

## MEDIA RELEASE

Date of Issue: 20 May 2025

### **IMH launches first nationwide longitudinal study to track the development and trajectory of depression among adults in Singapore.**

*The study aims to shed light on factors that could possibly prevent depression or change the course for persons living with depression.*

1. Can major depressive disorder (MDD) be prevented? How do symptoms of depression develop? Can the progression be halted or reversed? Who recovers, who worsens, and what factors influence these outcomes? These are some of the pertinent questions that researchers from the National Healthcare Group (NHG) aim to address through a nationwide longitudinal study on the development and trajectory of depression.
2. MDD, often referred to as depression, is the most common mental health condition in Singapore with 6.3% of the adult population (1 in 16) having had the condition at some point in their lifetime<sup>1</sup>. The associated burden of disease is substantial, as it can affect the quality of life, functioning, employment, and productivity of individuals living with the condition.
3. Titled **Preventing Depression: Investigation in Cohorts of its etiology and Trajectory (PREDICT)**, the study is led by NHG's specialist centre for psychiatric care in Singapore, the Institute of Mental Health (IMH). It will follow about 3,200 individuals – who have a diagnosis of depression, subsyndromal depression or no depression – aged between 18 and 75 over a period of five years to understand how the diverse risk and protective factors they are exposed to could influence the symptoms of depression. These include biological factors (e.g. age, gender), psychological factors that influence an individual's thoughts, emotions and behaviours (e.g. self-esteem, resilience, emotional regulation, lifestyle), social factors (e.g. social networks, relationships with family and friends). The study will shed light on what impacts the progression of depression in the local population and help care professionals to identify appropriate interventions or effective preventive strategies.
4. This is the first time that NHG is embarking on a comprehensive longitudinal investigation into the course of depression. While its researchers from IMH have conducted several population-based studies involving depression, such as the Singapore Mental Health Study and the Well-Being of the Singapore Elderly (WiSE) study, they were cross-sectional in nature. This means that the data was collected at a single point in time, allowing researchers to see associations or links between different factors and depression. However, cross-sectional studies do not establish causal or bi-directional relationships (for example, did social isolation lead to depression, or did depression lead to social isolation), which the PREDICT study aims to do.

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<sup>1</sup> Singapore Mental Health Study 2016: [https://www.imh.com.sg/Newsroom/News-Releases/Documents/SMHS%202016\\_Media%20Release\\_FINAL\\_web%20upload.pdf](https://www.imh.com.sg/Newsroom/News-Releases/Documents/SMHS%202016_Media%20Release_FINAL_web%20upload.pdf)

5. “Data will be collected at various timepoints so we can better understand how symptoms of depression and their severity change over time as individuals are exposed to a range of risk and protective factors in their day-to-day life. This makes it possible for us to look at how diverse life events and factors influence the development and progression of depression. This, in turn, can help us identify population subgroups who could be more vulnerable to developing depression, giving us an opportunity to intervene early. If we can design appropriate interventions to mitigate the risks they are exposed to, we hope that one day, we would be able to prevent the onset of depression or change the illness trajectory for better outcomes,” says A/Prof Mythily Subramaniam, Assistant Chairman, Medical Board (Research), IMH, NHG and the lead investigator of this study.
6. PREDICT will also shed light on subsyndromal depression (SSD) and its trajectory, an area that is not well understood in Singapore. SSD is a milder form of depression where the symptoms may impact daily life and functioning, but do not meet the diagnostic criteria for MDD.
7. “Subsyndromal depression is a significant risk factor for MDD. Because the symptoms may not be as pronounced, individuals with SSD may go undiagnosed and untreated, increasing their risk of progressing to full-blown MDD. This study will allow us to address important knowledge gaps around the progression of symptoms and recovery, as well as identify modifiable risk factors, such as stress, lifestyle, social support, and how these impact the health of the individuals,” A/Prof Mythily adds.

