

## **MEDIA RELEASE**

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### **Singapore residents show a high recognition of diabetes, with older people being more knowledgeable about the condition.**

1. A majority of Singapore residents (83.5%) were able to recognise and correctly identify the symptoms of diabetes. However, young people aged between 18 and 34 years old tend to be less knowledgeable about the condition. These are some of the key findings from the first nationwide study examining the knowledge, attitudes and practices (KAP) pertaining to diabetes in Singapore.
2. Diabetes is one of the top ten causes of death and disability in Singapore and globally. In addition to impacting the lives of individuals and their families, it affects a nation financially, economically and socially as it leads to higher healthcare utilisation costs, mortality, morbidity and loss of productivity.
3. A good understanding of the condition, proactive efforts in assessing and managing risks and undergoing regular health screenings can help in the prevention and management of diabetes. However, there is little local data on the general population's KAP towards diabetes. This study, which began in 2018, looked to address the gap and provide important baseline information that can be incorporated to the ongoing diabetes campaigns to achieve better outcomes. It was a collaborative effort by the Institute of Mental Health, Khoo Teck Puat Hospital, National Healthcare Group Polyclinics, and Saw Swee Hock School of Public Health, and was funded by the National Medical Research Council under the Health Services Research Grant (HSRG).
4. The cross-sectional study involved a representative sample of 2,895 Singapore citizens and permanent residents, with and without diabetes, aged 18 years and above to assess the following:
  - i. KAP regarding diabetes
  - ii. diabetes-related stigma in the resident population
  - iii. knowledge gaps and behavioural patterns that are unfavorable towards prevention and control of the disease
5. A vignette (short story of a hypothetical person) was used to assess the respondent's ability to recognise diabetes. The respondents also answered a series of questions on a variety of topics including causes of diabetes, complications of untreated diabetes and help-seeking behaviour in face-to-face interviews. Other data such as socio-

demographic information, quality of life as well as details of chronic conditions among respondents was also collected.

### Key findings of the study

6. **High recognition of diabetes in the population:** 83.5% of the population correctly identified the disease based on the symptoms read out in the vignette. However, 4.9% were unsure and were unable to provide any answers while 6.3% of the population believed that the symptoms were caused by a different medical problem instead.
  - i. Correct recognition of diabetes was associated with age, gender, ethnicity, employment status and diabetes diagnosis status. Older participants i.e., those aged 35 years and older were approximately 2 times more likely to recognise diabetes correctly compared to younger participants aged 18-34 years. Those of Malay ethnicity (compared to Chinese ethnicity), females (compared to males), and those with a diagnosis of diabetes were also more likely to recognise diabetes.
7. **Strong diabetes knowledge in the population:** The majority of Singapore residents were knowledgeable about diabetes in general, the causes of diabetes, and the likely complications of untreated diabetes. More than 90% were aware that diabetes is not an infectious disease; untreated diabetes can reduce a person's life expectancy; and poor vision and kidney damage/failure are likely complications of untreated diabetes. Almost all the respondents i.e., 98% knew that cuts and other minor injuries heal more slowly in persons with diabetes, and 97% of them knew that amputations are a likely complication of untreated diabetes.

### Responses related to knowledge, causes and complications of untreated diabetes

- i. *General knowledge of diabetes:* Only 38.2% of the participants were able to correctly identify high blood glucose levels. In other words, participants were not aware of the normal fasting blood glucose levels. Only 55.8% of the population were aware that eating fresh fruits freely could affect one's blood glucose levels.
- ii. *Likely causes of diabetes:* Only 33.7% and 45.1% of the participants stated that high blood pressure and mental stress, respectively, were unlikely causes of diabetes, while 64.6% of the participants felt that being underweight was not a cause of diabetes.
- iii. *Complications of untreated diabetes:* 74.8% and 75.9% of the participants were aware that stroke and heart failure, respectively, were likely complications of having untreated diabetes.

8. **Low stigma towards diabetes:** The study did not find significant stigma i.e., negative attitudes and desire for social distancing (unwillingness to work or socially engage with a person with diabetes) towards diabetes/ people with diabetes in the population.

- i. *Social distancing (socialising with those with diabetes):* Only 2.3% of the population stated that they were unwilling to be friends with someone with diabetes, 3.1% were unwilling to socialise with someone with diabetes, 12.6% were unwilling to employ someone with diabetes, and 28.2% were unwilling to have someone with diabetes marry into their family.
- ii. *Negative attitudes:* 6.5% agreed that they would avoid getting screened for diabetes as they did not want to know if they had diabetes, 19.0% agreed that those with diabetes were responsible for bringing the condition on themselves, and 69.1% agreed that those with diabetes use the healthcare system more than an average person.

9. **Past-year health screening for diabetes<sup>1</sup>**

- i. *Facilitators of health screening in the past year<sup>2</sup>:* The top three reasons for attending the screening every year were wanting to know about it as early as possible if they had developed diabetes (early diagnosis) (97.6%), wanting to make changes to their lifestyle as soon as they find out about it (early self-management) (93.2%), and being health conscious (87.0%).
- ii. *Barriers to health screening in the past year:* The top three barriers to health screenings that were mentioned included not knowing where to get free screening (44.8%), procrastination (32.2%) and not seeing the point of going for screening without subsequent follow up or explanation from a healthcare provider (26.0%).

