0 (5.0, 6.9)	7.2 (6.3, 8.1)	5.7[c] (5.0, 6.4)
Chinese	12.0	12.6	11.5	9.9 (8.6, 11.2)	8.6 (7.5, 9.7)	8.6 (7.7, 9.5)	8.6 (7.8, 9.5)	7.9[c] (7.2, 8.7)
Malays	23.0	26.1	24.9	23.1 (19.0, 27.3)	23.0 (19.4, 26.6)	21.1 (17.3, 24.9)	22.4 (19.1, 25.8)	19.5 (16.6, 22.3)
Indians	11.1	10.0	10.5	12.6 (8.4, 16.9)	10.9 (8.0, 13.8)	8.9 (6.0, 11.9)	9.2 (6.8, 11.7)	5.9 (4.2, 7.6)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) [c] Indicate statistically significant linear downward trend between 2007 and 2022 with p-value <0.05.

(5) [e] Indicate statistically significant linear downward trend between 2019 and 2022 with p-value <0.05.

Chapter 3
Physical Activity

Key Points

- Based on all domains of physical activity (including work-related, transportation-related and leisure-time), 74.9% of Singapore residents had sufficient total physical activity in 2022.

- More males (76.7%) compared with females (73.2%) were able to meet this recommended total physical activity level.

- Young adults in the 18 to 29 years age group (80.2%) had the largest proportion of having sufficient total physical activity while the older adults aged 60 to 74 years had the lowest proportion at 69.9%.

- The largest contributor to total physical activity per week was commuting (44.0%), followed by leisure-time physical activity (32.0%) and work-related physical activity (24.1%).

- More than one in three (34.5%) Singapore residents aged 18 to 74 years reported having sufficient muscle-strengthening activities in 2022.

- This was more common among younger adults aged 18 to 29 years (45.8%) while the proportion dropped to around one-third for those aged 30 to 74 years old.

- Males (40.2%) had higher proportion with sufficient muscle-strengthening activities compared to females (29.1%).

Introduction

Physical activity is important for maintaining good health for all ages. For adults, it has been shown to reduce the risk of premature death in general and in particular the risk of developing cardiovascular diseases, hypertension and diabetes mellitus. In addition, physical activity improves mental and cognitive health, sleep and prevents unhealthy weight gain. In older adults aged 65 years and above, those are physically active are less likely to experience falls and falls-related injuries and have better functional capacity and mobility to live longer independently *(US Department of Health and Human Services 2018; WHO 2022; WHO 2010).*

Method Used

An interviewer-administered questionnaire was used. Respondents were asked about the frequency, duration, and intensity of physical activity in the domain of work, transportation and leisure[7] using the Global Physical Activity Questionnaire (GPAQ) Analysis Guide developed by WHO in 2014. Physical activity participation was assessed and could be achieved in one single session or accumulated in bouts of at least 10 minutes throughout the day.

Total Physical Activity

WHO guidelines recognise that participation in physical activity can be achieved across three domains: work-related activity (paid or unpaid work including household chores), transportation-related activity (e.g., walking or cycling while travelling to and from places) and leisure-time physical activity; and recommend 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 week *(WHO 2022; WHO 2010)*. This recommendation is equivalent to achieving a minimum of at least 600 MET[8] minutes per week (i.e., having sufficient total physical activity).

Prevalence of Sufficient Total Physical Activity

In 2022, 74.9% of Singapore residents aged 18 to 74 years had sufficient total physical activity (Table 3.1). More males (76.7%) compared with females (73.2%) had sufficient total physical activity. Young adults in the 18 to 29 years age group (80.2%) had the largest proportion with sufficient total physical activity while the older adults aged 60 to 74 years had the lowest proportion at 69.9%. A higher proportion of Indians (80.9%) had sufficient total physical activity than the Malays (79.4%) and Chinese (73.1%) (Graph 3.1). A larger proportion of residents with post-secondary education (77.3%) had sufficient total physical activity compared with residents with secondary (74.1%) or primary (63.1%) education (Table 3.2). The largest contributor to total physical activity per week was commuting (44.0%), followed by leisure-time physical activity (32.0%) and work-related physical activity (24.1%).

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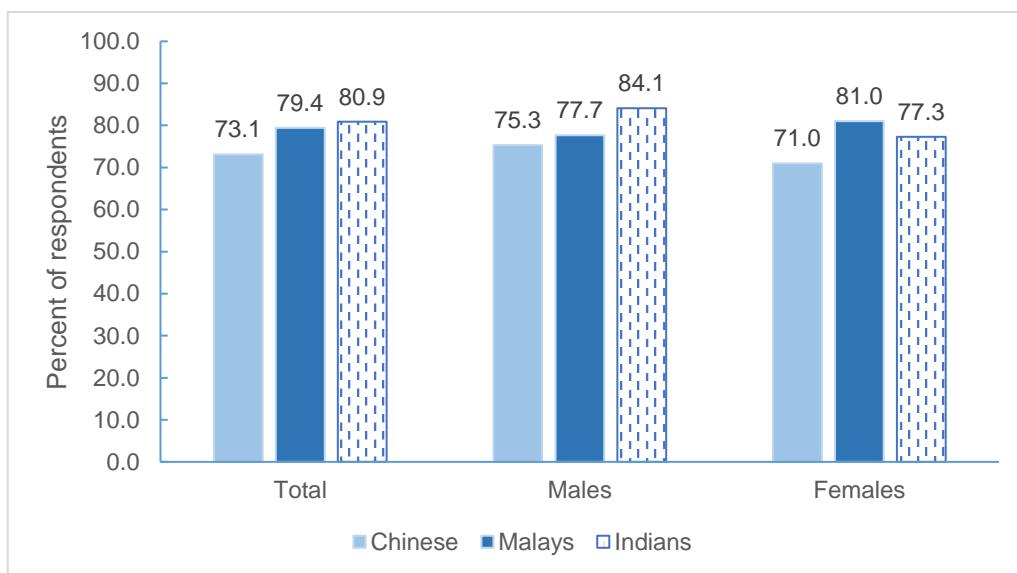
[7] Starting from NPHS 2022, the National Population Health Survey will no longer report the participation on leisure-time physical activity. For information regarding sports and exercise participation among Singapore residents, please refer to the National Sport Participation Survey (NSPS).

[8] MET (Metabolic Equivalents) is the ratio of a person's working metabolic rate relative to the resting metabolic rate. 1MET is defined as the energy cost of sitting quietly and is equivalent to a caloric consumption of 1kcal/kg/hour.

Table 3.1: Age-specific crude prevalence (%) of sufficient total physical activity among Singapore residents aged 18 to 74 years by sex, 2022

Age (years)	Total	Males	Females
18-29	80.2	82.8	77.4
30-39	75.5	79.6	71.7
40-49	75.7	74.3	77.1
50-59	74.3	76.0	72.7
60-74	69.9	71.6	68.2
18-74	74.9	76.7	73.2

Graph 3.1: Crude prevalence (%) of sufficient total physical activity among Singapore residents aged 18 to 74 years by sex and ethnicity, 2022

Trends in Sufficient Total Physical Activity

Even though the downward trend in the proportion of residents with sufficient total physical activity at the overall level was not significant between 2007 and 2022 (Table 3.2), there was a significant decrease among residents with secondary education.

Between 2019 to 2022, a significant decrease in the proportion of residents with sufficient total physical activity was observed. This decrease is likely due to a reduction in commuting from hybrid work arrangements, which has not returned to pre-COVID-19 levels. Significant decreases were also observed across all sub-groups except for residents in the 40 to 49 years and 60 to 74 years age group, Malays and residents with secondary education.

Table 3.2: Crude prevalence (%) of sufficient total physical activity among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2007 to 2022

	NHSS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2013	2017	2019	2020	2021	2022
Total	85.4	79.5	84.0 (82.1, 86.0)	84.6 (83.2, 85.9)	80.6 (79.4, 81.8)a	76.0 (74.8, 77.2)a	74.9e (73.8, 76.1)
ASR	85.5	79.7	84.1	84.9	81.1	76.8	75.5e
18-29	87.9	86.9	90.4 (87.5, 93.4)	88.2 (85.4, 91.0)	86.4 (84.0, 88.8)	81.9 (79.1, 84.7)	80.2e (77.5, 82.8)
30-39	83.2	78.9	84.6 (81.0, 88.1)	82.7 (79.8, 85.5)	81.4 (78.6, 84.1)	76.6 (73.8, 79.3)	75.5e (73.0, 77.9)
40-49	85.6	78.5	81.6 (78.1, 85.1)	86.1 (83.7, 88.5)	79.5 (76.9, 82.2)a	74.9 (72.1, 77.7)	75.7 (73.4, 78.1)
50-59	85.7	78.1	82.5 (79.3, 85.7)	83.2 (80.1, 86.3)	81.3 (78.7, 83.9)	78.0 (75.3, 80.6)	74.3e (71.6, 77.0)
60-74	84.6	73.4	80.6 (76.7, 84.5)	82.7 (80.0, 85.3)	74.7 (71.9, 77.5)a	69.6 (67.0, 72.2)	69.9 (67.5, 72.2)
Males	85.2	82.5	84.6 (82.1, 87.0)	85.6 (83.9, 87.3)	80.4 (78.6, 82.2)a	78.1 (76.4, 79.7)	76.7e (75.2, 78.3)
Females	85.7	76.6	83.5 (81.1, 86.0)	83.6 (81.8, 85.5)	80.7 (79.1, 82.3)	74.1 (72.3, 75.9)a	73.2e (71.6, 74.8)
Primary	87.7	72.9	83.7 (79.9, 87.5)	79.0 (74.9, 83.1)	75.1 (71.8, 78.3)	67.6 (63.8, 71.3)a	63.1e (59.6, 66.6)
Secondary	87.4	79.8	82.7 (79.7, 85.6)	84.2 (81.9, 86.5)	78.5 (76.2, 80.9)a	74.5 (72.1, 76.8)	74.1c (72.0, 76.3)
Post-secondary	83.0	81.3	84.9 (82.7, 87.1)	86.0 (84.3, 87.6)	82.5 (81.0, 84.1)a	78.1 (76.5, 79.7)a	77.3e (75.9, 78.6)
Chinese	84.3	78.7	83.4 (81.2, 85.6)	83.6 (81.9, 85.2)	79.7 (78.2, 81.1)a	74.9 (73.4, 76.4)a	73.1e (71.8, 74.4)
Malays	87.9	81.7	87.1 (83.6, 90.7)	84.8 (81.5, 88.1)	80.5 (77.1, 83.9)	76.2 (73.0, 79.4)	79.4 (76.6, 82.2)
Indians	89.9	81.6	83.6 (79.3, 88.0)	91.1 (88.7, 93.4)a	86.5 (83.4, 89.6)	82.4 (78.9, 85.9)	80.9e (77.6, 84.1)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. a Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) Data for the previous survey years (i.e., NHSS 2007, NHSS 2013, NPHS 2017, NPHS 2019, NPHS 2020, NPHS 2021) have been revised due to changes in the computation method of sufficient total physical activity.

(5) c Indicate statistically significant linear downward trend between 2007 and 2022 with p-value <0.05.

(6) e Indicate statistically significant linear downward trend between 2019 and 2022 with p-value <0.05.

Muscle Strengthening Activity

WHO also recommends that adults should do muscle-strengthening activities involving the major muscle groups at least two days or more in a week. Muscle-strengthening activity refers to an activity or exercise that increases skeletal muscle strength, power, endurance and mass (e.g., strength training, resistance training or muscular strength and endurance exercises) and may involves the use of weight machines, exercise bands, hand-held weights or own body weight (e.g., push-ups or sit-ups) (*WHO 2010*; *Bennie et al. 2019)*. The major muscle groups to work on include the legs, back, abdomen, chest, shoulders and arms (*WHO 2010*). It has been shown that muscle-strengthening exercises increase skeletal muscle strength and mass, bone density, ability to perform activities of daily living, improve cardiometabolic heath and reduce symptoms of anxiety and depression (*Bennie et al. 2019*).

Method Used

Information on muscles-strengthening activities were collected since 2020 using an interviewer administered questionnaire. Respondents were asked the number of days in a typical week that they do physical activities or exercises to strengthen their muscles. Respondents must complete at least one set of exercises involving eight to 12 repetitions to be counted as having done one day of muscle-strengthening activities. Respondents were classified as having sufficient muscle-strengthening activities if the frequency of muscle-strengthening activities are at least two days per week.

Prevalence of Sufficient Muscle Strengthening Activity
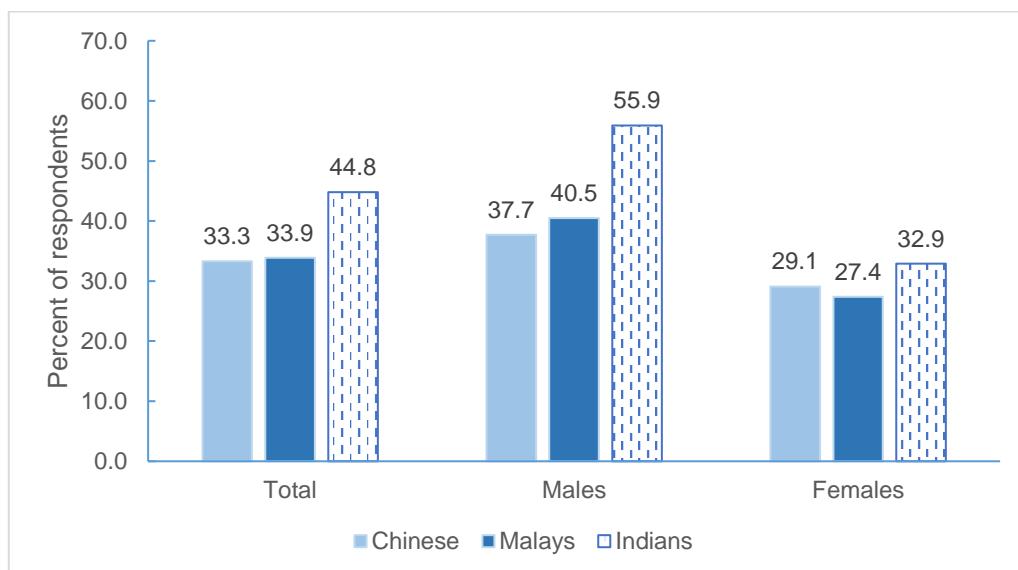
More than one in three (34.5%) Singapore residents aged 18 to 74 years reported having sufficient muscle-strengthening activities in 2022 (Table 3.3). This was more common among younger adults aged 18 to 29 years (45.8%) while the proportion dropped to around one-third for those aged 30 to 74 years old. Males (40.2%) had higher proportion with sufficient muscle-strengthening activities compared with females (29.1%). The proportion of males in the ages 18 to 29 years with sufficient muscle-strengthening activities was more than 1.5 times that of females in the same age group.

Table 3.3: Age-specific crude prevalence (%) of sufficient muscle strengthening activity among Singapore residents aged 18 to 74 years by sex, 2022

Age (years)	Total	Males	Females
18-29	45.8	59.0	32.3
30-39	33.9	40.3	28.0
40-49	33.5	37.6	29.7
50-59	31.6	34.6	28.6
60-74	28.8	30.3	27.4
18-74	34.5	40.2	29.1

Among the ethnic groups, Indians had the highest proportion with sufficient muscle-strengthening activities (44.8%) and for both sexes (males: 55.9%, females: 32.9%) (Graph 3.2). About one-third of Chinese (33.3%) and Malays (33.9%) reported having sufficient muscle-strengthening activities. Malay females had the overall lowest participation in sufficient muscle-strengthening activities at 27.4%. Residents with post-secondary education (38.9%) had higher proportion with sufficient muscle-strengthening activities compared with residents with secondary (29.2%) or primary (21.7%) education (Table 3.4).

Graph 3.2: Crude prevalence (%) of sufficient muscle-strengthening activities among Singapore residents aged 18 to 74 years by sex and ethnicity, 2022

Trends in Sufficient Muscle-Strengthening Activities

The proportion of Singapore residents aged 18 to 74 years with sufficient muscle-strengthening activities has remained largely stable between 2020 and 2022 (Table 3.4).

Table 3.4: Crude prevalence (%) of sufficient muscles-strengthening activities among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2020 to 2022

	NPHS	NPHS	NPHS
	2020	2021	2022
Total	33.8 (32.3, 35.3)	35.5 (34.0, 37.0)	34.5 (33.3, 35.8)
ASR	34.5	36.0	35.2
18-29	44.1 (40.2, 48.0)	46.4 (42.4, 50.5)	45.8 (42.4, 49.3)
30-39	30.9 (27.4, 34.4)	37.0 (33.8, 40.2)	33.9 (31.0, 36.7)
40-49	33.5 (30.1, 36.8)	30.8 (27.8, 33.9)	33.5 (30.9, 36.1)
50-59	35.5 (32.0, 39.0)	32.3 (29.0, 35.6)	31.6 (28.7, 34.5)
60-74	25.5 (22.7, 28.3)	31.3 (28.8, 33.9)[a]	28.8 (26.4, 31.3)
Males	40.1 (37.8, 42.4)	40.0 (37.9, 42.1)	40.2 (38.3, 42.0)
Females	27.8 (25.8, 29.8)	31.2 (29.1, 33.2)	29.1 (27.4, 30.9)
Primary	19.6 (16.4, 22.8)	21.0 (17.6, 24.3)	21.7 (18.6, 24.7)
Secondary	27.4 (24.8, 30.0)	30.5 (28.0, 33.1)	29.2 (26.8, 31.6)
Post-secondary	39.4 (37.3, 41.5)	40.1 (38.1, 42.0)	38.9 (37.2, 40.6)
Chinese	32.7 (31.0, 34.5)	34.5 (32.8, 36.2)	33.3 (31.8, 34.8)
Malays	32.7 (28.5, 36.9)	33.7 (29.8, 37.7)	33.9 (30.5, 37.4)
Indians	41.6 (36.1, 47.1)	41.7 (36.8, 46.5)	44.8 (40.7, 49.0)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Chapter 4
Chronic Disease Screening

Key Points

- Among Singapore residents aged 40 to 74 years with no previous diagnosis of diabetes, high blood pressure, and high blood cholesterol ("DHL"), (i.e., not told by a doctor that they have these diseases), about three-fifths (60.3%) were screened for all three health conditions within the recommended screening guidelines in 2022.

- Among Singapore residents aged 40 to 74 years without known diabetes, 77.4% had their blood glucose tested within the past three years.

- Among Singapore residents aged 40 to 74 years without known high blood pressure, 80.7% did their blood pressure check in the past two years.

- Among Singapore residents aged 40 to 74 years without known high blood cholesterol, 75.0% were screened within the past three years.

Introduction

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 outcomes *(HPB, 2019).*

Method Used

An interviewer-administered questionnaire was used. Respondents were asked whether they were ever told by a doctor that they had diabetes, high blood pressure or high blood cholesterol. Respondents who reported that they were not told by a doctor that they have diabetes or high blood cholesterol were asked on the last time they had a blood test to check for these health conditions. Those who were not told by a doctor to have high blood pressure were asked on the last time they had checked their blood pressure. Respondents were also asked where they last had their screening for these chronic diseases. Under the national "Screen for Life" (SFL) screening programme, Singapore residents aged 40 years and above are encouraged to go for diabetes and hyperlipidaemia screening once every three years and hypertension screening once every two years.

Practice of Health Screening

Health screening practice was relatively common among Singapore residents aged 40 to 74 years with no previous diagnosis of diabetes, high blood pressure and high blood cholesterol (DHL). 60.3% of them were screened for all three health conditions within the recommended screening guidelines in 2022 (Table 4.1). The majority of them with no known DHL were screened at the private GP clinics at 40.7%, followed by polyclinics (18.6%), specialist outpatient clinics in public hospitals (12.3%) and specialist outpatient clinics in private hospitals (10.1%).

Health screening practice was found to be more prevalent among older adults (aged 60 to 69 years and 70 to 74 years), with close to two-third of them (64.6% and 63.2% respectively) having screened for all three health conditions within the recommended screening guidelines. Among the ethnic groups, Indians (71.9%) had a higher screening prevalence for all three chronic diseases, followed by Malays (59.0%) and Chinese (58.7%). Singapore residents with higher education level (post-secondary education: 64.1%) were more likely to have gone for chronic disease screening compared to those with lower education level (primary education: 54.6%, secondary education: 54.1%).

Looking at the individual chronic disease alone regardless of the co-morbidity with other chronic diseases, 77.4% of adults aged 40 to 74 years without known diabetes were screened for diabetes within the past three years, 80.7% of those without known high blood pressure had their blood pressure checked within the past two years, and 75.0% of them without known high blood cholesterol were screened for this health condition within the past three years (Tables 4.3 to 4.5).

Trends in Health Screening

Looking at the trend data over the period from 2007 to 2022, a significant increase in the screening participation for residents without known DHL were observed among those aged 40 to 49 years (Table 4.2). The overall and age-standardised chronic disease screening participation did not show significant upward trend between 2007 and 2022.

For the individual chronic disease, the crude proportion of residents who had diabetes screening increased significantly from 2007 to 2022 while the proportion for hypertension and hyperlipidaemia screening did not show similar upward trend over the same period (Table 4.3 to 4.5). For diabetes, the screening participation improved in the age groups of 40 to 49 years and 70 to 74 years, among males and females, Chinese and Indians, and those with primary and post-secondary education.

Comparing with pre-COVID-19 (2019) period, the screening participation for residents without known DHL and for the individual chronic disease fell during the COVID-19 period (2020 to 2021), though the decreasing trend was significant only for hypertension. There are positive signs of improvement as the screening participation rose for those without known DHL, diabetes and hyperlipidaemia in 2022, suggesting a positive trajectory towards regaining pre-COVID-19 screening levels. These improvements were largely observed among those aged 50 to 69 years, females, secondary-educated residents, Malays and Indians in 2022.

Table 4.1: Health screening practice (%) among Singapore residents aged 40 to 74 years who did not have any of the corresponding self-reported chronic diseases by socio-demographic characteristics, 2022

Characteristic	Screened for all 3 diseases within the recommended intervals	Diabetes screening at least once in the past 3 years	Hypertension screening at least once in the past 2 years	High blood cholesterol screening at least once in the past 3 years
Total	60.3	77.4	80.7	75.0
Age (years)				
40-49	59.5	74.1	78.5	71.8
50-59	58.3	75.3	79.9	74.4
60-69	64.6	81.8	85.0	78.6
70-74	63.2	85.8	83.2	84.3
Sex				
Males	59.2	78.0	81.0	75.3
Females	61.1	76.8	80.4	74.7
Highest Education Attained				
Primary	54.6	76.3	78.7	70.6
Secondary	54.1	74.3	79.9	70.7
Post-secondary	64.1	79.3	81.6	78.2
Ethnic group				
Chinese	58.7	76.8	79.1	74.1
Malays	59.0	72.8	83.1	71.1
Indians	71.9	86.0	88.9	85.9

Note: Analysis based on highest education attained, which served as a proxy for socio-economic factors.
　　　Primary education: No formal qualification/ Primary/ PSLE.
　　　Secondary education: Secondary/ GCE 'O'/ 'N' level.
　　　Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Table 4.2: Chronic disease screening participation (%) among Singapore residents aged 40 to 74 years who did not have any of the self-reported chronic diseases by age, sex, education, and ethnicity, 2007 to 2022

	NHSS	NHS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2010	2013	2017	2019	2020	2021	2022
Total	58.1	45.2	56.0	66.4 (63.1, 69.6)	66.3 (63.7, 68.9)	63.0 (60.4, 65.6)	59.2 (56.7, 61.8)	60.3 (58.1, 62.4)
ASR	60.3	45.2	56.3	67.0	66.9	63.1	58.6	60.3
40-49	54.5	44.7	55.0	60.7 (56.2, 65.1)	62.6 (58.6, 66.6)	62.5 (58.5, 66.6)	60.8 (56.8, 64.7)	59.5[be] (56.4, 62.6)
50-59	60.4	47.9	54.8	69.1 (63.6, 74.5)	66.2 (61.5, 70.9)	63.1 (58.6, 67.6)	55.3 (50.5, 60.1)	58.3 (54.3, 62.4)
60-69	68.6	37.4	61.8	71.1 (64.6, 77.5)	72.1 (67.3, 77.0)	62.9 (57.2, 68.5)	58.6 (53.5, 63.6)	64.6 (59.5, 69.7)
70-74	68.9	53.3	56.9	85.2 (77.2, 93.2)	79.0 (71.6, 86.3)	66.7 (54.3, 79.0)	72.6 (64.8, 80.4)	63.2 (53.8, 72.6)
Males	59.9	47.8	55.0	65.9 (61.3, 70.5)	67.5 (63.5, 71.5)	63.9 (60.2, 67.7)	61.3 (57.9, 64.6)	59.2[e] (56.0, 62.5)
Females	56.4	42.8	56.9	66.8 (62.6, 71.0)	65.2 (61.7, 68.8)	62.2 (58.7, 65.8)	57.5 (53.7, 61.3)	61.1 (58.2, 64.0)
Primary	57.8	32.7	43.7	60.9 (53.3, 68.6)	57.2 (50.7, 63.8)	50.4 (44.3, 56.6)	56.4 (49.9, 62.9)	54.6 (48.7, 60.6)
Secondary	57.6	45.4	53.7	64.4 (59.0, 69.7)	61.1 (56.7, 65.6)	55.9 (51.2, 60.7)	50.1 (45.2, 54.9)	54.1 (49.9, 58.3)
Post-secondary	59.0	54.1	64.5	71.0 (66.7, 75.4)	71.4 (67.8, 75.1)	69.8 (66.3, 73.3)	64.1 (60.8, 67.4)	64.1 (61.3, 66.9)
Chinese	57.2	44.6	55.7	65.8 (62.1, 69.5)	64.9 (61.8, 67.9)	63.5 (60.6, 66.5)	59.7 (56.7, 62.7)	58.7[e] (56.2, 61.2)
Malays	57.2	40.0	48.2	62.2 (53.4, 71.1)	64.4 (56.4, 72.3)	48.4 (39.7, 57.0)	48.3 (40.5, 56.0)	59.0 (52.5, 65.5)
Indians	70.1	59.3	68.9	80.0 (71.9, 88.1)	78.7 (71.7, 85.7)	75.4 (68.3, 82.5)	65.7 (58.7, 72.7)	71.9 (66.0, 77.8)

Table 4.3: Diabetes screening participation (%) among Singapore residents aged 40 to 74 years who did not have self-reported diabetes by age, sex, education, and ethnicity, 2007 to 2022

	NHSS	NHS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2010	2013	2017	2019	2020	2021	2022
Total	72.4	63.9	70.3	77.8 (75.6, 80.0)	81.0 (79.3, 82.8)	78.5 (76.8, 80.3)	76.6 (74.9, 78.2)	77.4[b] (75.9, 78.8)
ASR	73.2	63.9	70.2	77.6	80.3	78.1	75.6	76.6
40-49	67.3	58.3	65.9	71.4 (67.7, 75.1)	75.4 (72.0, 78.8)	75.2 (72.0, 78.5)	74.2 (71.4, 77.0)	74.1[b] (71.7, 76.5)
50-59	74.8	64.4	68.9	80.0 (76.2, 83.7)	81.4 (78.3, 84.5)	79.0 (75.9, 82.1)	73.8 (70.5, 77.1)	75.3 (72.4, 78.1)
60-69	80.0	73.9	78.1	81.7 (77.3, 86.2)	85.7 (83.1, 88.3)	79.8 (76.4, 83.2)	79.2 (76.3, 82.1)	81.8 (79.0, 84.6)
70-74	79.9	71.8	84.2	92.1 (87.7, 96.6)	91.2 (87.9, 94.5)	87.8 (83.1, 92.6)	90.0 (87.1, 93.0)	85.8[b] (82.1, 89.5)
Males	73.1	64.7	70.2	78.9 (75.8, 82.0)	82.6 (80.2, 84.9)	80.8 (78.4, 83.1)	78.6 (76.5, 80.7)	78.0[be] (75.9, 80.1)
Females	71.8	63.0	70.5	76.9 (73.8, 80.0)	79.7 (77.1, 82.3)	76.4 (73.8, 79.1)	74.7 (72.2, 77.1)	76.8[b] (74.8, 78.9)
Primary	70.7	58.4	63.9	75.4 (70.6, 80.3)	77.8 (74.4, 81.2)	73.8 (69.8, 77.8)	75.2 (71.3, 79.0)	76.3[b] (72.7, 79.9)
Secondary	72.2	61.7	69.0	75.8 (72.0, 79.6)	79.7 (77.1, 82.3)	74.6 (71.2, 78.0)	72.7 (69.5, 75.9)	74.3 (71.6, 77.0)
Post-secondary	74.4	71.0	76.0	81.3 (78.1, 84.5)	83.0 (80.4, 85.7)	82.2 (79.8, 84.7)	79.2 (77.1, 81.3)	79.3[b] (77.3, 81.3)
Chinese	72.7	64.4	70.0	76.9 (74.4, 79.5)	80.5 (78.5, 82.5)	78.9 (76.9, 80.8)	76.6 (74.7, 78.5)	76.8[b] (75.1, 78.5)
Malays	68.4	54.5	65.7	76.5 (69.6, 83.3)	77.7 (71.9, 83.4)	69.8 (63.2, 76.4)	69.1 (63.8, 74.3)	72.8 (67.8, 77.7)
Indians	79.2	74.2	79.9	88.1 (82.3, 94.0)	89.3 (84.8, 93.8)	88.0 (83.0, 93.0)	85.1 (81.0, 89.2)	86.0[b] (82.3, 89.7)

Table 4.4: Hypertension screening participation (%) among Singapore residents aged 40 to 74 years who did not have self-reported hypertension by age, sex, education, and ethnicity, 2007 to 2022

	NHSS	NHS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2010	2013	2017	2019	2020	2021	2022
Total	77.7	79.9	77.8	82.9 (80.8, 85.0)	86.0 (84.4, 87.6)	83.3 (81.4, 85.1)	82.4 (80.7, 84.1)	80.7[e] (79.2, 82.2)
ASR	78.6	79.9	78.0	82.9	86.2	83.3	81.8	80.5[e]
40-49	75.8	78.3	76.4	79.9 (76.1, 83.6)	84.6 (81.6, 87.6)	82.7 (79.6, 85.8)	81.9 (79.2, 84.6)	78.5[e] (76.0, 80.9)
50-59	77.5	82.9	76.2	81.6 (78.1, 85.2)	85.7 (82.9, 88.5)	83.0 (79.8, 86.1)	79.7 (76.3, 83.1)	79.9 (77.0, 82.8)
60-69	85.0	78.5	84.4	88.3 (84.6, 92.1)	88.1 (85.2, 91.1)	84.8 (81.4, 88.3)	85.3 (82.5, 88.2)	85.0 (82.2, 87.8)
70-74	82.2	79.5	79.3	94.1 (89.9, 98.3)	90.8 (86.3, 95.2)	83.6 (75.0, 92.1)	89.7 (85.6, 93.8)	83.2 (77.4, 89.0)
Males	77.1	80.5	77.0	81.3 (77.8, 84.8)	85.5 (83.1, 88.0)	83.2 (80.6, 85.8)	81.8 (79.4, 84.2)	81.0[e] (78.8, 83.2)
Females	78.2	79.4	78.5	84.4 (81.7, 87.0)	86.5 (84.3, 88.6)	83.4 (80.8, 86.0)	82.9 (80.5, 85.3)	80.4[e] (78.3, 82.5)
Primary	76.5	72.9	68.7	80.1 (75.0, 85.2)	78.4 (74.2, 82.6)	78.4 (74.2, 82.6)	80.4 (76.3, 84.6)	78.7 (74.8, 82.6)
Secondary	79.9	80.5	76.7	82.3 (78.7, 86.0)	85.4 (82.9, 87.8)	79.2 (75.6, 82.8)[a]	81.7 (78.4, 85.1)	79.9 (76.9, 82.8)
Post-secondary	75.6	84.6	84.2	85.2 (82.1, 88.4)	88.7 (86.5, 91.0)	86.8 (84.3, 89.2)	83.2 (81.0, 85.3)	81.6[e] (79.6, 83.6)
Chinese	76.7	79.9	76.9	82.2 (79.8, 84.6)	85.8 (84.0, 87.7)	83.1 (81.0, 85.2)	81.6 (79.6, 83.6)	79.1[e] (77.3, 80.9)
Malays	79.3	76.6	76.4	82.6 (76.3, 88.8)	81.4 (76.0, 86.8)	74.7 (67.3, 82.0)	83.8 (79.5, 88.0)	83.1 (78.6, 87.6)
Indians	87.6	86.7	86.7	92.8 (88.4, 97.3)	92.5 (88.5, 96.5)	92.4 (89.0, 95.9)	87.2 (82.9, 91.5)	88.9 (85.4, 92.3)

Table 4.5: Hyperlipidaemia screening participation (%) among Singapore residents aged 40 to 74 years who did not have self-reported hyperlipidaemia by age, sex, education, and ethnicity, 2007 to 2022

	NHSS	NHS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2010	2013	2017	2019	2020	2021	2022
Total	78.1	61.1	73.0	78.2 (75.9, 80.5)	77.9 (76.0, 79.9)	76.5 (74.5, 78.6)	72.5 (70.5, 74.5)	75.0 (73.3, 76.7)
ASR	78.9	61.1	73.2	78.2	77.5	76.3	71.8	74.7
40-49	74.8	59.3	70.8	73.0 (69.2, 76.7)	73.3 (69.7, 76.8)	74.5 (71.1, 78.0)	71.6 (68.3, 74.8)	71.8 (69.2, 74.5)
50-59	79.9	62.9	70.7	78.7 (74.6, 82.9)	76.9 (73.3, 80.5)	75.3 (71.7, 79.0)	68.7 (64.7, 72.7)	74.4 (71.2, 77.5)
60-69	86.2	63.1	79.4	84.1 (80.0, 88.2)	84.0 (80.9, 87.1)	79.0 (75.2, 82.8)	74.4 (70.6, 78.1)	78.6 (75.1, 82.2)
70-74	77.9	61.5	84.8	90.3 (85.0, 95.7)	89.8 (85.2, 94.4)	85.7 (79.3, 92.1)	88.2 (84.2, 92.2)	84.3 (79.2, 89.4)
Males	77.9	62.8	71.8	78.6 (75.2, 82.0)	79.0 (76.0, 82.0)	77.5 (74.7, 80.3)	74.2 (71.7, 76.7)	75.3 (72.8, 77.7)
Females	78.3	59.5	74.1	77.8 (74.8, 80.9)	77.0 (74.5, 79.6)	75.7 (72.8, 78.6)	71.0 (67.9, 74.0)	74.7 (72.4, 77.0)
Primary	73.8	53.7	66.2	74.9 (69.4, 80.4)	74.2 (69.4, 79.0)	68.1 (63.1, 73.1)	75.7 (71.4, 80.0)	70.6 (66.1, 75.1)
Secondary	77.7	61.1	72.1	76.4 (72.2, 80.6)	75.1 (71.9, 78.4)	72.3 (68.5, 76.1)	64.0 (60.0, 68.1)[a]	70.7 (67.6, 73.9)
Post-secondary	82.4	67.1	78.3	81.7 (78.5, 84.9)	80.9 (77.9, 83.9)	81.3 (78.7, 84.0)	76.0 (73.5, 78.5)[a]	78.2 (76.0, 80.4)
Chinese	78.1	61.8	72.5	77.7 (75.1, 80.3)	77.9 (75.6, 80.2)	77.3 (75.1, 79.5)	72.9 (70.6, 75.2)	74.1 (72.1, 76.0)
Malays	74.0	53.8	69.6	77.7 (70.8, 84.6)	75.1 (68.9, 81.4)	63.0 (55.5, 70.6)	62.2 (55.3, 69.0)	71.1 (65.9, 76.3)
Indians	83.1	67.6	82.2	86.3 (80.7, 91.9)	83.6 (77.7, 89.4)	84.8 (79.4, 90.2)	79.8 (74.9, 84.7)	85.9 (82.1, 89.7)

Notes applicable to Table 4.2 to 4.5:

(1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age- standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) [b] Indicate statistically significant linear upward trend between 2007 and 2022 with p-value <0.05.

(5) [e] Indicate statistically significant linear downward trend between 2019 and 2022 with p-value <0.05.

Chapter 5

Breast Cancer Screening

Key Points

- More than 9 in 10 (96.0%) Singapore female residents aged 50 to 69 years were aware of mammography.

- In 2022, close to two-fifths (37.6%) of Singapore women in the 50 to 69 years age group reported that they had gone for mammography in the last two years.

- The top three reasons cited by Singapore women in the 50 to 69 years age group who had never undergone mammography were:
    1. "Not necessary as I am healthy" (40.5%);
    2. "Painful test" (16.9%); and
    3. ""Never thought about it" (10.4%).

