Institute of Mental Health
NHG Health

Adding Years of *Healthy Life*

**MEDIA RELEASE**
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**IMH study: suicide rarely the result of a single cause and often preceded by warning signs**
*Mental illness, physical health issues and relationship breakdown are among the factors associated with suicide; on average, 4 warning signs emerged in the week before suicide*

1. Suicide is a complex phenomenon and rarely the result of a single cause. It is shaped by a combination of precipitating factors – immediate stressors or events**,** including significant changes in life, relationships as well as clinical conditions – and predisposing factors**,** which are underlying characteristics or circumstances such as sociodemographic characteristics and family history of mental illness.

2. Among the key risk factors are previous suicide attempts, having a mental health condition, and ongoing physical health challenges. In addition, individuals who died by suicide displayed a significantly higher number of acute warning signs in the week prior to death, as indicated by the 'IS PATH WARM' framework developed by the American Association of Suicidology to assess suicide risk. On average, the individuals exhibited more acute warning signs (4 out of 10) compared to the control group (1 out of 10). The 10 warnings signs are Ideation, Substance abuse, Purposelessness, Anxiety, feeling Trapped, Hopelessness, Withdrawal, Anger, Recklessness, and Mood changes.

3. These are some of the observations from the **Seeking Answers: A Psychological Autopsy of Exploring and Analysing Risk Factors (SPEARS)** study conducted by NHG Health's Institute of Mental Health (IMH) to identify key factors associated with suicides here as well as warning signs that families and friends can look out for, enabling them to offer timely support and potentially prevent tragedies.

4. Funded by the Ministry of Health, the SPEARS study is the first in Singapore to utilise the psychological autopsy method. It is a detailed, retrospective examination of an individual's life and state of mind using information collected from suicide loss survivors (i.e. those who knew the deceased individual well such as family members, care providers/treating clinicians, close friends, or colleagues) in addition to coroner's reports. The aim is to get a clear and accurate picture of the individual's circumstances, personality, and health to better understand what could have led to their death and provide locally relevant insights. Much of the existing research comes from Western contexts, and while the core risk factors may overlap, cultural and social differences matter in how people experience distress and seek help.

<u>About the study</u>

5. SPEARS used a case-control design and involved face-to-face interviews conducted between May 2021 and February 2024. Those who had died by suicide formed the "cases," and IMH researchers interviewed their next-of-kin (NOK) and care providers (known as "suicide loss survivors") to obtain information about them. The suicide loss survivors were

reached through collaborations with community partners such as the Samaritans of Singapore, the advocacy group Please Stay, as well as through social media and media outreach.

6. For comparison, the researchers selected "controls" or persons drawn from the general population to serve as a baseline for what is typical. The controls were matched to cases based on age, gender, and ethnicity. The researchers then gathered and compared data – such as history of psychiatric and physical disorders, lifestyle factors, help-seeking history – across these two groups to identify possible unique factors associated with suicide. The analysis included 73 cases and 73 control participants. Both groups comprised 49 males and 24 females, with ages ranging from 11 to 76 years for the cases and 10 to 76 years for the controls**.** The mean age of cases was 35.3 years and 34.9 years for the control group.

Key findings

7. Comparisons between the cases and controls revealed statistically significant differences in the following factors.

***Sociodemographic characteristics***

a. **Education level** – significantly more cases did not have an educational attainment beyond an ITE diploma (52.1% cases vs 13.7% controls)
b. **Employment** – significantly more cases were unemployed in the past year (30.6% cases vs 5.5% controls)
c. **Religious activity** – significantly more cases reported a change in the level of participation in religious activities over the past year (38.5% cases vs 18.0% controls). This change includes both an increase or decrease in level of participation.

***Lifestyle factors***

a. **Smoking status** – significantly more cases smoked (22.8% cases vs 11% controls)
b. **Drinking** – significantly more cases were drinking more frequently i.e. on a weekly basis (23.9% cases vs 2.7% controls)
c. **Hobbies** – cases were significantly less likely to have a hobby, interests, or participate in other activities (70% cases vs 91.8% controls have hobbies, interests or participate in other activities)

***Mental health diagnosis and treatment***

a. Cases were more likely to be **diagnosed with mental health condition(s)** (71% cases vs 13.9% controls). Major depressive disorder was the most common condition reported (40% of cases), followed by schizophrenia and other psychotic disorders (17.1%), and bipolar disorder (8.6%).
b. **Moderate to severe symptoms of depression** were also more likely to be reported in cases in the month preceding their demise (54% cases vs 8.2% controls).
c. Cases were more likely to have been treated at an emergency room (26.4% cases vs. 0% controls), been admitted for at least an overnight stay at a hospital (24.3% cases vs 1.4% controls), been treated by a general practitioner/psychologist (23.3% cases vs 4.1% controls), and been taking medication for **issues related to mental health conditions** (19.4% cases vs 2.7% controls) in the past year. These factors may reflect the severity of their mental health concerns.

