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RESEARCH ARTICLE

Mental health among Thai medical students: Preadmission evaluation and service utilization

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Abstract

Background and Aims: Mental illness among medical students is common. Identifying at-risk students can be beneficial in terms of prevention and treatment. This study examined the association between preadmission mental health evaluation and mental health service utilization among Thai medical students.

Methods: The authors collected data from all first- to sixth-year students at one university hospital and three affiliated hospitals during the 2014 to 2019 academic year (n = 1642). Preadmission mental health was evaluated using the Thai Mental Health Indicators 66 (TMHI-66) questionnaire. Data from mental health service utilization included the dates of service and the clinical diagnosis. Data were analyzed using Cox regression, adjusted for sex, hometown, and affiliated hospital.

Results: The prevalence of poor mental health was found to be 3.7% based on TMHI-66 results. The proportion of all students who sought mental health services was 8.3%, and they were mostly diagnosed with depressive disorder (3%), adjustment disorder (1.9%), and anxiety disorder (1.9%). Students with positive TMHI-66 results were more likely to seek out services at the faculty counseling center for one or more mental health problems (Hazard ratio [HR] = 2.11, 95% CI 1.11-4.04, $P = .024$).

Conclusion: Preadmission mental health was found to be associated with mental health service utilization. Depressive disorder was the most frequent mental illness among Thai medical students utilizing the faculty counseling services. Still, the number was far lower than the reported prevalence of mental disorders due to various reasons. Further studies are needed to investigate risk and protective factors for mental disorders to better promote mental health and encourage mental health service utilization in targeted students throughout medical education.

KEYWORDS
medical education, medical student, mental health, preadmission, Thai

1 | INTRODUCTION

Mental health problems are impacting the quality of life worldwide, for the global burden of mental illness accounts for approximately one-third of years lived with disability.[1] The prevalence of mental illness, including mood and anxiety disorders, suicidal ideation, and psychological distress, among medical students is higher than the general population or even university students in other majors.[2,3]

Unfortunately, the severity of mental problems tends to increase, especially within a year after medical school admission.[4] Many studies have shown associations between mental health among medical students and contributive factors including sex, ethnicity, year of education, physical inactivity, and poor social support.[4-6]

Medical students in Thailand are also found to have a high rate of mental problems such as depression (9.3%-30.5%), stress (61.4%), and suicidal ideation (12.8%).[7-11] This prevalence is higher compared with the general Thai population.[12] The proportion of depression among this group is comparable to other vulnerable populations such as ethnic or gender minorities.[13,14]

Factors related to Thai medical student depression include academic performance, learning environment, relationship, and community, as well as individual vulnerabilities such as motivation and self-care.[7,9] According to the Thai medical education curriculum, the first clinical year of all students begins at the fourth year, which coincides with the greatest prevalence of depressive disorders and suicidal ideation in Thai students.[8] Since this year demands high adaptability of medical students, those who could not adjust to the clinical environment might attain poorer academic achievement, and when compounded with sleep deprivation and psychological abuse, it will ultimately lead to mental problems.[8,15] In addition to the elevated prevalence of depression, other undetected psychiatric morbidities may also be present. Encouraging increased utilization of mental health services could fill the gap between detected mental disorders and the real situation of mental distress in medical students.

Preadmission physical examination is a routine process prior to entering the undergraduate level of Thai medical education. To our knowledge, some Thai medical schools also provide preadmission mental health screening for excluding severe psychiatric disorders, which are contraindicated for studying medicine in Thailand. However, poor mental health status is not considered a prohibition, and studies on the association between pre- and post-medical education mental health are still lacking. As mentioned before, mental health is strongly related to academic performance, which was the main outcome in several studies. Preadmission academic performance is a potential predictor for the academic achievement of medical students,[16-19] but its linkage with mental health is not mentioned. It is still questionable whether there is an association between preadmission mental health status and mental illness during medical education, especially in students who received mental health services. Therefore, we aimed to examine the association between mental health preadmission evaluation and mental health service utilization among Thai medical students.

2 | METHODS

2.1 | Study design and population

This retrospective cohort study used data from one university hospital located in Bangkok and three affiliated hospitals in Thailand. First- to sixth-year medical students during the 2014 to 2019 academic year were enrolled in the study. All students attended their initial 3 years at the university hospital. During their fourth to sixth years, they were sent to different hospitals according to the program that each student had applied to. We collected mental health data from all medical students throughout the study period. Therefore, neither sampling nor sample size calculation was done in this study. The study approval was granted by the Institutional Review Board of the Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand (IRB No. 065/2020).