Introduction

Breast cancer remained the most common cancer among Singapore women in the past 50 years *(NRDO 2021)*. For the five-year period from 2017-2021, the age-standardised incidence rate of breast cancer was 74.6 per 100,000 women. It was the leading cause of cancer death among females in 2017-2021, accounting for 17.2% of all cancer deaths among females.

Breast cancer has been linked to a number of risk factors including age, family history of breast cancer, smoking, high-fat diet and obesity. The earlier breast cancer is diagnosed, the better the chances for successful treatment. As early breast cancer usually does not present with any symptoms, screening is therefore important. Mammography for women over 50 years old is widely accepted as appropriate and beneficial. The Ministry of Health's Clinical Practice Guidelines on Cancer Screening (2010) and the national "Screen for Life" (SFL) screening programme recommended women aged 50 to 69 years to go for mammography once every two years.

Method Used

An interviewer-administered questionnaire was used. Female respondents were asked on their knowledge and practice of mammography as well as where they took their mammography, and the reasons for not going for mammography (if applicable).

Knowledge and Practice of Mammography

96.0% of Singapore women aged 50 to 69 years were aware of mammography (Table 5.1). The proportion of women who were aware of mammography was similar among never married women (96.8%) and ever-married women (95.9%).

Close to two-fifths (37.6%) of Singapore women in the 50 to 69 years age group reported that they had gone for a mammography within the last two years, in accordance with the recommended frequency of mammography for this age group (Table 5.1). Ever-married women (38.9%) were more likely to have a mammography within the last two years than never married women (28.5%). A higher proportion of Indian (43.9%) and Chinese (39.5%) women had undergone mammography compared to their Malay counterparts (21.5%) (Table 5.2). Women with post-secondary education (46.5%) were more likely to be screened than women with secondary education (34.5%) or primary education (27.7%). More than two-fifths (43.4%) of the women had their mammogram taken in the polyclinics, followed by public hospitals (21.7%), private X-ray centres (14.9%) and private hospitals (14.1%).

Table 5.1: Knowledge and practice of mammography (%) among Singapore female residents aged 50 to 69 years by marital status, 2022

Marital status	Knowledge of mammography	Had mammography within the last 2 years
Total	96.0	37.6
Never married	96.8	28.5
Ever-married	95.9	38.9

Reasons For Not Doing A Mammography

Of those Singapore women aged 50 to 69 years who had never undergone mammography, the commonly cited reasons in 2022 were:

1. "Not necessary as I am healthy" (40.5%);
2. "Painful test" (16.9%)";
3. "Never thought about it" (10.4%);
4. "No time due to work/family commitment" (8.5%);
5. "Not suggested by doctors" (6.4%); and
6. "Afraid of knowing the results" (6.4%).

Trends in Breast Cancer Screening

Between 2007 and 2022, the decrease in screening participation for breast cancer was only significant for females with secondary education while the downward trends for overall and other groups were not significant (Table 5.2).

Comparing with the pre-COVID-19 period in 2019, the breast cancer screening participation at the overall and sub-group levels have picked up in 2022 after declining in 2020 and 2021. The overall breast cancer screening participation increased significantly from 31.1% in 2021 to 37.6% in 2022, suggesting a positive trajectory towards regaining pre-COVID-19 screening level which was at 38.7% in 2019. Similar significant increases in breast cancer screening between 2021 and 2022 were also seen in the 50 to 59 years age group and among Chinese females.

Table 5.2: Breast cancer screening participation (%) among Singapore female residents aged 50 to 69 years by age, education, and ethnicity, 2007 to 2022

	NHSS	NHS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2010	2013	2017	2019	2020	2021	2022
Total	41.0	39.6	42.7	30.9 (26.9, 34.9)	38.7 (34.8, 42.6)	37.9 (34.7, 41.2)	31.1 (28.0, 34.1)a	37.6 (34.5, 40.6)a
ASR	41.2	39.6	42.4	31.1	39.9	38.5	32.0	38.5
50-59	43.6	40.5	44.3	32.7 (27.3, 38.2)	40.2 (34.7, 45.7)	40.9 (36.1, 45.8)	31.6 (27.3, 36.0)a	41.1 (36.6, 45.5)a
60-69	35.8	37.9	39.9	28.4 (23.0, 33.9)	36.9 (31.4, 42.4)	34.3 (29.7, 38.8)	30.4 (26.1, 34.8)	33.6 (29.3, 37.8)
Primary	29.9	29.3	25.5	24.3 (17.4, 31.2)	28.4 (22.2, 34.6)	22.6 (17.3, 27.8)	24.6 (18.3, 31.0)	27.7 (22.0, 33.4)
Secondary	48.4	40.8	46.2	28.6 (22.8, 34.4)	37.0 (32.3, 41.7)	32.9 (28.0, 37.9)	26.0 (21.6, 30.4)	34.5c (29.5, 39.4)
Post-secondary	54.8	60.7	66.0	45.6 (35.7, 55.5)	49.6 (41.2, 58.0)	54.3 (48.0, 60.6)	42.4 (37.0, 47.9)a	46.5 (41.3, 51.7)
Chinese	41.9	41.7	44.4	32.2 (27.6, 36.8)	40.1 (35.7, 44.6)	41.3 (37.6, 45.0)	31.7 (28.2, 35.2)a	39.5 (35.9, 43.0)a
Malays	35.0	23.5	28.1	10.4 (4.3, 16.5)	28.9 (20.5, 37.3) a	17.6 (10.7, 24.4)	18.7 (11.7, 25.8)	21.5 (14.7, 28.3)
Indians	38.2	41.9	44.8	46.3 (30.2, 62.3)	41.0 (28.5, 53.5)	43.2 (31.3, 55.1)	37.7 (27.0, 48.4)	43.9 (32.9, 54.9)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. a Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 female resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) c Indicate statistically significant linear downward trend between 2007 and 2022 with p-value <0.05.

Chapter 6
Cervical Cancer Screening

Key Points

- Among Singapore female residents aged 25 to 74 years, 89.9% were aware of the Pap test and 54.6% were aware of the HPV test.

- In 2022, about two in five (43.1%) Singapore female residents aged 25 to 74 years reported that they had gone for a cervical cancer screening (had done a Pap test in the past three years or HPV test in the past five years).

- Singapore female residents aged 30 to 59 years were most likely to have undergone cervical cancer screening.

- The top three reasons cited by Singapore female residents aged 25 to 74 years who were never screened for cervical cancer were:
    1. "Not necessary as I am health" (39.7%);
    2. "Not sexually active" (8.8%);
    3. "Never heard about it" (8.4%); and
    4. "No time due to work/ family commitment" (8.4%).

Introduction

Cervical cancer is the 10th most common cancer among women in Singapore for the five-year period from 2017-2021 *(NRDO 2021).* During this period, the age-standardised incidence rate of cervical cancer was 6.8 per 100,000 women and it accounted for 2.8% of all cancer deaths among females.

Major risk factors for cervical cancer include having sexual intercourse at an early age, having multiple sexual partners and infection with Human Papillomavirus (HPV) (the cause of genital warts). Long term consumption of combined oral contraceptive pills and cigarette smoking are also risk factors. If cervical cancer is detected before it becomes invasive, it is almost certainly curable. Screening for cervical cancer with the Papanicolaou (Pap) test is inexpensive and is widely accepted as being effective and beneficial.

Based on the latest recommendations on cervical cancer screening in 2019[9], women aged 25 to 29 years are recommended to undergo a Pap test at a three-yearly interval while women aged 30 years and above are recommended to take a HPV test at a five-yearly interval.

Method Used

An interviewer-administered questionnaire was used. Female respondents were asked on their knowledge and practice of cervical cancer screening as well as where they took the test; and which test (Pap test/ HPV test) was taken and the reasons for not doing any of the tests (if applicable).

Knowledge and Practice of Cervical Cancer Screening

Among Singapore female residents aged 25 to 74 years, 89.9% were aware of the Pap test and 54.6% were aware of the HPV test (Table 6.1). The proportion of women who were aware of Pap test was higher among ever-married women (92.4%) than women who were never married (81.6%). The proportion of women who were aware of the HPV test was higher among never married women (59.7%) than ever-married women (53.1%).

About two in five (43.1%) Singapore women aged 25 to 74 years had undergone cervical cancer screening (had done a Pap test in the past three years or HPV test in the past five years) (Table 6.1). The proportion of women who had undergone cervical cancer screening was higher among ever-married women (50.8%) than women who were never married (18.7%). Chinese (45.3%) women were more likely to have undergone cervical cancer screening followed by Indians (38.6%) and Malays (30.3%) women (Table 6.2). Women aged 30 to 59 years were the most likely to have undergone cervical cancer screening. Women with post-secondary education (49.0%) were more likely to have undergone cervical cancer screening compared to those with secondary (37.4%) or primary education (23.9%). The majority of the women had their last cervical cancer screening in private GP clinics (26.6%), specialist outpatient clinic in the public hospitals (22.5%), polyclinics (18.9%) or specialist outpatient clinics in the private hospitals (18.9%).

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[9] Based on Ministry of Health Circular No. 08/2019 dated 6 March 2019 on "Release of New Screening Test Review Committee Guidelines, Including Changes to Diabetes Mellitus, Lipid Disorders, And Cervical Cancer Screening".

Table 6.1: Knowledge and practice of cervical cancer screening (%) among Singapore female residents aged 25 to 74 years by marital status, 2022

Marital status	Knowledge of Pap test	Knowledge of HPV test	Had cervical cancer screening
Total	89.9	54.6	43.1
Never married	81.6	59.7	18.7
Ever-married	92.4	53.1	50.8

Reasons For Not Doing Cervical Cancer Screening

Singapore female residents aged 25 to 74 years who never had cervical cancer screening cited the following reasons for not doing the test(s):

1. "Not necessary as I am healthy" (39.7%);
2. "Not sexually active" (8.8%);
3. "Never heard about it" (8.4%);
4. "No time due to work/family commitment" (8.4%); and
5. "Not important" (7.3%).

Trends in Cervical Cancer Screening

The crude and age-standardised screening participation for cervical cancer decreased significantly from 2007 to 2022 (Table 6.2). Significant decreases were also seen in the younger age groups (25 to 29 years and 30 to 39 years) and the 70 to 74 years age group, across all education levels and among Chinese and Malays.

Between 2019 and 2022, similar decreasing trends in screening participation were also observed at the overall and the sub-group levels though the decreases were not significant. While there were positive improvements in the overall screening participation and for most sub-groups during the COVID-19 period between 2021 and 2022, the screening participation for those in the 25 to 29 years and 70 to 74 years age group, among Indians and those with primary education continued to decline. These changes in the screening participation between 2021 and 2022 were however not significant.

Table 6.2: Cervical cancer screening participation (%) among Singapore female residents aged 25 to 74 years by age, education, and ethnicity, 2007 to 2022

	NHSS	NHS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2010	2013	2017	2019	2020	2021	2022
Total	57.9	46.8	48.9	46.3 (43.5, 49.1)	48.2 (45.8, 50.7)	45.4 (43.1, 47.6)	41.0 (38.7, 43.3)	43.1c (41.2, 45.1)
ASR	57.5	46.8	48.5	47.0	49.6	46.3	42.7	45.0c
25-29	49.5	32.3	29.4	21.5 (14.2, 28.9)	21.0 (15.1, 26.9)	18.8 (12.8, 24.7)	21.4 (15.2, 27.5)	17.6c (12.5, 22.6)
30-39	69.5	59.5	53.9	57.5 (51.5, 63.4)	55.9 (51.0, 60.7)	52.2 (47.6, 56.9)	43.6 (39.1, 48.2)	47.1c (43.1, 51.1)
40-49	64.6	57.1	54.6	56.8 (51.1, 62.6)	58.8 (54.1, 63.5)	57.6 (52.8, 62.4)	56.1 (50.8, 61.5)	58.2 (54.3, 62.0)
50-59	59.8	43.8	48.4	48.8 (42.6, 54.9)	56.5 (51.5, 61.5)	52.8 (47.7, 57.9)	44.9 (40.0, 49.8)	49.3 (44.7, 53.9)
60-69	33.3	29.0	44.2	33.9 (28.2, 39.5)	37.0 (31.2, 42.8)	33.9 (29.2, 38.6)	32.5 (27.9, 37.0)	34.6 (30.3, 38.9)
70-74	s	s	47.5	18.0 (10.0, 26.1)	25.1 (17.8, 32.4)	20.6 (14.0, 27.3)	20.9 (12.8, 29.1)	15.4c (10.1, 20.6)
Primary	38.2	31.2	36.3	27.9 (22.5, 33.2)	28.9 (23.7, 34.1)	28.3 (23.4, 33.2)	29.4 (23.5, 35.4)	23.9c (19.4, 28.5)
Secondary	62.5	51.0	50.7	42.4 (37.3, 47.5)	49.8 (45.8, 53.9)	40.5 (36.3, 44.6)a	35.2 (31.2, 39.2)	37.4c (33.6, 41.2)
Post-secondary	66.4	52.5	53.4	55.5 (51.3, 59.8)	52.8 (49.3, 56.4)	51.7 (48.6, 54.8)	45.9 (42.8, 49.0)	49.0c (46.4, 51.6)
Chinese	59.4	47.6	50.8	48.5 (45.3, 51.7)	49.9 (46.8, 52.9)	47.2 (44.6, 49.8)	42.2 (39.5, 44.9)	45.3c (43.0, 47.6)
Malays	48.9	38.5	38.6	29.1 (22.2, 36.0)	34.8 (28.8, 40.8)	29.8 (23.5, 36.0)	29.2 (23.0, 35.5)	30.3c (25.5, 35.1)
Indians	51.8	47.0	42.8	47.4 (39.6, 55.2)	46.1 (39.4, 52.8)	46.3 (38.8, 53.7)	44.4 (38.1, 50.8)	38.6 (32.4, 44.8)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. a Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 female resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) c Indicate statistically significant linear downward trend between 2007 and 2022 with p-value <0.05.

Chapter 7
Colorectal Cancer Screening

Key Points

- Seven in 10 (72.4%) Singapore residents aged 50 to 74 years were aware of blood stool test.

- In 2022, 38.1% of Singapore residents aged 50 to 74 years had undergone colorectal screening within the recommended screening frequency.

- About one in five (21.5%) of these residents aged 50 to 74 years reported having undergone a Faecal Immunochemical Test (FIT) at least once in the past one year while about one in four (25.9%) had undergone a colonoscopy in the past 10 years.

- The practice of taking a FIT or a colonoscopy was more prevalent among males (40.0%) than females (36.3%).

- The top three reasons cited by residents aged 50 to 74 years who had never done a FIT were:
    1. "Not necessary as I am healthy" (46.7%);
    2. "Not suggested by doctors" (13.6%); and
    3. "Never heard about it" (13.5%).

Introduction

Colorectal cancer was the second most common cancer among Singapore men and women for the five-year period from 2017-2021(*NRDO 2021)*. During this period, the age-standardised incidence rate of colorectal cancer was 37.5 per 100,000 men and 26.9 per 100,000 women respectively and there was a total of 4,415 deaths due to colorectal cancer (more than two deaths per day on average).

Factors that have been associated with higher risk of colorectal cancer include specific hereditary conditions, older age, inflammatory bowel diseases, regular high saturated fat/ low fiber diet, excessive alcohol intake and sedentary lifestyle.

Faecal Immunochemical Test (FIT) and colonoscopy are able to detect colorectal cancer at an early stage. The Ministry of Health's Clinical Practice Guidelines on Cancer Screening (2010) recommends annual screening for colorectal cancer using FIT for people aged 50 years and older who are at average risk for colorectal cancer. For a person who is tested positive for FIT, colonoscopy is the confirmatory diagnostic investigation.

Method Used

An interviewer administered questionnaire was used. Respondents were asked on their knowledge on blood stool test, whether they had ever done a FIT or colonoscopy, and how long ago it had been since their last test.

Knowledge and Practice of FIT

Based on the survey, 72.4% of Singapore residents aged 50 to 74 years were aware of blood stool test. 21.5% of Singapore residents aged 50 to 74 years reported to have a FIT in the last one year (Table 7.1). Similar proportion of males (21.1%) and females (21.9%) had undergone a FIT in the last one year. Chinese (23.5%) and Indians (17.0%) were more likely to have taken a FIT compared to Malays (9.8%). Higher proportion of residents with post-secondary (28.7%) had done a FIT in the last one year compared to residents with secondary (17.7%) or primary (15.2%) education.

Reasons For Not Doing FIT

Residents aged 50 to 74 years who had never done a FIT cited the following reasons for not doing the test:

1. "Not necessary as I am healthy" (46.7%);
2. "Not suggested by doctors" (13.6%);
3. "Never heard about it" (13.5%);
4. "Never thought about it" (12.4%); and
5. "Not important" (4.9%).

Practice of Colonoscopy

25.9% of Singapore residents aged 50 to 74 years reported to have undergone a colonoscopy in the last 10 years (Table 7.1). The practice of colonoscopy was more prevalent among males (28.0%) than females (23.9%). Chinese (28.8%) and Indians (18.8%) were more likely to have undergone a colonoscopy compared to Malays (11.8%). By educational attainment, close to one-third (32.9%) of residents with post-secondary had a colonoscopy in the last 10 years compared to residents with secondary (23.4%) or primary (18.0%) education.

Trends in Colorectal Cancer Screening

Any residents who took a FIT in the last one year or had undergone a colonoscopy in the last 10 years are considered as having been screened for colorectal cancer. In 2022, 38.1% of Singapore residents aged 50 to 74 years had undergone colorectal screening within the recommended screening frequency (Table 7.2). Females (36.3%) had lower screening participation compared to males (40.0%). Malay residents (19.0%) had lower screening participation compared to Chinese (41.7%) and Indian (28.5%) residents. In general, residents with higher education levels were more likely to have screened for colorectal cancer - where almost one in two (48.0%) residents with post-secondary education had done the screening compared to about one in three (34.3%) residents with secondary education and about one in four (27.4%) residents with primary education.

The crude and age-standardised screening rate for colorectal cancer rose significantly from 2007 to 2022 (Table 7.2). The increase was seen across all age, sex, education, and ethnic groups over this period.

Though the overall colorectal cancer screening participation in 2022 (38.1%) was lower than that of 2019 (42.0%), it has improved from the 36.6% observed in the previous year (2021), suggesting a positive trajectory towards the screening levels seen in the pre-COVID-19 period. Similar improvement in the screening levels was also seen across the sub-groups.

Table 7.1: Knowledge of blood stool test and practice of FIT or colonoscopy (%) among Singapore residents aged 50 to 74 years by socio-demographic characteristics, 2022

Characteristic	Aware of blood stool test	Had a FIT in last 1 year	Had a colonoscopy in last 10 years
Total	72.4	21.5	25.9
Age (years)			
50-59	74.0	21.8	23.3
60-69	71.6	22.3	27.3
70-74	69.4	18.0	30.4
Sex			
Males	67.2	21.1	28.0
Females	77.5	21.9	23.9
Highest education attained			
Primary	50.3	15.2	18.0
Secondary	69.3	17.7	23.4
Post-secondary	87.3	28.7	32.9
Ethnic group			
Chinese	75.4	23.5	28.8
Malays	53.1	9.8	11.8
Indians	67.0	17.0	18.8

Note: Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Table 7.2: Colorectal cancer screening participation (%) among Singapore residents aged 50 to 74 years by age, sex, education, and ethnicity, 2007 to 2022

	NHSS	NHS	NHSS	NPHS	NPHS	NPHS	NPHS	NPHS
	2007	2010	2013	2017	2019	2020	2021	2022
Total	14.6	19.4	21.2	33.5 (30.5, 36.6)	42.0 (39.1, 44.8)[a]	41.1 (38.9, 43.3)	36.6 (34.4, 38.8)[a]	38.1[b] (36.2, 40.1)
ASR	14.6	19.4	21.2	33.4	41.5	40.6	35.9	37.6[b]
50-59	13.7	18.6	19.1	32.5 (28.6, 36.4)	39.7 (35.9, 43.5)	39.8 (36.4, 43.2)	33.9 (30.3, 37.4)	36.2[b] (33.1, 39.2)
60-69	16.6	21.3	21.9	35.4 (30.7, 40.2)	44.3 (39.8, 48.7)	43.6 (40.0, 47.2)	38.8 (35.7, 41.9)	39.7[b] (36.6, 42.8)
70-74	13.8	18.5	30.4	31.5 (24.7, 38.4)	43.7 (37.0, 50.3)	38.3 (32.7, 43.9)	39.5 (34.2, 44.7)	39.9[b] (35.3, 44.5)
Males	17.2	21.7	22.2	36.2 (31.7, 40.7)	45.4 (41.5, 49.2)[a]	44.6 (41.2, 47.9)	39.1 (36.0, 42.2)	40.0[b] (37.2, 42.8)
Females	12.1	17.2	20.3	30.9 (27.1, 34.8)	38.7 (35.5, 41.9)[a]	37.7 (34.6, 40.8)	34.2 (31.1, 37.3)	36.3[b] (33.6, 39.0)
Primary	11.4	12.3	14.7	25.9 (21.4, 30.3)	31.9 (28.1, 35.7)	27.9 (24.2, 31.6)	24.0 (20.5, 27.4)	27.4[b] (24.0, 30.8)
Secondary	16.5	19.0	21.6	33.2 (28.5, 37.8)	38.9 (34.9, 42.9)	35.8 (32.3, 39.2)	34.9 (31.3, 38.5)	34.3[b] (31.2, 37.4)
Post-secondary	16.8	32.5	29.5	44.0 (37.8, 50.3)	53.5 (48.4, 58.6)	54.9 (50.8, 59.0)	46.7 (42.9, 50.4)[a]	48.0[b] (44.5, 51.4)
Chinese	15.2	21.3	22.3	34.6 (31.1, 38.0)	43.6 (40.4, 46.8)[a]	44.7 (42.2, 47.3)	38.6 (36.1, 41.1)[a]	41.7[b] (39.4, 43.9)
Malays	10.0	6.9	12.4	20.4 (13.3, 27.5)	31.9 (24.7, 39.2)	17.5 (12.8, 22.1)[a]	25.5 (19.3, 31.8)	19.0[b] (14.6, 23.5)
Indians	14.8	18.7	22.1	36.9 (26.8, 47.0)	37.5 (29.3, 45.7)	40.3 (32.4, 48.1)	29.6 (23.2, 36.0)	28.5[b] (22.4, 34.7)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) [b] Indicate statistically significant linear upward trend between 2007 and 2022 with p-value <0.05.

Chapter 8
Self-reported Vaccination

Key Points

- In 2022, almost one in five (18.0%) Singapore residents aged 18 to 74 years reported they had an influenza injection in the past 12 months.

- The self-reported influenza vaccination coverage among males (18.5%) was higher than females (17.5%).

- Malays (20.4%) and Chinese (17.8%) had higher self-reported influenza vaccination coverage than Indians (15.8%).

- The proportion of elderly aged 65 to 74 years who reported ever having received pneumococcal vaccination was 26.5% in 2022.

Introduction

Seasonal influenza, which is commonly called flu, is a respiratory illness caused by influenza viruses which is highly contagious. For healthy individuals, influenza is usually self-limiting. However, it can sometimes lead to complications and even death. Those who are at risk of serious flu complications like older people, young children and people with certain chronic conditions should get vaccinated[10]. Annual influenza vaccination is part of the nationally recommended vaccinations for these groups of people[11].

Pneumococcal vaccination helps to prevent pneumococcal disease caused by the bacteria *Streptococcus pneumonia*. It can cause a wide spectrum of illness and disease burden is greater at the extremes of ages, that is, those less than five years and those older than 65 years. These include infection of the lungs (pneumonia), ear (otitis media), brain (meningitis), blood (bacteremia) and other serious infections[12]. The National Adult Immunisation Schedule (2017) recommends all persons aged 65 years or older to be vaccinated against pneumococcal disease[11].

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[10] Healthhub. "Influenza". https://www.healthhub.sg/a-z/diseases-and-conditions/103/topics_influenza (accessed on 31 March 2023).

[11] Ministry of Health. "Nationally Recommended Vaccines". https://www.moh.gov.sg/resources-statistics/nationally-recommended-vaccines (accessed on 31 March 2023).

[12] Healthhub. "Pneumococcal Disease". https://www.healthhub.sg/a-z/diseases-and-conditions/121/topic_pneumococcal_disease (accessed on 31 March 2023).

Method Used

An interviewer-administered questionnaire was used to measure the uptake of both vaccinations. Respondents were asked "In the past 12 months, have you had an injection to protect you from getting flu?" and "Have you ever had pneumococcal vaccination?" as well as reasons for not taking the recommended vaccination(s).

Self-reported Influenza Vaccination

The self-reported influenza vaccination coverage among Singapore residents aged 18 to 74 years was 18.0% in 2022, with the rate being slightly higher among males (18.5%) compared to females (17.5%). Singapore residents aged 30 to 39 years and 65 to 74 years had the highest self-reported influenza vaccination coverage compared to other age groups (Table 8.1). Three in ten adults (29.7%) aged 65 to 74 years and one-fifth (19.5%) of those aged 30 to 39 years reported that they had a flu injection in the past 12 months. Malays (20.4%) and Chinese (17.8%) had higher self-reported flu vaccination coverage than Indians (15.8%) (Graph 8.1).

Table 8.1: Age-specific coverage (%) of self-reported influenza vaccination among Singapore residents aged 18 to 74 years by sex, 2022
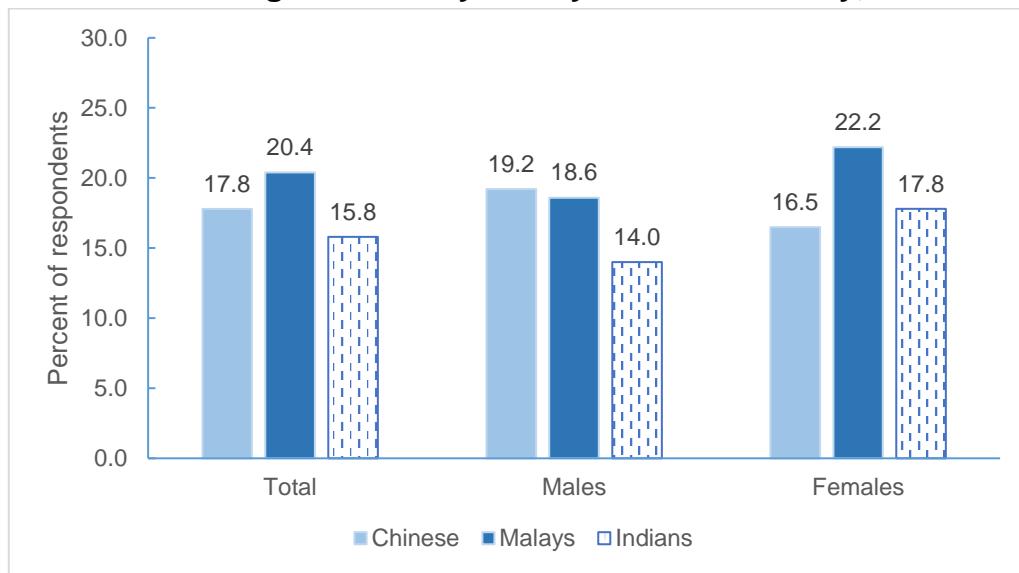
Age (years)	Total	Males	Females
18-29	17.9	25.0	10.7
30-39	19.5	15.8	22.9
40-49	11.6	11.3	11.9
50-64	15.4	14.5	16.3
65-74	29.7	30.7	28.8
18-74	18.0	18.5	17.5

Reasons for Not Having Self-reported Influenza Vaccination

Among Singapore residents aged 18 to 74 years who reported not having the influenza vaccination, the following top reasons were cited:

1. "Not necessary as I am healthy/ I do not get the flu" (52.6%);
2. "Don't know if I need the flu vaccination" (11.8%);
3. "Not travelling overseas" (8.2%);
4. "Never heard of flu vaccination" (7.9%); and
5. "Not recommended by my doctor" (4.6%).

Graph 8.1: Self-reported influenza vaccination coverage (%) among Singapore residents aged 18 to 74 years by sex and ethnicity, 2022

Trends in Self-reported Influenza Vaccination Coverage

Among Singapore residents aged 18 to 74 years, the overall influenza vaccination showed a significant increasing trend between 2017 (13.1%) and 2022 (18.0%) (Table 8.2). This upward trend was also observed in those aged 30 to 39 years and 65 to 74 years, males, Chinese, and those with primary education over the same period between 2017 and 2022.

Arising from the greater awareness about the importance of vaccination due to COVID-19, older residents aged 65 to 74 years who reported having influenza vaccination rose significantly from 24.2% in 2019 to 32.4% in 2021, though further increase was not observed in 2022.

Self-reported Pneumococcal Vaccination among Elderly

The proportion of elderly aged 65 to 74 years who reported ever having received pneumococcal vaccination was 26.5% in 2022, with the males (26.9%) having slightly higher proportion than females (26.1%) (Table 8.3). Among the ethnic groups, Chinese (27.2%) had higher self-reported pneumococcal vaccination than Malays (24.5%) and Indians (22.3%). More residents with secondary education (28.7%) reported having pneumococcal vaccination compared with residents with primary (24.2%) or post-secondary education (26.3%) in 2022.

Reasons for Not Having Pneumococcal Vaccination

Singapore residents aged 65 to 74 years who reported not having the pneumococcal vaccination cited the following reasons for not doing so:

1. "Never heard of pneumococcal vaccination" (54.5%);
2. "Not necessary as I am healthy/ unlikely to get the infection" (25.8%);
3. "Don't know if I need the pneumococcal vaccination" (8.7%);
4. "Not recommended by my doctor" (8.7%); and
5. "Do not like needles / injections" (2.1%).

Trends in Self-reported Pneumococcal Vaccination Coverage

While there was an upward trend in the pneumococcal vaccination coverage among Singapore residents aged 65 to 74 years from 2017 to 2022, the increase was not significant (Table 8.3).

However, when comparing the pre-COVID-19 (2019) and COVID-19 (2020 to 2022) period, the increase in pneumococcal vaccination coverage was found to be significant, increasing from 10.3% in 2019 to 26.5% in 2022. Similar significant improvements were also observed for most demographic sub-groups during this period except among the post-secondary educated residents, Malays, and Indians.

Table 8.2: Self-reported influenza vaccination coverage (%) among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2017 to 2022

	NPHS 2017	NPHS 2019	NPHS 2020	NPHS 2021	NPHS 2022
Total	13.1 (11.7, 14.5)	17.4 (16.0,18.7)[a]	17.0 (15.8,18.2)	18.7 (17.6, 19.9)	18.0[b] (16.9, 19.0)
ASR	13.0	17.0	16.6	17.7	16.9
18-29	17.8 (13.8, 21.8)	21.2 (17.7, 24.7)	19.8 (16.5, 23.0)	21.3 (17.8, 24.8)	17.9 (15.2, 20.6)
30-39	14.2 (11.0, 17.3)	16.0 (13.2, 18.8)	17.4 (14.4, 20.4)	16.9 (14.6, 19.1)	19.5[b] (17.1, 21.9)
40-49	9.6 (7.0, 12.2)	12.1 (9.9, 14.3)	12.6 (10.3, 14.9)	14.0 (12.0, 16.0)	11.6 (9.9, 13.3)
50-64	11.3 (9.0, 13.6)	16.2 (13.7, 18.6)[a]	15.4 (13.3, 17.6)	14.7 (12.8, 16.6)	15.4 (13.6, 17.2)
65-74	13.5 (9.8, 17.3)	24.2 (20.2, 28.2)[a]	22.5 (19.4, 25.5)	32.4 (29.0, 35.8)[a]	29.7[b] (26.7, 32.7)
Males	14.2 (12.1, 16.4)	16.0 (14.3, 17.7)	18.0 (16.0, 19.9)	18.4 (16.7, 20.0)	18.5[b] (17.0, 20.0)
Females	12.0 (10.2, 13.8)	18.7 (16.6, 20.7)[a]	16.1 (14.6, 17.6)	19.1 (17.5, 20.7)	17.5 (16.1, 18.8)
Primary	8.4 (6.1, 10.8)	16.4 (12.9, 19.9)[a]	15.3 (12.6, 18.1)	18.3 (15.1, 21.5)	22.6[b] (19.6, 25.7)
Secondary	11.6 (9.2, 14.0)	15.3 (13.3, 17.3)	14.1 (12.3, 16.0)	18.9 (16.8, 21.0)[a]	16.9 (15.1, 18.8)
Post-secondary	15.1 (13.2, 17.1)	18.5 (16.7, 20.3)	18.7 (16.9, 20.4)	18.8 (17.2, 20.3)	17.6 (16.3, 18.9)
Chinese	12.0 (10.4, 13.6)	16.7 (15.0, 18.3)[a]	17.2 (15.8, 18.6)	18.5 (17.1, 19.8)	17.8[b] (16.6, 19.0)
Malays	18.2 (13.8, 22.6)	19.9 (16.4, 23.4)	15.8 (12.9, 18.7)	20.1 (17.0, 23.3)	20.4 (17.5, 23.3)
Indians	14.5 (10.6, 18.4)	19.8 (15.4, 24.3)	17.4 (12.3, 22.6)	19.4 (14.8, 24.0)	15.8 (12.8, 18.8)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) [b] Indicate statistically significant linear upward trend between 2017 and 2022 with p-value <0.05.

Table 8.3: Self-reported pneumococcal vaccination coverage (%) among Singapore residents aged 65 to 74 years by sex, education, and ethnicity, 2017 to 2022

	NPHS 2017	NPHS 2019	NPHS 2020	NPHS 2021	NPHS 2022
Total	11.9 (7.4, 16.4)	10.3 (7.9, 12.7)	14.4 (11.8, 17.0)	22.4 (19.3, 25.5)[a]	26.5[d] (23.5, 29.4)
Males	s	10.4 (7.2, 13.7)	13.8 (10.0, 17.7)	21.9 (17.9, 25.9)[a]	26.9[bd] (22.4, 31.3)
Females	12.7 (8.0, 17.3)	10.2 (6.8, 13.6)	15.0 (11.5, 18.4)	22.8 (18.1, 27.5)	26.1[d] (22.3, 30.0)
Primary	9.6 (4.2, 15.0)	6.5 (4.2, 8.9)	14.4 (10.5, 18.2)[a]	20.5 (14.4, 26.7)	24.2[d] (19.9, 28.6)
Secondary	13.3 (6.8, 19.9)	11.4 (7.2, 15.6)	13.8 (9.9, 17.6)	22.2 (18.0, 26.5)[a]	28.7[d] (24.0, 33.4)
Post-secondary	s	16.2 (8.9, 23.5)	15.7 (9.1, 22.3)	25.5 (19.1, 32.0)	26.3 (19.6, 33.0)
Chinese	9.8 (6.0, 13.6)	9.9 (7.4, 12.3)	15.1 (12.2, 18.0)	21.6 (18.2, 25.0)[a]	27.2[bd] (23.9, 30.4)
Malays	s	s	s	23.3 (13.8, 32.8)	24.5 (14.8, 34.3)
Indians	s	s	s	32.2 (17.5, 47.0)	22.3 (12.4, 32.2)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2017 and NPHS 2019, NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) [b] Indicate statistically significant linear upward trend between 2017 and 2022 with p-value <0.05.

(5) [d] Indicate statistically significant linear upward trend between 2019 and 2022 with p-value <0.05

Chapter 9
Mental Health

Key Points

- The prevalence of poor mental health as measured by GHQ-12, among Singapore residents aged 18 to 74 years was 17.0% in 2022.

- More females (18.6%) had poor mental health compared to males (15.2%).

- Younger adults aged 18 to 29 years (25.3%) had the highest proportion with poor mental health while the prevalence for other age groups were much lower, ranging from 10.5% for the 60 to 74 years age group to 19.4% for the 30 to 39 years age group.

- In 2022, Singapore residents aged 18 to 74 years were more willing to seek help informally from their social circle (79.7%) than formally from healthcare professionals (56.6%) if they were constantly unable to cope with stress.

- Females were more willing to seek help from healthcare professionals and informal support networks compared to males.

- Among the age groups, Singapore residents aged 60 to 74 years (48.1%) were least willing to seek help from healthcare professionals while those aged 30 to 39 years (62.0%) were most willing to do so.

- Similarly, the proportion of Singapore residents who were willing to seek help from informal support networks decreased with age, it was highest among younger adults aged 18 to 29 years (88.1%) and lowest among older adults aged 60 to 74 years (68.4%).

Introduction

The WHO defines mental health as more than the absence of mental disorders. It is also a state of well-being in which the individual is able to realise his or her own abilities, cope with the normal stresses of life, work productively and fruitfully, and contribute to his or her community. A person's mental health may be affected by multiple interrelated social, psychological and biological factors (*WHO 2007*).