### **About the PREDICT study**

8. The study aims to recruit 1,229 individuals, aged between 18 and 75, with recent or previous diagnosis of MDD (i.e. depression), 743 with subsyndromal depression, and a control group of 1,229 persons without depression to achieve the following objectives:
  - Describe the long-term prognosis of depressive disorders in Singapore. The primary endpoints will include development of comorbidity, suicidality, relapse, treatment non-compliance, resource utilisation, functioning, and recovery among those with depression.
  - Examine biopsychosocial determinants, such as chronic physical conditions like diabetes and hypertension, inflammation, emotion regulation and loneliness of the long-term course and consequences of depressive disorders.
  - Gain a deeper understanding of the course of subsyndromal depression in Singapore and assess determinants of recovery, progression to depression or other mental disorders, comorbidity, and resource utilisation in this group.
9. Suitable participants will be recruited via referrals from healthcare institutions, such as IMH and NHG Polyclinics, as well as through public outreach.

10. Collection of data began in September 2024, and is currently ongoing. All participants will be followed for five years, during which data will be collected at six time points – at the start of the study to gather baseline information, and once annually after that for up to five years. Participants will undergo comprehensive mental as well as physical health assessments. They may also opt to provide biological samples, such as blood for testing routine blood parameters, metabolic status (e.g. blood sugar and cholesterol) and immunological markers, and hair sample to test for the impact of stressors through cumulative cortisol level. Details on their socio-demographic background, such as age, gender, occupational status, will also be collected.
11. “Biomarkers are also an important aspect of this study,” says Dr Nisha Chandwani, Chief of Department of Mood & Anxiety, IMH, and a co-investigator. “Currently, the diagnosis of depression relies heavily on symptom history, which can be quite subjective and varied. Biomarkers can provide more objective and measurable markers of disease characteristics, which can lead to more accurate, and possibly, earlier diagnosis. Response to treatment also varies from person-to-person, with some people responding better to antidepressants, others to brain stimulation treatments, while some respond better to psychotherapy treatments. Biomarkers can potentially help identify which individuals are more likely to respond to which treatment types, thereby providing a more personalised treatment approach to depression treatment and better outcomes. For instance, studies overseas have identified certain biomarkers, such as cortisol and immune markers, that are potentially associated with response to antidepressants and psychotherapy, and the development of treatment resistance. However, a lot more research is needed, and the PREDICT study marks a first step towards the development of precision-based psychiatry for depression in our local Singapore context.”
12. In addition to the longitudinal cohort study, PREDICT involves a second component to be implemented at a later date. It will develop and test two interventions in randomised control trials aimed at preventing depression and improving quality of life and functioning in persons with SSD. More details on this second component will be provided when ready.
13. PREDICT is jointly funded by the National Medical Research Council’s Population Health Research Grant and a grant from the National Healthcare Group. The project is led by A/Prof Mythily Subramaniam, Assistant Chairman, Medical Board (Research), IMH, in collaboration with researchers and clinicians from NHG, Lee Kong Chian School of Medicine, Duke-NUS Medical School, University of Oxford, University of Edinburgh, and the Netherlands Study of Depression and Anxiety (NESDA) cohort.
14. “Mental health research is under-funded in Singapore. At the National Healthcare Group, we have prioritised our research efforts and funding to address this gap. Through the PREDICT study, we seek to gain actionable insights that will go towards making a difference for the more than 200,000 people here, who have suffered from depression at some point in their lives,” says Prof Benjamin Seet, Group Chairman Medical Board (Research), NHG.



15. This research is also supported by the Singapore Ministry of Health through the National Medical Research Council (NMRC) Office, MOH Holdings Pte Ltd, under its the NMRC Population Health Research Grant (MOH-001536).
16. For more information or to participate in the PREDICT study, please visit:  
[www.predict-imhresearch.sg](http://www.predict-imhresearch.sg)

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**About National Healthcare Group**

The National Healthcare Group (NHG) is a leader in public healthcare in Singapore recognised for delivering high value patient care. Our clinical services are provided through an integrated system of primary care polyclinics, acute care tertiary hospitals, community hospitals, national specialty centres, and community-based ambulatory care centres. Together, we provide comprehensive, holistic, and innovative healthcare to address the needs of our patients and the population we serve. As a learning organisation, we are establishing ourselves as an academic health system to drive clinical excellence, raise research intensity and grow our academic partnerships to continually improve the way we deliver care to our patients.