2.2 | Mental health service utilization

Mental health service utilization data were extracted from separate and confidential files of the faculty counseling center for undergraduates with the consent of all clients. Prior to receiving services, all medical students were informed of all risks and benefits of attending the center along with our study, and written informed consent was obtained. The counseling service for undergraduates was started to help medical students who need mental health care. Students may contact the service manager to make an appointment by themselves or be referred by their advisors. Data comprised of dates of service and psychiatric diagnoses. Demographic data including age, year of education, sex, and affiliated hospitals were also collected.

2.3 | Mental health evaluation

Preadmission mental health was evaluated using the Thai Mental Health Indicator 66 (TMHI-66), a 66-item, self-rated questionnaire measuring overall mental health.[20] This tool can be used among people between 15 and 60 years of age to evaluate their mental health status using a three-tier ranking of poor, fair, or good. Four domains were measured including mental status, mental capacity, mental quality, and supporting factors. Reliability of the TMHI-66 for each domain is 0.86, 0.83, 0.77, and 0.80, respectively.[20] All students were required to complete this questionnaire 3 months prior to the opening of their first semester of their first year at the medical school. Students with an assessment of "poor mental health" were categorized as TMHI-66 positive in this study.

2.4 | Statistical analysis

STATA 16 (John Wiley & Sons, Inc) was used for data analysis. Descriptive statistics were used to report demographic data, mental health status, and psychiatric diagnoses. Categorical variables were presented as counts and percentage, and continuous variables were represented using the median and interquartile range (IQR) due to non-normal distribution. We used Pearson's Chi-square or Fisher's exact test to determine the difference among categorical data. Mann-Whitney *U* test was used to determine the difference among continuous data. Cox regression was used to explore the association between mental health service utilization and preadmission mental health

status, adjusted for sex, hometown, and affiliated hospital. A *P value* of <.05 was considered statistically significant. Proportional hazard assumption was tested before fitting with Cox proportional hazard model.

3 | RESULTS

During the 6-year period from 2014 to 2019, a total of 1832 medical students were reviewed for inclusion in the study. After exclusion of 190 students without preadmission mental health evaluation score, 1642 medical students were included in the analysis. Preadmission score was absent in students who applied through a special admission route. Their mental health assessment was done before the rest students, and results were collected separately from our database. Mental health service utilization data were extracted for 1 to 6 years according to the year of medical school entry. In total, 5277 person years were observed.

According to the preadmission process, all students were screened for their mental health status prior to the study. All students were approximately 18 years of age. Male students accounted for slightly more than half (52.92%) of all students. The majority of students (60.9%) attended the university hospital, while the remaining students (39.1%) studied at the three affiliated hospitals. Poor mental health prior to admission, indicated by the TMHI-66 score, was found in 60 students (3.7%). Regarding mental health service utilization, 136 students (8.3%) sought service during their 6-year medical education period. The median duration from admission to service use was 23.5 months (IQR 14.5, 33). Depressive disorder was the most prevalent among those who sought service (36.0%), followed by adjustment disorder (23.5%) and anxiety disorder (22.8%). There was a statistically significant difference in students diagnosed with depressive disorder between TMHI-66 positive and negative group ($P = .002$). General information and mental health service utilization of participants are shown in Table 1.

Statistical analysis revealed that students with poor mental health prior to admission were more likely to seek mental health services from the faculty counseling center, with a hazard ratio of 2.11 (CI 1.11-4.04), after adjusting for sex, hospital-affiliated, and whether they resided in Bangkok (Table 2). Cox regression showed that students with high preadmission TMHI-66 scores (classified by TMHI-66 as "good" and "fair" mental health) had a higher probability of not seeking mental health services from the counseling center compared with students with low scores ("poor" mental health), as illustrated in Figure 1.