Method Used

The 12-item General Health Questionnaire (GHQ-12) was administered by interviewers and used to measure mental health. Cut-off for poor mental health (having a score of 3 or more) was based on an earlier internal validation study conducted in 2003.
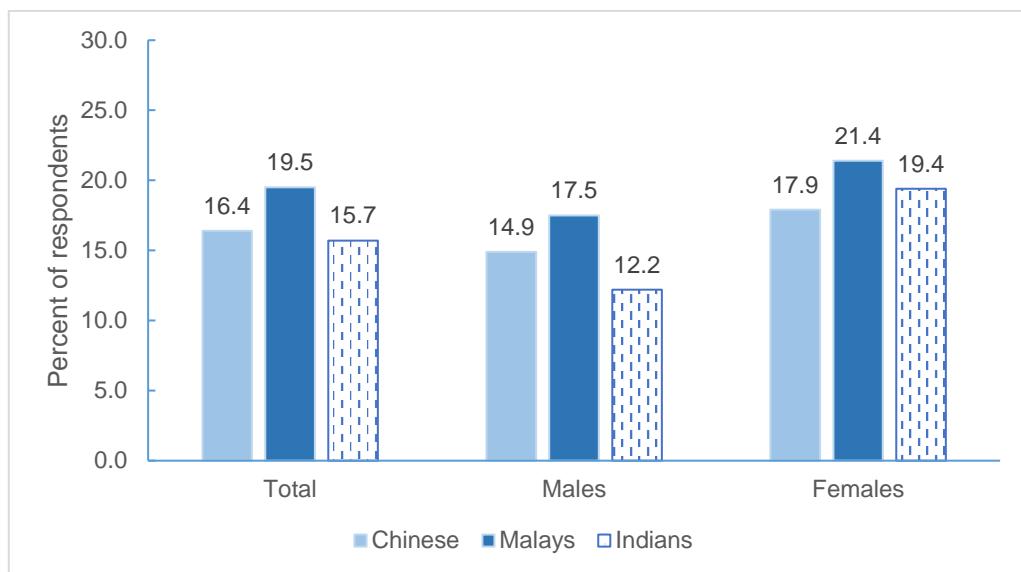
Prevalence of Poor Mental Health

The prevalence of poor mental health as measured by GHQ-12, among Singapore residents aged 18 to 74 years was 17.0% (Table 9.1). More females (18.6%) had poor mental health compared to males (15.2%). Younger adults aged 18 to 29 years (25.3%) had the highest proportion with poor mental health while the prevalence for other age groups were much lower, ranging from 10.5% in the 60 to 74 years age group to 19.4% in the 30 to 39 years age group. Among the ethnic groups, Malays (19.5%) had higher proportion with poor mental health compared with Chinese (16.4%) and Indians (15.7%) (Graph 9.1). The proportion of Indian females (19.4%) with poor mental health was almost doubled that of Indian males (12.2%) while the sex differences among the Chinese and Malays were much narrower. Residents with post-secondary education (18.2%) had higher prevalence of poor mental health compared with residents with primary (12.2%) or secondary education (15.7%) (Table 9.2).

Table 9.1: Age-specific crude prevalence (%) of poor mental health among Singapore residents aged 18 to 74 years by sex, 2022

Age (years)	Total	Males	Females
18-29	25.3	21.4	29.3
30-39	19.4	15.8	22.7
40-49	15.7	15.6	15.9
50-59	15.0	13.5	16.4
60-74	10.5	10.4	10.5
18-74	17.0	15.2	18.6

Graph 9.1: Crude prevalence (%) of poor mental health among Singapore residents aged 18 to 74 years by sex and ethnicity, 2022

Trends in Prevalence of Poor Mental Health

The crude and age-standardised prevalence of poor mental health among Singapore residents aged 18 to 74 years increased between 2017 (12.5%) and 2022 (17.0%), though these increases were not significant (Table 9.2). The only significant increase in the crude prevalence of poor mental health was observed among youths aged 18 to 29 years between 2017 (16.5%) and 2022 (25.3%).

In comparison to the onset of the COVID-19 pandemic in 2020, the prevalence of poor mental health increased significantly from 13.4% in 2020 to 17.0% in 2022. Significant increases between these two periods were also seen among residents aged 30 to 39 years, both males and females, post-secondary educated residents, and Chinese.

Table 9.2: Crude prevalence (%) of poor mental health among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2017 to 2022

	NPHS 2017	NPHS 2020	NPHS 2022
Total	12.5 (10.9, 14.0)	13.4 (12.4, 14.5)	17.0 (15.9, 18.0)[a]
ASR	12.6	13.8	17.8
18-29	16.5 (12.7, 20.3)	21.5 (18.4, 24.6)	25.3[b] (22.4, 28.2)
30-39	12.8 (9.8, 15.7)	12.6 (10.5, 14.8)	19.4 (17.0, 21.8)[a]
40-49	10.9 (8.1, 13.6)	12.4 (10.2, 14.6)	15.7 (13.7, 17.7)
50-59	10.6 (7.8, 13.5)	11.4 (9.2, 13.7)	15.0 (12.8, 17.2)
60-74	11.4 (8.8, 13.9)	9.4 (7.8, 11.1)	10.5 (8.7, 12.2)
Males	11.4 (9.3, 13.4)	12.0 (10.5, 13.5)	15.2 (13.8, 16.6)[a]
Females	13.5 (11.4, 15.7)	14.8 (13.3, 16.2)	18.6 (17.2, 20.1)[a]
Primary	12.6 (9.6, 15.6)	12.6 (10.0, 15.1)	12.2 (9.8, 14.6)
Secondary	13.5 (10.7, 16.2)	15.4 (13.4, 17.5)	15.7 (13.7, 17.6)
Post-secondary	11.8 (9.8, 13.8)	12.7 (11.3, 14.1)	18.2 (16.9, 19.6)[a]
Chinese	11.7 (10.1, 13.3)	12.6 (11.4, 13.8)	16.4 (15.3, 17.6)[a]
Malays	16.9 (13.2, 20.6)	16.3 (13.2, 19.5)	19.5 (16.6, 22.3)
Indians	12.4 (8.1, 16.7)	15.9 (12.2, 19.6)	15.7 (12.6, 18.8)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey periods (where data are available) are significantly different statistically at 5% significance level as the confidence intervals for these two survey periods did not overlap (i.e., between NPHS 2017 and NPHS 2020, NPHS 2020 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) [b] Indicate statistically significant linear upward trend between 2017 and 2022 with p-value <0.05.

Definition of Help-seeking Attitudes

Respondents were asked on their willingness to seek help from healthcare professionals or informal support networks if they were constantly unable to cope with stress through the interviewer-administered questionnaire. Healthcare professionals include counsellors, doctors, psychologists or psychiatrists. Informal support networks refer to friends, relatives, colleagues, religious leaders and teachers in school.

Help-seeking Attitudes

In 2022, Singapore residents aged 18 to 74 years were more willing to seek help from informal support networks (79.7%) than from healthcare professionals (56.6%) if they were constantly unable to cope with stress (Table 9.3 and 9.4). Females were more willing to seek help from healthcare professionals and informal support networks compared to males. Older adults aged 60 to 74 years (48.1%) were least willing to seek help from healthcare professionals while those aged 30 to 39 years (62.0%) were most willing to do so. Similarly, the proportion of Singapore residents aged 18 to 74 years who were willing to seek help from informal support decreased with age, it was highest among younger adults aged 18 to 29 years (88.1%) and lowest among older adults aged 60 to 74 years (68.4%). Those with higher levels of educational attainment were more willing to seek help from healthcare professionals and informal support networks, it was highest among those with post-secondary education and lowest among those with primary education.

Trends in Help-seeking Attitudes

There was no clear trend in the proportion of residents who were willing to seek help from healthcare professionals between 2019 (47.8%) and 2022 (56.6%) (Table 9.3). However, significantly lower proportion of residents aged 40 to 49 years and those with post-secondary education were willing to seek professional help in 2022 compared with the previous year in 2021.

Likewise, there was no clear trend in the proportion of residents who were willing to seek help from informal support networks over the years (2019 to 2022) (Table 9.4). But the overall proportion of residents who were willing to seek help from informal support networks did increase significantly from 69.1% in 2021 to 79.7% in 2022. Most sub-groups also saw significant increases in proportion of residents who were willing to seek informal support between 2021 and 2022 except in the 18 to 29 years age group and among Indians.

Table 9.3: Proportion of Singapore residents aged 18 to 74 years who were willing to seek help from healthcare professionals by age, sex, education, and ethnicity, 2019 to 2022

	NPHS	NPHS	NPHS	NPHS
	2019	2020	2021	2022
Total	47.8 (46.0, 49.6)	60.4 (58.9, 61.8)[a]	58.3 (56.8, 59.8)	56.6 (55.3, 57.9)
ASR	48.7	61.7	59.7	57.7
18-29	54.6 (50.3, 58.8)	63.3 (59.6, 67.0)[a]	62.2 (58.4, 66.0)	60.1 (56.7, 63.4)
30-39	53.5 (49.6, 57.4)	69.4 (66.3, 72.5)[a]	67.7 (64.8, 70.6)	62.0 (59.2, 64.9)
40-49	47.0 (43.2, 50.8)	63.8 (60.6, 67.0)[a]	65.4 (62.2, 68.5)	59.2 (56.5, 61.9)[a]
50-59	42.9 (38.9, 46.8)	58.9 (55.5, 62.2)[a]	51.9 (48.5, 55.4)[a]	55.2 (52.1, 58.3)
60-74	41.2 (37.6, 44.8)	47.8 (44.7, 50.9)	45.8 (43.1, 48.5)	48.1 (45.5, 50.8)
Males	45.4 (43.1, 47.7)	59.0 (56.8, 61.2)[a]	56.8 (54.7, 58.8)	56.3 (54.4, 58.1)
Females	50.1 (47.7, 52.4)	61.6 (59.6, 63.7)[a]	59.8 (57.7, 61.9)	57.0 (55.2, 58.8)
Primary	29.6 (25.8, 33.5)	34.1 (30.5, 37.8)	34.9 (31.0, 38.7)	33.7 (30.3, 37.1)
Secondary	44.0 (41.3, 46.6)	52.5 (49.7, 55.3)[a]	45.8 (43.0, 48.6)[a]	48.0 (45.4, 50.6)
Post-secondary	53.5 (51.1, 55.8)	68.9 (67.0, 70.8)[a]	67.6 (65.8, 69.3)	64.0 (62.4, 65.6)[a]
Chinese	48.2 (46.2, 50.2)	61.5 (59.8, 63.2)[a]	58.6 (56.9, 60.3)	56.4 (54.9, 57.9)
Malays	48.5 (44.6, 52.4)	54.0 (49.6, 58.3)	55.2 (51.2, 59.3)	53.7 (50.1, 57.3)
Indians	44.4 (39.2, 49.7)	59.3 (54.2, 64.3)[a]	57.1 (52.3, 61.9)	60.1 (56.1, 64.2)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Table 9.4: Proportion of Singapore residents aged 18 to 74 years who were willing to seek help from informal support networks by age, sex, education, and ethnicity, 2019 to 2022

	NPHS 2019	NPHS 2020	NPHS 2021	NPHS 2022
Total	74.5 (73.0, 76.0)	79.2 (78.0, 80.4)[a]	69.1 (67.7, 70.6)[a]	79.7 (78.6, 80.7)[a]
ASR	76.3	80.9	71.5	81.2
18-29	86.0 (83.1, 88.9)	88.1 (85.9, 90.4)	84.3 (81.2, 87.4)	88.1 (86.0, 90.3)
30-39	82.8 (80.3, 85.4)	86.3 (84.0, 88.6)	78.6 (75.8, 81.4)[a]	85.5 (83.4, 87.7)[a]
40-49	76.1 (72.9, 79.3)	81.7 (79.3, 84.1)	73.7 (70.0, 77.4)[a]	80.8 (78.6, 83.0)[a]
50-59	69.0 (65.2, 72.8)	78.4 (75.7, 81.0)[a]	61.0 (57.6, 64.4)[a]	77.3 (74.8, 79.9)[a]
60-74	59.3 (55.9, 62.6)	63.1 (60.2, 66.1)	50.3 (47.6, 53.0)[a]	68.4 (66.1, 70.8)[a]
Males	69.3 (67.1, 71.5)	75.1 (73.3, 77.0)[a]	64.3 (62.3, 66.3)[a]	75.7 (74.2, 77.3)[a]
Females	79.5 (77.7, 81.4)	83.1 (81.6, 84.6)[a]	73.7 (71.6, 75.8)[a]	83.5 (82.1, 84.8)[a]
Primary	56.4 (52.2, 60.7)	61.2 (57.6, 64.9)	49.8 (45.9, 53.7)[a]	64.8 (61.3, 68.2)[a]
Secondary	73.1 (70.6, 75.6)	74.3 (72.0, 76.7)	60.3 (57.5, 63.1)[a]	74.6 (72.4, 76.8)[a]
Post-secondary	79.1 (77.1, 81.2)	84.8 (83.4, 86.2)[a]	76.2 (74.3, 78.0)[a]	84.3 (83.0, 85.5)[a]
Chinese	74.4 (72.7, 76.1)	79.9 (78.5, 81.2)[a]	67.9 (66.2, 69.6)[a]	79.2 (78.0, 80.4)[a]
Malays	78.3 (74.8, 81.8)	79.2 (75.9, 82.5)	72.2 (68.4, 76.0)	81.8 (79.1, 84.4)[a]
Indians	68.8 (63.5, 74.0)	74.0 (69.7, 78.2)	72.9 (68.9, 77.0)	79.8 (76.5, 83.0)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey years are significantly different statistically at 5% significance level as the confidence intervals for these two survey years did not overlap (i.e., between NPHS 2019 and NPHS 2020, NPHS 2020 and NPHS 2021, NPHS 2021 and NPHS 2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Chapter 10
Diabetes Mellitus

Key Points

- About one in 12 (8.5%) Singapore residents aged 18 to 74 years had diabetes mellitus during the period 2021-2022 while the age-standardised prevalence was 6.8% after accounting for population ageing.

- A higher proportion of males (9.7%) were diabetic compared to females (7.3%).

- Diabetes prevalence increased with age where the proportion of diabetics almost doubled with each successive age group from 1.9% among those aged 30 to 39 years to 21.8% among those aged 60 to 69 years. About one in every four (24.2%) older adults aged 70 to 74 years were diabetic.

- Among all residents with diabetes mellitus, close to one in every five (18.8%) of them had not been previously diagnosed with diabetes.

- Among the known diabetics who attended health examination, about three in five (61.3%) did not meet the recommended target for glycaemic control (HbA1c ≤ 7%).

Introduction

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 stroke. Type 2 diabetes is the more common form of diabetes, occurring mainly in older adults and is associated with obesity (*Diabetes Mellitus MOH Clinical Practice Guidelines 2014).*

Method Used

An interviewer-administered questionnaire was used to obtain an indication of the prevalence of known diabetes mellitus in the community. Respondents were asked whether they had ever been told by a western-trained doctor that they had diabetes and were currently prescribed medication for diabetes. Respondents who answered "yes" to both questions were classified as having "reported diabetes mellitus". Among those with self-reported diabetes, they were also asked on the frequency of doctor's visit and place of treatment to manage their diabetes.

All respondents who completed the interviewer-administered questionnaire were invited to participate in a health examination. Among those who attended the health examination, blood samples were taken by venepuncture to determine the fasting plasma glucose and glycated haemoglobin (HbA1c) levels after an overnight fasting of at least 10 hours. Blood samples for fasting glucose analysis were collected in fluoride/oxalate tubes while those for HbA1c analysis were collected in EDTA tubes. These samples were then despatched to Innoquest Diagnostics for analysis on the same day of the health examination. Plasma glucose was measured using Roche c702 instrument using hexokinsase method, while the HbA1c levels were measured using Roche c513 instrument using turbidimetric inhibition immunoassay for hemolysed whole blood.

Data on diabetes mellitus were aggregated over a span of two survey cycles (i.e., NPHS 2021 and NPHS 2022) so that there will be a larger sample for detailed analysis.

Definition

Diabetes mellitus prevalence estimate was defined as a composite indicator of (i) those who reported that they were diagnosed with diabetes by a doctor and on medication, (ii) those who reported that they were diagnosed with diabetes by a doctor and not on medication but were found to have diabetes during health examination, and (iii) those who had been newly diagnosed with diabetes during the health examination and did not self-report doctor-diagnosed diabetes.

The WHO Diagnostic Classification criteria (*WHO 2006*) were used for the classification of diabetes (Table 10.1). Diabetes mellitus was defined as a fasting plasma glucose level equal or above 7.0 mmol/l or equal or above 126mg/dl.

Table 10.1: Diagnostic values for fasting plasma glucose

Classification	mmol/l	mg/dl
Normal	< 6.1	< 110
Diabetes Mellitus	≥ 7.0	≥ 126

Prevalence of Diabetes Mellitus

The prevalence of diabetes among Singapore residents aged 18 to 74 years was 8.5% during the period 2021-2022 (Table 10.2). Overall, a higher proportion of males (9.7%) were diabetic compared to females (7.3%) and this pattern was also observed in all age groups. The diabetes prevalence increased with age where the proportion of diabetics almost doubled with each successive age group from 1.9% among those aged 30 to 39 years to 21.8% among those aged 60 to 69 years. About one in every four (24.2%) older adults aged 70 to 74 years were diabetic.
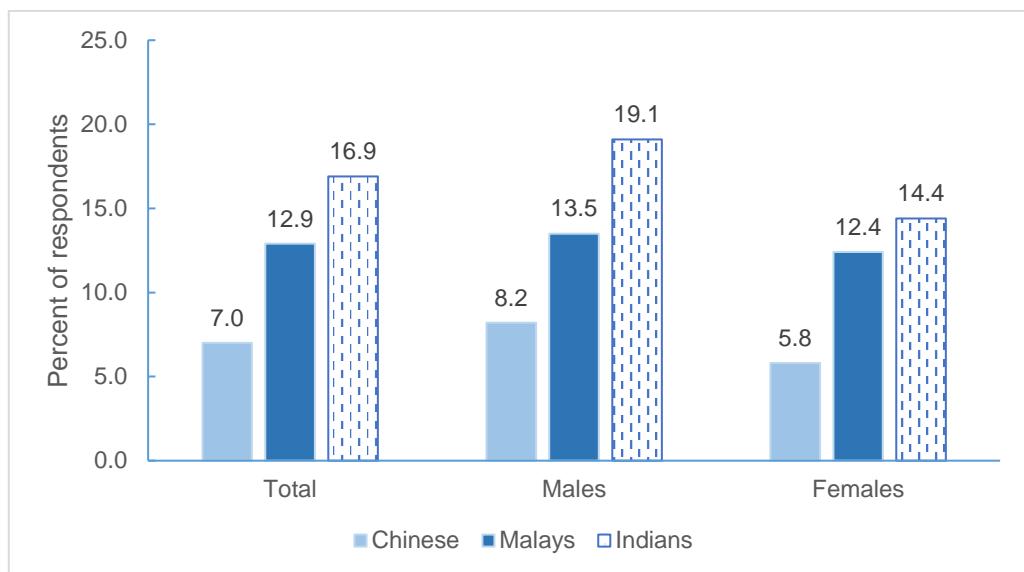
Table 10.2: Age-specific crude prevalence (%) of diabetes mellitus among Singapore residents aged 18 to 74 years by sex, 2021-2022

Age (years)	Total	Males	Females
18-29	s	s	s
30-39	1.9	2.0	1.9
40-49	5.0	5.8	4.2
50-59	10.8	13.1	8.7
60-69	21.8	24.7	19.0
70-74	24.2	26.3	22.2
18-74	8.5	9.7	7.3

s: Data have been suppressed due to small counts or high sampling variability.

Indians (16.9%) had the highest prevalence of diabetes compared with Malays (12.9%) and Chinese (7.0%) (Graph 10.1). Comparing across sexes and ethnic groups, the proportion of diabetics was highest among Indian males (19.1%) while the prevalence of diabetes among Indians females (14.4%) and Malays females (12.4%) was more than double that of Chinese females (5.8%). More than one in five (23.2%) residents with primary education were diabetic and this proportion was much higher compared with residents with secondary (12.2%) or post-secondary (4.7%) education (Table 10.3). Residents who reported having diabetes visited a doctor for their diabetes about four times over the period of the past 12 months, mainly in polyclinics (61.9%), private GP clinics (18.2%) and specialist outpatient clinics in public hospitals (17.2%).

Graph 10.1: Crude prevalence (%) of diabetes mellitus among Singapore residents aged 18 to 74 years by sex and ethnicity, 2021-2022

Trends in Prevalence of Diabetes Mellitus

While the crude prevalence of diabetes was largely stable from 2010 (8.6%) to 2021-2022 (8.5%) and the age-standardised prevalence showed a declining trend (8.6% in 2010, 6.8% in 2021-2022), both trends were not significant during this period (Table 10.3). The increases in the prevalence were significant for older residents aged 60 to 69 years and residents with post-secondary education. On the other hand, the diabetes prevalence among residents aged 50 to 59 years decreased significantly during this period.

Prevalence of Undiagnosed Diabetes Mellitus

Among all residents with diabetes mellitus, the survey found that 18.8% of them had not been previously diagnosed with diabetes (Table 10.4). This proportion was lower than the rates observed for 2019-2020 (23.2%) and 2017 (22.7%). More male diabetics (20.6%) compared with female diabetics (16.4%) were unaware of their diabetic status. The proportion of undiagnosed diabetics was highest (42.1%) among the younger adults aged 30 to 39 years with diabetes. Residents with post-secondary education (27.7%) had higher proportion of undiagnosed diabetics compared with those with secondary (13.9%) or primary education (17.7%). One-fifth (20.7%) of Indian diabetics were undiagnosed followed by Chinese and Malays both at 18.6%.

Table 10.3: Crude prevalence (%) of diabetes mellitus among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2010, 2017, 2019-2020 and 2021-2022

	NHS	NPHS	NPHS	NPHS
	2010	2017	2019-2020	2021-2022
Total	8.6 (7.4, 9.7)	8.8 (7.5, 10.2)	9.5 (8.7, 10.2)	8.5 (8.0, 9.1)
ASR	8.6	7.8	7.9	6.8
18-29	s	s	s	s
30-39	3.7 (2.1, 5.3)	s	3.0 (1.7, 4.3)	1.9 (1.2, 2.6)
40-49	6.7 (4.7, 8.6)	7.6 (4.5, 10.7)	6.0 (4.6, 7.4)	5.0 (4.0, 5.9)
50-59	17.0 (13.2, 20.6)	14.4 (10.6, 18.0)	13.4 (11.2, 15.6)	10.8[b] (9.4, 12.3)
60-69	18.5 (13.4, 23.8)	21.0 (16.5, 25.5)	22.2 (19.6, 25.0)	21.8[b] (19.6, 23.9)
70-74	22.0 (11.8, 32.1)	18.9 (11.4, 26.4)	27.1 (22.2, 31.8)	24.2 (20.6, 27.6)
Males	9.2 (7.5, 10.8)	10.3 (8.3, 12.3)	10.6 (9.4, 11.8)	9.7 (8.9, 10.6)
Females	8.0 (6.3, 9.6)	7.4 (5.7, 9.2)	8.4 (7.3, 9.3)	7.3 (6.6, 8.0)
Primary	17.8 (13.9, 21.6)	15.2 (11.2, 19.0)	22,8 (19.9, 25.8)[a]	23.2 (20.7, 25.9)
Secondary	10.5 (8.3, 12.8)	13.6 (10.7, 16.5)	14.5 (12.5, 16.3)	12.2 (10.9, 13.5)
Post-secondary	4.1 (2.9, 5.3)	4.3 (2.9, 5.7)	4.5 (3.8, 5.3)	4.7[b] (4.1, 5.2)
Chinese	7.0 (5.5, 8.5)	6.9 (5.5, 8.3)	8.2 (7.3, 9.0)	7.0 (6.4, 7.6)
Malays	14.5 (12.3, 16.8)	11.6 (7.5, 15.7)	14.4 (11.5, 17.3)	12.9 (11.0, 14.9)
Indians	14.9 (12.5, 17.3)	22.7 (15.6, 29.8)	14.2 (11.5, 16.8)	16.9 (14.3, 19.5)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey periods are significantly different statistically at 5% significance level as the confidence intervals for these two survey periods did not overlap (i.e., between NPHS 2017 and NPHS 2019-2020, NPHS 2019-2020 and NPHS 2021-2022).

(2) s: Data have been suppressed due to small counts or high sampling variability.

(3) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(4) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(5) [b] Indicate significantly different statistically at 5% significance level by trend analysis between 2010 and 2021-2022 or a comparison of the confidence intervals for these two survey periods.

Table 10.4: Proportion (%) of undiagnosed diabetes mellitus among Singapore residents aged 18 to 74 years with diabetes mellitus by age, sex, education, and ethnicity, 2021-2022

	% of residents with undiagnosed diabetes mellitus
Total	18.8
18-29	s
30-39	42.1
40-49	36.0
50-59	21.3
60-69	12.4
70-74	14.5
Males	20.6
Females	16.4
Primary	17.7
Secondary	13.9
Post-secondary	27.7
Chinese	18.6
Malays	18.6
Indians	20.7

Notes: (1) s: Data have been suppressed due to small counts or high variability.
(2) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Among the undiagnosed diabetics, the majority of them were between the ages of 50 to 69 years (54.8%), males (61.4%), Chinese (60.9%) and had post-secondary education (51.3%) (Table 10.5). The mean fasting blood glucose level in the newly diagnosed diabetics was 9.4 mmol/l, higher than the level reported for 2019-2020 (8.8 mmol/l) but similar to that observed in 2017 (9.3 mmol/l).

Table 10.5: Profile (%) of Singapore residents aged 18 to 74 years with undiagnosed diabetes mellitus by age, sex, education, and ethnicity, 2021-2022

	Profile (%) of residents with undiagnosed diabetes mellitus
Total	100.0
18-29	s
30-39	9.7
40-49	21.2
50-59	27.0
60-69	27.8
70-74	13.2
Males	61.4
Females	38.6
Primary	22.2
Secondary	26.5
Post-secondary	51.3
Chinese	60.9
Malays	19.0
Indians	18.4

Notes (1) s: Data have been suppressed due to small counts or high variability.
        (2) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Control of Diabetes in Known Diabetics

Good control of the blood glucose level in adults with diabetes is important in preventing the development and progression of diabetes-related complications (*WHO 2016*). Blood glucose levels are monitored routinely in adults with diabetes using the Glycated Haemoglobin or HbA1c test to track how well the glucose levels are maintained over a period of time. The HbA1c test measures the average amount of blood sugar attached to the haemoglobin in the red blood cells over the previous two to three months and is not affected by short-term changes in glucose levels. The recommended target of glycaemic control for adults[13] with diabetes is HbA1c less than or equal to 7.0% (≤ 7.0%). (*Diabetes Mellitus MOH Clinical Practice Guidelines 2014).*

Among the adults with known diabetes who attended the health examination, close to one in four (38.7%) met the recommended target for glycaemic control while the remaining 61.3% had HbA1c level higher than 7% (Table 10.6). More male diabetics (63.6%) had poorer glycaemic control compared with female diabetics (58.3%). A higher proportion of younger diabetics aged 30 to 39 years (79.8%) had poorer glycaemic control compared to those aged 40 years and above (which was about 60%). By education attainment, the proportion of diabetics who failed to meet the recommended glycaemic control target was highest at 63.5% among residents with primary education, followed by those with secondary (61.9%) and post-secondary (58.7%) education. Malay (66.7%) and Indian (64.8%) diabetics had higher proportion with poor glucose control compared to Chinese diabetics (58.2%). The mean HbA1c among all known diabetics was 7.7%, about the same as the level in 2019-2020 (7.6%) and 2017 (7.8%).

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[13] Based on "Ace Clinical Guidance on Type 2 diabetes mellitus – Personalising management with non-insulin medications" (published 17 May 2023), it is mentioned that "Target HbA1c should be individualised based on the patient's overall health status, in consultation with the patient. For most patients, a target HbA1c of ≤ 7% provides a reasonable balance between a reduction in risk of microvascular complications and risk of hypoglycaemia." This means that a more/ less stringent target HbA1c might for appropriate for some population segments depending on their health status.

Table 10.6: Proportion (%) of Singapore residents aged 18 to 74 years with known diabetes mellitus who did not meet the glycaemic control target by age, sex, education, and ethnicity, 2021-2022

Among known diabetics who attended Health Examination	% of residents who did not meet glycaemic control target (HbA1c > 7.0%)
Total	61.3
18-29	s
30-39	79.8
40-49	60.9
50-59	60.4
60-69	60.6
70-74	61.7
Males	63.6
Females	58.3
Primary	63.5
Secondary	61.9
Post-secondary	58.7
Chinese	58.2
Malays	66.7
Indians	64.8

Notes: (1) s: Data have been suppressed due to small counts or high sampling variability.
(2) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Chapter 11

Hypertension

Key Points

- Over one in three (37.0%) Singapore residents aged 18 to 74 years had hypertension (or high blood pressure) during the period 2021-2022 while the age-standardised prevalence was 32.4% after accounting for population ageing.

- More males (44.0%) had hypertension compared with females (30.2%).

- Prevalence of hypertension increased with age; starting at 8.1% for those aged 18 to 29 years old to 76.8% among those aged 70 to 74 years.

- Among all residents with hypertension, more than half (53.5%) of them had not been previously diagnosed with hypertension.

- Among the known hypertensives who attended health examination, about two-thirds (64.8%) had poor control of their blood pressure.

Introduction

Hypertension or high blood pressure is a condition in which the blood vessels have persistently raised pressure. It is often known as a silent killer as it rarely causes symptoms and many people go undiagnosed. Hypertension is one of the key risk factors for cardiovascular diseases such as heart attack, stroke and heart failure as well as other diseases like kidney failure. Dietary and lifestyle changes can improve blood pressure control and decrease the risk of associated health complications, although drug treatment may be necessary in patients for whom lifestyle changes prove ineffective or insufficient *(WHO 1978; WHO 2013).*

Method Used

An interviewer-administered questionnaire was used to obtain an indication of the prevalence of known hypertension in the community. Respondents were asked whether they had ever been told by a western-trained doctor that they had high blood pressure and were currently prescribed medication for high blood pressure. Respondents who answered "yes" to both questions were classified as having "reported hypertension". Among those with self-reported hypertension, they were also asked on the frequency of doctor's visit and place of treatment to manage their hypertension.

All respondents who completed the interviewer-administered questionnaire were invited to participate in a health examination. Among those who attended the health examination, blood pressure was measured using an electronic blood pressure machine (Terumo ES-W100). Respondents were rested adequately before measurements were taken. Blood pressure was measured with the respondent seated and the right arm comfortably placed on a table. An appropriately sized blood pressure cuff was applied about two to three centimetres above the cubital fossa on the respondent's right arm, with the middle portion of the cuff's bladder positioned over the brachial artery. The cuff was then inflated, and the systolic and diastolic readings were recorded from the monitor. The left arm was used if there were specific reasons why the blood pressure cannot be obtained from the right arm.

Two measurements were taken for each respondent, with an interval of three to four minutes between them. However, if the systolic blood pressure between the two measurements differed by 25mmHg or the diastolic blood pressure by more than 15mmHg, a third measurement was taken. The average blood pressure was calculated based on the two closest readings.

Data on hypertension were aggregated over a span of two survey cycles (i.e., NPHS 2021 and NPHS 2022) so that there will be a larger sample for detailed analysis.

Definition

Hypertension prevalence estimate was defined as a composite indicator of (i) those who reported that they were diagnosed with high blood pressure by a doctor and on medication, (ii) those who reported that they were diagnosed with high blood pressure by a doctor and not on medication but were found to have high blood pressure during the health examination, and (iii) those who had been newly diagnosed with high blood pressure during the health examination and did not self-report doctor-diagnosed high blood pressure.

The WHO Diagnostic Classification criteria (*WHO 2013*) were used for the classification of hypertension (Table 11.1). Hypertension was defined as a systolic blood pressure equal to or above 140mmHg or a diastolic blood pressure equal to or above 90mmHg.

Table 11.1: Diagnostic values for hypertension

Classification	Blood pressure (mmHg)		
	Systolic		Diastolic
Normal	<140	and	< 90
Hypertension	≥ 140	or	≥ 90

Prevalence of Hypertension
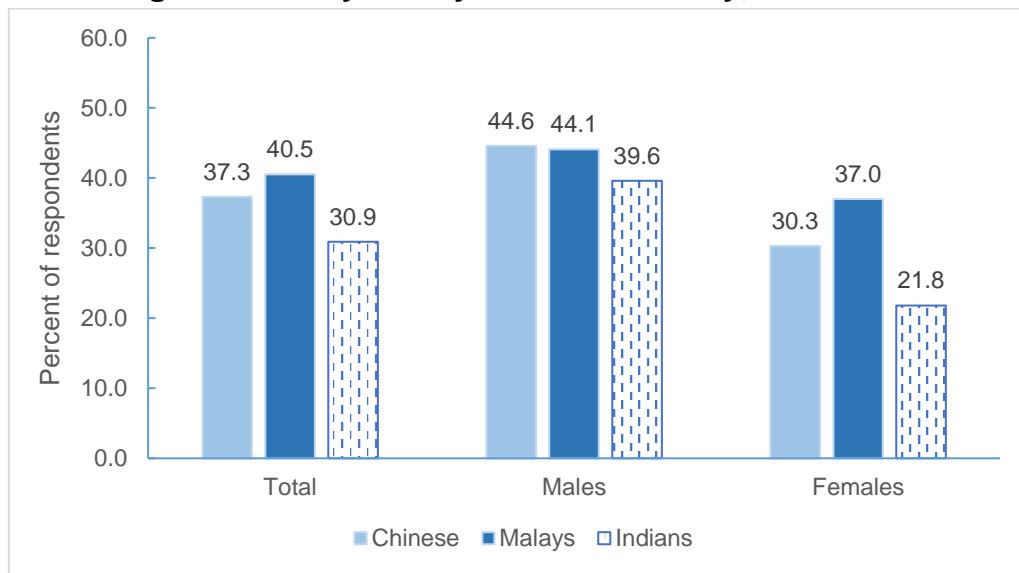
The prevalence of hypertension among Singapore residents aged 18 to 74 years was 37.0% during the period 2021-2022 (Table 11.2). More males (44.0%) had hypertension compared with females (30.2%) in general and among all age groups. The prevalence of hypertension increased with age; starting at 8.1% for those aged 18 to 29 years to 76.8% among those aged 70 to 74 years. Malays (40.5%) and Chinese (37.3%) had higher prevalence of hypertension while the proportion of Indians with hypertension was lower at 30.9% (Graph 11.1). The proportion of hypertension was highest among Chinese (44.6%) and Malay males (44.1%) and Malay females (37.0%).

About seven in 10 (68.8%) residents with primary education had hypertension compared with residents with secondary (48.7%) and post-secondary education (27.1%) (Table 11.3). Residents with reported hypertension visited a doctor for their condition about four times over the period of the past 12 months, mainly in polyclinics (53.6%), private GP clinics (31.1%) and specialist outpatient clinics in public hospitals (10.3%).

Table 11.2: Age-specific crude prevalence (%) of hypertension among Singapore residents aged 18 to 74 years by sex, 2021-2022

Age (years)	Total	Males	Females
18-29	8.1	12.0	4.3
30-39	17.4	25.0	10.3
40-49	31.9	42.3	22.2
50-59	53.7	61.5	45.8
60-69	64.3	72.6	56.3
70-74	76.8	77.2	76.3
18-74	37.0	44.0	30.2

Graph 11.1: Crude prevalence (%) of hypertension among Singapore residents aged 18 to 74 years by sex and ethnicity, 2021-2022

Trends in Prevalence of Hypertension

The prevalence of hypertension at the overall level and across most sub-groups showed a steep increase from 2010 to 2021-2022 (Table 11.3).

