

# Subsyndromal Depression Prevalence and its associated factors

Eugene Yu Cong Chua<sup>1</sup>, Jeremy Kaiwei Lew<sup>2</sup>, Eng Sing Lee<sup>2,3</sup>

<sup>1</sup>Hougang Polyclinic, National Healthcare Group Polyclinics, Singapore

<sup>2</sup>Clinical Research Unit, National Healthcare Group Polyclinics, Singapore

<sup>3</sup>Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

## INTRODUCTION

- **Subsyndromal depression (SSD)** is defined as any two or more simultaneous symptoms of depression, present for most or all of the time, at least 2 weeks in duration, associated with evidence of social dysfunction, occurring in individuals who do not meet the criteria for diagnoses of minor depression, major depression, and/or dysthymia<sup>1</sup>. It is also called minor depression, subclinical depression and subthreshold depression<sup>2</sup>
- SSD is diagnosed from depressed mood with at least 1 symptom of Major Depressive Disorder (MDD), but not fulfilling the criteria of MDD, and the presence of clinically significant distress or deficit lasting at least 2 weeks<sup>3</sup>. A Patient Health Questionnaire Mood Scale (PHQ-9) between 5 and 9 is also indicative of SSD<sup>4</sup>
- SSD is associated with elevated rates of comorbid mood, anxiety, and personality disorders, as well as the development of a new-onset MDD and anxiety disorder<sup>5</sup>
- Subclinically depressed patients treated by psychoeducation, physical exercise and enhanced treatment as usual comparably improved depressive symptoms, diabetes distress, self-management of diabetes, health-related quality of life and metabolic control<sup>6</sup>
- A survey of people aged 60 and above in Singapore found that SSD was more common in individuals with a lower socioeconomic status and was often associated with cognitive impairment, anxiety, poor physical health, and poor social functioning<sup>7</sup>

## OBJECTIVE

1. To determine the prevalence of subsyndromal depression in a primary care population.
2. To explore factors associated with subsyndromal depression

## METHODOLOGY

1. This is a cross-sectional study where interviewer-assisted questionnaire was administered to participants
2. Stratified sampling by age was used to select participants
3. Multivariable logistic regression was used to identify the factors associated with SSD

## RESULTS

- We conducted a complete-case analysis on 3,450 patients (mean age: 52.5 years old; Male = 53.7%; Chinese = 69.5%) (Table 1).
- The prevalence of subsyndromal depression was **16.6%** (572 out of 3,450).
- Participants aged 21-39 (OR=3.29, CI=2.24-4.85) and 40-64 (OR=2.12, CI=1.54-2.91) were more likely to have SSD when compared with those >=65 years old.
- Those of Malay ethnicity (OR=1.36, CI=1.05-1.76) had higher odds of SSD compared to Chinese.
- Compared to married individuals, those separated/divorced/widowed had higher odds of SSD (OR=1.56, CI=1.12-2.17).

Table 1: Demographic Characteristics (N=3,450)

|                         | Minimal depression<br>(N=2,575) | Subsyndromal depression<br>(N = 572) | Moderate-severe depression<br>(N = 303) | Total<br>(N = 3,450) |
|-------------------------|---------------------------------|--------------------------------------|---|----------------------|
| <b>Age (as of 2022)</b> |                                 |                                      |   |                      |
| >= 65 years old         | 1,025 (39.8%)                   | 85 (14.9%)                           | 33 (10.9%)                              | 1,143 (33.1%)        |
| 40-64 years old         | 1,025 (39.8%)                   | 219 (38.3%)                          | 77 (25.4%)                              | 1,321 (38.3%)        |
| < 40 years old          | 525 (20.4%)                     | 268 (46.9%)                          | 193 (63.7%)                             | 986 (28.6%)          |
| <b>Gender</b>           |                                 |                                      |   |                      |
| Male                    | 1,404 (54.5%)                   | 304 (53.1%)                          | 143 (47.2%)                             | 1,851 (53.7%)        |
| Female                  | 1,171 (45.5%)                   | 268 (46.9%)                          | 160 (52.8%)                             | 1,599 (46.3%)        |
| <b>Ethnicity</b>        |                                 |                                      |   |                      |
| Chinese                 | 1,870 (72.6%)                   | 357 (62.4%)                          | 170 (56.1%)                             | 2,397 (69.5%)        |
| Malay                   | 365 (14.2%)                     | 125 (21.9%)                          | 81 (26.7%)                              | 571 (16.6%)          |
| Indian                  | 232 (9.0%)                      | 61 (10.7%)                           | 37 (12.2%)                              | 330 (9.6%)           |
| Others                  | 108 (4.2%)                      | 29 (5.1%)                            | 15 (5.0%)                               | 152 (4.4%)           |