TABLE 1 General information and mental health service utilization of participants

	N = 1642 (%)	TMHI-66 positive N = 60 (%)	TMHI-66 negative N = 1582 (%)	*P* value
Male	869 (52.9)	43 (71.7)	826 (52.2)	.003
Female	773 (47.1)	17(28.3)	756 (47.8)	
Hospital				
University hospital	1000 (60.9)	43 (71.7)	957 (60.5)	.082
Affiliated hospitals	642 (39.1)	17 (28.3)	625 (39.5)	
Hometown				
Bangkok or metropolitan	939 (57.2)	36 (60.0)	903 (57.1)	.654
Others	326 (19.9)	24 (40.0)	679 (42.9)	
Mental health service utilization				
Yes	136 (8.3)	10 (16.7)	126 (8.0)	.016
No	1506 (91.7)	50 (83.3)	1456 (92.0)	
Diagnosis				
Adjustment disorder	32 (1.9)	2(3.3)	30 (1.9)	.328
Depressive disorder	49 (3)	7 (11.7)	42 (2.7)	.002
Anxiety disorder	31 (1.9)	2(3.3)	29 (1.8)	.314
ADHD	18 (1.1)	0 (0)	18 (1.1)	1.000
ASD	7 (0.4)	2(3.3)	5(0.3)	.025
Suicidal attempt	3 (0.2)	3(0.2)	0(0)	1.000
Psychotic disorder	1 (0.1)	0(0)	1(0.1)	1.000
OCD	5 (0.3)	0(0)	5(0.3)	1.000
Bipolar disorder	3 (0.2)	0(0)	3(0.2)	1.000
Time to Mental health use (months) (Median [IQR])	23.5 [14.5,33]	29.5 [12,51]	23 [15,33]	.450

Abbreviations: ADHD, attention deficit hyperactivity disorder; ASD, autistic spectrum disorder; OCD, obsessive-compulsive disorder.

TABLE 2 Hazard ratio for mental health service utilization

	Hazard ratio	95%CI	*P* value
TMHI-66 positive	2.11	1.11-4.04	.024
Female	0.98	0.70-1.38	.909
University hospital	0.89	0.63-1.27	.516
Hometown Bangkok	0.73	0.51-1.03	.070

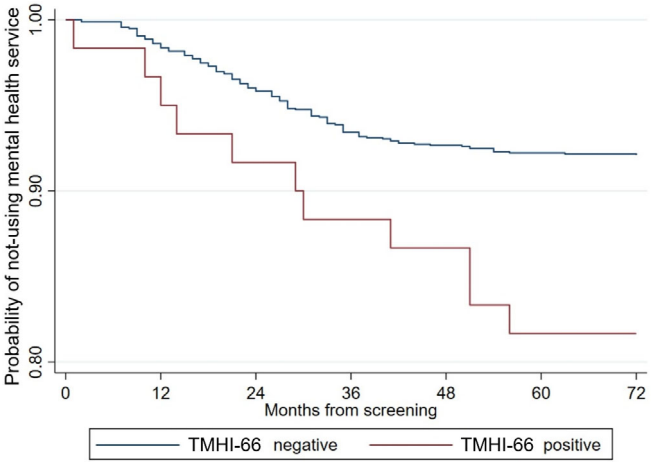

FIGURE 1 Probability of not using mental health service

4 | DISCUSSION

Poor mental health status was found in 3.7% of medical students prior to university admission. This was much lower than the general Thai population[21] but comparable to the prevalence of moderate to severe depression in preadmission medical students at one Thai medical school.[22] We also found that a positive TMHI-66 result was more prevalent among male students ($P = .003$). Two previous descriptive studies reported no difference in TMHI-66 or depression score between males and females but a significant association with student's income, parents' marital status, problems with friends,[23] and affiliated hospitals.[22] However, adolescent boys are often unwilling to seek care for their feelings, which they may perceive as a weakness. Compared with girls, boys tend to have lower emotional support[24] and, consequently, poorer mental health status. Higher numbers of depressive disorders were reported in students with a positive TMHI-66 who received mental health service utilization ($P = .002$). A lower TMHI-66 score has been strongly linked to lower levels of happiness and life satisfaction.[25] It is no surprise that medical students with unhappy and unsatisfied lives would be more likely to seek mental health services for their depression.

Of 136 medical students receiving mental health services, our study showed that the most common psychiatric disorder found in the center was depressive disorder. The result was consistent with a previous study from another Thai medical school[26] as well as many studies in several Asian countries.[3,6,27,28] However, the percent of participants with depressive disorder in this study was lower than recent prevalence estimates of depression among worldwide medical students.[29] In addition, the prevalence of anxiety disorders was lower than results from a previous meta-analysis.[30] However, there are few studies assessing adjustment disorder in the medical student population. Adjustment disorder has received little academic attention and could mask other psychiatric diagnoses including anxiety and depressive disorder.[31] This might explain why our prevalence of anxiety and depressive disorder was quite low, since some participants may have been alternatively diagnosed with adjustment disorder.