Table 11.3: Crude prevalence (%) of hypertension among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2010, 2017, 2019-2020 and 2021-2022

	NHS	NPHS	NPHS	NPHS
	2010	2017	2019-2020	2021-2022
Total	19.8 (17.8, 21.7)	24.2 (21.9, 26.7)a	35.5 (33.9, 37.1)a	37.0b (35.7, 38.3)
ASR	19.8	21.9	31.7	32.4
18-29	s	s	9.4 (6.7, 12.0)	8.1 (6.0, 10.2)
30-39	7.6 (4.8, 10.4)	11.2 (6.4, 16.0)	17.0 (14.3, 19.7)	17.4b (15.3, 19.5)
40-49	16.2 (12.9, 19.5)	17.7 (13.2, 22.1)	32.4 (29.0, 35.8)a	31.9b (29.5, 34.5)
50-59	31.9 (26.9, 37.1)	36.2 (30.1, 42.2)	49.7 (45.6, 53.7)a	53.7b (49.9, 57.3)
60-69	53.2 (43.7, 62.5)	52.8 (45.3, 60.5)	61.9 (57.6, 66.3)	64.3 (60.9, 67.5)
70-74	53.3 (40.8, 65.9)	68.7 (51.2, 86.1)	74.9 (67.7, 81.9)	76.8b (71.2, 82.2)
Males	22.0 (19.2, 24.8)	27.0 (23.5, 30.5)	41.0 (38.6, 43.5)a	44.0b (42.0, 46.0)
Females	17.6 (14.9, 20.2)	21.7 (18.5, 24.9)	30.2 (28.3, 32.2)a	30.2b (28.6, 31.8)

Table 11.3: Crude prevalence (%) of hypertension among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2010, 2017, 2019-2020 and 2021-2022 (continued)

	NHS	NPHS	NPHS	NPHS
	2010	2017	2019-2020	2021-2022
Primary	39.0 (33.2, 44.8)	41.6 (33.7, 49.4)	60.9 (56.0, 65.7)[a]	68.8[b] (64.3, 72.9)
Secondary	20.7 (17.6, 23.9)	33.6 (28.8, 38.4)[a]	45.2 (42.0, 48.2)[a]	48.7[b] (46.0, 51.6)
Post-secondary	12.3 (9.8, 14.7)	14.2 (11.6, 16.8)	26.4 (24.5, 28.5)[a]	27.1[b] (25.6, 28.6)
Chinese	20.2 (17.7, 22.7)	24.7 (21.9, 27.5)	36.1 (34.2, 38.0)[a]	37.3[b] (35.8, 38.8)
Malays	21.3 (18.8, 23.9)	23.1 (17.2, 29.0)	37.5 (32.7, 42.3)[a]	40.5[b] (36.5, 44.4)
Indians	16.4 (14.0, 18.7)	25.1 (17.4, 32.7)	29.5 (25.0, 34.1)	30.9[b] (27.0, 34.8)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey periods are significantly different statistically at 5% significance level as the confidence intervals for these two survey periods did not overlap (i.e., between NPHS 2017 and NPHS 2019-2020, NPHS 2019-2020 and NPHS 2021-2022).

(2) s: Data have been suppressed due to small counts or high sampling variability.

(3) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(4) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(5) [b] Indicate significantly different statistically at 5% significance level by trend analysis between 2010 and 2021-2022 or a comparison of the confidence intervals for these two survey periods.

Prevalence of Undiagnosed Hypertensives

Among all residents with hypertension, the survey found that more than half of them (53.5%) had not been previously diagnosed with hypertension (Table 11.4). There were more males (56.4%) who were undiagnosed with hypertension compared with females (49.7%). The proportion of undiagnosed hypertensives decreased with increasing age from about nine in ten (91.4%) adults aged 18 to 29 years with undiagnosed hypertension to about three in ten (29.3%) adults aged 70 to 74 years with undiagnosed hypertension. On the other hand, the proportion of undiagnosed hypertensives was higher among the higher educated. Two-thirds (62.0%) of hypertensives with post-secondary education was not previously diagnosed with hypertension compared to one in two (49.7%) with secondary education and two in five (41.3%) with primary education. Malays (58.8%) had higher proportion of undiagnosed hypertensives compared with Chinese (53.1%) and Indians (50.2%).

Table 11.4: Proportion (%) of undiagnosed hypertension among Singapore residents aged 18 to 74 years with hypertension by age, sex, education, and ethnicity, 2021-2022

	% of residents with undiagnosed hypertension
Total	53.5
18-29	91.4
30-39	82.2
40-49	67.1
50-59	56.2
60-69	37.2
70-74	29.3
Males	56.4
Females	49.7
Primary	41.3
Secondary	49.7
Post-secondary	62.0
Chinese	53.1
Malays	58.8
Indians	50.2

Note: Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Among the undiagnosed hypertensives, the majority of them were between the ages of 50 to 59 years (29.3%), males (61.2%), Chinese (74.9%) and had post-secondary education (54.5%) (Table 11.5). The majority of the residents (70.5%) with undiagnosed hypertension were found to have Grade 1 hypertension[14] (*Hypertension MOH Clinical Practice Guidelines 2017*). However, a higher proportion of Malay newly diagnosed hypertensives (27.7%) had Grade 2 hypertension[14] compared with Chinese (21.6%) and Indian (16.8%) hypertensives.

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[14] The MOH's clinical practice guidelines on hypertension defines Grade 1 hypertension as systolic blood pressure of 140-159mmHg or diastolic blood pressure of 90-99mmHg, Grade 2 hypertension as systolic blood pressure of 160-179mmHg or diastolic blood pressure of 100-109mmHg and Grade 3 hypertension as systolic blood pressure of 180mmHg and above or diastolic blood pressure of 110mmHg and above. When systolic blood pressure and diastolic blood pressure fall into different categories, the higher category applies.

Table 11.5: Profile (%) of Singapore residents aged 18 to 74 years with undiagnosed hypertension by age, sex, education, and ethnicity, 2021-2022

	Profile (%) of residents with undiagnosed hypertension
Total	100.0
18-29	7.2
30-39	13.6
40-49	20.8
50-59	29.3
60-69	21.4
70-74	7.7
Males	61.2
Females	38.8
Primary	14.0
Secondary	31.5
Post-secondary	54.5
Chinese	74.9
Malays	15.9
Indians	6.7

Note: Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Control of Hypertension in Known Hypertensives

According to MOH's clinical practice guidelines on hypertension, the recommended target levels of blood pressure for adults on an antihypertensive treatment are a systolic blood pressure of less than 140mmHg and a diastolic blood pressure of less than 90mmHg (*Hypertension MOH Clinical Practice Guidelines 2017*). Good control of the blood pressure will reduce the risks of developing serious hypertension-related complications.

Among the adults with known hypertension who attended the health examination, slightly more than one-third (35.2%) had good control of their blood pressure levels while the remaining two-thirds (64.8%) were less effective in controlling their blood pressure (Table 11.6). More than four in five (83.1%) younger adults aged 30 to 39 years with known hypertension had poor blood pressure control compared with other age groups. More males (67.3%) compared with females (61.6%) had poorer blood pressure control. The proportion of hypertensive residents with poor blood pressure control was higher among those with primary education (70.9%) compared with those with higher education levels. Among the ethnic groups, Malay known hypertensives (73.5%) had the highest proportion with poor blood pressure control followed by Chinese (64.0%) and Indians (60.9%).

Table 11.6: Proportion (%) of Singapore residents aged 18 to 74 years with known hypertension who had poor control of blood pressure levels by age, sex, education, and ethnicity, 2021-2022

Among known hypertensives who attended Health Examination	% of residents with poor control of blood pressure levels (Systolic BP ≥ 140mmHg or Diastolic BP ≥ 90mmHg)
Total	64.8
18-29	s
30-39	83.1
40-49	67.4
50-59	67.2
60-69	60.3
70-74	65.9
Males	67.3
Females	61.6
Primary	70.9
Secondary	61.8
Post-secondary	64.6
Chinese	64.0
Malays	73.5
Indians	60.9

Notes: (1) s: Data have been suppressed due to small counts or high sampling variability.

(2) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Chapter 12

Hyperlipidaemia

Key Points

- About three in 10 (31.9%) Singapore residents aged 18 to 74 years had hyperlipidaemia (or high blood cholesterol) during the period 2021-2022 while the age-standardised prevalence was 28.9% after accounting for population ageing.

- Males (36.2%) had higher prevalence of high blood cholesterol than females (27.9%).

- The prevalence of high blood cholesterol increased with age; from around one in 10 (9.6%) adults in the 18 to 29 years age group to more than one in two in the 60 to 74 years age group (60 to 69 years: 53.7%; 70 to 74 years: 55.1%).

- Among residents with high blood cholesterol, 46.7% of them had not been previously diagnosed with high blood cholesterol.

Introduction

Hyperlipidaemia or high blood cholesterol is a major risk factor for coronary heart disease. Elevated blood cholesterol, in particular LDL-cholesterol, causes atherosclerosis and increases the risk for coronary heart disease. HDL-cholesterol has been shown to have a protective effect against coronary heart disease. Low HDL-cholesterol has been shown to be an important independent risk factor for the development of coronary heart disease. Population-based (public health) 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 cholesterol levels in the population (*JAMA 2001; NIH 2002).

Method Used

An interviewer-administered questionnaire was used to obtain an indication of the prevalence of known high blood cholesterol in the community. Respondents were asked whether they had ever been told by a western-trained doctor that they had high blood cholesterol and were currently prescribed medication for high blood cholesterol. Respondents who answered "yes" to both questions were classified as having "reported high blood cholesterol". Among those with self-reported high blood cholesterol, they were also asked on the frequency of doctor's visit and place of treatment to manage their high blood cholesterol.

All respondents who completed the interviewer-administered questionnaire were invited to participate in a health examination. Among those who attended the health examination, blood samples were taken by venepuncture to determine the fasting cholesterol, LDL-cholesterol and HDL-cholesterol after an overnight fasting of at least 10 hours. Blood samples for cholesterol analysis were collected in plain test tubes and were centrifuged on sites before they were despatched to Innoquest Diagnostics for analysis on the same day of the health examination. LDL-cholesterol was measured using Roche c702 instrument using homogenous enzymatic colorimetric method.

This report focuses on the analysis for LDL-cholesterol and data on LDL-cholesterol were aggregated over a span of two survey cycles (i.e., NPHS 2021 and NPHS 2022) so that there will be a larger sample for detailed analysis.

Definition

High blood cholesterol prevalence estimate was defined as a composite indicator of (i) those who reported that they were diagnosed with high blood cholesterol by a doctor and on medication, (ii) those who reported that they were diagnosed with high blood cholesterol by a doctor and not on medication but were found to have high blood cholesterol based on LDL-cholesterol level during the health examination, and (iii) those who had been newly diagnosed with high blood cholesterol based on LDL-cholesterol level during the health examination and did not self-report doctor-diagnosed high blood cholesterol.

The classification of LDL-cholesterol used in the survey was adapted from the Ministry of Health's Clinical Practice Guidelines on Lipids (Table 12.1) (*Lipids MOH Clinical Practice Guidelines 2016).* High blood cholesterol was defined as a LDL-cholesterol level equal or above 4.1mmol/l or equal or above 160mg/dl.

Table 12.1: Diagnostic values for LDL-cholesterol

Classification	Blood Cholesterol Concentration	
	mmol/l	mg/dl
Desirable	≤ 3.3	≤ 129
Borderline high	3.4 – < 4.1	130 – < 160
High	≥ 4.1	≥ 160

Prevalence of Hyperlipidaemia

The prevalence of high blood cholesterol among Singapore residents aged 18 to 74 years was 31.9% (Table 12.2). Overall, males (36.2%) had higher prevalence of high blood cholesterol than females (27.9%) and in most age groups except the 60 to 69 years and 70 to 74 years age groups. The prevalence of high blood cholesterol increased with age; from around one in 10 (9.6%) adults in the 18 to 29 years age group to more than one in two in the 60 to 74 years age group. Among the ethnic groups, the proportion of residents with high blood cholesterol was similar (Chinese: 32.0%, Malays: 33.5% and Indians: 32.8%) (Graph 12.1). Indian males (39.2%) tended to have higher prevalence of high blood cholesterol than their Chinese (36.0%) and Malay counterparts (34.8%). Malay females (32.1%) had the highest proportion with high blood cholesterol compared with the Chinese (27.9%) and Indian (26.0%) females. About one in two (49.3%) residents with primary education had high blood cholesterol compared with residents with secondary (40.3%) or post-secondary education (25.7%) (Table 12.3). Residents with self-reported high blood cholesterol visited a doctor for their condition about three times during the period of the past 12 months, mainly in polyclinics (57.9%), private GP clinics (24.6%) and specialist outpatient clinics in public hospitals (13.4%).
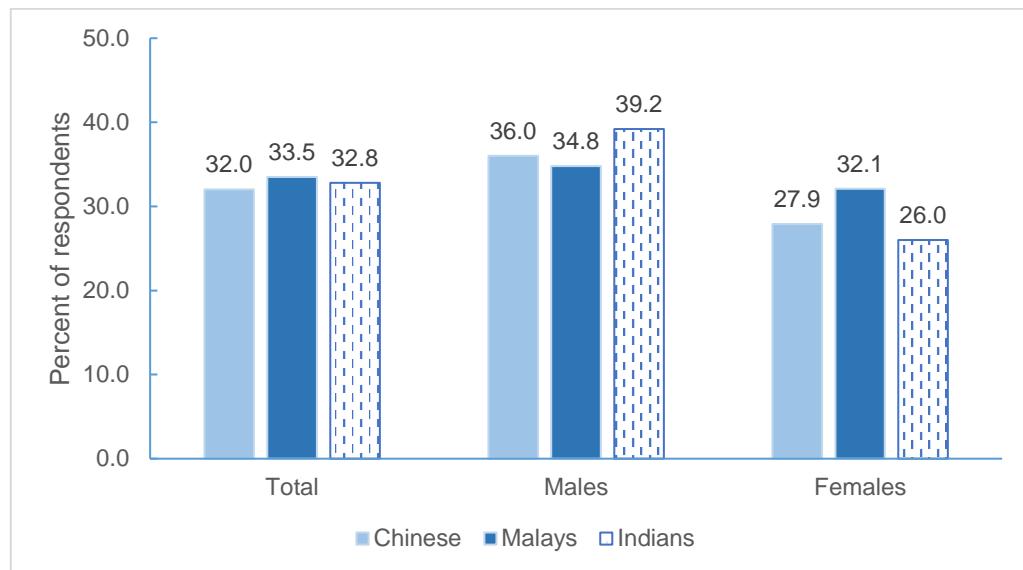
Table 12.2: Age-specific crude prevalence (%) of hyperlipidaemia among Singapore residents aged 18 to 74 years by sex, 2021-2022

Age (years)	Total	Males	Females
18-29	9.6	14.2	5.1
30-39	20.5	27.2	14.3
40-49	27.2	36.3	18.6
50-59	45.4	48.1	42.6
60-69	53.7	52.8	54.5
70-74	55.1	51.4	58.6
18-74	31.9	36.2	27.9

Trends in Prevalence of Hyperlipidaemia

The increases in the prevalence of high blood cholesterol at the overall level and for some sub-groups (i.e. males, residents with above primary education and Chinese) were significant from 2010 to 2021-2022 (Table 12.3). However, between the period of 2019-2020 and 2021-2022, there were some significant decreases at the overall level and for selected sub-groups e.g., in the age groups of 18 to 29 years, and 40 to 59 years; in both sexes, among primary and post-secondary educated residents and among Chinese.

Graph 12.1: Crude prevalence (%) of hyperlipidaemia among Singapore residents aged 18 to 74 years by sex and ethnicity, 2021-2022

Table 12.3: Crude prevalence (%) of hyperlipidaemia among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2010, 2017, 2019-2020 and 2021-2022

	NHS	NPHS	NPHS	NPHS
	2010	2017	2019-2020	2021-2022
Total	26.2 (24.0, 28.3)	35.5 (32.3, 38.8)[a]	39.1 (37.4, 41.0)	31.9[b] (30.7, 33.2)[a]
ASR	26.2	33.8	36.9	28.9
18-29	s	18.3 (11.2, 25.4)	15.7 (12.3, 19.0)	9.6 (7.3, 11.9)[a]
30-39	14.9 (11.4, 18.2)	24.5 (18.3, 30.6)[a]	25.9 (22.6, 29.4)	20.5 (18.1, 22.9)
40-49	22.7 (18.9, 26.6)	31.7 (25.7, 37.9)	36.8 (33.1, 40.8)	27.2 (24.7, 29.7)[a]
50-59	41.4 (35.8, 47.0)	52.1 (43.7, 60.4)	56.3 (51.8, 60.7)	45.4 (41.7, 48.9)[a]
60-69	56.9 (47.0, 66.8)	51.8 (43.8, 59.8)	58.4 (54.0, 62.9)	53.7 (50.4, 56.8)
70-74	54.5 (41.3, 67.7)	53.1 (38.3, 68.0)	62.8 (55.6, 70.2)	55.1 (50.5, 59.8)
Males	28.8 (25.7, 32.1)	42.8 (37.6, 47.8)[a]	42.8 (40.1, 45.5)	36.2[b] (34.1, 38.0)[a]
Females	23.6 (20.8, 26.5)	28.5 (24.8, 32.3)	35.8 (33.4, 38.1)[a]	27.9 (26.3, 29.7)[a]
Primary	44.6 (38.6, 50.7)	54.3 (45.0, 63.5)	58.9 (54.1, 63.8)	49.3 (45.5, 53.1)[a]
Secondary	28.2 (24.5, 32.0)	38.2 (32.2, 44.3)[a]	45.7 (42.5, 49.2)	40.3[b] (37.5, 42.9)
Post-secondary	18.5 (15.6, 21.2)	29.1 (25.2, 32.9)[a]	32.6 (30.4, 34.8)	25.7[b] (24.2, 27.2)[a]

Table 12.3: Crude prevalence (%) of hyperlipidaemia among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2010, 2017, 2019-2020 and 2021-2022 (continued)

	NHS	NPHS	NPHS	NPHS
	2010	2017	2019-2020	2021-2022
Chinese	25.2 (22.5, 28.0)	34.1 (30.6, 37.8)[a]	39.6 (37.6, 41.6)	32.0[b] (30.4, 33.3)[a]
Malays	32.8 (29.5, 36.0)	40.7 (31.0, 50.5)	39.2 (33.9, 44.8)	33.5 (29.3, 37.7)
Indians	28.0 (25.0, 31.2)	40.3 (29.7, 50.7)	37.5 (31.6, 43.3)	32.8 (28.8, 36.9)

Notes: (1)   Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey periods are significantly different statistically at 5% significance level as the confidence intervals for these two survey periods did not overlap (i.e., between NPHS 2017 and NPHS 2019-2020, NPHS 2019-2020 and NPHS 2021-2022).

(2)   s: Data have been suppressed due to small counts or high sampling variability.

(3)   ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(4)   Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(5)   [b] Indicate significantly different statistically at 5% significance level by trend analysis between 2010 and 2021-2022 or a comparison of the confidence intervals for these two survey periods.

Prevalence of Undiagnosed Hyperlipidaemia

Among all residents with high blood cholesterol, the survey found that 46.7% of them had not been previously diagnosed with high blood cholesterol (Table 12.4). Both males (48.1%) and females (45.2%) had similar share of adults with undiagnosed high blood cholesterol. In terms of age groups, the proportion decreased with increasing age from about nine in 10 (89.6%) among those aged 18 to 29 years with undiagnosed high blood cholesterol to about one in seven (15.1%) among those aged 70 to 74 years with undiagnosed high blood cholesterol. Higher educated residents had higher share of undiagnosed high blood cholesterol ranging from 58.0% among those with post-secondary education to 38.7% among those with secondary education and 28.6% among those with primary education. More Malays (56.7%) were unaware that they had high blood cholesterol compared with the Indians (45.7%) and Chinese (44.7%).

Table 12.4: Proportion (%) of undiagnosed hyperlipidaemia among Singapore residents aged 18 to 74 years with hyperlipidaemia by age, sex, education, and ethnicity, 2021-2022

	% of residents with undiagnosed hyperlipidaemia
Total	46.7
18-29	89.6
30-39	82.4
40-49	63.2
50-59	44.7
60-69	25.5
70-74	15.1
Males	48.1
Females	45.2
Primary	28.6
Secondary	38.7
Post-secondary	58.0
Chinese	44.7
Malays	56.7
Indians	45.7

Note: Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Among residents with undiagnosed high blood cholesterol, the majority of them were between the ages of 40 to 59 years (48.2%), males (56.9%), Chinese (71.7%) and had post-secondary education (65.1%) (Table 12.5). The mean LDL-cholesterol level among the newly diagnosed was 4.6 mmol/l for 2021-2022, similar to the levels in 2019-2020 (4.8 mmol/l) and 2017 (4.7 mmol/l).

According to MOH's clinical practice guidelines on lipids, the recommended LDL-cholesterol target level for individuals with high blood cholesterol is based on their risk status of developing future coronary events (*Lipids MOH Clinical Practice Guidelines 2016)*. Hence, the topic on control of hyperlipidaemia among individuals with known hyperlipidaemia is beyond the scope of this report.

Table 12.5: Profile (%) of Singapore residents aged 18 to 74 years with undiagnosed hyperlipidaemia by age, sex, education, and ethnicity, 2021-2022

	Profile (%) of residents with undiagnosed hyperlipidaemia
Total	100.0
18-29	11.3
30-39	21.4
40-49	22.5
50-59	25.7
60-69	15.5
70-74	3.5
Males	56.9
Females	43.1
Primary	8.4
Secondary	26.4
Post-secondary	65.1
Chinese	71.7
Malays	16.2
Indians	8.9

Note: Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

Chapter 13
Obesity

Key Points

- About one in nine (11.6%) Singapore residents aged 18 to 74 years were obese during the period 2021-2022.

- Obesity was more common among males (13.1%) than females (10.2%).

- Obesity was highest among adults aged 40 to 49 years at 15.0%.

- Among Singapore residents aged 18 to 74 years, 22.3% were in the high risk BMI category according to Asian classification of BMI category.

- High risk BMI was more prevalent among males (25.2%) compared with females (19.5%).

- High risk BMI was more common among adults aged 40 to 59 years (40 to 49 years: 27.2%, 50 to 59 years: 26.6%), more than 1.5 times that of those aged 18 to 29 years old (16.1%).

- More than two-fifths of residents (43.3%) aged 18 to 74 years were found to have abdominal obesity, and the rate slightly was higher among females (43.8%) than males (42.9%).

- The prevalence of abdominal obesity increased with age, with the highest prevalence among adults aged 50 to 74 years (50 to 59 years: 53.9%, 60 to 74 years: 54.5%).

Introduction

Obesity 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 lack of physical activity *(Hruby 2015)*.

Method Used

All respondents who completed the interviewer-administered questionnaire were invited to participate in a health examination. Among those who attended the health examination, their height, weight, waist and hip circumferences were recorded. Electronic weighing scale (SECA model 803) was used to measure the weight, while a stadiometer (SECA model 213) was used to measure the height. Both weight and height were measured without footwear. For height measurement, each respondent was positioned against the measuring rod and stood upright with their heels together. The respondent's eyes were directed forward so that the top of the ear was horizontal with the inferior orbital margin and the measuring slide was lowered onto the scalp and the height was recorded. Two height readings were taken for each respondent. If the difference between the first and second height reading was more than one centimetre apart, a third reading was taken. An average height reading was calculated based on two closest readings. Body mass index (BMI) was then calculated based on the weight and average height measurement.

Waist and hip measurements were taken using a tailor's measuring tape over respondent's thin clothing. Two readings each of the waist and hip circumferences were taken and the average calculated. If the difference between the two readings for waist or hip measurements was more than two centimetres apart, a third reading was taken and an average reading was calculated based on two closest readings.

Definition

The weight status based on the Body Mass Index (BMI), where BMI = weight (kg) / height x height (m^2), was classified into the following groups according to WHO (BMI) classification (Table 13.1).

Table 13.1: Classification of weight status

Classification	BMI (kg/m^2)
Underweight	< 18.5
Normal weight	18.5 – 24.9
Overweight	25.0 – 29.9
Obese	≥ 30

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 Asians (*WHO 2004*). Based on this classification, Singapore residents having a BMI equal to or greater than 27.5 kg/m^2 are considered as having high risk BMI (Table 13.2).

Table 13.2: Asian classification of BMI risk category

Classification	BMI (kg/m^2)
Low risk	18.5 – 22.9
Moderate risk	23.0 – 27.4
High risk	≥ 27.5

The waist circumference measures the central obesity and visceral fat. People with more weight around their abdomen tend to have higher health risks (*WHO 2008)*. The cut-offs for high risk abdominal obesity for male and female are shown in Table 13.3.

Table 13.3: High risk abdominal obesity

Sex	Waist circumference (cm)
Male	> 90
Female	> 80

Weight Status

The survey found that among Singapore residents aged 18 to 74 years, 6.8% were underweight, 53.1% had normal weight, 28.6% were overweight, and 11.6% were obese (Table 13.4).

Table 13.4: Weight status (%) of Singapore residents aged 18 to 74 years by sex, 2021-2022

Classification	Total	Males	Females
Underweight	6.8	3.4	10.0
Normal weight	53.1	50.1	55.9
Overweight	28.6	33.4	23.9
Obese	11.6	13.1	10.2
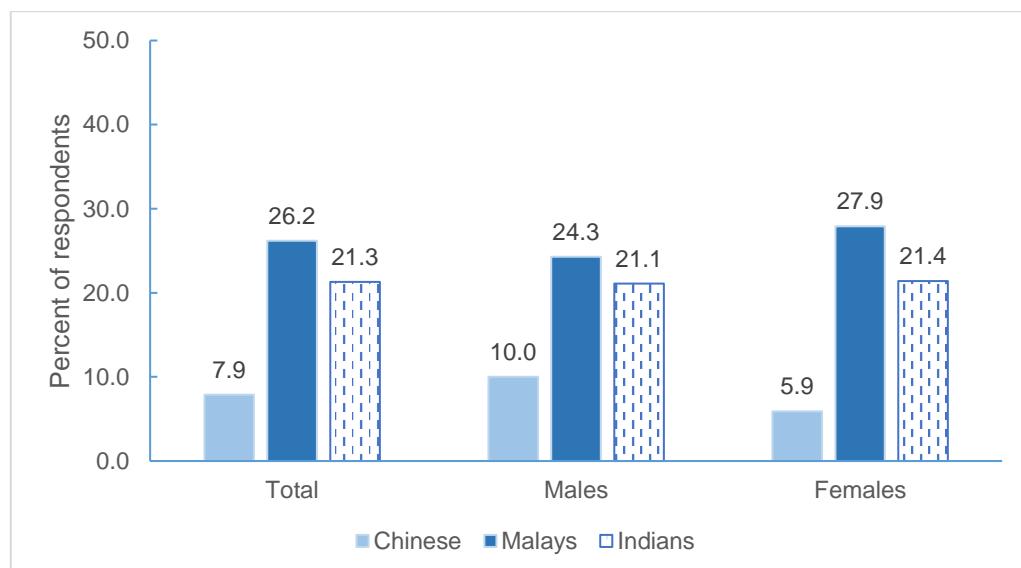
Prevalence of Obesity

Obesity was more common among males (13.1%) than females (10.2%) (Table 13.5). Obesity among adults aged 40 to 49 years was most prevalent at 15.0%. Obesity prevalence among the Malays (26.2%) and Indians (21.3%) were almost triple of the Chinese (7.9%) (Graph 13.1). The obesity prevalence was higher among Chinese males (10.0%) than Chinese females (5.9%) when stratified by sex and ethnic group, but it was the reverse for Malays and Indians. Residents with primary education (15.0%) had highest obesity prevalence followed by residents with secondary (13.4%) and post-secondary (10.4%) education (Table 13.6).

Table 13.5: Age-specific prevalence (%) of obesity among Singapore residents aged 18 to 74 years by sex, 2021-2022

Age (years)	Total	Males	Females
18-29	9.0	10.7	7.3
30-39	12.2	14.7	10.0
40-49	15.0	18.0	12.3
50-59	13.0	13.6	12.5
60-74	9.1	9.3	9.0
18-74	11.6	13.1	10.2

Graph 13.1: Crude prevalence (%) of obesity among Singapore residents aged 18 to 74 years by sex and ethnicity, 2021-2022

Trends in Obesity

Although the upward trends in crude and age-standardised prevalence of obesity were not significant from 2010 to 2021-2022, the prevalence continued to increase since 2013 and superseded the previous prevalence of 10.5% seen in 2019-2020 and 2010 at 11.6% in 2021-2022. Increases in obesity prevalence in recent years between 2019-2020 and 2021-2022 were mostly among the older adults aged 40 to 49 years, Malays and Indians, though these increases were also not significant.

Table 13.6: Crude prevalence (%) of obesity among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2010, 2013, 2017, 2019-2020 and 2021-2022

	NHS	NHSS	NPHS	NPHS	NPHS
	2010	2013	2017	2019-2020	2021-2022
Total	10.5 (9.1, 11.9)	8.6 (7.9, 9.3)	8.6 (6.6, 10.5)	10.5 (9.6, 11.6)	11.6 (10.7, 12.4)
ASR	10.5	8.6	8.8	10.7	11.8
18-29	10.5 (6.8, 14.1)	5.6 (4.1, 7.0)	s	6.6 (4.6, 8.7)	9.0 (7.1, 11.4)
30-39	11.9 (8.9, 14.9)	11.6 (9.9, 13.4)	11.4 (6.3, 16.5)	12.4 (10.0, 15.0)	12.2 (10.4, 14.0)
40-49	10.5 (7.2, 13.7)	10.5 (9.0, 12.0)	11.3 (7.5, 15.2)	11.9 (9.7, 14.1)	15.0 (13.1, 16.9)
50-59	11.8 (8.7, 14.8)	8.1 (6.8, 9.3)	8.4 (4.9, 12.0)	11.9 (9.4, 14.5)	13.0 (10.9, 15.3)
60-74	6.8 (4.6, 8.9)	6.7 (5.3, 8.0)	6.9 (3.4, 10.5)	10.2 (8.1, 12.5)	9.1 (7.7, 10.7)
Males	11.7 (9.5, 13.9)	9.4 (8.3, 10.4)	7.0 (4.6, 9.5)	11.9 (10.4, 13.4)[a]	13.1 (11.8, 14.4)
Females	9.4 (7.6, 11.1)	7.8 (7.0, 8.7)	10.0 (7.1, 12.9)	9.3 (8.1, 10.6)	10.2 (9.1, 11.3)
Primary	10.8 (8.1, 13.6)	9.1 (7.6, 10.5)	10.7 (5.7, 15.6)	16.3 (12.9, 20.5)	15.0 (12.1, 18.2)
Secondary	12.0 (9.2, 14.7)	11.4 (10.0, 12.8)	10.0 (6.7, 13.4)	12.5 (10.6, 14.7)	13.4 (11.6, 15.3)
Post-secondary	9.5 (7.5, 11.5)	6.7 (5.8, 7.6)	7.1 (4.8, 9.4)	8.9 (7.8, 10.1)	10.4 (9.4, 11.4)
Chinese	7.7 (5.9, 9.5)	5.8 (5.0, 6.6)	5.7 (4.0, 7.5)	7.4 (6.5, 8.4)	7.9 (7.1, 8.7)
Malays	23.8 (21.0, 26.5)	20.5 (18.5, 22.4)	16.6 (10.6, 22.7)	23.9 (19.7, 28.5)	26.2 (22.7, 29.5)
Indians	17.2 (14.8, 19.5)	14.1 (12.2, 16.1)	20.4 (11.2, 29.6)	17.7 (13.7, 22.6)	21.3 (17.9, 24.8)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey periods are significantly different statistically at 5% significance level as the confidence intervals for these two survey periods did not overlap (i.e., between NPHS 2017 and NPHS 2019-2020, NPHS 2019-2020 and NPHS 2021-2022).

(2) s: Data have been suppressed due to small counts or high sampling variability.

(3) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(4) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

BMI Risk Category

The survey found that among Singapore residents aged 18 to 74 years, 34.4% had low risk BMI, 36.6% had moderate risk BMI, and 22.3% had high risk BMI (Table 13.7).

Table 13.7: BMI Risk Category (%) of Singapore residents aged 18 to 74 years by sex, 2021-2022

Classification	Total	Males	Females
Low risk	34.4	28.6	39.9
Moderate risk	36.6	42.8	30.7
High risk	22.3	25.2	19.5

Prevalence of High Risk BMI

Similar to the obesity prevalence, there was a higher proportion of males (25.2%) with high risk BMI than females (19.5%) (Table 13.8). High risk BMI was more common among adults aged 40 to 59 years, more than 1.5 times that of those aged 18 to 29 years (16.1%). One in five (20.7%) older adults aged 60 to 74 years was in the high risk BMI group. Malays (46.0%) and Indians (35.7%) had higher proportion with high risk BMI than Chinese (16.5%) (Graph 13.2). However, the Malay females (47.5%) had the highest proportion with high risk BMI, double that of the national average (22.3%). About one in three (28.0%) residents with primary education had high risk BMI compared with one in four (24.9%) with secondary education and one in five (20.5%) with post-secondary education (Table 13.9).
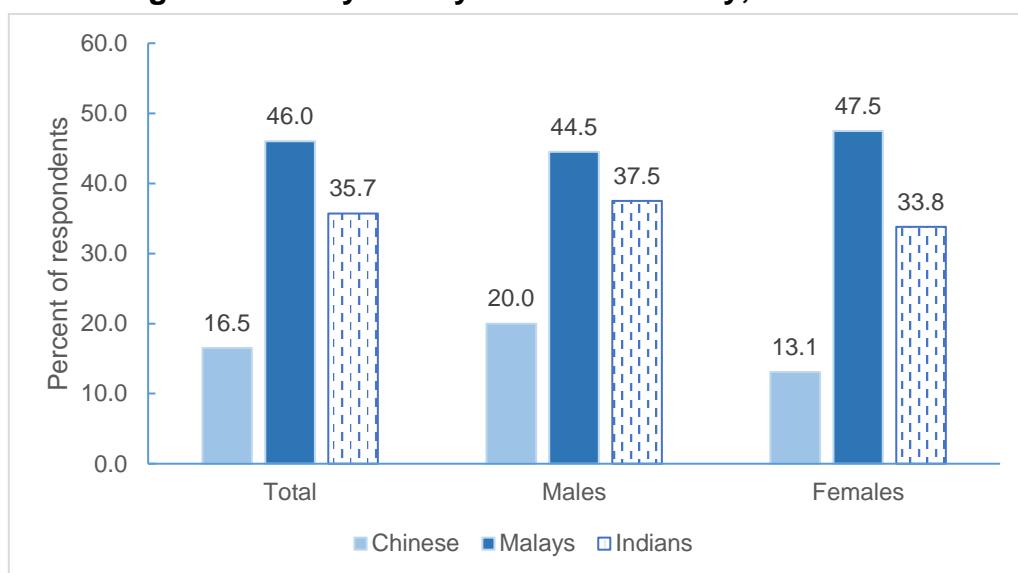
Table 13.8: Age-specific prevalence (%) of high BMI risk among Singapore residents aged 18 to 74 years by sex, 2021-2022

Age (years)	Total	Males	Females
18-29	16.1	18.7	13.5
30-39	21.1	26.5	16.2
40-49	27.2	32.2	22.5
50-59	26.6	28.4	25.0
60-74	20.7	21.5	20.0
18-74	22.3	25.2	19.5

Trends in High Risk BMI

Similar to the trends for obesity, the crude and age-standardised prevalence of high risk BMI remained largely stable from 2010 to 2021-2022 (Table 13.9). Only the Malay residents saw a significant increase in the prevalence of high risk BMI during this period. Between the period 2019-2020 to 2021-2022, the rise in high risk BMI prevalence occurred mainly among adults aged 18 to 29 years, 40 to 59 years, males, Malays and Indians, though the increases were also not significant.

