Original Article

Prevalence and Associated Factors of Depression in Medical Students at Faculty of Medicine Vajira Hospital

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Objective: To study prevalence and associated factors of depression in medical students at Faculty of Medicine, Vajira Hospital.

Materials and Methods: This was a cross-sectional survey study in medical students from year 1 to year 6. The survey included general demographic data and factors associated with depression. Patient Health Questionnaire-9 (PHQ-9) Thai version was used to assess depressive symptoms. Statistical tools including descriptive statistics, Chi-square and multiple logistic regression, were used.

Results: A total of 298 medical students from year 1 to year 6 were included in the present study. One hundred and fifty-five (52%) subjects were female. Prevalence of depression was 91 (30.5%). Suicidal ideation was 12.8%. Prevalence of depression and suicidal ideation were highest in fourth year medical students which were 37.5% and 20.8%, respectively. In multivariate analyses factors associated with depression were pessimism; sometimes [odds ratio (OR) = 6.48; 95% confident interval (CI)] = 1.83 to 22.96; p = 0.004] and often (OR = 8.86; 95% CI = 1.34 to 58.31; p = 0.023), family relationship (OR = 8.07; 95% CI = 2.49 to 26.09; p<0.001), inadequate sleep (OR = 3.35; 95% CI = 1.71 to 6.56; p<0.001) and psychological abuse (OR = 2.55; 95% CI = 1.43 to 4.56; p = 0.001).

Conclusion: Prevalence of depression in medical students of Urban University was high at 30.5%. Associated factors with depression were pessimism, family relationship, inadequate sleep and psychological abuse. Surveillance and early detection are indicated to prevent further impact.

Keywords: Depression, Medical students, Associated factors, Urban

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Depression is a common psychiatric problem. World Health Organization (WHO) has found that depression has affected more than 300 million people around the world. Depression is a major cause of loss and burden. The worst outcome is suicide, which leads to 80,000 deaths every year. Suicide is a second most common cause of death in the people aged 15 to 29 years[1]. Medical education causes high stress[2,3]. Prevalence of depression in medical students is higher than that in general population[3-6]. Depression in medical students affects not only students' personal life, study, career development, but also long-term patient care and maltreatment[3-5].

An international study reported that depression affected almost one-third of medical students around the world, while the rate of receiving treatment was low[3]. The overall pooled prevalence of depressive symptoms among medical students was 27.0% (95% CI, 24.7 to 29.5%). Top five most important factors associated with depression were year of study, gender, personal issue, family relationship and health status[7]. The overall pooled crude prevalence of suicidal ideation was 11.1%[8].

In Thailand, study concerning depression in medical students by Limsricharoen K, et al reported the prevalence of depression among medical students year 2 to year 6 at one urban university in Bangkok, Thailand was 19.6% and associated factors were problem with romantic relationship, family problem and inadequate sleep[9]. Previous studies about psychiatric illnesses in medical students by Ketumarn P, et al found that the incidence of overall psychiatric illness was 8.4 in 1,000 per year. Most common illness was adjustment disorder and depression[10]. Ketumarn P, et al studied also found that most common psychiatric problem in medical students who drop out of medical school was depression[11].

Therefore, depression among medical students is a very important problem affecting many areas and has deep impact on daily life. The number of studies in Thailand is still limited. Consequently, the researchers aim to study prevalence and associated factors of depression and also

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suicidal ideation among medical students in every year of study in Faculty of Medicine Vajira Hospital, Urban University in Bangkok Metropolis.

Materials and Methods

The present study was approved by the Ethical Committee of Faculty of Medicine Vajira Hospital (COA 151/2560). This was a cross-sectional survey study in medical students from year 1 to year 6 of Faculty of Medicine Vajira Hospital in year 2017. The data were collected from January to February 2018. Inclusion were all medical students who agreed to involve in the study. Five students in third year were excluded because they were part of research team. Sample size was calculated by parameter estimation method and outcome was 304 from 487 subjects.

Researchers had contacted medical students and explained about the research together with handouts description the research to medical students. Those who agreed to enroll in research had signed the name on consent form. Subjects would receive 2 questionnaires, one was designed by the researchers collecting general data and factors that might be associated with depression. The other was Patient Health Questionnaires-9 Thai version (PHQ-9)[12] which was a 9-item self-rate screening test for depression.

Statistical analysis

General data and associated factors were presented descriptively in terms of frequency, percentage, mean, median and standard deviation. To evaluate the correlation between associated factors and depression, we used Chi-square test and multiple logistic regression by forward selection method. All data were computerized by using SPSS version 22.0.

Results

Baseline characteristic

Of the 304 medical students in the study, 298 returned a suitable questionnaire for analysis. The response rate was at 98.03 percent. One hundred and fifty-five subjects were female (52%) and median age was 21 years old [interquartile range (IQR) 20 to 23 years old] (Table 1).