Table 2: Multivariable logistic regression<sup>†</sup> of factors associated with SSD

| Independent Variables   | Adjusted Odds Ratio (95% CI <sup>‡</sup> ) | p-value     | Independent Variables                            | Adjusted Odds Ratio (95% CI <sup>‡</sup> ) | p-value                               |
|-------------------------|--|-------------|--|--|---------------------------------------|
| <b>Age (as of 2022)</b> |  |             | <b>Current marital status</b>                    |  |                                       |
| >= 65 years old         | REF <sup>†</sup>                           |             | Currently married                                | REF  |                                       |
| 40-64 years old         | 2.12 (1.54 to 2.91)                        | <0.001      | Never married / Single                           | 0.99 (0.77 to 1.29)                        | 0.96                                  |
| < 40 years old          | 3.29 (2.24 to 4.85)                        | <0.001      | Separated/divorced/widowed/others                | 1.56 (1.12 to 2.17)                        | <0.01                                 |
| <b>Gender</b>           |  |             | <b>Highest level of education attained</b>       |  |                                       |
| Male                    | REF  |             |  |  |                                       |
| Female                  | 1.00 (0.81 to 1.23)                        | 0.99        | <b>Main work status, over the last 12 months</b> |  | No statistically significant findings |
| <b>Ethnicity</b>        |  |             | <b>Socioeconomic status</b>                      |  |                                       |
| Chinese                 | REF  |             | <b>EQ-5D-5L score</b>                            | 0.58 (0.36 to 0.94)                        | <b>0.03</b>                           |
| Malay                   | 1.36 (1.05 to 1.76)                        | <b>0.02</b> | <b>EQ-5D health state (VAS)</b>                  | 0.98 (0.97 to 0.99)                        | < <b>0.001</b>                        |
| Indian                  | 1.21 (0.88 to 1.66)                        | 0.25        | <b>Overall Social Support (mMOS-SS)</b>          | 1.00 (0.99 to 1.00)                        | <b>0.02</b>                           |
| Others                  | 1.26 (0.81 to 1.97)                        | 0.31        |  |  |                                       |

1. †Outcome: subsyndromal depression (1) vs minimal or moderate-severe depression (0)  
2. ‡CI – confidence interval; REF – reference group; p<0.05 is considered statistically significant

## CONCLUSION

1. There is high prevalence of subsyndromal depression
2. There is an urgent need to reduce disability adjusted life year especially among the young as Singapore's strategic resource is its human capital
3. Future studies are needed to explore ways for improving mental health as well as the longitudinal relationship between SDD and self-harm & MDD

## ACKNOWLEDGEMENTS

This research is supported by the Singapore Ministry of Health's National Medical Research Council under the Centre Grant Programme (reference: NMRC/CG/C019/2017). The team would like to thank all our NHGP colleagues, clinic staff and patients who contributed to this study.

## REFERENCES

1. Judd LL, Rapaport MH, Paulus MP, Brown JL. Subsyndromal symptomatic depression: A new mood disorder? The Journal of Clinical Psychiatry. 1994;55:18-28.
2. Rodríguez, M.R., Nuevo, R., Chatterji, S. et al. Definitions and factors associated with subthreshold depressive conditions: a systematic review. *BMC Psychiatry* 12, 181 (2012). <https://doi.org/10.1186/1471-244X-12-181>
3. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders [Internet]. Fifth Edition. American Psychiatric Association; 2013 [cited 2022 Sep 27]. Available from: <https://psychiatryonline.org/doi/book/10.1176/appi.books.9780890425596>
4. Volt HP, Stirnweil J, Kasper S, Möller HJ, Selfritz E. Subthreshold depression – concept, operationalisation and epidemiological data. A scoping review. *International Journal of Psychiatry in Clinical Practice*. 2022 Jun 23;1-15.
5. Laborde-Lahoz P, El-Gabalawy R, Kirwin J, Kirwin PD, Sareen J, Pietrzak RH. Subsyndromal depression among older adults in the USA: prevalence, comorbidity, and risk for new-onset psychiatric disorders in late life. *Int J Geriatr Psychiatry*. 2015 Jul;30(7):677-85.
6. Pibernik-Okanović M, Hermanns N, Ajduković D, Kos J, Prašek M, Šekerija M, et al. Does treatment of subsyndromal depression improve depression-related and diabetes-related outcomes? A randomised controlled comparison of psychoeducation, physical exercise and enhanced treatment as usual. *Trials*. 2015 Jul 15;16:305.
7. Chuan SK, Kumar R, Matthew N, Heok KE, Pin NT. Subsyndromal depression in old age: clinical significance and impact in a multi-ethnic community sample of elderly Singaporeans. *Int Psychogeriatr*. 2008 Feb;20(1):188-200.