Graph 13.2: Crude prevalence (%) of high BMI risk among Singapore residents aged 18 to 74 years by sex and ethnicity, 2021-2022

Table 13.9: Crude prevalence (%) of high risk BMI among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2010, 2013, 2017, 2019-2020 and 2021-2022

	NHS	NHSS	NPHS	NPHS	NPHS
	2010	2013	2017	2019-2020	2021-2022
Total	22.7 (20.7, 24.6)	17.6 (16.7, 18.5)	18.7 (15.9, 21.5)	20.7 (19.2, 22.0)	22.3 (21.2, 23.4)
ASR	22.7	17.6	19.0	20.8	22.4
18-29	16.9 (12.8, 21.0)	10.1 (8.3, 12.0)	11.2 (5.8, 16.5)	13.1 (10.2, 16.2)	16.1 (13.5, 18.9)
30-39	23.2 (19.3, 27.2)	20.6 (18.3, 23.0)	24.7 (17.2, 32.2)	22.4 (19.3, 25.8)	21.1 (18.8, 23.4)
40-49	25.0 (21.0, 29.1)	20.8 (18.8, 22.8)	20.5 (15.2, 25.7)	24.2 (21.2, 27.3)	27.2 (24.8, 29.6)
50-59	27.3 (22.8, 31.7)	20.3 (18.4, 22.3)	20.8 (15.0, 26.6)	23.7 (20.2, 26.9)	26.6 (23.7, 29.7)
60-74	20.7 (15.8, 25.5)	15.9 (13.8, 18.0)	16.8 (11.7, 22.0)	20.3 (17.3, 23.3)	20.7 (18.6, 22.9)
Males	24.4 (21.6, 27.2)	19.9 (18.5, 21.4)	20.6 (16.3, 24.8)	22.6 (20.4, 24.7)	25.2 (23.5, 26.8)
Females	21.0 (18.4, 23.6)	15.4 (14.2, 16.6)	16.9 (13.4, 20.5)	18.8 (17.0, 20.8)	19.5 (17.9, 21.1)
Primary	27.9 (23.2, 32.6)	20.3 (18.0, 22.6)	23.7 (16.4, 31.0)	28.2 (23.9, 32.8)	28.0 (24.4, 31.9)
Secondary	25.9 (22.5, 29.4)	21.9 (20.1, 23.7)	22.4 (17.5, 27.3)	24.9 (22.1, 27.8)	24.9 (22.6, 27.3)
Post-secondary	18.8 (16.1, 21.4)	14.2 (13.0, 15.4)	15.3 (11.9, 18.6)	17.8 (16.2, 19.6)	20.5 (19.2, 21.8)
Chinese	19.0 (16.5, 21.4)	13.6 (12.5, 14.7)	14.8 (11.9, 17.7)	16.1 (14.7, 17.5)	16.5 (15.4, 17.7)
Malays	38.3 (35.2, 41.4)	32.8 (30.5, 35.0)	34.6 (26.6, 42.6)	38.7 (33.0, 44.0)	46.0[b] (42.1, 50.2)
Indians	33.1 (30.1, 36.1)	28.2 (25.6, 30.7)	28.6 (18.7, 38.5)	31.8 (26.5, 37.2)	35.7 (31.3, 39.9)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey periods are significantly different statistically at 5% significance level as the confidence intervals for these two survey periods did not overlap (i.e., between NPHS 2017 and NPHS 2019-2020, NPHS 2019-2020 and NPHS 2021-2022).

(2) s: Data have been suppressed due to small counts or high sampling variability.

(3) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(4) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(5) [b] Indicate significantly different statistically at 5% significance level by trend analysis between 2010 and 2021-2022 or a comparison of the confidence intervals for these two survey periods.

Prevalence of Abdominal Obesity

During the period 2021-2022, more than two-fifths (43.3%) of Singapore residents aged 18 to 74 years were found to have abdominal obesity (male's and female's waist circumference greater than 90 centimetres and 80 centimetres respectively) (Table 13.10). Contrary to the obesity prevalence, there was a slightly higher proportion of females (43.8%) with abdominal obesity than males (42.9%). The prevalence of abdominal obesity increased with age, with the highest prevalence among adults aged 50 to 74 years (50 to 59 years: 53.9%, 60 to 74 years: 54.5%). Indians (65.6%) and Malays (59.6%) had higher proportion of adults with abdominal obesity than Chinese (37.9%) (Graph 13.3). Indian females fared the worst with more than three-fifths of them (69.1%) having abdominal obesity. Residents with primary education had highest proportion with abdominal obesity at 58.0% followed by those with secondary (49.8%) and post-secondary (38.8%) education (Table 13.11).

Table 13.10: Age-specific prevalence (%) of abdominal obesity among Singapore residents aged 18 to 74 years by sex, 2021-2022

Age (years)	Total	Males	Females
18-29	23.9	24.6	23.1
30-39	36.0	36.6	35.4
40-49	46.9	49.3	44.7
50-59	53.9	51.7	56.0
60-74	54.5	51.5	57.4
18-74	43.3	42.9	43.8

Graph 13.3: Crude prevalence (%) of abdominal obesity among Singapore residents aged 18 to 74 years by sex and ethnicity, 2021-2022

Trends in Abdominal Obesity

The upward trends in the prevalence of abdominal obesity at the overall level and among males, Malays, Indians and residents with post-secondary education were significant from 2010 to 2021-2022 (Table 13.11). Comparing between 2019-2020 and 2021-2022, abdominal obesity prevalence increased significantly for 18 to 29 years age group, males and Indians.

Table 13.11: Crude prevalence (%) of abdominal obesity among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2010, 2017, 2019-2020 and 2021-2022

	NHS	NPHS	NPHS	NPHS
	2010	2017	2019-2020	2021-2022
Total	39.1 (36.8, 41.3)	40.3 (37.1, 43.5)	40.6 (39.0, 42.4)	43.3[b] (42.0, 44.7)
ASR	39.1	39.6	38.9	41.8
18-29	22.3 (17.8, 26.7)	18.8 (12.0, 25.6)	17.1 (13.9, 20.5)	23.9 (20.8, 27.0)[a]
30-39	35.5 (31.0, 40.0)	41.2 (33.7, 48.6)	33.6 (30.0, 37.4)	36.0 (33.1, 38.8)
40-49	42.5 (37.8, 47.1)	47.9 (40.8, 55.0)	45.7 (41.8, 49.5)	46.9 (44.4, 49.6)
50-59	49.1 (44.0, 54.2)	47.0 (40.6, 53.4)	48.8 (44.7, 52.8)	53.9 (50.6, 57.2)
60-74	51.8 (45.1, 58.4)	48.0 (41.1, 54.8)	56.9 (53.5, 60.9)	54.5 (51.9, 57.3)
Males	34.6 (31.5, 37.7)	37.0 (32.2, 41.7)	37.8 (35.3, 40.3)	42.9[b] (41.0, 44.8)[a]
Females	43.4 (40.1, 46.7)	43.5 (39.3, 47.6)	43.2 (40.9, 45.6)	43.8 (41.9, 45.7)
Primary	51.8 (46.6, 57.1)	45.5 (37.2, 53.7)	59.2 (54.3, 64.2)[a]	58.0 (54.3, 62.0)
Secondary	44.0 (40.1, 47.9)	48.7 (43.1, 54.3)	48.2 (44.9, 51.4)	49.8 (46.9, 52.5)
Post-secondary	31.4 (28.2, 34.5)	34.0 (29.7, 38.3)	34.8 (32.7, 37.1)	38.8[b] (37.1, 40.4)
Chinese	35.6 (32.7, 38.5)	35.0 (31.4, 38.5)	36.4 (34.5, 38.4)	37.9 (36.4, 39.3)
Malays	47.0 (43.9, 50.2)	58.4 (48.9, 67.9)	53.7 (48.1, 59.2)	59.6[b] (55.7, 63.7)
Indians	56.3 (53.0, 59.6)	59.5 (49.2, 69.8)	54.8 (48.4, 61.5)	65.6[b] (61.6, 69.7)[a]

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey periods are significantly different statistically at 5% significance level as the confidence intervals for these two survey periods did not overlap (i.e., between NPHS 2017 and NPHS 2019-2020, NPHS 2019-2020 and NPHS 2021-2022).

(2) s: Data have been suppressed due to small counts or high sampling variability.

(3) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(4) Analysis based on highest education attained, which served as a proxy for socio-economic factors.
Primary education: No formal qualification/ Primary/ PSLE.
Secondary education: Secondary/ GCE 'O'/ 'N' level.
Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(5) [b] Indicate significantly different statistically at 5% significance level by trend analysis between 2010 and 2021-2022 or a comparison of the confidence intervals for these two survey periods.

Chapter 14

Chronic Kidney Disease (Renal Impairment) (Updated[15])

Key Points

- The prevalence of chronic kidney disease (CKD) among Singapore residents aged 18 to 74 years was 13.8% during the period 2021-2022, with males (13.6%) and females (14.0%) having similar prevalence.

- The prevalence of CKD increased with age, from 5.9% among those aged 18 to 39 years, 10.8% among those aged 40 to 54 years, 21.6% among those aged 55 to 69 years and 36.0% for those aged 70 to 74 years.

- The prevalence of CKD among residents with diabetes (42.3%) was about four-fold higher than those without diabetes (10.0%). Even among residents with pre-diabetes, their prevalence of CKD (21.8%) was twice as high as those without diabetes (10.0%).

- Similarly, for residents with hypertension, their prevalence of CKD (24.2%) was 3.5-fold elevated compared to those without hypertension (6.9%).

Introduction

Chronic kidney disease (CKD) is defined as abnormalities of the kidney structure or function, present for greater than three months, with implications for health *(KDIGO 2012)*. Biochemically, CKD can be assessed by estimating the glomerular filtration rate (eGFR) and measuring the amount of albumin in the urine (albumin). It is important to detect and manage CKD early to treat reversible conditions and retard its progression. Severe CKD (kidney failure) is a debilitating condition and is associated with numerous comorbidities and reduced life expectancy. The socio-economic impact on the society is also considerable.

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[15] This chapter has been updated with an additional table.

Method Used

All respondents who completed the interviewer-administered questionnaire were invited to participate in a health examination. Among those who attended the health examination, blood samples were collected using standard phlebotomy procedure and centrifuges after allowing 30 minutes of clotting time. The serum creatinine was measured using the Roche c702 instrument using the Jaffe Gen.2 reagent at Innoquest Diagnostics. This method is standardised against the isotope dilution-mass spectrometry method and fulfils the prerequisite for using the CKD-EPI equations.

Random spot urine samples were collected in sterile containers for measurement of albumin and creatinine using the Roche c702 instrument at Innoquest Diagnostics. The urine albumin was measured using the immunoturbidimetric method (Tina-quant Albumin Gen.2) whereas the urine creatinine was measured using the Jaffe reaction in urine mode.

Data on serum creatinine, urinary albumin and urinary creatinine were aggregated over a span of two survey cycles (i.e., NPHS 2021 and NPHS 2022) so that there will be a larger sample for detailed analysis.

Definition

The estimated glomerular filtration rate (eGFR) of the respondents was derived using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equations as provided below (Table 14.1) *(Levey 2009)*.

Table 14.1: Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equations for estimating GFR in non-Black subjects. SCr = serum creatinine

Subject characteristics	Equation
Female with SCr ≤ 62 µmol/L	$eGFR = 144 \, (SCr \times 0.0113 / 0.7)^{-0.329} \times (0.993)^{age \, in \, years}$
Female with SCr > 62 µmol/L	$eGFR = 144 \, (SCr \times 0.0113 / 0.7)^{-1.209} \times (0.993)^{age \, in \, years}$
Male with SCr ≤ 80 µmol/L	$eGFR = 141 \, (SCr \times 0.0113 / 0.9)^{-0.411} \times (0.993)^{age \, in \, years}$
Male with SCr > 80 µmol/L	$eGFR = 141 \, (SCr \times 0.0113 / 0.9)^{-1.209} \times (0.993)^{age \, in \, years}$

In this report, a respondent is considered to have renal impairment if they have eGFR < 60mL/min per 1.73m^2 (i.e., GFR categories G3a to G5) or albuminuria (ratio of urine albumin and urine creatinine) ≥ 3mg/mmol/L (i.e., ACR categories A2 and A3) *(KDIGO 2012)* (Table 14.2). The distribution of respondents by the different GFR category and ACR category is presented in Table 14.3. The CKD prevalence is equal to the sum of all the cells shaded in grey.

Table 14.2: Classification of CKD based on glomerular filtration rate (GFR) and albuminuria

GFR Category	GFR stages (mL/min per 1.73 m^2)	ACR Category	Albuminuria stages (ACR, mg/mmol/L)
G1	≥90	A1	<3
G2	60-89	A2	3-30
G3a	45-59	A3	>30
G3b	30-44		
G4	15-29		
G5	<15		

Table 14.3: Proportion (%) of Singapore residents aged 18 to 74 years by GFR category and ACR category, 2021-2022

GFR Category	ACR Category			
	A1	A2	A3	Total
G1	65.4	6.5	0.5	72.4
G2	20.8	3.6	0.6	25.1
G3a	0.8	0.7	0.2	1.7
G3b	0.2	0.2	<0.1	0.4
G4	<0.1	<0.1	<0.1	0.2
G5	<0.1	<0.1	<0.1	<0.1
Total	87.2	11.1	1.6	100.0
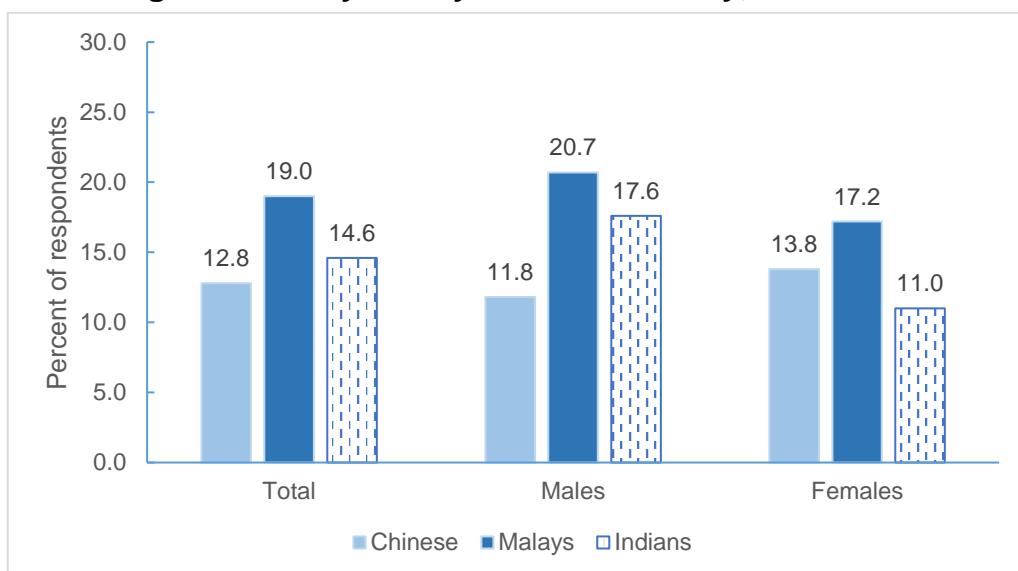
Prevalence of CKD

The overall prevalence of CKD among Singapore residents aged 18 to 74 years was 13.8%, with males (13.6%) and females (14.0%) having similar prevalence (Table 14.4). The prevalence of CKD increased with age, from 5.9% among those aged 18 to 39 years, 10.8% among those aged 40 to 54 years, 21.6% among those aged 55 to 69 years to 36.0% for those aged 70 to 74 years. Malays (19.0%) had the highest CKD prevalence, followed by Indians (14.6%) and Chinese (12.8%) (Graph 14.1) The same pattern was also observed among males, while among females, Malays (17.2%) had the highest CKD prevalence, followed by Chinese (13.8%) and Indians (11.0%).

Table 14.4: Age-specific crude prevalence (%) of CKD among Singapore residents aged 18 to 74 years by sex, 2021-2022

Age (years)	Total	Males	Females
18-39	5.9	4.1	7.8
40-54	10.8	9.9	11.8
55-69	21.6	23.1	19.9
70-74	36.0	38.3	33.6
18-74	13.8	13.6	14.0

Graph 14.1: Crude prevalence (%) of CKD among Singapore residents aged 18 to 74 years by sex and ethnicity, 2021-2022

Two important clinical risk factors for CKD are diabetes and hypertension. Among Singapore residents aged 18 to 74 years with diabetes, their prevalence of CKD (42.3%) was about four-fold higher than those without diabetes (10.0%) (Table 14.5). Residents with pre-diabetes (21.8%) had CKD twice as often as those without diabetes (10.0%). The prevalence of CKD among females with pre-diabetes (19.1%) was slightly lower than that of males (23.6%), while females with diabetes (41.2%) had a similar prevalence of CKD as males with diabetes (43.1%). However, the prevalence of CKD among females with no diabetes (11.1%) was higher than that among males (8.9%).

Where hypertension is concerned, the prevalence of CKD was around 3.5-fold elevated in residents with hypertension (24.2%) compared to those without (6.9%) (Table 14.6). Female hypertensives (25.9%) had a higher prevalence of CKD compared with male hypertensives (23.1%).

Table 14.5: Crude prevalence (%) of CKD among Singapore residents aged 18 to 74 years by sex and diabetes status, 2021-2022

Diabetes status	Total	Males	Females
Diabetes	42.3	43.1	41.2
Pre-diabetes	21.8	23.6	19.1
No diabetes	10.0	8.9	11.1

Note: Respondents are classified solely based on whether they have diabetes, pre-diabetes or no diabetes and other comorbidities (that the respondents may have) are not taken into consideration in this classification.

Table 14.6: Crude prevalence (%) of CKD among Singapore residents aged 18 to 74 years by sex and hypertension status, 2021-2022

Hypertension status	Total	Males	Females
Hypertension	24.2	23.1	25.9
No Hypertension	6.9	5.0	8.4

Note: Respondents are classified solely based on whether they have hypertension or no hypertension and other comorbidities (that the respondents may have) are not taken into consideration in this classification.

Trends in Prevalence of CKD

The crude prevalence of CKD increased significantly from 8.7% in the period 2019-2020 to 13.8% in 2021-2022 (Table 14.7). Likewise, significant increases were observed for most sub-groups except those aged 70 to 74 years and among Indians.

Table 14.7: Crude prevalence (%) of CKD among Singapore residents aged 18 to 74 years by age, sex, education, and ethnicity, 2019-2020 and 2021-2022

	NPHS 2019-2020	NPHS 2021-2022
Total	8.7 (7.7, 9.7)	13.8 (12.7, 14.9)[a]
ASR	7.3	11.4
18-39	3.3 (2.1, 4.6)	5.9 (4.7, 7.2)[a]
40-54	6.7 (5.3, 8.4)	10.8 (9.2, 12.7)[a]
55-69	14.7 (12.5, 17.0)	21.6 (19.3, 24.0)[a]
70-74	28.0 (21.0, 35.4)	36.0 (30.7, 41.7)
Males	8.6 (7.3, 10.1)	13.6 (12.2, 15.0)[a]
Females	8.7 (7.3, 10.2)	14.0 (12.5, 15.6)[a]
Primary	20.2 (16.3, 24.6)	30.5 (26.1, 34.6)[a]
Secondary	12.4 (10.3, 14.6)	18.2 (16.2, 20.4)[a]
Post-secondary	5.5 (4.4, 6.6)	9.2 (8.1, 10.4)[a]
Chinese	8.2 (7.1, 9.3)	12.8 (11.8, 14.0)[a]
Malays	11.3 (7.9, 14.9)	19.0 (15.7, 22.6)[a]
Indians	9.2 (6.1, 12.8)	14.6 (11.3, 18.3)

Notes: (1) Figures in ( ) refer to the 95% confidence intervals. [a] Indicates that the results for any two consecutive survey periods are significantly different statistically at 5% significance level as the confidence intervals for these two survey periods did not overlap (i.e., between NPHS 2019-2020 and NPHS 2021-2022).

(2) ASR: Age-standardised rate. The reference population used is Singapore Census 2010 resident population.

(3) Analysis based on highest education attained, which served as a proxy for socio-economic factors.

Primary education: No formal qualification/ Primary/ PSLE.

Secondary education: Secondary/ GCE 'O'/ 'N' level.

Post-secondary education: GCE 'A' Level/ Polytechnic & other diploma/ Degree & professional qualification.

(4) Data for the previous survey cycle (i.e., NPHS 2019-2020) has been revised due to revisions made to the data.

Survey Methodology

Study Design and Objectives

The NPHS is a cross-sectional population health survey series jointly managed by the Ministry of Health and Health Promotion Board to track the health and risk factors of the Singapore residents. The main objectives of the survey are to monitor the health of Singapore residents and track progress towards national targets in the areas of:

    (i)   risk factors such as alcohol consumption, cigarette smoking and physical inactivity;

    (ii)   chronic diseases such as diabetes mellitus, hypertension and hyperlipidaemia;

    (iii)   preventive health behaviour such as chronic disease screening; cervical, breast and colorectal cancer screening; and vaccinations.

The survey results were presented for the 18 to 74 years age group for most chapters except chronic disease screening, cancer screening and vaccinations. For these few chapters, the analyses were confined to relevant age groups recommended for screening and immunisation. Data for the "Others" ethnic group were included in the compilation of the survey results shown under "Total", but suppressed in ethnic-specific data of all statistical tables due to small counts or high sampling variability.

Ethics Approval

The NPHS methodology, protocol and procedures were approved by National Healthcare Group (NHG) Domain Specific Review Board (Domain F).

Sample Design

A representative sample of residential addresses was obtained from the Singapore Department of Statistics (DOS) who maintains a sampling frame of residential addresses for the selection of samples for household surveys. The sample selection was based on a two-stage design where the primary sampling units comprised of geographical areas and the secondary sampling units were the residential dwelling units.

The NPHS design comprised two components – (1) Household Interview (HI) and (2) Health Examination (HE). In the first component, a household member aged 18 to 79 years old (also known as "reference person") was identified using KISH tables within each selected address to participate in the household based for a face-to-face questionnaire interview (i.e., NPHS HI). Only Singapore citizens and permanent residents were recruited for the survey. All reference persons who completed NPHS HI would be invited to undergo a health examination (i.e., NPHS HE) at a designated clinic. Physical measurements e.g., height, weight, hip and waist circumference, blood pressure levels and bio-specimens such as blood and urine samples of survey respondents were collected. The blood and urine samples were sent to a medical laboratory to test for blood sugar, cholesterol, proteins in urine and other conditions. A full report on the respondent's health status was mailed to him/ her about six to eight weeks after the completion of the health examination.

Questionnaire

An electronic structured questionnaire administrated on a tablet was used in the survey to collect information on the demographic and socio-economic factors, lifestyle practices relating to the major non-communicable diseases and risk factors, health conditions, knowledge, attitude and practices on health screening as well as the help-seeking attitudes of the respondents. The questionnaire was adopted from that of the National Population Health Survey 2017 and National Health Surveillance Survey 2013; and included elements of the instruments used in the WHO STEP-wise approach to Surveillance of Non-Communicable Diseases (STEPS) Instrument for Non-Communicable Disease Risk Factors and WHO's Global Physical Activity Questionnaire (GPAQ).

Invitation Letter and Publicity

An invitation letter, in four official languages, was mailed to the selected household addresses one week prior to visitation by the assigned trained interviewers. The invitation letter provided information on the survey purpose, what the survey comprised and expected survey duration. It also informed that an interviewer from a research company commissioned by the Ministry of Health and Health Promotion Board would be visiting the household to enumerate, select and interview an eligible household member to take part in the survey, and assured the household on the confidentiality of all collected information. A dedicated NPHS webpage was set-up to provide detailed information on the conduct of the NPHS.

Training

All survey interviewers were given an overview of the survey background and briefed extensively on the fieldwork procedures such as procurement of appointments, enumeration of household members, selection of eligible household members using KISH tables and consent taking for survey participation. They were given training slides on survey protocols and questionnaire administration as well as training in administrating the electronic questionnaire on a tablet. Fieldworkers carrying out the health examination were given training on consent taking and the standard operation procedures for the conduct of health examination. These trainings helped to ensure compliance to standards and protocols of the survey, and consistency in data collection for the household interview and health examination.

Household Interview Fieldwork

The household interview fieldwork for NPHS 2022 was conducted between 02 July 2021 and 30 June 2022. Survey interviewers from the appointed research company *(National University of Singapore (IPS-Social Lab))*, commissioned by the Ministry of Health and Health Promotion Board, visited all the selected household addresses. The interviewers made a minimum of five visit attempts, at different times of the day and on different days of a week to establish contact with the reference person or household member to conduct the survey or obtain a survey appointment if the reference person is unavailable at the point of visit. Informed consent was obtained from the reference person before the interviewer administered the questionnaire face-to-face. A token of appreciation was given to the reference person who completed the survey interview. All reference persons who completed the household interview were invited to go for a health examination and given a letter of invitation by the interviewer.

Health Examination Fieldwork

The health examination fieldwork for NPHS 2022 was carried out between 22 July 2021 and 31 August 2022 by a healthcare service provider (*Healthway Medical Group*) appointed by the Ministry of Health and Health Promotion Board. Appointment setting officers from the service provider provided a reminder call to reference persons two to three days prior to their appointments and managed any requests for changes to the appointments. At the appointed clinic, informed written consent was obtained by a fieldworker before the conduct of the health examination and a token of appreciation was given to the reference person after the completion of the health examination.

Data Quality Control

Informed consent forms validation

All the informed consent forms from the household interview and health examination were checked for completeness and accuracy of information captured. This included checks for missing information, consistency of information and any data-entry errors in the datasets.

Interview validation

Data quality control was conducted by a separate team of staff who were not involved in the survey interview fieldwork. For each interviewer, 40% of their survey interviews were randomly selected and subjected to quality control checks via telephone validation or audio audit. At least 30% of all quality control checks were conducted through telephone validation where respondents were asked to verify their residential address and responses to nine specific fields with the respondents concerned. The remaining 10% of the checks were audio audits where a quality control staff listened to segments of the interview and checked if the interviewer complied with the stipulated survey protocols in administering the questions.

Data verification and consistency check

The electronic survey questionnaire had built-in features that prompt data entry for fields that required a response or prompt data re-entry if data entered was outside the logical or valid field range. Built-in checks for relational fields were also incorporated to ensure that responses for those fields across different sections of the questionnaire were consistent. The built-in features and checks ensured that missing values, data-entry errors and inconsistent responses were eradicated or kept to the minimum where possible.

The database on the questionnaire records with the complete survey responses was subjected to a series of computer-programmed checks for missing values, valid field range and cross-field relational consistency. Missing values were obtained from respondents and data anomalies were clarified through direct verification with the respondents whenever necessary.

The database on the physical measurements and laboratory results were also checked for missing value, valid field range and cross-field relational consistency. Missing values and data anomalies were clarified with fieldworkers and corrected where possible.

Data Confidentiality

Throughout all stages of the survey, strict confidentiality on individual respondent information was maintained. All information, including audio recordings, questionnaire answers, health examination records collected for this survey will be kept strictly confidential, and stored in a secure, password-protected environment. Any reporting of findings would be done on an aggregated basis such that no individual survey respondents can be identified. The identity of the respondents would remain confidential in publications (e.g., in national reports).

Age-Standardisation

Age-standardisation of prevalence rates take into account the changing age distribution of the population over the years that allows for more meaningful trend comparison, especially with an ageing population. Age-standardisation of prevalence was calculated by the direct method, using the 2010 Census Singapore resident population as the standard (reference) population.

Response Rate

From a sample of 11,771 eligible households, 8,081 reference persons aged 18 to 79 years participated in the household interview, forming a response rate of 69.0% in NPHS 2022. A total of 5,941 reference persons (73.5%) initially agreed to participate in the follow-up health examination. However, only 4,743 (79.8%) of those who agreed eventually attended the health examination.

Comparison of Demographic Profile between Survey Respondents and Resident Population

The demographic profiles of survey respondents from household interview were shown in Table 15.1. The NPHS 2022 survey sample was post-stratified and weighted to the age, sex and ethnic distribution of the 2021 Singapore resident population to yield a similar population structure as the resident population. This was to ensure that the survey results apply to the general population. Likewise, the NPHS 2022 survey sample for health examination was also post-stratified and weighted to the age, sex and ethnic distribution of the 2021 resident population and adjusted for non-participation in health examination to yield a representative sample of the population.

Data from NPHS 2021 and NPHS 2022 were aggregated together for some analysis of the survey results. A total of 16,357 reference persons completed the household interviews and 8,863 of them attended the health examination across the two survey cycles. The demographic profiles of survey respondents from the household interview and health examination from the combined survey sample were presented in Table 15.2.

Sample Weights

The sample weights for household interview were the composite of sample weights for the households and the selected household members. For each household, the sample weight (W_{HH}) comprised weight for non-response and unequal probability of selection stratified by planning regions and housing type and benchmarked to the total number of resident households. For each household member, the sample weight (W_{HH_Mem}) comprised weight for unequal probability of selection and weight for post-stratification stratified by age, sex and ethnic groups. The overall sample weight for household interview was the product of W_{HH} and W_{HH_Mem}.

The sample weights for health examination were obtained by applying the weight for non-response to health examination to the household interview weights stratified by age, sex and ethnic groups.

Table 15.1: Percentage distribution (%) of the survey sample (unweighted) for household interview and 2021 Singapore resident population by demographic characteristics

	Household Interview Survey Sample (Unweighted)	Singapore Resident 2021
Total	100.0	100.0
18-29	12.9	13.2
30-39	19.7	21.3
40-49	21.0	22.8
50-59	16.7	17.4
60-69	18.1	17.1
70-79	11.5	8.1
Males	47.9	49.9
Females	52.1	50.1
Chinese	75.0	76.9
Malays	12.2	10.4
Indians	9.6	9.3
Others	3.2	3.4

Table 15.2: Percentage distribution (%) of the combined survey sample (unweighted) for household interview and health examination by demographic characteristics

	Household Interview Combined Survey Sample (Unweighted)	Household Examination Combined Survey Sample (Unweighted)
Total	100.0	100.0
18-29	12.9	13.2
30-39	19.7	21.3
40-49	21.0	22.8
50-59	16.7	17.4
60-69	18.1	17.1
70-79	11.5	8.1
Males	47.9	49.9
Females	52.1	50.1
Chinese	75.0	76.9
Malays	12.2	10.4
Indians	9.6	9.3
Others	3.2	3.4

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Annex A

Survey Questionnaire

NATIONAL POPULATION HEALTH SURVEY 2021/22
QUESTIONNAIRE A [FOR PERSONS AGED 18 YEARS & ABOVE]
全国人口健康调查 2021/22 问卷 A [供 18 岁或以上的人]

Serialhi								
Date of Interview	D	D	M	M	Y	Y	Y	Y

Interviewer's Full Name		KISH Table Used	

Household Information

Number of eligible PERSONS (Singapore citizens/PRs aged <u>18 to 79 years</u>) in household: _____

住户中合格的人士（<u>18 至 79 岁以下</u>的新加坡公民/永久居民）人数

Number of eligible SENIORS (Singapore citizens/PRs aged <u>65 years & above</u>) in household: _____

住户中合格的乐龄人士（<u>65 岁或以上</u>的新加坡公民/永久居民）人数

1. REGISTRATION

Interviewer: I would like to inform that your individual information collected for the Survey will be kept strictly confidential. Any reporting would be done on a collective basis such that no participants in the survey will be identifiable.

我想告诉您，本调查所收集的个人信息会严格保密。所有调查都会基于整体数据，因此不会泄漏您的任何个人信息。

1000. Year of birth:
出生年份

Age: ☐☐☐
年龄

1001. Record gender of participant **[SA]**
请注明受访者的性别

1	Male	男性
2	Female	女性

1002. Ethnic group (as listed in NRIC) **[SA]**
种族（以身份证（NRIC）为准）

READ ONLY IF NECESSARY		
1	Chinese	华族
2	Malay	马来族
3	Indian	印度族
DO NOT READ		
4	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
[Go to Q1003]		

1003. Are you a Singapore Citizen? **[SA]**
您是新加坡公民吗？

READ		
1	Yes, I am a Singapore Citizen	是，我是新加坡公民
2	No, I am a Permanent Resident	否，我是永久居民
DO NOT READ		
777	Refused	拒绝回答
[Go to Q1004]		

1004. May I know your height in metres, centimetres, or feet and inches? **[SA]**
请问您的身高是多少公尺、公分或英尺英寸？

	Height in cm, **OR** (nearest whole number)	公分，**或** （最近的整数）
	Height in metres, **OR** (nearest two decimal places)	公尺，**或** （最接近的两位小数）
	Feet (nearest whole number) **AND**	英尺（最近的整数）**与**
	Inches (nearest whole number)	英寸（最近的整数）
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q1005]		

1005. May I know your weight in kilograms or pounds? **[SA]**
请问您的体重是多少公斤或磅？

	Weight in kg, **OR** (nearest one decimal place)	公斤，**或** （最接近的一位小数）
	Weight in lbs (nearest whole number)	磅 （最近的整数）
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定

END OF SECTION 1. GO TO SECTION 2.

2000.   What is your <u>current marital status</u>? **[SA]**
请问您<u>目前的婚姻状况</u>是?

USE SHOWCARD		
1	Never married	从未结婚
2	Married	已婚
3	Divorced	离婚
4	Separated	分居
5	Widowed	丧偶
DO NOT READ		
777	Refused	拒绝回答
[Go to Q2001]		

2001.   Do you have any children, including adopted and step-children? Please do not include foster children. **[SA]**
请问您是否有孩子,这包括领养的孩子、继子和继女? 请不要包括寄养的儿童。

USE SHOWCARD			
1	Yes	有	**[Go to Q2002]**
2	No	没有	
DO NOT READ			**[Go to Q2003]**
777	Refused	拒绝回答	

2002.   Are any of your children within the following age range, including adopted and step-children? Please do not include foster children. **[SA]**
您是否有属于以下年龄段的孩子,这包括领养的孩子、继子和继女?请不要包括寄养的儿童。

READ			
a) Aged 6 years and below 6 岁或以下	1) Yes 是	2) No 否	777) Refused 拒绝回答
b) Aged 7 to 12 years 7 岁至 12 岁	1) Yes 是	2) No 否	777) Refused 拒绝回答
c) Older than 12 years 12 岁以上	1) Yes 是	2) No 否	777) Refused 拒绝回答
[Go to Q2003]			

2003. What is the <u>highest level of education</u>* that you have attained? **[SA]**
请问您的<u>最高教育程度</u>*是什么？

	USE SHOWCARD AND DO NOT READ	
1	No formal education / Primary	未接受正规教育/小学
2	PSLE or equivalent	小六离校毕业证书或同等学历
3	Secondary	中学
4	'O' / 'N' level or NTC3 cert or its equivalent	'O' / 'N' 水准或全国技工证书第 3 级(NTC 3)或同等学历
5	'A' level / International Baccalaureate (IB)/ NTC 1-2 or Cert in office/ business skills or its equivalent, WSQ certificates	'A' 水准或/国际高中文凭(IB)/全国技工证书第 1-2 级(NTC 1-2)或办公室/商业技能证书或同等学历, WSQ 证书
6	Polytechnic Diploma	理工学院文凭
7	Other diploma & professional qualification	其它文凭或专职业资格证书
8	University and above	大学及以上学历
9	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
	[Go to Q2004]	

* Refers to the highest level or standard which a person had passed or attained and was awarded a certificate, either through attendance at an institution of learning, through correspondence or self-study.
最高教育程度指的是一个人通过在教育机构学习、函授或自修并获得证书的最高教育水平或学位。

2004. Which of the following best describes your <u>main work status</u>* over the <u>last 12 months</u>? **[SA]**
下列哪项最符合您在<u>过去 12 个月</u>内的<u>主要工作情况</u>*？

	USE SHOWCARD & READ ONLY IF NECESSARY		
1	Working	工作	**[Go to Q2005a]**
2	Full-time Student	全职学生	**[Go to Q2006]**
3	Serving National Service	在服兵役/国民服役	
4	Homemaker or housewife	家庭主妇/夫	
5	Retired	退休	**[Go to Q2005a]**
6	Unemployed	无工作	
	DO NOT READ		
777	Refused	拒绝回答	**[Go to Q2006]**
888	Don't know / Not sure	不知道／不肯定	

* Refers to what you spent most of the usual working hours on during the last 12 months.
主要工作情况指的是在过去 12 个月内的平常工作时间，您大部分的时间所做的事。

2005a.   Which industry do you work in, or used to work in? **[SA]**
您目前或以前从事哪一个行业的工作？

<write response 写回应>

2005b.   What is or was your occupation? **[SA]**
您目前或以前的职业是什么？

<write response 写回应>

DO NOT READ (for internal coding only)		
1	Community, Social and Personal Services (e.g. education, nursing, arts, entertainment, public administration, defence, …)	社区，社会及个人服务业（如教育，护理，艺术，娱乐，公共行政，国防，等等）
2	Manufacturing	制造业
3	Business Services (e.g. real estate, legal, accounting, architectural, R&D, travel, employment, …)	商业服务业（如房地产，法律，会计，建筑设计，科研开发，旅游，雇员介绍，等等）
4	Wholesale and Retail Trade	批发及零售业
5	Financial and Insurance Activities	金融险业
6	Information and Communications (e.g. publishing, media, telecommunications, information technology, …)	资讯通信业(如出版，媒体，电信，资讯科技 等等)
7	Others (e.g. transport, hotels, restaurants, construction)	其它(如交通，酒店，餐馆，建筑业，等等)
8	Have **<u>never</u>** worked	**<u>从来没有</u>**工作过
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q2006]		

3000. Over the last 12 months, what is the average earnings (S$) of your household <u>in one month</u>, before any deductions? Please include all sources of income such as bonuses, rental and investment income, and other sources such as pension and contributions from relatives and friends who are not staying in the same household. **[SA]**

在过去 12 个月内，您全家<u>每月</u>的平均总收入，在任何扣除前，大概是多少新币？请包括红利、租金和投资所得到的收入，也包括退休金和非同住在一起的家人或朋友所给的现金零用钱/资助。

USE SHOWCARD		
1	Below 2,000 per month	每月收入低于 2,000
2	2,000 – 3,999 per month	每月收入在 2,000 – 3,999 之间
3	4,000 – 5,999 per month	每月收入在 4,000 – 5,999 之间
4	6,000 – 9,999 per month	每月收入在 6,000 – 9,999 之间
5	10,000 – 14,999 per month	每月收入在 10,000 – 14,999 之间
6	15,000 & above per month	每月收入 15,000 及以上
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定

END OF SECTION 2. GO TO SECTION 3.