As the Regional Health Manager for 1.5 million residents in Central and North Singapore, NHG collaborates with private general practices, public and community health and social care providers to keep residents well and healthy.

With more than 20,000 healthcare professionals in NHG, we are committed towards building healthier and resilient communities, and Adding Years of Healthy Life to the people we serve.

For more information [www.nhg.com.sg](http://www.nhg.com.sg).

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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 2,000-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 dedicates resources to carry out mental health promotion and raise mental health literacy. IMH also leads in mental health research and training the next generation of mental health professionals in Singapore.

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

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### **About the National Medical Research Council (NMRC)**

The NMRC was established in 1994 to oversee research funding from the Ministry of Health (MOH) and support the development and advancement of biomedical research in Singapore, particularly in the public healthcare clusters and medical schools. NMRC engages in research strategy and planning, provides funding to support competitive research grants and core research enablers, and is responsible for the development of clinician scientists through awards and fellowships. The council's work is supported by the NMRC Office which is part of MOH Holdings Pte Ltd. Through its management of the various funding initiatives, NMRC promotes healthcare research in Singapore, for better health and economic outcomes.

## Annex A

Researchers involved in the Preventing Depression: Investigation in Cohorts of its etiology and Trajectory (PREDICT) study.

### Principal Investigator

- A/Prof Mythily Subramaniam, Assistant Chairman, Medical Board (Research), Institute of Mental Health, National Healthcare Group (NHG)

### Co-Investigators

- Prof Chong Siow Ann, Senior Consultant, Department of Psychosis, Institute of Mental Health
- Dr Mok Yee Ming, Assistant Chairman, Medical Board (Clinical), Institute of Mental Health
- Dr Nisha Chandwani, Chief of Department of Mood & Anxiety, Institute of Mental Health
- Dr Janhavi Vaingankar, Director, Research Division, Institute of Mental Health
- Dr Edimansyah Abdin, Principal Biostatistician, Institute of Mental Health
- Dr Liu Jianlin, Research Fellow, Research Division, Institute of Mental Health
- Dr Yuan Qi, Senior Research Fellow, Research Division, Institute of Mental Health
- Ms Shazana Shahwan, Manager, Research Division, Institute of Mental Health
- Mr Chua Boon Yiang, Deputy Director, Research Division, Institute of Mental Health
- Dr Eugene Chua Yu Cong, Associate Consultant, NHG Polyclinics
- Prof John Chambers, Professor, LKC Medicine
- Prof Eric Finkelstein, Professor, Duke-NUS Medical School
- Prof Brenda Penninx, Professor, Department of Psychiatry, Amsterdam University Medical Centre
- Sir Aziz Sheikh, Professor, Nuffield Department of Primary Care Health Sciences, University of Oxford
- Dr Syed Ahmar Shah, Director of Innovation, Usher Institute, The University of Edinburgh

## Annex B

### ENGLISH - CHINESE GLOSSARY

Institute of Mental Health	心理卫生学院
National Healthcare Group	国立健保集团
Professor Benjamin Seet Group Chairman Medical Board (Research) National Healthcare Group	薛寒友教授 集团医疗委员会主席 (医学研究) 国立健保集团
A/Prof Mythily Subramaniam, Assistant Chairman, Medical Board (Research) Institute of Mental Health	麦蒂丽苏巴玛宁副教授 心理卫生学院医疗委员会副主席 (研究)
Dr Nisha Chandwani Chief, Department of Mood & Anxiety, Institute of Mental Health	妮莎贞瓦尼 情绪与焦虑障碍治疗科部门主任 心理卫生学院
Preventing Depression: Investigation in Cohorts of its etiology and Trajectory (PREDICT)	预防抑郁症：对其病因和发展轨迹 进行队列研究- PREDICT 研究