Moreover, our findings measured the prevalence of mental disorders using information from mental health service utilization, which may not be accurate. Negative attitudes toward medical students with mental problems are common not only among medical student friends but also among teachers.[32,33] Students tend to avoid requesting mental health services at their own medical school counseling center because of perceived and personal stigmatization about working with depressed colleagues or self-blame.[34] Medical teachers were found to have more stigmatizing attitudes,[33] and students were compelled to seek mental support outside. At worst, their problems were left undetected and untreated because they feared that a record of mental health service utilization would affect their eligibility for future residency training or physician career in their institution of choice.

This counseling center was only open for service during weekday afternoons for 3 days per week, meaning that students would usually have to leave their regular class schedules to attend. This barrier of inconvenient service time is one of the common barriers that preclude access to mental health service in medical students.[32]

Poor preadmission mental health status significantly increased the likelihood of mental health service utilization (Hazard ratio [HR] = 2.11, 95% CI 1.11-4.04, $P = .024$). The median duration between date of admission and mental health service use was 23.5 months (IQR 14.5, 33). This result was consistent with previous studies, which report that the highest rate of depression was within the preclinical period[5,35] and may have led to mental health service utilization within the first 2 to 3 years. In contrast, other studies have also reported that the prevalence of anxiety or depressive disorders between preclinical and clinical years were not significantly different.[29,30] Since poor preadmission mental health status is a risk for future development of mental disorders, proper screening and prompt intervention might be useful to promote mental health among students throughout medical education.

In our view, this study had many strengths. We enrolled a large number of participants compared with previous studies in Thailand. To measure mental health status, we chose the TMHI-66, which is a self-rated, user-friendly, and effective questionnaire suitable to the Thai context. To the best of our knowledge, the TMHI-66 has never been studied as a tool for preadmission mental state screening among medical students. It can be publicly downloaded from the website of the Department of Mental Health, Ministry of Public Health, Thailand (https://www.dmh.go.th/test/qtnew/). However, the test was originally developed in Thai, and translations into other languages are not currently available.

There were several limitations in our study. We measured the prevalence of mental disorders by mental health service utilization,

which may have been lower than the actual prevalence. Students with mental health problems may be hindered by inconvenience and fear of stigmatization, or chose to seek mental health care elsewhere. In addition, some of the participants were sent to the service by their advisors because of academic problems. Poor academic performance and failing examinations have been associated with stress, anxiety, and depression.[15,36] Therefore, normal distress over failing performance may have been classified as a mental disorder in our study. Moreover, other associated factors of mental health problems such as academic performance or socioeconomic status were not investigated in this study. Medical students screened as high risk by the TMHI-66 should be further studied for their risk and protective factors during their medical education.

5 | CONCLUSION

Prior to admission, the evaluation of mental health status and its associated factors is beneficial in terms of identifying at-risk students. Pre-admission mental health status has been shown in our study to be a predictor of mental health service utilization at the faculty-based counseling center during medical education. Further longitudinal research is needed to investigate risk and protective factors for promoting mental health throughout medical education.

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CONFLICTS OF INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

AUTHOR CONTRIBUTIONS

Conceptualization: Sorawit Wainipitapong, Mayteewat Chiddaycha.
Data Curation: Sorawit Wainipitapong, Mayteewat Chiddaycha.
Formal Analysis: Mayteewat Chiddaycha.
Methodology: Mayteewat Chiddaycha.
Project Administration: Sorawit Wainipitapong.
Writing—Original Draft Preparation: Sorawit Wainipitapong.
Writing—Review and Editing: Sorawit Wainipitapong, Mayteewat Chiddaycha.

All authors have read and approved the final version of the manuscript.

The corresponding author had full access to all of the data in this study and takes complete responsibility for the integrity of the data and the accuracy of the data analysis.

TRANSPARENCY STATEMENT

All authors affirm that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

DATA AVAILABILITY STATEMENT

Due to the nature of this research, participants of this study did not agree for their data to be shared publicly, so supporting data are not available.

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