3. PHYSICAL ACTIVITY

Interviewer: The next questions are about the time you spend doing work. Think of work as the things that you **have to do** such as paid or unpaid work, household chores or looking for a job. Activities at work, focus on occupational physical activity. For homemakers, this refers to household chores. For unemployed, this refers to looking for a job. For students, this refers to classes (including Physical Education if relevant).

接着我要询问您关于工作中的体力活动。工作是指您**不得不**做的事情，如有偿或无偿工作、家务活以及找工作。工作中的活动，主要是指与职业相关的体力活动。对于家庭主妇来说，这指的是家务劳动。对于无业人士来说，这指的是找工作。对于学生来说，这指的是上课（包括相关的体育课）。

In answering the next few questions, 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.

在以下的问题，"剧烈活动" 是指需要大量体力并引起呼吸心跳显著增加的活动，"中等强度活动" 是指需引起呼吸心跳轻度增加的活动。

Activity at work （在工作中的活动）

3000. In a typical week, on how many days do you do *vigorous-intensity* activities for at least 10 minutes continuously as part of your work? **[SA]**
您在工作中通常每周有多少天会做持续至少 10 分钟的*剧烈*活动？

USE SHOWCARD FOR EXAMPLES			
	Days a week	每周几天	**[If 0 day, go to Q3001. Else go to Q3000a]**
DO NOT READ			
777	Refused	拒绝回答	**[Go to Q3001]**
888	Don't know / Not sure	不知道／不肯定	

3000a. On a typical day on which you do *vigorous-intensity* activities for at least 10 minutes continuously, how much time do you spend doing such activities at work? **[SA]**
在您有做持续至少 10 分钟*剧烈*活动的平常一天里，您通常会花多长时间做此类活动？

	Hours	小时
	Minutes	分钟
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q3001]		

3001. In a typical week, on how many days do you do *moderate-intensity* activities for at least 10 minutes continuously as part of your work? **[SA]**
您在工作中通常每周有多少天会做持续至少 10 分钟的*中等强度*活动？

USE SHOWCARD FOR EXAMPLES			
	Days a week	每周几天	**[If 0 day, go to Q3002. Else go to Q3001a]**
DO NOT READ			
777	Refused	拒绝回答	**[Go to Q3002]**
888	Don't know / Not sure	不知道／不肯定	

3001a. On a typical day on which you do *moderate-intensity* activities for at least 10 minutes continuously, how much time do you spend doing such activities at work? **[SA]**
在您有做持续至少 10 分钟*中等强度*活动的平常一天里，您通常会花多长时间做此类活动？

	Hours	小时
	Minutes	分钟
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q3002]		

Interviewer: The next questions **exclude** the physical activities at work that you have previously mentioned. Now, I would like to ask you about the usual way you travel to and from places. For example, going to work, shopping, market, or church, temple or mosque or going out for lunch.
以下的问题**不包括**上述工作时的体力活动。现在我要询问您通常的交通方式。例如，上班、购物、去市场、教堂、寺庙或清真寺，或出门用午餐。

Travel to and from places （出行时）

3002. In a typical week, on how many days do you walk or cycle (pedal cycle) for at least 10 minutes continuously to get to and from places? **[SA]**
您出行时，通常每周有多少天步行或骑脚踏车，持续至少 10 分钟？

	Days a week	每周几天	**[If 0 day, go to Q3003. Else go to Q3002a]**
DO NOT READ			
777	Refused	拒绝回答	**[Go to Q3003]**
888	Don't know / Not sure	不知道／不肯定	

3002a. On a typical day when you walk or cycle (pedal cycle) for at least 10 minutes continuously, how much time do you spend walking or cycling? **[SA]**
在您有步行或骑脚踏车持续至少 10 分钟的一天里，您会花多长时间做此类活动？

	Hours	小时
	Minutes	分钟
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q3003]		

Recreational activities （娱乐性体力活动）

3003. In a typical week, on how many days do you do *vigorous-intensity* sports, fitness, recreational or leisure activities for at least 10 minutes continuously? **[SA]**
您通常每周有多少天会做持续至少 10 分钟的*剧烈*运动、健身或娱乐性体力活动？

USE SHOWCARD FOR EXAMPLES			
	Days a week	每周几天	**[If 0 day, go to Q3004. Else go to Q3003a]**
DO NOT READ			
777	Refused	拒绝回答	**[Go to Q3004]**
888	Don't know / Not sure	不知道 / 不肯定	

3003a. On a typical day, how much time do you spend doing *vigorous-intensity* sports, fitness, recreational or leisure activities for at least 10 minutes continuously? **[SA]**
在您有做持续至少 10 分钟*剧烈*运动、健身或娱乐性体力活动的平常一天里，您会花多长时间做此类活动？

	Hours	小时
	Minutes	分钟
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q3004]		

3004. In a typical week, on how many days do you do *moderate-intensity* sports, fitness, recreational or leisure activities for at least 10 minutes continuously? **[SA]**
您通常每周有多少天会做持续至少 10 分钟的*中等强度*运动、健身或娱乐性体力活动？

USE SHOWCARD FOR EXAMPLES			
	Days a week	每周几天	**[If 0 day, go to Q3006. Else go to Q3004a]**
DO NOT READ			
777	Refused	拒绝回答	**[Go to Q3006]**
888	Don't know / Not sure	不知道 / 不肯定	

3004a. On a typical day, how much time do you spend doing *moderate-intensity* sports, fitness, recreational or leisure activities for at least 10 minutes continuously? **[SA]**

在您有做持续至少 10 分钟*中等强度*运动、健身或娱乐性体力活动的平常一天里，您会花多长时间做此类活动？

	Hours	小时
	Minutes	分钟
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q3006]		

3006. In a typical week, on how many days do you do physical activities or exercises to **strengthen your muscles**? Examples of these activities include tai-chi, qi-gong, yoga, sit-ups, push-ups, the use of weight machines, free weights, or elastic bands. Do **not** include aerobic activities like walking, running, or cycling. **[SA]**

您通常每周有多少天会为了**增强肌肉**而做运动或体育锻炼？这些运动包括太极、气功、瑜伽、仰卧起坐或伏地挺身，以及那些使用举重器械、自由力量训练设备或弹力带的运动。请勿包括有氧运动，如健步行走、跑步或骑脚踏车。

Interviewer note: Record number of days per month if frequency is less than once a week. Respondents should complete at least 1 set of strength exercises to register as 1 day.

USE SHOWCARD FOR EXAMPLES & DEFINITION OF 1 SET OF EXERCISE		
	Days per week **OR**	每周几天 **或**
	Days per month	每月几天
DO NOT READ		
666	Never do such activity or exercise	没有做这些运动或体育锻炼
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q3005]		

Interviewer: The next question is about sitting or reclining at work, at home, getting to and from places, or with friends, including time spent sitting at a desk, sitting with friends, travelling in car, bus, train, reading, playing cards or watching television but **DO NOT** include time spent sleeping.
以下的问题是关于工作中、在家里、出行或与朋友相处时的坐卧情况，包括坐在桌前、与朋友坐在一起，乘坐汽车、巴士、地铁，阅读、打牌或看电视的时间，但**不包括**睡眠时间。

3005. On a typical day, how much time do you usually spend sitting or reclining? **[SA]**
您通常每天花多长时间坐着或靠着？

	Hours	小时
	Minutes	分钟
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定

END OF SECTION 3. GO TO SECTION 4.

Interviewer: The next questions are on cigarette smoking.
现在，我要问一些有关吸烟的问题。

4000. Have you ever smoked cigarettes? **[SA]**
您曾吸过烟吗？

READ			
1	Yes	有	**[Go to Q4001]**
2	No	没有	**[Go to Q4016 Other Tobacco Products]**
DO NOT READ			
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

4001. How old were you when you first tried or experimented with smoking cigarettes? **[SA]**
您第一次尝试吸烟时是几岁？

	Age	几岁
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4002]		

4002. Have you <u>ever</u> smoked at least 100 cigarettes, or about 5 packs in your **whole life**? **[SA]**
您一生中曾经吸过的烟总数是否有至少 100 支（约 5 包）？

READ			
1	Yes	有	**[Go to Q4003]**
2	No	没有	**[Go to Q4016 Other Tobacco Products]**
DO NOT READ			
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

4003. Have you ever smoked cigarettes <u>daily</u>? **[SA]**
您曾经每天吸烟吗？

READ			
1	Yes	有	**[Go to Q4004]**
2	No	没有	**[Go to Q4005]**
DO NOT READ			
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

4004. At what age did you start smoking cigarettes daily? **[SA]**
您从几岁开始每天吸烟的？

	Age	几岁
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4005]		

4005. How often do you smoke cigarettes now, is it….? **[SA]**
您目前吸烟的频率，是…？

	READ		
1	Daily*	每天*	**[Go to Q4006a]**
2	Occasionally	偶尔	
3	Have stopped smoking completely	已经彻底戒烟	**[If Q4003=1, go to Q4011 Ex-daily Smoker If Q4003=2, 777 or 888, go to Q4015 Ex-smoker]**
DO NOT READ			
777	Refused	拒绝回答	**[Go to Q4016 Other Tobacco Products]**
888	Don't know / Not sure	不知道／不肯定	

** **Interviewer Note:** Please include respondents who have stop smoking daily temporarily because of religious fasting or medical reasons.*
请包括受访者因宗教禁食或医疗因素而暂时停止每天吸烟。

[If Q4005 = "Daily" or "Occasionally", ask the following question]
4006a. Can you show me the pack of cigarettes that you are currently smoking so that we can write down the flavour of cigarette? **[SA]**
您是否能让我看您所吸的烟的包装以便我记下其烟的口味？

Interviewer Note: If respondent does not have a pack or refused to show pack of cigarettes, please ask for the flavour. If there are more than 1 flavour smoked, record the flavour that was most often smoked.

	DO NOT READ [Record flavour as shown for 4006a]	
1	Regular	
2	Menthol	
3	Mint	
4	Clove/ Kretek	
5	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4006]		

4006.   Based on the pack of cigarettes, please code the theme of the graphic health warning.
[SA]

	DO NOT READ [For internal coding by Interviewers]
1	Smoking causes blindness
2	Smoking causes cancer
3	Smoking causes heart disease
4	Smoking causes lung disease
5	Smoking increases the risk of miscarriage
6	When you're hooked, your child suffers too
7	Smoking can cause stillbirth
8	Smoking causes oral cancer
9	Smoking causes throat cancer
10	Smoking leads to death from lung cancer
11	Tobacco smoke harms your baby
12	Smoking causes premature ageing
13	Others please specify: _____
666	No graphic warnings
777	Refused to show the pack of cigarette

Note: No translation of graphic warning theme is required.

[If Q4005 = "Daily", go to Q4007. Else, go to Q4016 Other Tobacco Products]
4007.   **[Daily Smoker]** On average, how many cigarettes do you smoke per day? **[SA]**
您平均每天吸多少支烟？

	Cigarettes daily	一天几支烟
	DO NOT READ	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
	[Go to Q4008]	

4008. **[Daily Smoker]** Do you have any intention to quit smoking? **[SA]**

您是否有戒烟的打算？

READ AND USE SHOWCARD		
1	Yes, I plan to quit smoking within the next month	有，我打算在下个月内戒烟
2	Yes, I plan to quit smoking within the next 6 months	有，我打算在未来 6 个月内戒烟
3	Yes, I plan to quit smoking within the next 12 months	有，我打算在未来 12 个月内戒烟
4	Yes, I plan to quit smoking within the next 5 years	有，我打算在未来 5 年内戒烟
5	Yes, I plan to quit smoking sometime in the future	有，我打算在未来的某个时候戒烟
6	No, I do not plan to quit smoking completely, but plan to cut down on the number of cigarettes smoked	我没有打算完全戒烟，但有打算减少吸烟
7	No, I do not plan to quit smoking or cut down on the number of cigarettes smoked	我没有打算戒烟或减少吸烟
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4009]		

4009. **[Daily Smoker]** In the last 12 months, have you tried to stop smoking for at least 24 hours? **[SA]**

在过去 12 个月内，您是否有尝试连续至少 24 小时不吸烟？

READ			
1	Yes	有	**[Go to Q4010]**
2	No	没有	**[Go to Q4016 Other Tobacco Products]**
DO NOT READ			
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

4010. **[Daily Smoker]** How many times did you try to quit smoking during the last 12 months? **[SA]**

在过去 12 个月内，您曾经几次尝试戒烟？

	Number of times in last 12 months	在过去12个月内有几次
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4016 Other Tobacco Products]		

[If Q4005 = "Have stopped smoking completely" and Q4003=1, go to Q4011. Else if Q4005 = "Have stopped smoking completely" and Q4003=2, 777 or 888, go to Q4015.]

4011.   **[Ex-daily Smoker]** How long has it been since you last smoked daily? **[SA]**
您已经有多久停止每日吸烟的习惯？

	Number of years, **OR**	几年，**或**
	Number of months	几月
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4012]		

4012.   **[Ex-daily Smoker]** How long did you smoke daily before you gave up smoking? **[SA]**
在戒烟之前，您曾经有多久每天吸烟？

	Number of years, **OR**	几年，**或**
	Number of months	几月
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4015]		

4015.   **[Ex-smoker]** How many times did you try to quit smoking before you succeeded? **[SA]**
在戒烟成功前，您曾经尝试戒烟过几次？

	Number of times	几次
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4013]		

4013. **[Ex-smoker]** What was the <u>main reason</u> which made you stop smoking completely? **[SA]**
您彻底戒烟的<u>主要原因</u>是什么？

	DO NOT READ	
1	**Experienced** the ill effects of smoking	**身受**吸烟之害
2	Pressure to stop from the environment (e.g. **smoking bans**)	迫于环境（例如**禁烟令**）的压力而戒烟
3	Concerned about the health of those around me (through **passive smoking**)	担心周围人群的健康（通过**二手烟**）
4	**Concerned** about the **harmful effects** of smoking	**关注**吸烟的**害处**
5	Pressure/ advice to stop from **family**/ **friends**/ **colleagues**	出于**家庭/朋友/同事**的压力/建议而戒烟
6	Cigarettes have become too **expensive**	香烟价格**太贵**
7	**Social stigma** associated with smoking	吸烟**不光彩**
8	Advised to stop smoking by my **doctor**	**医生**建议我戒烟
9	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q4014]		

4014. **[Ex-smoker]** How did you quit smoking? **[MA]**
请问您是怎样戒烟的？

	DO NOT READ	
1	Abstained from smoking on own accord	自我克制主动戒烟
2	Attended smoking cessation programme/counselling in public/private hospitals	参加公立/私人医院的戒烟计划/辅导
3	Attended smoking cessation programme/counselling in public (including polyclinics) /private GP clinics	参加公立(包括综合诊疗所)/私人诊所的戒烟计划/辅导
4	Attended smoking cessation programme/counselling in the workplace	参加工作场所的戒烟计划/辅导
5	Attended smoking cessation programme/counselling through a retail pharmacy	通过零售药店参加戒烟计划/辅导
6	Through talking to a quit advisor at Quitline	通过与戒烟热线的戒烟顾问沟通
11	Through participating in I Quit programme (constitutes SMS and Quitline as an option for smokers)	通过参加全国戒烟运动"I Quit"
7	By nicotine replacement therapy (e.g. nicotine patch, inhaler)	通过尼古丁替代治疗（例如尼古丁贴片、尼古丁吸入剂）
8	By herbal remedy	通过草药疗法
9	Used medication (e.g. Bupropion/ Zyban, Varenicline/Champix)	药物治疗（例如耐烟盼牌的安非他酮、戒必适牌的伐尼克兰）
10	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q4016]		

4016.   **[Ask All]** Other than cigarettes, which of the following tobacco products do you currently smoke? **[SA]**

除了香烟，您目前吸的是以下哪种烟草产品？

USE SHOWCARD					
List of other tobacco products **其它烟草产品的列表**	1) Yes, Daily 是, 每天	2) Yes, Occasionally 是, 偶尔	3) No 否	777) Refused 拒绝回答	888) Don't know / Not sure 不知道 / 不肯定
4016a. Cigar 雪茄	☐	☐	☐	☐	☐
4016b. Cigarillos 迷你雪茄	☐	☐	☐	☐	☐
4016c. E-cigarette / E-vapouriser 电子香烟	☐	☐	☐	☐	☐
4016d. Heated Tobacco 加热烟草	☐	☐	☐	☐	☐
4016e. Beedis 比迪烟	☐	☐	☐	☐	☐
4016f. Roll your own tobacco/ Ang Hoon (loose tobacco) 卷烟	☐	☐	☐	☐	☐
4016g. Pipe Tobacco 烟丝	☐	☐	☐	☐	☐
4016h. Others 其它 **[Go to Q4016h(i) for "1" or "2"]**	☐	☐	☐	☐	☐
[If Q4016a to Q4016h=1 or 2, go to Q4020] **If Q4016a to Q4016h=3, 777 or 888, go to Q4017]**					

4016h(i) **[**If respondent selected "1" or "2" for Q4016h, please specify below**]**:

其它（请注明）：

_____

4020.   **[Ask All Smokers]** When you first started smoking, which of the following tobacco product did you smoke? **[SA]**

在您刚开始吸烟时，您吸的是以下哪种烟草产品？

USE SHOWCARD		
1	Cigarettes	香烟
2	Cigar	雪茄
3	Cigarillo	迷你雪茄
4	E-cigarette / E-vapouriser	电子香烟
5	Heated Tobacco	加热烟草
6	Beedis	比迪烟
7	Roll your own tobacco/ Ang Hoon (loose tobacco)	卷烟
8	Pipe Tobacco	烟丝
9	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿＿＿＿	
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4021]		

4021.   **[Ask All Smokers]** What was the flavour of *(tobacco product mentioned in 4020)* that you smoked when you first started smoking? **[SA]**

在您刚开始吸烟时，您吸的＿＿＿＿＿＿是什么口味？

USE SHOWCARD		
1	Regular	普通味
2	Menthol	薄荷醇味
3	Mint	薄荷味
4	Clove/ Kretek	丁香味
5	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿＿＿＿	
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q4017]		

4017. How often does anyone smoke inside your home? Would you say daily, weekly, monthly, less than monthly, or never? **[SA]**

您的家中多常会有人吸烟？您估计是每天，每周，每月，少过每月或完全没有？

READ		
1	Daily	每天
2	Weekly	每周
3	Monthly	每月
4	Less than Monthly	少过每月
5	Never	完全没有
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定

END OF SECTION 4. GO TO SECTION 5.

5. DIETARY PRACTICES

Interviewer: Now I am going to ask you some questions about your eating practices. Please think about the food and drinks consumed at home and outside for the past one month.
现在，我想问您一些关于饮食习惯的问题。请您回想起过去 1 个月内在家和在外的饮食习惯。

5000. Excluding fruit juices, how many servings* of fruits do you **USUALLY** eat? You can tell me in servings per day, per week or per month. **[SA]**
除了果汁以外，您**通常**吃几份水果？您的回答可以是以每天，每周或每个月几份。

USE SHOWCARD & EXPLAIN WHAT CONSTITUTES 1 SERVING		
	Servings per day, **OR**	每天几份，**或**
	Servings per week, **OR**	每周几份，**或**
	Servings per month	每月几份
DO NOT READ		
666	Do not eat fruits	不吃水果
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q5002]		

* Interviewer Note: Please specify the number of servings to the nearest 0.5 serving.
请将份量注明为最接近的半份。

5002. How many servings* of vegetables do you **USUALLY** eat? You can tell me in servings per day, per week or per month. **[SA]**
您**通常**吃几份蔬菜？您的回答可以是以每天，每周或每个月几份。

USE SHOWCARD & EXPLAIN WHAT CONSTITUTES 1 SERVING		
	Servings per day, **OR**	每天几份，**或**
	Servings per week, **OR**	每周几份，**或**
	Servings per month	每月几份
DO NOT READ		
666	Do not eat vegetables	不吃蔬菜
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q5003]		

* Interviewer Note: Please specify the number of servings to the nearest 0.5 serving.
请将份量注明为最接近的半份。

5003. The next question is about wholegrain or wholemeal foods that you usually eat. How often do you eat wholegrain foods such as brown rice, wholemeal bread, wholemeal cereals or oats, wholemeal biscuits or noodles? You can answer me in number of times per day, per week or per month. **[SA]**

下一道问题与您常食用的全谷物或全麦食品有关，这些食品包括糙米、全麦面包、全麦片或燕麦、全麦饼干或面条。您多常食用这些食品？您的回答可以是以每天，每周或每个月几次。

USE SHOWCARD FOR TYPES OF WHOLEGRAINS		
	Times per day, **OR**	每天几次，**或**
	Times per week, **OR**	每周几次，**或**
	Times per month	每月几次
DO NOT READ		
666	Do not eat wholegrain or wholemeal foods	不吃全谷物或全麦食品
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q5004]		

5004. How often do you drink canned, bottled or packet drinks? For example, fruit juice, soft drinks, fruit drinks, cordials/syrups, yoghurt drinks, Yakult/Vitagen, soya milk, 2 in 1 or 3 in 1 coffee or tea. You can tell me in number of times per day, per week or per month. **[SA]**

您多常饮用罐装，瓶装或纸包饮品？例如 果汁、汽水、果味饮品、浓缩果汁饮品/糖浆、酸奶饮品、益力多/维他精(Yakult/Vitagen)、豆奶、二合一或三合一即溶咖啡或溶茶。您的回答可以是以每天，每周或每个月几次。

Interviewer note: Non-flavoured milk is excluded.

USE SHOWCARD FOR TYPES OF CANNED, BOTTLED OR PACKET DRINKS			
	Times per day, **OR**	每天几次，**或**	
	Times per week, **OR**	每周几次，**或**	**[Go to Q5005]**
	Times per month	每月几次	
DO NOT READ			
666	Do not drink canned, bottled or packet drinks	不喝罐装，瓶装或纸包饮品	
777	Refused	拒绝回答	**[Go to Q5006]**
888	Don't know / Not sure	不知道 / 不肯定	

5005. During the times that you drink canned, bottled or packet drinks, how many servings* do you **USUALLY** drink? **[SA]**

当您饮用罐装，瓶装或纸包饮品时，您**通常**喝几份？

USE SHOWCARD & EXPLAIN WHAT CONSTITUTES 1 SERVING		
	Number of Servings	几份
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q5006]		

Interviewer Note: Please specify the number of servings to the nearest 0.5 serving.
请将份量注明为最接近的半份。

5006. How often do you drink freshly prepared drinks? For example, coffee, tea, Milo, Horlicks, Ovaltine, hot/iced chocolate and bubble tea. You can tell me in the number of times per day, per week or per month. **[SA]**

您多常饮用新鲜冲制的饮品？例如 咖啡、茶、美禄、好立克、阿华田、热/冷巧克力饮品和泡泡茶。您的回答可以是以每天，每周或每个月几次。

USE SHOWCARD FOR TYPES OF FRESHLY PREPARED DRINKS			
	Times per day, **OR**	每天几次，**或**	**[Go to Q5007]**
	Times per week, **OR**	每周几次，**或**	
	Times per month	每月几次	
DO NOT READ			
666	Do not drink freshly prepared drinks	不喝新鲜冲制的饮品	**[Go to Section 6]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

5007. Of the freshly prepared drinks, how often do you select the no sugar/less sugar option? **[SA]**

在这些新鲜冲制的饮品当中，您会多常选择无糖或少糖的饮品？

READ		
1	Always	每次
2	Mostly	时常
3	Half of the time	一半的时间
4	Sometimes	偶尔
5	Never / Almost rarely	完全没有/几乎没有
DO NOT READ		
777	Refused	拒绝回答

END OF SECTION 5. GO TO SECTION 6.

6. ALCOHOL CONSUMPTION

> **Interviewer:** Now I am going to ask you some questions about alcohol consumption.
> 现在，我要问您一些关于饮酒的问题。

6000. In the past 12 months, how frequent did you have at least one drink? **[SA]**
在过去 12 个月内，您喝至少一杯酒的频率是多少？

READ AND USE SHOWCARD			
1	5 or more days a week	每周 5 天或更多	
2	1-4 days per week	每周 1 至 4 天	**[Go to Q6003]**
3	1-3 days a month	每月 1 至 3 天	
4	Less than once a month	每月少于一天	
5	Did not drink alcohol in the past 12 months	在过去 12 个月内没有喝酒	
DO NOT READ			**[Go to Section 7]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	

6003. On the days that you drank alcohol, about how many drinks did you usually have? **[SA]**
每当喝酒时，您通常会在一天内喝几杯含有酒精的饮料？

USE SHOWCARD & EXPLAIN WHAT CONSTITUTES 1 DRINK		
	Number of drinks per day	一天内几杯饮料
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q6002]		

6002. How many times during the past month did you have X **[X = 5 for men, X = 4 for women]** or more drinks in any one drinking session? Please include all types of alcoholic drinks. **[SA]**
在过去一个月内，您曾经有多少次在一次饮酒过程中喝了 X［**男性** X = 5，**女性** X = 4］杯或更多？请包括所有类型的酒精饮品。

USE SHOWCARD & EXPLAIN WHAT CONSTITUTES 1 DRINK		
	Times in the past month	过去一个月内有几次
DO NOT READ		
666	Did not drink X **[X = 5 for men, X = 4 for women]** or more drinks in any one drinking session	没有在一次饮酒过程中喝超过 X［**男性** X = 5，**女性** X = 4］杯
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q6006]		

6006.　Do you know that alcohol can be harmful if taken in large amounts? **[SA]**
您知道大量饮酒是有害的吗?

Interviewer note: *Large amounts refer to:* ***Men*** *- more than 2 standard drinks per day* **_or_** *5 or more drinks per drinking session;* ***Women*** *- more than 1 standard drink per day* **_or_** *4 or more drinks per drinking session.*

USE SHOWCARD & EXPLAIN WHAT CONSTITUTES 1 DRINK		
1	Yes	是
2	No	否
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q6007]		

6007.　What are your reasons for drinking alcohol? **[MA]**
您喝酒的原因是什么?

DO NOT READ (May choose more than one answer)		
1	To feel **relaxed**/ to **relieve stress**/ to help me cope with problems	感觉**放松**/**释放压力**/有助于解决问题
2	To **socialise** with my friends/ colleagues	与朋友/同事**社交**
3	To **be like** my boyfriend/ girlfriend/ family members	**模仿**男友/女友/家庭成员
4	To **entertain** clients	**招待**客户
5	To **celebrate** events (e.g. celebratory occasions, company events, etc)	**庆祝**节日/ **欢庆**公司活动
6	Drinking is **enjoyable**	喝酒**令人愉快**
7	Alcohol have possible **health** benefits	酒精可能**有益健康**
8	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q6008]		

6008.　Do you have the intention to reduce the amount you drink? **[SA]**
您有减少饮酒的打算吗?

READ		
1	Yes	有
2	No	没有
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定

END OF SECTION 6. GO TO SECTION 7.

7. DIABETES

Interviewer: Now, I would like to ask you some questions about diabetes. Diabetes occurs when there is excess sugar in the blood. Oral medications and insulin injections may be required if a person with diabetes is unable to adequately control his blood sugar levels despite lifestyle changes.
现在，我要问您一些关于糖尿病的问题。血糖过高会导致糖尿病。若糖尿病患者在改变生活方式之后仍然无法控制血糖，那他/她就或许需要以服用口服降糖药或胰岛素注射来控制病情。

7000.   Can you tell me who in your immediate family* has diabetes, excluding diabetes that happens only during pregnancy? **[MA]**
您的直系家庭*中谁患有糖尿病？这不包括只在怀孕期间患上的糖尿病。
Interviewer note: Diabetes that happens only during pregnancy refer to diabetes that develop during pregnancy and usually stop at the end of pregnancy.

READ (May choose more than one answer)		
1	Parents	父母
2	Siblings	兄弟姐妹
3	Children	儿女
4	No one in my family has diabetes	没有家人患有糖尿病
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q7001]		

* *Exclude spouse and non-blood relatives*
不包括配偶及无血缘关系的亲戚

7001.   Have you ever been told by a western-trained doctor that you have diabetes? **[SA]**
西医是否曾经告诉过您，您患有糖尿病？
[If 'Yes' and respondent is female, ask "*Was this only when you were pregnant?*"]

READ			
1	Yes	是	**[Go to Q7001a]**
2	Yes, but only during pregnancy	是，不过仅在怀孕时	**[Go to Q7004]**
3	No	否	
4	No, pre-diabetes or borderline diabetes	否，糖尿病前期或临界性糖尿病	**[Go to Q7002]**
DO NOT READ			**[Go to Q7004]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

7001a. Does your doctor currently give you treatment for your diabetes such as tablets or injections? **[SA]**
医生目前是否有给您治疗糖尿病的药物或注射？

READ			
1	Yes	有	**[Go to Q7001b]**
2	No	没有	**[Go to 7002]**
DO NOT READ			
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

7001b. What type of medication are you on? **[SA]**
您正在使用哪种治疗方式？

READ		
1	Insulin injections	胰岛素注射
2	Oral medications for diabetes	口服降糖药
3	Both insulin injections & oral medications for diabetes	同时使用胰岛素注射和口服降糖药
4	Others, please specify: 其它，请注明：_____	
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to 7002]		

7002. How many times in the past 12 months have you seen a doctor for your pre-diabetes (when Q7001=4)/ diabetes (when Q7001=1)? **[SA]**
在过去 12 个月内，您曾经有几次因为糖尿病前期(when Q7001=4)/ 糖尿病(when Q7001=1)而看医生？

	Number of times in the past 12 months	在过去 12 个月内有几次
DO NOT READ		
666	Did not see a doctor for pre-diabetes (when Q7001=4) / diabetes (when Q7001=1)	没有因为糖尿病前期（when Q7001=4）/糖尿病(when Q7001=1)而看医生
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to 7003]		

7003. Where do you seek treatment for your pre-diabetes (when Q7001=4) / diabetes (when Q7001=1) most of the time? **[SA]**

您大多数是去哪里治疗您的糖尿病前期(when Q7001=4)/糖尿病(when Q7001=1)？

DO NOT READ		
1	Private GP	家庭医生
2	Polyclinic	综合诊疗所
3	Specialist outpatient clinic (public hospital)	专科门诊诊所（公共医院）
4	Specialist outpatient clinic (private hospital)	专科门诊诊所（私人医院）
5	Others, please specify: 其它，请注明：_____	
666	None, do not seek treatment for pre-diabetes (when Q7001=4) / diabetes (when Q7001=1)	否， 没有为糖尿病前期(when Q7001=4)/糖尿病(when Q7001=1)寻求治疗
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[If Q7001=1, go to Q7015. If Q7001=4, go to Q7004]		

7015. In the past 12 months, do you feel that different members of your care team (e.g. doctors, nurses, allied health professionals, family members/ friends) provide you similar and consistent information to manage your diabetes? [**SA**]

在过去 12 个月内，您是否觉得您的护理团队的不同成员(例如医生、护士、综合医疗保健人员、家庭成员/朋友)为您提供了相似和一致的信息来治疗您的糖尿病？

READ AND USE SHOWCARD				
1 **Strongly Agree** 强烈同意	**2** **Agree** 同意	**3** **Neither Agree Nor Disagree** 不同意也不反对	**4** **Disagree** 不同意	**5** **Strongly Disagree** 强烈不同意
[Go to Section 8]				

[If Q7001 = "Yes, but only during pregnancy", "No", "No, pre-diabetes or borderline diabetes", "Refused" or "Don't know / Not sure"]

7004. Blood tests can be used to check for diabetes. When was the last time you had a blood test to check for diabetes? Please exclude checks done by yourself. **[SA]**

血糖检验是一种测试糖尿病的方法。您最后一次进行血糖测试是什么时候？请不要包括自己做的检查。

Interviewer note: Blood tests can be a fasting plasma glucose test (FPG), random plasma glucose test, oral glucose tolerance test (OGTT) or HbA1c test.

	READ ONLY IF NECESSARY		
1	1 year ago or less	过去 1 年或少于 1 年	
2	More than 1 year to 2 years	超过 1 年但在 2 年以内	
3	More than 2 years to 3 years	超过 2 年但在 3 年以内	**[Go to Q7005]**
4	More than 3 years to 5 years	超过 3 年但在 5 年以内	
5	More than 5 years ago	超过 5 年前	
6	Never been checked	从未检查过	
	DO NOT READ		**[Go to Section 8]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

7005. Where did you go for your last blood test for diabetes? **[SA]**

您的最后一次血糖测试是在哪里进行的？

Interviewer note: If respondent answers "Private GP", probe to check if they are participating in the Screen for Life programme where they pay $0, $2 or $5 for the test.

	DO NOT READ	
1	Private GP (Screen for Life)	家庭医生（"定期体检，益您一生"）
2	Private GP (Non-Screen for Life)	家庭医生（非"定期体检，益您一生"）
3	Polyclinic	综合诊疗所
4	Specialist outpatient clinic (public hospital)	专科门诊诊所（公共医院）
5	Specialist outpatient clinic (private hospital)	专科门诊诊所（私人医院）
6	Workplace	工作场所
7	Community venue	社区场所
8	Overseas clinic/ hospital	国外的诊所或医院
9	Army camp	军队兵营
10	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿＿＿＿＿	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定

END OF SECTION 7. GO TO SECTION 8.

Interviewer: Next, I would like to ask you some questions about hypertension, also commonly known as high blood pressure.
接下来，我要问您一些关于高血压的问题。

8000. Can you tell me who in your immediate family* has high blood pressure, exclude high blood pressure that only happens during pregnancy? **[MA]**
您的直系家庭*中谁患有高血压？这不包括只在怀孕期间患上的高血压。

Interviewer note: High blood pressure that happens only during pregnancy refer to high blood pressure that develop during pregnancy and usually stop at the end of pregnancy.

READ (May choose more than one answer)		
1	Parents	父母
2	Siblings	兄弟姐妹
3	Children	儿女
4	No one in my family has high blood pressure	没有家人患有高血压
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q8001]		

* Exclude spouse and non-blood relatives
不包括配偶及无血缘关系的亲戚

8001. Have you ever been told by a western-trained doctor that you have high blood pressure? **[SA]**
西医是否曾经告诉过您，您患有高血压？

[If 'Yes' and respondent is female, ask "*Was this only when you were pregnant?*"]

READ			
1	Yes	是	**[Go to Q8002]**
2	Yes, but only during pregnancy	是，不过仅在怀孕时	
3	No	否	
4	No, borderline hypertension	否，临界性高血压	**[Go to Q8005]**
DO NOT READ			
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

Interviewer Note: *A person with blood pressure ≥140/90mmHg is defined to have high blood pressure or hypertension.*
高血压指血压高于 140/90mmHg.

8002. Does your doctor currently give you medicine (e.g. tablets) for your high blood pressure? **[SA]**

医生目前是否有给您治疗高血压的药物？

READ		
1	Yes	有
2	No	没有
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q8003]		

8003. How many times in the past 12 months have you seen a doctor for your high blood pressure? **[SA]**

在过去 12 个月内，您为了治疗高血压看过几次医生？

	Number of times in the past 12 months	在过去12个月内有几次
DO NOT READ		
666	Did not see a doctor for high blood pressure	没有因为高血压看医生
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q8004]		

8004. Where do you seek treatment for your high blood pressure most of the time? **[SA]**

您大多数是去哪里治疗您的高血压？

DO NOT READ		
1	Private GP	家庭医生
2	Polyclinic	综合诊疗所
3	Specialist outpatient clinic (public hospital)	专科门诊诊所（公共医院）
4	Specialist outpatient clinic (private hospital)	专科门诊诊所（私人医院）
5	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿＿＿	
666	None, do not seek treatment for high blood pressure	否，没有为高血压寻求治疗
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Section 9]		

[If Q8001 = "Yes, but only during pregnancy", "No", "No, borderline hypertension", "Refused" or "Don't know / Not sure"]

8005.   When was the last time you had your blood pressure checked? Please exclude checks by yourself. **[SA]**

您最后一次检查血压是什么时候？请不要包括自己做的检查。

READ ONLY IF NECESSARY			
1	1 year ago or less	过去 1 年或少于 1 年	
2	More than 1 year to 2 years	超过 1 年但在 2 年以内	
3	More than 2 years to 3 years	超过 2 年但在 3 年以内	**[Go to Q8006]**
4	More than 3 years to 5 years	超过 3 年但在 5 年以内	
5	More than 5 years ago	超过 5 年前	
6	Never been checked	从未检查过	
DO NOT READ			**[Go to Section 9]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	

8006.   Where did you go for your last blood pressure check-up? **[SA]**

您最后一次检查血压是在哪里进行的？

Interviewer note: *If respondent answers "Private GP", probe to check if they are participating in the Screen for Life programme where they pay $0, $2 or $5 for the test.*

DO NOT READ		
1	Private GP (Screen for Life)	家庭医生（"定期体检， 益您一生"）
2	Private GP (Non-Screen for Life)	家庭医生（非"定期体检， 益您一生"）
3	Polyclinic	综合诊疗所
4	Specialist outpatient clinic (public hospital)	专科门诊诊所（公共医院）
5	Specialist outpatient clinic (private hospital)	专科门诊诊所（私人医院）
6	Workplace	工作场所
7	Community venue	社区场所
8	Overseas clinic/ hospital	国外的诊所或医院
9	Army camp	军队兵营
10	Others, please specify: 其它，请注明：_____
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定

END OF SECTION 8. GO TO SECTION 9.