10. Prof. Chong Siow Ann, Vice Chairman of the Medical Board (Research) at IMH and principal investigator of the study, said: “This national and first-of-its-kind study on KAP of diabetes gives us a better understanding of the attitudes and behaviours of people towards diabetes. It has identified certain crucial areas that need to be addressed - in particular our findings that the younger population is less knowledgeable about the risk factors and the presentation of diabetes. This is important as the modifiable risk factors are related to lifestyle and dietary habits, and these healthy patterns ought to be established early in life as prevention is far more effective if it is done early. Another important finding is the barriers identified in Singapore’s population for not going for diabetes screening – factors that can be addressed by initiatives, and will lead to reducing the prevalence of diabetes and improving the outcomes of this public health challenge.”

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<sup>1</sup> The recommended diabetes screening frequency based on the National Screen for Life (SFL) Programme is once every three years for individuals 40 years and above and without previous diabetes diagnosis.

<sup>2</sup> 42.4% of the participants had attended a health screening in the past year, while 56% of participants did not attend a health screening in the past year.

11. Prof. Rob van Dam, Professor at Saw Swee Hock School of Public Health, National University of Singapore, and a co-investigator in the study says that “It is very encouraging that Singaporeans are generally knowledgeable about diabetes. The next step is to work together in our families and communities to stimulate a culture of healthy eating and physical activity that will help the prevention and control of diabetes and other chronic diseases such as heart disease and cancer.”
12. Dr. Lee Eng Sing, Family Physician and Senior Consultant at National Healthcare Group Polyclinics and a co-investigator in the study states that “This study will help provide some insight into the targeted strategies needed to implement screening for the hard-to-reach population in Singapore.”
13. A/Prof. Sum Chee Fang, Senior Consultant at Khoo Teck Puat Hospital and Admiralty Medical Centre and a co-investigator in the study states that “As a physician for people with diabetes, the findings which stood out for me was that the vast majority of adult Singaporean respondents were willing to befriend and to socialise with people with diabetes. Even though some degree of stigmatisation remains, I hope that with increased understanding and acceptance of diabetes over time, the social space of people with diabetes will expand further, and they will be able to lead even more healthful, meaningful and fulfilling lives.”

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**About the Institute of Mental Health (IMH)**

The Institute of Mental Health (IMH), a member of the National Healthcare Group, is the only tertiary psychiatric care institution in Singapore. Located on the sprawling 23-hectare campus of Buangkok Green Medical Park in the north-eastern part of Singapore, IMH offers a multidisciplinary and comprehensive range of psychiatric, rehabilitative and therapy services in hospital-based and community-based settings. The 2000-bedded hospital aims to meet the needs of three groups of patients – children and adolescents (aged below 19 years), adults and the elderly. Besides providing clinical services, IMH also leads in mental health research and training the next generation of mental health professionals in Singapore.

For more information, visit [www.imh.com.sg](http://www.imh.com.sg)

### **About Khoo Teck Puat Hospital and Admiralty Medical Centre**

Khoo Teck Puat Hospital (KTPH) is a 795-bed general and acute care hospital that opened in June 2010. Serving more than 550,000 people living in the northern sector of Singapore, KTPH combines medical expertise with high standards of personalised care, set within a healing environment, to provide care that is good enough for our own loved ones. KTPH also provides a wide range of outpatient specialist services.

Admiralty Medical Centre (AdMC) is a one-stop medical centre for outpatient clinic consultation, day surgery, rehabilitation and diagnostic services as well as community health outreach activities. The medical and surgical services are run by clinical departments from Khoo Teck Puat Hospital.

For more information, visit [www.ktph.com.sg](http://www.ktph.com.sg) and [www.admiraltymedicalcentre.com.sg](http://www.admiraltymedicalcentre.com.sg)

### **About National Healthcare Group Polyclinics**

National Healthcare Group Polyclinics (NHGP) forms the primary healthcare arm of the National Healthcare Group (NHG). Its six polyclinics serve a significant proportion of the population in the central and northern parts of Singapore.

NHGP provides a comprehensive range of health services for the family, functioning as a one-stop health centre providing treatment for acute medical conditions, management of chronic diseases, women & child health services and dental care. The focus of NHGP's care is on health promotion and disease prevention, early and accurate diagnosis, disease management through physician led team-based care as well as enhancing the capability of Family Medicine through research and teaching.

Through the Family Medicine Academy and the NHG Family Medicine Residency Programme, NHGP plays an integral role in the delivery of primary care training at medical undergraduate and post-graduate levels. With the Primary Care Academy, NHGP provides training to caregivers and other primary care counterparts in the community sector.

For more information, visit <http://www.nhgp.com.sg>

### **About the NUS Saw Swee Hock School of Public Health (SSHSPH)**

Building upon decades of experience in research, training and practice in epidemiology and public health, the Saw Swee Hock School of Public Health (SSHSPH), under the National University of Singapore, was established in October 2011 as Singapore's national school of public health. The School is also a member of the National University Health System (NUHS).

The School aims to continually foster healthier communities in Singapore and the region, and impact public health programmes and policies through its robust educational programmes and translational cross-disciplinary research work on cohort studies and life course epidemiology, infectious disease research, health technology assessments, health promotion, workplace safety and health, health systems evaluation and health services research. An interdisciplinary approach, augmented by rigorous training, applicable research and regional partnerships, places SSHSPH at the forefront of public health knowledge discovery and practice in Asia.

The School actively collaborates with many partners including the London School of Hygiene & Tropical Medicine, Karolinska Institutet, Harvard School of Public Health and University of Michigan School of Public Health. Its flagship programme, the Master of Public Health (MPH) degree, attracts students from a wide range of disciplines from within Singapore and throughout the region.

For more information, visit <https://sph.nus.edu.sg/>