***Physical health***

a. Cases were more likely to rate their **health as either somewhat worse or much worse** as compared to a year ago (26.8% cases vs 6.8% controls)
b. Cases were reported to have greater **functional limitations** in the month preceding their demise. To illustrate, during the past 4 weeks, (i) 56.2% of cases compared to 28.8% of controls indicated that they had accomplished less than they would have liked and (ii) 52.4% of cases compared to 15.1% of controls indicated that they had difficulty performing work or other activities
c. Cases were also significantly more likely than controls to have had **insomnia** in the weeks prior their death (55.1% cases vs 12.3% controls)

***Relationship breakdown***

a. Cases were more likely to be in a significant relationship that was on the verge of breaking up or they were threatened with breaking up (16.4% cases vs 4.1% controls)
b. Cases were more likely to have recently undergone a **break-up or separation** (7.5% cases vs 2.7% controls)
c. Cases were less likely to report being in a stable significant relationship. (35.8% cases vs 54.8% controls)

***Family history of mental illness***

a. Cases were more likely to have a **family history of mental illness** (54.9% cases vs 31.5% controls)

***Prior suicide attempt(s) and acute warning signs***

a. Cases were more likely to have had a history of **suicide attempt(s)** than controls (40.3 % cases vs 4.1% controls), with more than a quarter of cases (27.8%) having made an attempt in the past year compared to 1.4% of controls. Of note, medical intervention was required in attempts made by 59.2% of cases, whereas none was required for the controls.
b. In the 7 days prior to their demise, cases exhibited a greater average number of warning signs (4.2) compared to controls (0.8) out of the 10 **acute warning signs** identified in the mnemonic 'IS PATH WARM' developed by the American Association of Suicidology.
c. In addition, significantly more cases were reported to have uploaded **posts on social media** that seemed different than usual (11.9% cases vs 1.4% controls)

8. The researchers also conducted a qualitative analysis of the interviews to identify gaps in suicide prevention strategies. The following themes emerged as key findings:

**Need for greater mental health literacy**

- Suicide loss survivors stated that they were unable to distinguish stress from the presence of serious mental health conditions, such as clinical depression or psychosis, which led to delayed treatment seeking. While they focused on alleviating the stressor, they did not fully appreciate the importance of professional treatment and thus did not insist that the distressed individual seek care or continue treatment.

- Among those who had lost an older adult who had been treated for pain or other conditions, mental health problems of the older adult were often overlooked.

**Need for more open conversations about suicide**

- Suicide loss survivors highlighted that they were unaware of warning signs of suicidality, how to respond to them and what safety precautions to take when their loved one expressed suicidal thoughts. As such, they felt that there was a need for public education and messaging in this area to normalise conversations about suicide and reduce stigma or taboo surrounding this topic.

9. "Suicide is never the result of just one factor, but it is a perfect storm when the struggles converge and become too much. It is important to understand that these overwhelming moments can happen in anyone's life," says Associate Professor Mythily Subramaniam, Principal Investigator of the study, and Assistant Chairman, Medical Board (Research), IMH, NHG Health.

10. Referring to the study's finding on warning signs, Prof Chong Siow Ann, Senior Consultant, Research Division and Department of Psychosis, IMH, NHG Health, and Co-investigator of the study, notes: "Warning signs such as withdrawal, hopelessness, or mood changes can sometimes be subtle or mistaken for normal stress. It is not always straightforward, but this means that there were opportunities to notice changes if people around them were aware of what to look for. With better mental health literacy, families, teachers, employers, and peers can become more confident in recognising when something is amiss and intervening early."

11. Prof Chong shares that a common misconception is that talking about suicide might "put the idea into someone's head", but research has shown that this is not the case. "On the contrary, suicidal thoughts often exist long before they are expressed and not talking about it risks isolating them further." He adds that if a loved one seems withdrawn, hopeless, unusually anxious, or expresses thoughts of being a burden, that is the moment to reach out. "Doing so gives relief, validates their pain, and creates space for connection. It also helps us assess risk more clearly and guide the person toward professional help. And it should always be followed up with concrete steps: encouraging professional help, connecting them to hotlines or community resources, or simply staying present."

12. "Perhaps the most important message from this study is the need for open, honest conversations about suicide," says A/Prof Mythily. "These are never easy – I've found it difficult to broach the topic with my children. Yet with young people increasingly exposed to it through school, social media, and peer circles, silence is not an option. We need to talk, listen, and reassure them that help is available. The same principle applies across all relationships: if you sense someone is struggling, ask directly, offer support, and be aware of where to seek professional help. Each of these moments is an opportunity for prevention. Suicide prevention isn't just about services or professionals – it's about all of us playing a role in supporting friends, families, colleagues and the larger community**,** and having the courage to reach out when we notice something is wrong. When people feel they can talk about their struggles without shame, the chances of getting help in time are much greater, and hopefully we can prevent some suicides."

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**About the Institute of Mental Health (IMH)**
The Institute of Mental Health (IMH), a member of NHG Health, 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.

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