9. HIGH BLOOD CHOLESTEROL

9008. Can you tell me who in your immediate family* has high blood cholesterol? **[MA]**
您的直系家庭*中谁患有高胆固醇?

READ (May choose more than one answer)		
1	Parents	父母
2	Siblings	兄弟姐妹
3	Children	儿女
4	No one in my family has high blood cholesterol	没有家人患有高胆固醇
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q9000]		

* Exclude spouse and non-blood relatives
不包括配偶及无血缘关系的亲戚

9000. Have you ever been told by a western-trained doctor that you have high blood cholesterol? **[SA]**
西医是否曾经告诉过您，您患有高胆固醇？

READ			
1	Yes	是	**[Go to Q9001]**
2	No	否	
3	No, borderline high blood cholesterol	否，临界性高胆固醇	
DO NOT READ			**[Go to Q9004]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

9001. How many times in the past 12 months have you seen a doctor for your high blood cholesterol? **[SA]**
在过去 12 个月内，您为了治疗高胆固醇看过几次医生？

	Number of times in the past 12 months	在过去12个月内有几次
DO NOT READ		
666	Did not see a doctor for high blood cholesterol	没有因为高胆固醇看医生
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q9002]		

9002. Does your doctor currently give you medicine (e.g. tablets) for your high blood cholesterol? **[SA]**
医生目前是否有给您治疗高胆固醇的药物？

READ		
1	Yes	有
2	No	没有
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q9003]		

9003. Where do you seek treatment for your high blood cholesterol most of the time? **[SA]**
您大多数是去哪里治疗您的高胆固醇？

DO NOT READ		
1	Private GP	家庭医生
2	Polyclinic	综合诊疗所
3	Specialist outpatient clinic (public hospital)	专科门诊诊所（公共医院）
4	Specialist outpatient clinic (private hospital)	专科门诊诊所（私人医院）
5	Others, please specify: 其它，请注明：_____	
666	None, do not seek treatment for high blood cholesterol	否，没有为高胆固醇寻求治疗
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Section 11]		

[If Q9000 = "No", "No, borderline high blood cholesterol", "Refused" or "Don't know / Not sure"]

9004. When was the last time you had your blood cholesterol checked? **[SA]**
您最后一次检查胆固醇是什么时候？

Interviewer note: Blood tests can be a fasting or non-fasting

READ ONLY IF NECESSARY			
1	1 year ago or less	过去 1 年或少于 1 年	
2	More than 1 year to 2 years	超过 1 年但在 2 年以内	
3	More than 2 years to 3 years	超过 2 年但在 3 年以内	**[Go to Q9005]**
4	More than 3 years to 5 years	超过 3 年但在 5 年以内	
5	More than 5 years ago	超过 5 年前	
6	Never been checked	从未检查过	
DO NOT READ			**[Go to Section 11]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

9005. Where did you go for your last blood test to check for cholesterol? **[SA]**
您最后一次检查胆固醇是在哪里进行的？

Interviewer note: If respondent answers "Private GP", probe to check if they are participating in the Screen for Life programme where they pay $0, $2 or $5 for the test.

	DO NOT READ	
1	Private GP (Screen for Life)	家庭医生（"定期体检， 益您一生"）
2	Private GP (Non-Screen for Life)	家庭医生（非"定期体检， 益您一生"）
3	Polyclinic	综合诊疗所
4	Specialist outpatient clinic (public hospital)	专科门诊诊所（公共医院）
5	Specialist outpatient clinic (private hospital)	专科门诊诊所（私人医院）
6	Workplace	工作场所
7	Community venue	社区场所
8	Overseas clinic/ hospital	国外的诊所或医院
9	Army camp	军队兵营
10	Others, please specify: 其它，请注明: _____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定

END OF SECTION 9. GO TO SECTION 10.

11. HEALTH SCREENING PROGRAMMES

IF respondent is <u>male & below 50 years of age</u>, go to Q11023.

IF respondent is <u>male & aged 50 and above</u>, go to Q11016.

IF respondent is <u>female & below 50 years of age</u>, go to Q11000.

IF respondent is <u>female & aged 50 and above</u>, go to Q11002.

11000. **[For women below 50 years of age]** To your knowledge, are you pregnant now? **[SA]**
据您所知，您目前是否怀孕？

READ		
1	Yes	是
2	No	否
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q11001]		

11001. **[For all women only]** Do you know what the following tests are? **[SA]**
您是否知道以下的检查是什么？

READ				
	1) Yes 是	2) No 否	777) Refused 拒绝回答	888) Don't know / Not sure 不知道／不肯定
11001a. Pap test 子宫颈抹片检查	☐	☐	☐	☐
11001b. Human Papillomavirus (HPV) test 人乳头瘤病毒 检查（HPV）	☐	☐	☐	☐
[Go to Q11005]				

11005. **[For all women only] Both Pap and HPV tests are to scrap cells from the mouth of the womb to check for cervical cancer.** Can you tell me how often should women of your age go for cervical cancer screening? **[SA]**
子宫颈抹片与人乳头瘤病毒（HPV）检查是对子宫颈口所刮取的细胞进行检测，以检查是否患有子宫颈癌。您认为与您同龄的女性进行子宫口细胞的检查的频率应该是多久一次？

Once every _____ year(s)	每几年一次
DO NOT READ	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q11030]	

11030. **[For all women only]** Can you tell me which test should women of your age go for cervical cancer screening? **[MA]**

您认为与您同龄的女性应该进行哪一种子宫颈癌检查?

USE SHOWCARD		
1	Pap test	子宫颈抹片检查
2	Human Papillomavirus (HPV) test	人乳头瘤病毒检查（HPV）
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q11002]		

11002. **[For all women only]** When was the last time you had a test to scrap cells from the mouth of the womb to check for cervical cancer? **[SA]**

您最后一次接受子宫口细胞检查子宫颈癌时，是多久以前的事?

READ ONLY IF NECESSARY			
1	1 year ago or less	过去 1 年或少于 1 年	
2	More than 1 year to 2 years	超过 1 年但在 2 年以内	
3	More than 2 years to 3 years	超过 2 年但在 3 年以内	
4	More than 3 years to 4 years	超过 3 年但在 4 年以内	**[Go to Q11003]**
5	More than 4 years to 5 years	超过 4 年但在 5 年以内	
6	More than 5 years ago	超过 5 年前	
7	Never been checked	从未检查过	
DO NOT READ			
777	Refused	拒绝回答	**[Go to Q11006]**
888	Don't know / Not sure	不知道／不肯定	

11003. **[For all women only]** Where did you go for your last test to check for cervical cancer? **[SA]**

您最后一次在哪里进行子宫颈癌检查？

Interviewer note: If respondent answers "Private GP", probe to check if they are participating in the Screen for Life programme where they pay $0, $2 or $5 for the test.

	DO NOT READ	
1	Private GP (Screen for Life)	家庭医生（"定期体检， 益您一生"）
2	Private GP (Non-Screen for Life)	家庭医生（非"定期体检， 益您一生"）
3	Polyclinic	综合诊疗所
4	Specialist outpatient clinic (public hospital)	专科门诊诊所（公共医院）
5	Specialist outpatient clinic (private hospital)	专科门诊诊所（私人医院）
10	Specialist outpatient clinic (not in hospital)	专科门诊诊所（不在医院经营）
6	Workplace	工作场所
7	Community venue	社区场所
8	Overseas clinic/ hospital	国外的诊所或医院
9	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
	[Go to Q11004]	

11004. **[For all women only]** Why did you go for your last cervical cancer screening? **[MA]**

您最后一次进行子宫颈癌检查的原因是什么？

	DO NOT READ	
1	Know the importance of screening	了解检查的重要性
2	Have current / previous gynaecological problem	当时/以前有妇科问题
3	Advised by doctors / nurses	医生/护士建议
4	My family members / friends / colleagues encouraged me	家庭成员/朋友/同事的鼓励
5	Read/ heard about it / saw an advertisement about Pap test / Human Papillomavirus (HPV) test	读到/听到这项检查/看到宫颈抹片/人乳头瘤病毒(HPV)检查的广告
6	Received a letter e.g. Screen for Life letter to encourage me to go for screening	收到鼓励我去检查的信件例如"定期体检， 益您一生"的信件
7	Ad-hoc health screening	临时健康检查
8	Routine check-up	定期体检
9	Company / application health screening (e.g. pre-employment or permanent residency/ application)	公司/申请健康检查（例如入职前或永久居留申请）
11	A family member had cervical cancer	家庭成员患有子宫颈癌
12	A friend/ colleague had cervical cancer	朋友/同事子患有子宫颈癌
10	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
	[Go to Q11025]	

11025. **[For all women only]** Which of the following test have you taken for your last check for cervical cancer**? [SA]**
您在最后一次检查子宫颈癌时接受了以下哪一种子宫口细胞检查？

USE SHOWCARD		
1	Pap test	子宫颈抹片检查
2	Human Papillomavirus (HPV) test	人乳头瘤病毒检查(HPV)
3	Pap test and Human Papillomavirus (HPV) test on the same visit	在同一次进行子宫颈抹片检查和人乳头瘤病毒检查（HPV）
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q11031 if (Q11002 = "4" to "6" and Q11025="1") or (Q11002 = "6" and Q11025="2" or "3")] **[Else, go to Q11009 if <u>aged 40 and above</u>.]** **[Else, go to Q11023 if <u>aged below 40</u>.]**		

[For Pap test: If Q11002 = "4" to "6" and Q11025="1"] or [For HPV test: If Q11002 = "6" and Q11025="2" or "3"]

11031. **[For all women only]** Your last check for cervical cancer was more than 3 (Pap test) or 5 years (HPV test) ago, what are your reasons for not doing another check for cervical cancer since your last *(Pap test or HPV test mentioned in 11025)*? **[MA]**
自从您在三或五年前最后一次接受子宫颈癌检查后，至今一直没再进行该项检查的原因是什么？

DO NOT READ (May choose more than one answer)		
1	Not necessary as I know my previous result	因为我知道上次的结果，所以没必要再做
2	Too old	年纪太大
3	Cost of the test is too expensive	检查费用太高
4	Inconvenient (e.g. clinic/hospital too far away, wait at clinic/hospital too long, English signs at clinic/hospital too confusing)	不方便（例如诊所/医院太远，在诊所/医院等待的时间太长，诊所/医院的英文标示难以理解）
5	Not important	不重要
6	No time due to work/ family commitment (e.g. need to take leave, make alternative arrangement with family members)	由于工作/家庭责任，没时间（例如需要请假、和家庭成员另有安排）
7	Afraid of possible side effects	害怕可能有副作用
8	Painful test	检查太痛苦
9	Cannot do anything if cervical cancer is detected	即使检查出子宫颈癌，也无能为力
11	Cost of additional check-ups after the last screening are too expensive	上次检查后所做的额外检查费用太高了
10	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[IF female respondent is <u>aged below 40</u>, go to Q11023] **[IF female respondent is <u>aged 40 and above</u>, go to Q11009]**		

[If Q11002 = "Never been checked", "Refused" or "Don't know / Not sure"]

11006.   **[For all women only]** What are your reasons for not doing a cervical cancer screening? **[MA]**

您从未进行子宫颈癌检查的原因有哪些？

	DO NOT READ (May choose more than one answer)	
1	Not necessary as I am healthy	因为我很健康，所以不需要
2	Never heard about it	从未听说过
3	Too old	年纪太大
4	Not at risk	没有危险
5	Cost of the test is too expensive	检查费用太高
6	Afraid of knowing the results	害怕知道检查结果
7	Inconvenient (e.g. clinic/hospital too far away, wait at clinic/hospital too long, English signs at clinic/hospital too confusing)	不方便（例如诊所/医院太远，在诊所/医院等待的时间太长，诊所/医院的英文标示难以理解）
8	Not important	不重要
9	No time due to work/ family commitment (e.g. need to take leave, make alternative arrangement with family members)	由于工作/家庭责任，没时间（例如需要请假、和家庭成员另有安排）
10	Cannot afford cost of treatment if cervical cancer is detected	治疗费用太高
11	Afraid of possible side effects	害怕可能有副作用
12	Too young	年纪太小
13	Painful test	检查太痛苦
14	Embarrassing (e.g. need to undress for the procedure, operator may not be female)	尴尬（例如需要脱衣服检查，检查人员可能不是女性）
15	Not sexually active	性行为不活跃
16	I have been HPV vaccinated	我已接种 HPV 疫苗
17	Others, please specify: 其它，请注明: _____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[IF female respondent is <u>aged below 40</u>, go to Q11023] **[IF female respondent is <u>aged 40 and above</u>, go to Q11009]**		

11009.   **[For all women aged 40 years and older]** Do you know what is a mammogram? **[SA]**

您是否知道什么是乳房 X 光检查？

	READ	
1	Yes	是
2	No	否
	DO NOT READ	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q11014]		

11014. **A mammogram is an x-ray of each breast to look out for breast cancer.** Can you tell me how often should women of your age go for mammogram? **[SA]**
乳房 X 光检查是一种利用 X 光检查乳癌的方法。您认为与您同龄的女性进行乳房 X 光检查的频率应该是多久一次？

Once every _____ year(s)	每几年一次
DO NOT READ	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q11010]	

11010. A mammogram is an x-ray of each breast to look out for breast cancer. When was the last time you had a mammogram? **[SA]**
乳房 X 光检查是一种利用 X 光检查乳癌的方法。您最后一次接受乳房 X 光检查是多久以前的事？

READ ONLY IF NECESSARY			
1	1 year ago or less	过去 1 年或少于 1 年	
2	More than 1 year to 2 years	超过 1 年但在 2 年以内	
3	More than 2 years to 3 years	超过 2 年但在 3 年以内	
4	More than 3 years to 4 years	超过 3 年但在 4 年以内	**[Go to Q11011]**
5	More than 4 years to 5 years	超过 4 年但在 5 年以内	
6	More than 5 years ago	超过 5 年前	
7	Never been checked	从未检查过	
DO NOT READ			**[Go to Q11015]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

11011. Why did you go for your last mammogram? **[MA]**
您上次进行乳房 X 光检查的原因是什么？

DO NOT READ		
1	Know the importance of screening	了解检查的重要性
2	Have current / previous breast-related problem	当时/以前有涉及乳房的问题
3	Advised by doctors / nurses	医生/护士建议
4	My family members / friends / colleagues encouraged me	家庭成员/朋友/同事的鼓励
5	Read/ heard about it / saw an advertisement about mammogram	读到/听到这项检查/看到乳房 X 光检查的广告
6	Received a letter e.g. Screen for Life letter to encourage me to go for screening	收到鼓励我去检查的信件例如"定期体检， 益您一生"的信件
7	Ad-hoc health screening	临时健康检查
8	Routine check-up	定期体检
10	A family member had breast cancer	家庭成员患有子乳癌
11	A friend/ colleague had breast cancer	朋友/同事子患有子乳癌
9	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q11012 if Q11010 = "3" to "6"] **[Go to Q11013 if Q11010 = "1" to "2"]**		

11012. Your last mammogram was more than 2 years ago, what are your reasons for not doing another mammogram since your last mammogram? **[MA]**
自从您在两年前最后一次接受乳房 X 光检查后，至今一直没再进行该项检查的原因是什么？

	DO NOT READ (May choose more than one answer)	
1	Not necessary as I know my previous result	因为我知道上次的结果，所以没必要再做
2	Too old	年纪太大
3	Cost of the test is too expensive	检查费用太高
4	Inconvenient (e.g. clinic/hospital too far away, wait at clinic/hospital too long, English signs at clinic/hospital too confusing)	不方便（例如诊所/医院太远，在诊所/医院等待的时间太长，诊所/医院的英文标示难以理解）
5	Not important	不重要
6	No time due to work/ family commitment (e.g. need to take leave, make alternative arrangement with family members)	由于工作/家庭责任，没时间（例如需要请假、和家庭成员另有安排）
7	Afraid of possible side effects	害怕可能有副作用
8	Painful test	检查太痛苦
9	Cannot do anything if breast cancer is detected	即使检查出乳房癌，也无能为力
11	Cost of additional check-ups after the last screening are too expensive	上次检查后所做的额外检查费用太高了
10	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q11013]		

11013. Where did you go for your last mammogram? **[SA]**
您最后一次的乳房 X 光检查是在哪里进行的？

	DO NOT READ	
1	Polyclinic	综合诊疗所
2	Public hospital	公共医院
3	Private hospital	私人医院
4	Private X-ray centre	私人 X 光检查中心
5	Mammobus	乳房 X 光检查流动巴士
6	Workplace	工作场所
7	Community venue	社区场所
8	Overseas clinic/ hospital	国外的诊所或医院
9	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿＿＿＿＿＿	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q11032 if <u>aged 50 and above</u>]		
[Go to Q11023 if <u>aged below 50</u>]		

11015. What are your reasons for not doing a mammogram? **[MA]**

您从未进行乳房 X 光检查的原因有哪些？

	DO NOT READ (May choose more than one answer)	
1	Not necessary as I am healthy	因为我很健康，所以不需要
2	Never heard about mammograms	从未听说过乳房 X 光检查
3	Too old	年纪太大
4	Not at risk	没有危险
5	Cost of the test is too expensive	检查费用太高
6	Afraid of knowing the results	害怕知道检查结果
7	Inconvenient (e.g. clinic/hospital too far away, wait at clinic/hospital too long, English signs at clinic/hospital too confusing)	不方便（例如诊所/医院太远，在诊所/医院等待的时间太长，诊所/医院的英文标示难以理解）
8	Not important	不重要
9	No time due to work/ family commitment (e.g. need to take leave, make alternative arrangement with family members)	由于工作/家庭责任，没时间（例如需要请假、和家庭成员另有安排）
10	Cannot afford cost of treatment if breast cancer is detected	治疗费用太高
11	Afraid of possible side effects	害怕可能有副作用
12	Too young	年纪太小
13	Painful test	检查太痛苦
14	Embarrassing (e.g. need to undress for the procedure, operator may not be female)	尴尬（例如需要脱衣服检查，检查人员可能不是女性）
15	Not suggested by doctors	医生没有建议
16	Never thought about it	从未想到过
17	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q11032 if <u>aged 50 and above</u>] **[Go to Q11023 if <u>aged below 50</u>]**		

11032. Do you know what is a blood stool test? **[SA]**
您是否知道什么是便血检查？

READ		
1	Yes	是
2	No	否
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q11033]		

11033. **A blood stool test is a test to determine whether the stool contains blood, which can be caused by conditions such as piles or colorectal cancer**. Can you tell me how often should a person of your age go for a blood stool test? **[SA]**
便血检查能检测粪便中是否含有血液，这可能是由于痔疮或者结直肠癌等病症引起的。
您认为与您同龄的人们进行便血检查的频率应该是多久一次？

Once every _____ year(s)		每几年一次
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q11016]		

11016. A blood stool test is a test to determine whether the stool contains blood, which can be caused by conditions such as piles or colorectal cancer. When was the last time you had a blood stool test? **[SA]**
便血检查能检测粪便中是否含有血液，这可能是由于痔疮或者结直肠癌等病症引起的。
您最后一次进行便血检查是多久以前的事？
Interviewer note: *A blood stool test can be also known as a faecal occult blood test (FOBT) or faecal immunochemical blood test (FIT).*

READ ONLY IF NECESSARY			
1	1 year ago or less	过去 1 年或少于 1 年	
2	More than 1 year to 2 years	超过 1 年但在 2 年以内	
3	More than 2 years to 3 years	超过 2 年但在 3 年以内	**[Go to Q11017]**
4	More than 3 years to 5 years	超过 3 年但在 5 年以内	
5	More than 5 years ago	超过 5 年前	
6	Never been checked	从未检查过	
DO NOT READ			**[Go to Q11019]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

11017. Why did you go for your last blood stool test? **[MA]**
您上次进行便血检查的原因是什么？

		DO NOT READ	
1	Know the importance of screening	了解检查的重要性	
2	Show symptom of stool containing blood	出现大便带血的症状	
3	Advised by doctors / nurses	医生/护士建议	
4	My family members / friends / colleagues encouraged me	家庭成员/朋友/同事的鼓励	
5	Read/ heard about it / saw an advertisement about blood stool test	读到/听到这项检查/看到便血检查的广告	
6	Received a letter e.g. Screen for Life letter to encourage me to go for screening	收到鼓励我去检查的信件例如〝定期体检， 益您一生〞的信件	
7	Ad-hoc health screening	临时健康检查	
8	Routine check-up	定期体检	
9	Company / application health screening (e.g. pre-employment or permanent residency/ application)	公司/申请健康检查（例如入职前或永久居留申请）	
11	A family member had colorectal cancer	家庭成员患有结直肠癌	
12	A friend/ colleague had colorectal cancer	朋友/同事子患有结直肠癌	
10	Others, please specify: 其它，请注明：_____		
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	
[Go to Q11018 if Q11016 = "1"] **[Go to Q11034 if Q11016 = "2" to "5"]**			

11034. Your last blood stool test was more than a year ago, what are your reasons for not doing another blood stool test since your last blood stool test? **[MA]**
自从您在一年前最后一次接受便血光检查后，至今一直没再进行该项检查的原因是什么？

	DO NOT READ (May choose more than one answer)	
1	Not necessary as I know my previous result	因为我知道上次的结果，所以没必要再做
2	Too old	年纪太大
3	Cost of the test is too expensive	检查费用太高
4	Inconvenient (e.g. clinic/hospital too far away, wait at clinic/hospital too long, English signs at clinic/hospital too confusing)	不方便（例如诊所/医院太远，在诊所/医院等待的时间太长，诊所/医院的英文标示难以理解）
5	Not important	不重要
6	No time due to work/ family commitment (e.g. need to take leave, make alternative arrangement with family members)	由于工作/家庭责任，没时间（例如需要请假、和家庭成员另有安排）
7	Afraid of possible side effects	害怕可能有副作用
8	Have gone for colonoscopy after the last blood stool test	上次便血检查后去做了结肠内窥镜检查
9	Cannot do anything if colorectal cancer is detected	即使检查出结直肠癌，也无能为力
11	Cost of additional check-ups after the last screening are too expensive	上次检查后所做的额外检查费用太高了
10	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
	[Go to Q11018]	

11018. Where did you go for your last blood stool test? **[SA]**
您最后一次的便血检查是在哪里进行的？

Interviewer note: If respondent answers "Private GP", probe to check if they are participating in the Screen for Life programme where they pay $0, $2 or $5 for the test.

	DO NOT READ	
1	Private GP (Screen for Life)	家庭医生（"定期体检， 益您一生"）
2	Private GP (Non-Screen for Life)	家庭医生（非"定期体检， 益您一生"）
3	Polyclinic	综合诊疗所
4	Specialist outpatient clinic (public hospital)	专科门诊诊所（公共医院）
5	Specialist outpatient clinic (private hospital)	专科门诊诊所（私人医院）
6	Workplace	工作场所
7	Community venue	社区场所
8	Overseas clinic/ hospital	国外的诊所或医院
10	Collection of Faecal Immunochemical Test (FIT) kit (e.g. from pharmacies such as Watson, Guardian, Eu Yan Seng, Unity Family Medicine Clinic, Singapore Cancer Society)	粪便免疫化学测验器 （例如屈臣氏（Watson's），佳宁药房（Guardian），余仁生，仁益家庭医药诊所，新加坡癌症协会）
9	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
	[Go to Q11020]	

[If Q11016 = "Never been checked", "Refused" or "Don't know / Not sure"]

11019. What are your reasons for not doing a blood stool test? **[MA]**

您从未进行便血检查的原因有哪些？

	DO NOT READ (May choose more than one answer)	
1	Not necessary as I am healthy	因为我很健康，所以不需要
2	Never heard about it	从未听说过
3	Too old	年纪太大
4	Not at risk	没有危险
5	Cost of the test is too expensive	检查费用太高
6	Afraid of knowing the results	害怕知道检查结果
7	Inconvenient (e.g. clinic/hospital too far away, wait at clinic/hospital too long, English signs at clinic/hospital too confusing)	不方便（例如诊所/医院太远，在诊所/医院等待的时间太长，诊所/医院的英文标示难以理解）
8	Not important	不重要
9	No time due to work/ family commitment (e.g. need to take leave, make alternative arrangement with family members)	由于工作/家庭责任，没时间（例如需要请假、和家庭成员另有安排）
10	Cannot afford cost of treatment if colorectal cancer is detected	治疗费用太高
11	Not suggested by doctors	医生没有建议
12	Never thought about it	从未想到过
13	Adverse to collecting stool	对于粪便收集感到反感
14	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q11020]		

[For Male & Female respondents aged 50 years and above only]

11020. Colonoscopy is a procedure where a flexible tube is inserted through the rectum and into the large intestines. A small camera allows the doctor to examine the intestinal wall for abnormalities such as cancer. When was the last time you had a colonoscopy? **[SA]**
结肠内窥镜检查是一种将软管插入直肠然后进入大肠的检查方法。软管前端会有一个小型摄像头，让医生可以检查肠壁是否有异常，例如癌症。您最后一次接受结肠内窥镜检查是多久以前的事？

Interviewer note: Before taking a colonoscopy, patients are required to drink a cleansing liquid and be on a clear liquid diet at least one day before the test so that a clear view of their bowel can be taken.

	READ ONLY IF NECESSARY		
1	1 year ago or less	过去 1 年或少于 1 年	
2	More than 1 year to 2 years	超过 1 年但在 2 年以内	
3	More than 2 years to 3 years	超过 2 年但在 3 年以内	**[Go to Q11021]**
4	More than 3 years to 5 years	超过 3 年但在 5 年以内	
5	More than 5 years to 10 years	超过 5 年但在 10 年以内	
6	More than 10 years ago	超过 10 年前	
7	Never been checked	从未检查过	**[Go to Q11022 if male]** **[Go to Q11023 if female]**
	DO NOT READ		
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

11021. Why did you go for colonoscopy tests? **[MA]**
您去进行结肠内窥镜检查的原因是什么？

	DO NOT READ	
1	Routine check-up	定期体检
2	I have symptoms (e.g. bleeding, change in bowel habits, pain, low blood count)	我有出现症状（例如粪便出血、排便习惯改变、排便疼痛、血球计数低）
3	I have abnormal results from the blood stool test	我的便血检查结果异常
5	I have previous diagnosis of polyps	我以前诊断出有息肉
6	I have a family history of colorectal cancer	我有结直肠癌的家族史
4	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
	[Go to Q11022 if male aged 50 and above] **[Go to Q11023 if female]**	

11022.	A prostate specific antigen (PSA) test is a blood test for prostate cancer. When was the last time you had your PSA blood test? **[SA]**

前列腺特异性抗原检测是前列腺癌的血液测试。您最后一次进行前列腺特异性抗原检测是多久以前的事？

	READ ONLY IF NECESSARY		
1	1 year ago or less	过去 1 年或少于 1 年
2	More than 1 year to 2 years	超过 1 年但在 2 年以内
3	More than 2 years to 5 years	超过 2 年但在 5 年以内
4	More than 5 years ago	超过 5 年前
5	Never been checked	从未检查过
	DO NOT READ	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
	[Go to Q11023]	

[For all Male & Female respondents]

11023.	In the past 12 months, have you had an injection to protect you from getting flu? **[SA]**

在过去 12 个月内，您有没有接受流行性感冒的免疫注射？

	READ		
1	Yes	有	**[Go to Q11024]**
2	No	没有	
	DO NOT READ		**[Go to Q11028]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	

11028. What are the reasons for not having the flu vaccination? **[MA]**
您没有接种流感疫苗的原因是什么?

	DO NOT READ (May choose more than one answer)
1	Never **heard** of flu vaccination
2	Don't know **where to get** the flu vaccination
3	**Don't know** if I need the flu vaccination
4	Do not **know enough** about the flu vaccine
5	Concerned about the **side effects** of the vaccination (e.g. fever, body ache) (**exclude getting the flu**)
6	Concerned about **getting the flu** from the vaccination
7	Concerned about the **costs** associated with the vaccination (such as doctor fees)
8	**Forgot** to go to the doctor's clinic to get the flu vaccination
9	**Difficult** to make an appointment with my doctor (e.g. inconvenient opening hours, clinic is always busy)
10	**No time** due to work/ family commitment (e.g. need to take leave, make alternative arrangement with family members)
11	**Troublesome** to get flu vaccination **frequently/annually** because the vaccine provides protection from flu for only one season
12	Not in a **high-risk** group for flu (e.g. age 65 years and below, do not have chronic illnesses of lung or heart, etc)
13	**Not recommended** by my doctor
14	Not necessary as I am **healthy**/ I **do not get the flu**
15	Not necessary because I use **masks** and/or take other **precautions** (e.g. wash hands regularly)
16	Not necessary because I had the flu vaccination **before/ in the past** *Interviewer note: last vaccination must be more than 12 months ago*
17	**Cannot** have the flu vaccination because of an **on-going health condition** (e.g. allergy)
18	Believe in letting my body **build immunity naturally**
19	**Do not believe** flu vaccines will work
20	**Do not like** needles / injections
21	Had flu previously and should be **protected** from getting the flu again
22	Others, please specify:
777	Refused
888	Don't know / Not sure
[Go to Q11024]	

11024. Have you ever had pneumococcal vaccination before? This vaccine protects against a bacterial infection that causes pneumonia, blood infection and inflammation of the brain (meningitis). **[SA]**

您是否曾有接种肺炎球菌疫苗？这种疫苗可预防能引起肺炎、血液感染和脑炎（脑膜炎）的细菌感染。

READ			
1	Yes	有	**[Go to Section 12]**
2	No	没有	
DO NOT READ			**[Go to Q11029]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	

[If Q11024 = "No", "Refused" or "Don't know / Not sure"]

11029. What are the reasons for not having the pneumococcal vaccination? **[MA]**

您没有接种肺炎链球菌疫苗的原因是什么？

DO NOT READ (May choose more than one answer)	
1	Never **heard** of pneumococcal vaccination
2	Don't know **where to get** the pneumococcal vaccination
3	**Don't know** if I need pneumococcal vaccination
4	Concerned about **getting sick** or having other **side effects** (e.g. fever, body ache) from the vaccination
5	Concerned about the **costs** associated with the vaccination (such as doctor fees)
6	**Forgot** to go the doctor's clinic to get the pneumococcal vaccination.
7	**Difficult** to make an appointment with my doctor (e.g. inconvenient opening hours, clinic is always busy)
8	**No time** due to work/ family commitment (e.g. need to take leave, make alternative arrangement with family members)
9	Not in a **high-risk** group for pneumococcal infection (e.g. age 65 years and below, do not have chronic illnesses of lung or heart, kidney, etc)
10	**Not recommended** by my doctor
11	Cannot have the vaccination because of an **on-going health condition**
12	Not necessary as I am **healthy**/ **unlikely** to get the infection
13	Believe in letting my body **build immunity naturally**
14	**Do not believe** pneumococcal vaccines will work
15	**Do not like** needles / injections
16	Do not **know enough** about the vaccine
17	Had pneumococcal infection previously and should be **protected** from getting the infection again
18	Others, please specify:
777	Refused
888	Don't know / Not sure

END OF SECTION 11. GO TO SECTION 12.

12. PRIMARY CARE

12006. Do you have a <u>regular</u>* family doctor (i.e. a General Practitioner (GP) or Polyclinic) whom you consult when you have common illnesses such as diarrhoea or headache? **[SA]**
您在患上腹泻或头痛等普通疾病的时候，您是否会去看<u>固定</u>*的家庭医生，或者前往同一间综合诊疗所看病？

READ ONLY IF NECESSARY			
1	Yes, I have a regular family doctor in a private General Practitioner (GP) clinic whom I consult on common illnesses	有，我有固定的家庭医生看病	**[Go to Q12007]**
2	Yes, I visit the same Polyclinic to consult a doctor on common illnesses	有，我会探访同一所综合诊疗所看病	
3	No, I do not have a regular family doctor whom I consult on common illnesses	没有，我在患上普通疾病的时候我没有固定家庭医生	**[Go to Q12008]**
DO NOT READ			
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

* A regular family doctor is defined as a primary care physician who you turn to frequently or habitually for healthcare advice/consultation.

12007. What are the reasons you choose him/ her as your regular family doctor or visit the same polyclinic for your common illnesses? **[MA]**
您选择他/她作为您固定的家庭医生或者前往同一间综合诊疗所看病的原因是什么？
Interviewer note: *If respondent answers "convenient location", probe if it is convenient to home or workplace.*

READ ONLY IF NECESSARY		
1	Professionally competent doctor / good doctor	医生的专业水平/医术高
2	Cheaper charges	医疗费用比较便宜
3	Convenient location, nearer to my home	地点方便，靠近住家
4	Convenient location, nearer to my workplace	地点方便，靠近工作地点
5	Have been seeing this doctor since young / for many years	从小就看这位医生/看这位医生很多年了
7	Part of company's panel of doctors	是公司指定的医生团队
6	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿	
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q12008]		

12008. Do you have a <u>regular*</u> family doctor (i.e. a General Practitioner (GP) or Polyclinic) whom you will consult on your chronic conditions^ (e.g diabetes, hypertension, high blood cholesterol, asthma)? **[SA]**
您在患上慢性疾病＾（例如：糖尿病、高血压、高胆固醇、哮喘）的时候，您是否会去看固定＊的家庭医生，或者前往同一间综合诊疗所看病？

READ ONLY IF NECESSARY			
1	Yes, I have a regular family doctor in a private General Practitioner (GP) clinic whom I consult on my chronic conditions	有，我有固定的家庭医生看病	**[Go to Q12009]**
2	Yes, I visit the same Polyclinic to consult a doctor on my chronic conditions	有，我会探访同一所综合诊疗所看病	
3	No, I do not have a regular family doctor whom I consult on my chronic conditions	没有，我在患上慢性疾病的时候没有固定家庭医生去看病	**[Go to Q12002]**
4	I do not have any chronic conditions	我没有任何慢性疾病	**[If Q12006=3 then go to Q12002. Else go to Q12003]**
DO NOT READ			
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	

A regular family doctor is defined as a primary care physician who you turn to frequently or habitually for healthcare advice/consultation.
^ *Chronic conditions refer to long-term medical conditions that require regular management (e.g. diabetes, hypertension, high blood cholesterol, asthma)*

[If Q12008="1 or 2"]
12009. What are the reasons you choose him/ her as your regular family doctor or visit the same polyclinic for your chronic conditions? **[MA]**
您选择他/她作为您固定的家庭医生或者前往同一间综合诊疗所看病的原因是什么？
***Interviewer note**: If respondent answers "convenient", probe if it is convenient to home or workplace.*

READ ONLY IF NECESSARY		
1	Professionally competent doctor / good doctor	医生的专业水平/医术高
2	Cheaper charges	医疗费用比较便宜
3	Convenient location, nearer to my home	地点方便，靠近住家
4	Convenient location, nearer to my workplace	地点方便，靠近工作地点
5	Have been seeing this doctor since young / for many years	从小就看这位医生/看这位医生很多年了
7	Part of company's panel of doctors	是公司指定的医生团队
6	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿＿＿	
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q12003]		

12002. What are the reasons that you do not have a <u>regular</u> family doctor? **[MA]**

您没有<u>固定</u>的家庭医生或综合诊疗所的原因有哪些？

READ ONLY IF NECESSARY		
1	I visit different clinics depending on convenience – whichever clinic near wherever I am	我会为了方便而选择探访不同的诊所－哪家诊所靠近就去哪家
3	I visit different clinics because I compare the cost of visiting the different clinics	我探访不同的诊所是为了比较医疗费用
4	I don't see the value / need to have a regular family doctor	我不认为有需要看固定的家庭医生
5	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿	
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to 12003]		

12003**.** What would you do when you have a <u>mild illness such as diarrhoea or mild headache</u>? **[SA]**

如果您有腹泻<u>或</u>头痛<u>这类轻微疾病</u>时，您会怎么办？

DO NOT READ		
1	See a private GP	看家庭医生
2	See a polyclinic doctor	看综合诊疗所医生
3	Self-medicate	自行服药
4	Use complementary medicine	使用辅助医疗
5	Rest at home	在家休息
6	Others, please specify: 其它，请注明：＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q12004]		

12004. What would you do if you need <u>urgent medical attention after office hours e.g. a sudden spike of high fever</u>? **[SA]**

如果在<u>办公时间后您要看急诊，例如突发高烧</u>，您会怎么办？

	DO NOT READ	
1	See a GP/ 24-hour GP clinic	看家庭医生/24 小时家庭医生诊所
2	Go direct to a 24-hour clinic at a private hospital	直接去私人医院的 24 小时门诊
3	Go direct to a public hospital A&E	直接去公共医院的急诊室
4	Go direct to a private hospital A&E	直接去私人医院的急诊室
5	Self-medicate	自行服药
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
	[Go to Q12005]	

12005. What would you do if you think you may have a <u>non-urgent but potentially serious medical problem e.g. you think you have some symptoms of cancer or diabetes</u>? **[SA]**

如果您认为自己<u>可能患有严重（非急诊）疾病，例如您认为自己有癌症的一些症状或糖尿病</u>，您会怎么办？

	DO NOT READ	
1	Make a private walk-in appointment with a public hospital Specialist Outpatient Clinic (SOC)	在公共医院的专科门诊非预约看病
2	See a private hospital specialist	找私人医院专科医生看病
3	See a GP / Family doctor	看家庭医生
4	See a polyclinic doctor	找综合诊疗所医生看病
5	Go direct to a public hospital A&E	直接去公共医院的急诊室
6	Go direct to a private hospital A&E	直接去私人医院的急诊室
7	Self-medicate	自行服药
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定

END OF SECTION 12. GO TO SECTION 13.

13. HEALTH STATE DESCRIPTIONS

Interviewer: Next, I would like to ask you some questions about your sleeping habits.
接下来我想问关于您的睡眠习惯。

13006. How many hours do you usually sleep per day on <u>weekdays</u>? **[SA]**
您通常在<u>周日</u>有几个小时的睡眠？
Interviewer note: Please exclude nap time and record number of hours of sleep to the nearest 0.5 hours e.g. 8 hours 30 minutes per weekday is 8.5 hours per weekday.

	Hours per day on weekdays	每个周日几小时
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q13007]		

13007. How many hours do you usually sleep per day on <u>weekends</u>? **[SA]**
您通常在<u>周末</u>有几个小时的睡眠？
Interviewer note: Please exclude nap time and record number of hours of sleep to the nearest 0.5 hours e.g. 8 hours 30 minutes per weekend is 8.5 hours per weekend.

	Hours per day on weekends	每个周末日几小时
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q13004]		

Interviewer: Now, I would ask about your health in general over the last 6 weeks. For each question, tell me which answer you think best applies to you in the last 6 weeks. Remember that I want to know about present and recent complaints, not those you had in the past. All answers will be treated as confidential.

我要问您在过去 6 周内的整体健康状况。请您在每一题选择最能够代表您在过去 6 周内的状况。请切记，我想知道您目前以及最近的心理诉状，不包括您以前的诉状。所有答案将完全保密。

13004. Have you recently (in the past 6 weeks) ...? **[SA]**
您最近（过去 6 周内）是否…？

READ AND USE SHOWCARD				
	1)	2)	3)	4)
13004a. Been able to concentrate on whatever you are doing? 能够集中精神做事？	☐ Better than usual 优于往常	☐ Same as usual 与往常一样	☐ Less than usual 比往常稍差	☐ Much less than usual 比往常差很多
13004b. Lost much sleep over worry? 因担忧而严重失眠？	☐ Not at all 根本不	☐ No more than usual 与往常一样	☐ Rather more than usual 比往常稍差	☐ Much more than usual 比往常差很多
13004c. Felt that you are playing a useful part in things? 感觉自己在某些事情中发挥作用？	☐ More than usual 优于往常	☐ Same as usual 与往常一样	☐ Less useful than usual 比往常稍差	☐ Much less useful 比往常差很多
13004d. Felt capable of making decisions about things? 感觉有能力做决定？	☐ More so than usual 优于往常	☐ Same as usual 与往常一样	☐ Less so than usual 比往常稍差	☐ Much less capable 比往常差很多
13004e. Felt constantly under strain? 经常感觉紧张？	☐ Not at all 根本不	☐ No more than usual 与往常一样	☐ Rather more than usual 比往常稍差	☐ Much more than usual 比往常差很多
13004f. Felt you couldn't overcome your difficulties? 感觉自己不能克服困难？	☐ Not at all 根本不	☐ No more than usual 与往常一样	☐ Rather more than usual 比往常稍差	☐ Much more than usual 比往常差很多
13004g. Been able to enjoy your normal day-to-day activities? 能够享受正常的日常活动？	☐ More so than usual 优于往常	☐ Same as usual 与往常一样	☐ Less so than usual 比往常稍差	☐ Much less than usual 比往常差很多
13004h. Been able to face up to your problems? 能够面对自己的问题？	☐ More so than usual 优于往常	☐ Same as usual 与往常一样	☐ Less able than usual 比往常稍差	☐ Much less able 比往常差很多
13004i. Been feeling unhappy and depressed? 一直感觉不开心和抑郁？	☐ Not at all 根本不	☐ No more than usual 与往常一样	☐ Rather more than usual 比往常稍差	☐ Much more than usual 比往常差很多

READ AND USE SHOWCARD				
	1)	2)	3)	4)
13004j. Been losing confidence in yourself? 一直没有自信？	☐ Not at all 根本不	☐ No more than usual 与往常一样	☐ Rather more than usual 比往常稍差	☐ Much more than usual 比往常差很多
13004k. Been thinking of yourself as a worthless person? 一直认为自己没有价值？	☐ Not at all 根本不	☐ No more than usual 与往常一样	☐ Rather more than usual 比往常稍差	☐ Much more than usual 比往常差很多
13004l. Been feeling reasonably happy, all things considered? 整体上一直感觉比较开心？	☐ More so than usual 优于往常	☐ Same as usual 与往常一样	☐ Less so than usual 比往常稍差	☐ Much less than usual 比往常差很多
[Go to Q13000]				

13000. Thinking about the last two weeks, how would you rate your level of stress on a scale of 1 to 5? Examples of stress include financial, work and emotional stress. **[SA]**
回想起前两周，您会如何衡量您的压力水平（以 1 为最少压力至 5 为最多压力）？
（例如经济压力，工作压力以及情绪上的压力）

USE SHOWCARD		
1	One, little stress	一（最少压力）
2	Two	二
3	Three, moderate stress	三（适度的压力）
4	Four	四
5	Five, very stressed	五（最多压力）
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q13001]		

13001. When you experienced stressful situations over the past 2 weeks, how often were you able to cope with the stress? **[SA]**
回想起前两周，当您感到压力时，您是否能在大多数的情况下应付所面对的压力？

READ		
1	Most or all of the time	大多数的情况下都能应付
2	Could not cope most of the time	大多数的情况下都不能应付
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q13002]		

13002. If you feel like you are constantly unable to cope with stress, would you be willing to seek help from a…? **[SA]**
若您觉得经常无法应付/面对压力时，您是否愿意向以下人士求助？

READ			
	1) Yes 是	2) No 否	777) Refused 拒绝回答
a. Healthcare professional, for example a counsellor, doctor, psychologist or psychiatrist? 医疗专业人士例如辅导员、医生、精神病医生、心理学家？	☐	☐	☐
b. Friend, relative, colleague, religious leader or teacher in school? 朋友、亲戚、同事、宗教领袖、学校的老师？	☐	☐	☐
[Go to Q13017]			

13017. **Mental wellbeing relates to our thoughts, feelings and our ability to cope with day-to-day life so that we can achieve our goals and contribute to the community**. In the last 2 weeks, did you do anything to improve your mental wellbeing? **[SA]**
心理健康与我们的思想、感情和处理日常生活的能力息息相关，由此我们才可以实现我们的目标，为社区做出贡献。在过去两周内，您有做什么来改善您的心理健康吗？

READ			
1	Yes	是	**[Go to Q13018]**
2	No	否	
DO NOT READ			**Batch 5 & 6: [Go to Section 14]** **Batch 7 & 8 [Go to Q13101]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	

13018. In the last 2 weeks, did you do any of the following activities to improve your mental wellbeing? **[MA]**

在过去两周内，您是否做过以下任何一种活动来改善您的心理健康？

	USE SHOWCARD		
1	Exercise regularly (e.g. 150 minutes per week)	定期运动(例如：每周 150 分钟)
2	Have a balanced diet (e.g. fill half your plate with fruits and vegetables, a quarter plate with wholegrains and a quarter plate with protein)	均衡的饮食(例如：盘子里的一半填满水果和蔬菜，四分之一是全谷物，剩下的四分之一则是蛋白质)
3	Have enough sleep (e.g. 7 to 9 hours daily for an adult)	充足的睡眠(如：成年人每天 7 – 9 小时)
4	Manage your time	管理您的时间
5	Think positively	乐观积极的思想
6	Be flexible and open to new possibilities	保持灵活性，对新的可能性持开放态度
7	Talk to professionals (e.g. counsellors, psychologists, doctors)	与专业人士交谈(例如：辅导员、心理学家、医生)
8	Talk to support groups (e.g. peer support networks, parent support groups)	与支援团体交谈(例如：同侪支援网络、家长支持小组)
9	Talk to your friends and family when you are experiencing difficulties	当您遇到困难时，和您的朋友和家人谈谈
10	Do more of what makes you happy	做更多令您快乐的事
11	Make time to spend with friends and family	花时间和家人朋友在一起
12	Relaxation exercises (e.g. deep breathing)	放松练习(例如：深呼吸)
13	Others, please specify: 其它，请注明：_____	
	DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
	Batch 5 & 6: [Go to Section 14] **Batch 7 & 8: [Go to Q13101]**		

Interviewer: Next, I would like to ask how you have been feeling, thinking and behaving over the last 2 weeks.

For each sentence, tell me which number on the scale ranging from 1: Strongly Disagree to 9: Strongly Agree best corresponds to how well each sentence describes you over the last 2 weeks.

接下来，我想问关于您在前两周内的心情、思想及行为。请仔细阅读以下句子。

请您在每个句子旁的比例表（从 1：强烈不同意至 9：强烈同意）选择最代表您在前两周内的心情、思想及行为。

READ AND USE SHOWCARD								
1 Strongly Disagree 强烈不同意	2	3	4 Mildly Disagree 稍微不同意	5 Neither Agree Nor Disagree 不同意也不反对	6 Mildly Agree 稍微同意	7	8	9 Strongly Agree 强烈同意
								Score [1 to 9]
13101a.	I am optimistic about the future. 我对未来感到乐观。							
13101b.	I am spiritual. 我的心灵感到满足。							
13101c.	I am able to accept myself. 我能够接受自己。							
13101d.	I am able to accept reality. 我能够接受现实。							
13101e.	I am able to cope with life's challenges. 我能够应付生活的挑战。							
13101f.	I am calm. 我感到镇定。							
13101g.	I am not depressed. 我不会感到忧郁。							
13101h.	I am able to make friends. 我能够交朋友。							
13101i.	I have the strong support of my family and friends. 我有朋友与家人的支持及鼓励。							
13101j.	I seek for self-development/growth/cultivation. 我寻求自我提升/成长/修炼。							
13101k.	I am able to offer help to others. 我能够帮助其他人。							
13101l.	I am appreciative of life. 我对生活具有欣赏力。							
13101m.	I appreciate my own self-worth. 我赏识我的自我价值。							
13101n.	I am happy. 我感到开心。							
13101o.	I am able to think clearly. 我能够清楚地思考。							
13101p.	I am able to make good decisions. 我能够做好的决定。							

END OF SECTION 13. GO TO SECTION 14.

14. DENTAL HEALTH

Interviewer: Now, I would like to ask you some questions about your dental health.
现在，我想问您关于口腔健康的问题。

14000. How often do you visit a dentist? **[SA]**
您多久看一次牙医？

READ ONLY IF NECESSARY			
1	Once every 6 months	每 6 个月一次	
2	Once a year	一年一次	**[Go to Q14001]**
3	Once every 2 years	每两年一次	
4	Only if there is pain or when I have a dental problem	只有在有牙疼或有口腔问题的时侯	
5	Others, please specify: 其它，请注明：_____		
DO NOT READ			
666	Have never been to a dentist	从未看过牙医	
777	Refused	拒绝回答	**[Go to Q14004]**
888	Don't know / Not sure	不知道／不肯定	

14001. When was the last time you visited a dentist? **[SA]**
您最后一次看牙医是什么时候？

READ ONLY IF NECESSARY			
1	Less than 6 months ago	过去 6 个月内	
2	6-12 months ago	6 到 12 个月内	
3	More than a year, but less than 2 years ago	超过 1 年，但少过 2 年内	**[Go to Q14002]**
4	2 years or more, but less than 5 years ago	2 年以上，但少过 5 年内	
5	At least 5 years ago	至少 5 年以前	
DO NOT READ			
777	Refused	拒绝回答	**[Go to Q14004]**
888	Don't know / Not sure	不知道／不肯定	

14002. What was the reason for your most recent visit to a dentist? **[SA]**
您上一次探访牙医是什么原因？

USE SHOWCARD			
1	I was experiencing dental problems (e.g. toothache, swollen or bleeding gums)	我当时患有口腔问题（譬如：牙疼、牙龈肿胀或流血）	
2	For treatment/ follow-up treatment (e.g. dentures, root canal treatment, teeth whitening)	为了牙科治疗（譬如：做假牙、根管治疗、美白牙齿）	
3	I thought it was time for a check-up	我认为是进行检查的时候	
4	The dentist reminded me it was time for a check-up	牙医提醒我是检查的时候	
5	Others, please specify: 其它，请注明：_____		
DO NOT READ			
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	
Go to Q14003 if 14001 = "1" or "2"] **Go to Q14004 if 14001 not = "1" or "2"]**			

[If Q14001 = "1" or "2"]

14003. Where did you go for your dental visit in the past 12 months and how many times did you visit? **[MA]**

您在过去 12 个月内到什么地方进行牙科治疗，探访次数是多少？

	USE SHOWCARD			
	Location 地点	Number of times visited in the past 12 months 过去 12 个月内探访次数	777) Refused 拒绝回答	888) Don't know / Not sure 不知道 / 不肯定
a.	Polyclinic dental clinic 综合诊疗所牙科诊所			
b.	National Dental Centre (NDC) / National University Centre for Oral Health (NUCOH) (including NUH dental centre and NUS dental training centre) 全国牙科中心/国大口腔卫生中心（包括国大医院牙科中心和牙科训练中心）			
c.	Public hospital dental clinic (including • Changi General Hospital (CGH) • Ng Teng Fong General Hospital (NTFGH) • Khoo Teck Puat Hospital (KTPH) • KK Women's and Children Hospital (KKH) • Sengkang General Hospital (SKH) • Tan Tock Seng Hospital (TTSH)) 公共医院牙科诊所（包括 • 樟宜综合医院(CGH) • 黄廷芳综合医院(NTFGH) • 邱德拔医院 (KTPH) • 竹脚妇幼医院(KKH) • 盛港综合医院(SKH) • 陈笃生医院 (TTSH)）			
d.	Private dental clinic (including dental clinic in private hospitals) 私人牙科诊所（包括私人医院的牙科诊所）			
e.	Others, please specify: 其它，请注明： _____			
	[Go to Section 17]			

14004. What were the reason(s) for not visiting a dentist in the past 12 months? **[MA]**
您在过去 12 个月内没有探访牙医的原因是？

	DO NOT READ	
1	No time	没有时间
2	Too expensive	牙科服务费用太昂贵
3	No one to accompany/ take me to a dentist	没人陪伴/带我看牙医
4	Do not see the need to see a dentist	没有必要看牙医
5	Afraid of pain/ visiting a dentist	怕痛/ 怕看牙医
6	Long waiting time for a dental appointment*	牙科预约等候时间太长*
7	Have to travel too far to a dental clinic	牙医诊所太远
8	Difficult to get to a dental clinic	不方便探访牙科诊所
9	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定

* *Waiting time for a dental appointment refers to the duration between the date the patient makes a dental appointment, and the date he/she is seen by the dentist (NOT the waiting time at the dental clinic on the day of appointment itself).*
牙科预约等候时间指的是患者预约的日期和探访牙医的日期之间的等候时间（而不是患者在牙医诊所等候看牙医的时间。）

END OF SECTION 14. GO TO SECTION 17.

17. TRADITIONAL CHINESE MEDICINE (TCM)

Interviewer: I would like to ask questions on consultations with a traditional Chinese medicine (TCM) practitioner. A TCM practitioner could be a TCM physician, a Chinese sinseh or an acupuncturist registered by the TCM Practitioners Board.

我要问一些有关您去找中医师(TCM) 执业医师看病的情况。中医师(TCM)执业医师是由中医管理委员会注册的中医师，中医 sinseh，或针灸师。

17000. When was your last visit to a TCM practitioner for a medical condition? **[SA]**
您最近一次看中医是什么时候？

READ ONLY IF NECESSARY			
1	Less than 6 months ago	过去 6 个月内	
2	6 months to less than 1 year	6 个月至少过 1 年内	
3	1 year to less than 2 years	1 至少过 2 年内	**[Go to Q17001]**
4	2 years to less than 5 years	2 至少过 5 年内	
5	At least 5 years ago	至少 5 年以前	
6	Never visit a TCM practitioner before	从未看过中医师	
DO NOT READ			**[Go to Section 22]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	

17001. What were the medical conditions you sought treatment for from a TCM practitioner? **[MA]**

您找中医师治疗哪方面的健康问题？

	DO NOT READ	
1	Acute minor illnesses like flu / cough / cold	伤风感冒/咳嗽/感冒等急性轻微疾病
2	Acute major illnesses like pneumonia / heart attack	肺炎/心脏病等急性重大疾病
3	Acute minor injuries like sprains / strains	扭伤/拉伤等急性轻微外伤
4	Acute major injuries like fractures / dislocation	骨折/脱臼等急性重大外伤
5	Cancer	癌症
6	Chronic aches and pain like headache / backache / rheumatism	头痛/背痛/风湿病等慢性疼痛
7	Chronic conditions like diabetes / hypertension / high blood cholesterol / asthma	糖尿病/高血压/ 高血脂/哮喘缓解期（非急性哮喘）
8	Gastro-intestinal problems like poor appetite / indigestion / constipation / diarrhoea	胃肠道问题，如食欲不振/消化不良/便秘/腹泻
9	General well-being	整体调理
10	Gynaecological / Obstetric conditions e.g. infertility / menstrual problem	妇科/产科，如不孕不育/月经问题
11	Mental health e.g. sleep disorders / depression/ anxiety	心理健康如睡眠问题/忧郁症/焦虑
12	Rehabilitative treatments e.g. post-stroke/ facial paralysis	康复治疗如中风/面瘫
13	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q17002]		

17002. What were the medical conditions you sought treatment for from **both** a TCM practitioner and a Western-trained doctor? **[MA]**

您找中医师**及**西医治疗哪方面的健康问题？

	DO NOT READ		
1	Acute minor illnesses like flu / cough / cold	伤风感冒/咳嗽/感冒等急性轻微疾病	[Go to Q17003]
2	Acute major illnesses like pneumonia / heart attack	肺炎/心脏病等急性重大疾病	
3	Acute minor injuries like sprains / strains	扭伤/拉伤等急性轻微外伤	
4	Acute major injuries like fractures / dislocation	骨折/脱臼等急性重大外伤	
5	Cancer	癌症	
6	Chronic aches and pain like headache / backache / rheumatism	头痛/背痛/风湿病等慢性疼痛	
7	Chronic conditions like diabetes / hypertension / high blood cholesterol / asthma	糖尿病/高血压/ 高血脂/哮喘缓解期（非急性哮喘）	
8	Gastro-intestinal problems like poor appetite / indigestion / constipation / diarrhoea	胃肠道问题，如食欲不振/消化不良/便秘/腹泻	
9	General well-being	整体调理	
10	Gynaecological / Obstetric conditions e.g. infertility / menstrual problem	妇科/产科，如不孕不育/月经问题	
11	Mental health e.g. sleep disorders / depression/ anxiety	心理健康如睡眠问题/忧郁症/焦虑	
12	Rehabilitative treatments e.g. post-stroke/ facial paralysis	康复治疗如中风/面瘫	
13	Others, please specify: 其它，请注明：_____		
14	None	无	[Go to Q17004]
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	

17003. What were the reasons you consulted both a Western-trained doctor and a TCM practitioner for the medical condition(s) indicated in Q17002? **[MA]**
什么原因使您找西医及中医师治疗 Q17002 所列的健康问题？

	DO NOT READ	
1	Get a medical certificate (MC) from my Western-trained doctor as MC from my TCM practitioner is not recognised by my company	我的工作单位不承认我的中医师所开的病假单，所以得找西医发病假单
2	Seek TCM consultation as I have not recovered after western medicine treatment	西医治疗后还没康复，所以找中医治疗
3	Seek western medicine consultation as I have not recovered after TCM treatment	中医治疗后还没康复，所以找西医治疗
4	Believe concurrent treatment will lead to faster / better outcome	我相信同时接受中西医治疗可得到更快、更好的效果
5	First treatment by Western-trained doctor is expensive and would like to seek TCM consultation as it is cheaper	西医的第一次治疗诊费昂贵，找中医治疗比较便宜
6	First treatment by TCM practitioner is expensive and would like to seek Western medicine treatment as it is cheaper	中医的第一次诊费价格昂贵，找西医看诊比较便宜
7	Others, please specify: 其它，请注明: _____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
	[Go to Q17004]	

17004. Does the TCM practitioner usually prescribe/ perform the following during your consultation? **[SA]**
在您接受诊治期间，中医师是否通常为您开以下的药方/进行下述治疗？

	USE SHOWCARD				
	Treatment 治疗	1) Yes 是	2) No 否	777) Refused 拒绝回答	888) Don't know / Not sure 不知道 / 不肯定
a.	Herbal medicine (raw herbs) 草药（原草药）	☐	☐	☐	☐
b.	Herbal medicine (processed in powder, tablet or liquid form) 草药（已提炼成药粉、药丸或药水）	☐	☐	☐	☐
c.	Needle acupuncture 针灸	☐	☐	☐	☐
d.	Cupping 拔罐	☐	☐	☐	☐
e.	TCM tuina / massage 推拿/按摩	☐	☐	☐	☐
f.	Bone setting/ manipulations 正骨	☐	☐	☐	☐
g.	Others 其它 **[Go to Q17004g(i) for "1"]**	☐	☐	☐	☐
	[Go to Q17005]				

17004g(i) [If respondent selected "1" for Q17004g, please specify below]:

其它（请注明）：

17005. Where do you usually go to consult a TCM practitioner? **[SA]**
您通常到哪里看中医师？

	USE SHOWCARD	
1	Charitable clinics such as Thong Chai, Chung Hwa or Public Free Clinic	慈善诊所例如同济医院（Thong Chai）、中华医院（Chung Hwa）或大众医院
2	Private TCM clinics e.g. in HDB estates (including those found in Chinese medical halls), shopping malls and specialist medical centres	私立中医诊所如在 HDB 组屋区的中医诊所（包括中药店内的诊所）、购物商场、专科医疗中心的中医诊所
3	Co-located private TCM clinics located in hospitals and nursing homes e.g. • Beijing Tongren Tang in Institute of Mental Health (IMH) • Eu Yan Sang TCM Clinic in Khoo Teck Puat Hospital (KTPH) • Raffles Chinese Medicine Clinic in Raffles Hospital (RH) • Thomson Chinese Medicine Clinic in Thomson Medical Centre (TMC) • Thye Hua Kwan TCM Medical Centre in Ang Mo Kio-Thye Hua Kwan Hospital (AMK-THK) • Kwong Wai Shiu TCM Centre in Kwong Wai Shiu Hospital (KWSH)	设在医院内或疗养院的私立中医诊所如： • 新加坡心理卫生医院内的北京同仁堂中医诊所 • 邱德拔医院内的余仁生中医诊所 • 莱佛士医院内的莱佛士中医诊所 • 康生医院里的康生中医诊所 • 宏茂桥太和观医院的宏茂桥太和观中医诊所 • 广惠肇留医院的广惠肇中医诊所
4	In-house pain management/acupuncture services in public hospitals e.g. • Ang Mo Kio-Thye Hua Kwan Hospital (AMK-THK) • Alexandra Hospital (AH) • National University Hospital (NUH) • Singapore General Hospital (SGH) • Tan Tock Seng Hospital (TTSH) • Khoo Teck Puat Hospital (KTPH) • Institute of Mental Health (IMH) under the National Addictions Management Services (NAMS)	公共医院内的疼痛管理/针灸诊所如： • 宏茂桥太和观医院 • 亚历山大医院 • 国立大学医院 • 新加坡中央医院 • 陈笃生医院 • 邱德拔医院 • 新加坡心理卫生医院内的国立成瘾治疗服务中心
5	In-house acupuncture services in nursing homes e.g. • Econ Medicare Centre • Society for the Aged Sick • Moral Home • Man Fut Tong Nursing Home • Kwong Wai Shiu Hospital • Bright Hill Evergreen Home	疗养院内提供的针灸服务如： • 宜康医疗保健中心 • 安老协会 • 德教济疗养院 • 万佛堂疗养院 • 广惠肇留医院 • 光明山修身院
6	Others, please specify: 其它，请注明：_____	
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q17006]		

17006. What are the reasons you seek TCM treatment? **[SA]**
您寻找中医治疗的原因是什么？

		1) Yes 是	2) No 否	777) Refused 拒绝回答	888) Don't know / Not sure 不知道 / 不肯定
USE SHOWCARD					
a.	TCM is effective for the condition I am suffering from 中医能有效治疗我的病				
b.	TCM is holistic and takes care of the whole body 中医重视整体治疗				
c.	TCM products has less side effects than Western medicine 中医药物比西药副作用少				
d.	I have tried Western medicine but it does not work 我曾接受西医诊疗，但是没有效果				
e.	I have been seeing a TCM practitioner since I was young 我从小就一直找中医师看病				
f.	It is cheaper to see a TCM practitioner than a Western doctor 找中医师看病要比找西医便宜				
g.	Others 其它 **[Go to Q17006g(i) for "1"]**				

17006g(i) **[**If respondent selected "1" for Q17006g, please specify below**]**:
其它（请注明）：

END OF SECTION 17. GO TO SECTION 22.

22. HYGIENE PRACTICES AND USE OF ANTIBIOTICS

22000. I am now going to read out some practices that will prevent the spread of infectious diseases like common cold or influenza that are caused by viruses. For the prevention of infectious diseases, do you <u>usually</u> …? **[MA]**

我现在将读出一些防止由病毒所引起的传染病，例如预防普通感冒或流感传播的措施。为了预防传染病，您通常是否会 …?

	USE SHOWCARD (You may choose more than one answer)	
1	wash your hands regularly with soap and water or use a hand sanitiser	定期用肥皂和水洗手或使用消毒洗手液
2	cover your nose and mouth when coughing or sneezing	在咳嗽或打喷嚏时掩住鼻子和嘴巴
3	stay at home if you feel unwell	在感到不适的时候待在家里
4	use a surgical mask when you are unwell *Interviewer note*: *Exclude reusable mask*	在身体不适的时候使用手术型口罩
5	go see a doctor if you feel unwell	在感到不适的时候去看医生
6	go for yearly flu vaccination *Interviewer note*: *Flu vaccination refers to an injection to protect you from getting the flu*	接受年度流感疫苗接种
7	Others, please specify: 其它，请注明：_____	
DO NOT READ		
666	No, I do not have these habits	不，我没有这些习惯
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q22001]		

22001.   I am now going to read out some statements on the use of antibiotics. Do you agree that…? **[SA]**

我现在将读出几个有关服用抗生素的句子，请告诉我您觉得每一项的答案是对或错。

| | | | DO NOT READ | |
Statement	1) Yes 对	2) No 错	777) Refused 拒绝回答	888) Don't know / Not sure 不知道 / 不肯定
(a) Antibiotics do not work on flu virus 抗生素对流感病毒无效				
(b) Antibiotics will lose its effectiveness in the long term if one takes antibiotics for common cold and flu, does not complete the full course of antibiotics or take leftover antibiotics 如果因为普通感冒和流感而服用抗生素，或者未完成整个抗生素疗程，或者服用剩余的抗生素，长期以来, 抗生素将失去效力				
(c) You should ask the doctor for antibiotics if not prescribed 如果医生未开抗生素处方，您应该向医生要求抗生素				
(d) You will recover faster when you take antibiotics for your respiratory infections like the flu 如果服用抗生素治疗呼吸道感染如流感等，您将会更快复原				

(Table header: **USE SHOWCARD**)

END OF SECTION 22. GO TO SECTION 23.

23. FIRST AID, CARDIOPULMONARY RESUSCITATION (CPR) AND AUTOMATED EXTERNAL DEFIBRILLATION (AED)

Interviewer: First Aid is the first response to a life-threatening (or limb-threatening) medical emergency, either an illness or an injury. This includes CPR, clearing an airway obstruction, responding to allergy reactions, splinting a broken bone, and severe bleeding control.

无论是在病发或受伤的情况下，急救（First Aid）都是针对危及生命或肢体的医疗紧急情况所作出的第一反应。当中包括心肺复苏法、清除气道阻塞、过敏反应的抑制、骨折夹板治疗和严重出血的控制。

I would like to ask questions on First Aid, Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillation (AED).

我想要问一些有关急救、心肺复苏法(CPR)和自动体外除颤器(AED)的问题。

23000. First Aid, Cardiopulmonary Resuscitation (CPR) and Automated External Defibrillation (AED) are basic life saving skills for medical emergencies. Which life saving skill do you think that all adults should be trained in? **[MA]**

急救、心肺复苏法（CPR）和自动体外除颤器（AED）都是医疗紧急情况下的一些基急救生措施。您认为哪一个救生技能是所有成年人都应该具备的？

USE SHOWCARD (You may choose more than one answer)		
1	First Aid	急救
2	CPR	心肺复苏法
3	AED	自动体外除颤器
DO NOT READ		
4	None of the above	以上皆非
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q23001]		

23001. Which life saving skill have you **ever** been trained in? You may or may not have a valid certificate to perform the life saving skill now. **[MA]**

您**接受过**哪一种急救技能的培训？您现在或许具备也或许不具备有效的证书来进行急救措施。

USE SHOWCARD (You may choose more than one answer)			
1	First Aid	急救	
2	CPR	心肺复苏法	
3	AED	自动体外除颤器	
DO NOT READ			**[Go to Q23002]**
4	None of the above	以上皆非	
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道 / 不肯定	

23002. Which life saving skill do you have a current valid certificate for (that is, not expired)? **[MA]**

您现在持有哪一种仍然有效的急救技能证书(意即证书的有效期尚未过期)?

USE SHOWCARD (You may choose more than one answer)		
1	First Aid	急救
2	CPR	心肺复苏法
3	AED	自动体外除颤器
DO NOT READ		
4	None of the above	以上皆非
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q23003]		

23003. Which number should you dial for an emergency ambulance in Singapore? **[SA]**

在新加坡呼叫救护车应该拨打哪个号码?

READ		
1	911	911
2	999	999
3	995	995
4	1777	1777
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q23004]		

23004. While waiting for the arrival of the emergency ambulance, the emergency call centre is able to provide the caller instructions to perform the life saving skills (e.g. First Aid, CPR and AED). Would you be willing to follow instructions via telephone to perform life saving skills? **[SA]**

在等待救护车到来的过程中,紧急呼叫中心能够为来电者提供进行急救措施的指示(例如:急救、心肺复苏法和自动体外除颤器)。您是否愿意遵循电话的指示进行急救措施?

READ		
1	Yes	愿意
2	No	不愿意
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q23005]		

23005. If there is an emergency, would you be willing to perform life saving skills (e.g. First Aid, CPR and AED) on the following persons? **[MA]**
如发生紧急情况，您是否愿意为以下人员进行急救措施（例如：急救、心肺复苏法和自动体外除颤器）？

READ		
1	Family member and relative	家人和亲戚
2	Friend and colleague	朋友和同事
3	Complete stranger	陌生人
DO NOT READ		
4	None of the above	以上皆非
777	Refused	拒绝回答
888	Don't know / Not sure	不知道／不肯定
[Go to Q23006a]		

23006a. What is/are the reason(s) that would stop you from applying First Aid, CPR or AED for a person in need? **[MA]**
是什么原因阻止您为有需要的人进行急救、心肺复苏法或自动体外除颤器等急救措施？

USE SHOWCARD (You may choose more than one answer)		
1	Lack of knowledge and/or skill	缺乏相关知识/或和技能	
2	Lack of confidence	缺乏信心	
3	Fear of being sued because there is no 'Good Samaritan Law' in Singapore ***Interviewer note:*** *'Good Samaritan Law' is the law that protects the assisting bystander from being sued.*	新加坡并没有《好撒玛利亚人法》，因而害怕被起诉 《好撒玛利亚人法》是用来保护帮助他人的人士不被起诉的法案	**[Go to Q23006b]**
4	Fear of infectious diseases, e.g. HIV (during mouth-to-mouth resuscitation)	害怕传染病，例如：人类免疫缺陷病毒（心肺复苏法期间口对口的接触）	
5	Fear of causing more harm than good	担心造成的伤害大于好处	
6	The casualty is a complete stranger	伤者是一个完全陌生的人	
DO NOT READ		
7	I am willing to apply the first aid, CPR or AED for a person in need	我愿意为有需要的人实行急救、心肺复苏法或自动体外除颤器的急救措施	**[Go to Q23007]**
777	Refused	拒绝回答	
888	Don't know / Not sure	不知道／不肯定	

[If more than 1 reason has been chosen, x is the number of reasons chosen from 23006a]
[If there is only 1 reason chosen in 23006a, then auto code the reason selected as 1 and route to 23008]

23006b. Please rank the reasons that would stop you from applying First Aid, CPR or AED for a person in need in order of level of concern, where 1 being the highest level of concern and x being the lowest level. **[MA]**

请将您无法为有需要的人进行急救、心肺复苏法或自动体外除颤器措施的原因按担忧程度进行排序，其中 1 为最高、X 为最低。

USE SHOWCARD		
1	Lack of knowledge and/or skill	缺乏相关知识和/或技能
2	Lack of confidence	缺乏信心
3	Fear of being sued because there is no 'Good Samaritan Law' in Singapore ***Interviewer note:*** *'Good Samaritan Law' is the law that protects the assisting bystander from being sued.*	新加坡并没有《好撒玛利亚人法》，因而害怕被起诉 《好撒玛利亚人法》是用来保护帮助他人的人士不被起诉的法案
4	Fear of infectious diseases, e.g. HIV (during mouth-to-mouth resuscitation)	害怕传染病，例如:人类免疫缺陷病毒（心肺复苏法期间口对口的接触）
5	Fear of causing more harm than good	担心造成的伤害大于好处
6	The casualty is a complete stranger	伤者是一个完全陌生的人
[Go to Q23007]		

23007. Which is the main reason that would make you perform First Aid, CPR and/or AED for a person in need? **[SA]**

哪一个是让您为有需要的人进行急救、心肺复苏法和/或自动体外除颤器的主要原因？

READ		
1	I have the knowledge and skill	我有相关知识和技能
2	I have the confidence	我有信心
3	I want to save a life	我想要拯救生命
4	I will feel guilty if I do not help	如果不上前帮忙，我会感到内疚
DO NOT READ		
5	None of the above	以上皆非
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定
[Go to Q23008]		

23008. Please rank the following factors that would encourage you to attend training courses on the life saving skills (First Aid, CPR and/or AED) in order of importance where 1 being the most important and 4 being the least important. **[SA]**

请将能促使您去参加救生技能培训课程（急救、心肺复苏法 和/或自动体外除颤器）的因素按重要性排序，其中 1 为最重要、4 为最不重要。

USE SHOWCARD		
1	No course fee	课程是免费的
2	Duration of course is 1 day or shorter	培训课程为时一天或者更短
3	Course is conducted in your first language (Mandarin, Malay, Tamil etc)	课程以自己的母语进行（华语、马来语、淡米尔语等）
4	Training centre is conveniently located or easily reached by public transport	培训中心地理位置便利，乘坐交通工具可容易到达
DO NOT READ		
777	Refused	拒绝回答
888	Don't know / Not sure	不知道 / 不肯定

END OF SURVEY

Annex B

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Survey Planning, Preparation, Fieldwork & Survey Report	Survey Report (Writers)
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