Prevalence of depression

The study found that 91 (30.5%) of 298 medical students had depression (PHQ-9: ≥9). In details, mild depression (PHQ-9: 9 to 14) 79 (86.8%) subjects, moderate depression (PHQ-9: 15 to 19) 10 (11%) subjects and severe depression (PHQ-9: ≥20) 2 (2.2%) subjects. Suicidal ideation was reported by 38 (12.8%) subjects.

Depression in medical students from year 1 to year 6

The highest depression rate was found among fourth year medical students at 37.5%, followed by third year students at 36.5%, and the lowest rate was that of the fifth year students at 20% (Figure 1). The fourth year students reported highest rate of suicidal ideation at 20.8% and fifth year students at lowest rate of 8% (Figure 2).

Associated factors with depression

In univariate analysis, factors associated with depression included personal illnesses, personal medications, pessimism, family relationship, peer relationship, inadequate sleep and psychological abuse. When performed multiple logistic regression, 4 factors found to be statistically significant which were pessimism; sometime (OR = 6.48; 95% CI = 1.83 to 22.96; $p = 0.004$) and often (OR = 8.86; 95% CI = 1.34 to 58.31; $p = 0.023$), family relationship (OR = 8.07; 95% CI = 2.49 to 26.09; $p<0.001$), inadequate sleep (OR = 3.35; 95% CI = 1.71 to 6.56; $p<0.001$) and psychological abuse (OR = 2.55; 95% CI = 1.43 to 4.56; $p = 0.001$) (Table 2).

Discussion

The result from medical students year 1 to year 6 had shown that from 298 medical students, the prevalence

Table 1. Demographic characteristics of participants (n = 298)

Variable	n (%)
Year of study	
1	47 (15.8)
2	51 (17.1)
3	52 (17.4)
4	48 (16.1)
5	50 (16.8)
6	50 (16.8)
Gender	
Female	155 (52.0)
Male	143 (48.0)
Income (baht)	
<3,000	22 (7.4)
3,001 to 5,000	38 (12.8)
5,001 to 7,000	56 (18.8)
7,001 to 10,000	111 (37.2)
>10,000	71 (23.8)
Family status	
Staying together	266 (89.3)
Divorced/separated	17 (5.7)
Death of mother	4 (1.3)
Death of father	10 (3.4)
Missing	1 (0.3)
Personal illnesses	
Yes	75 (25.2)
No	223 (74.8)
Personal medications	
Yes	38 (12.8)
No	259 (86.9)
Missing	1 (0.3)
GPA	
≤2.50	7 (2.3)
2.51 to 2.99	62 (20.8)
3.00 to 3.49	167 (56.1)
≥3.50	58 (19.5)
Missing	4 (1.3)
Family history of depression	
Yes	22 (7.4)
No	276 (92.6)

rate of depression was 30.5%. This was different from the result of earlier studied by Limsricharoen K, et al showed that the prevalence of depression in medical student of Faculty of medicine Siriraj Hospital was 19.6%[9]. The result of Sidana S, et al study in India reported that prevalence of depression among medical students in New Delhi was 21.5%[13]. Puthran R, et al. studied found that global prevalence of depression among medical students was 28.0%[3] and overall pooled prevalence done by Tam W, et al was 27.0%[7].

When comparing between each year of study, the result showed that fourth year medical students had the highest rate at 37.5%, followed by third year medical students at 36.5%, and the lowest rate was that of the fifth year students at 20%. While Puthran R, et al studied found the highest rate of depression in first year students (33.5%) and the lowest rate in fifth year students (20.5%)[3]. Sidana S, et al studied found the highest rate on year 1 and followed by year 2[13]. The reason of the difference rate between the studies maybe from the different populations, ethnicity environment, context of society, period of the study and curriculums. However, the study result was similar to what Rakkhajeekul S and Krisanaprakornkit T studied in Khon Kaen University, which reported that most of the fourth year medical students had mental health that was lower than the norm (18.0%)[14]. These showed that fourth year medical students are in the year of transition from pre-clinical to clinical study in

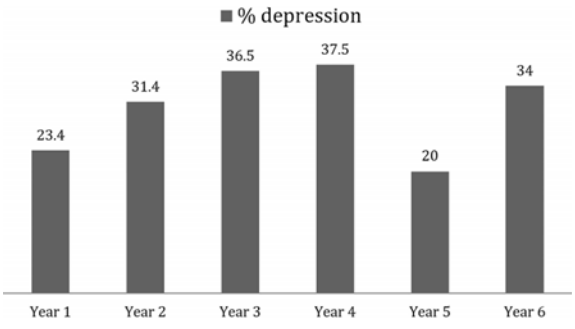

Figure 1. Prevalence of depression in medical students year 1 to year 6.

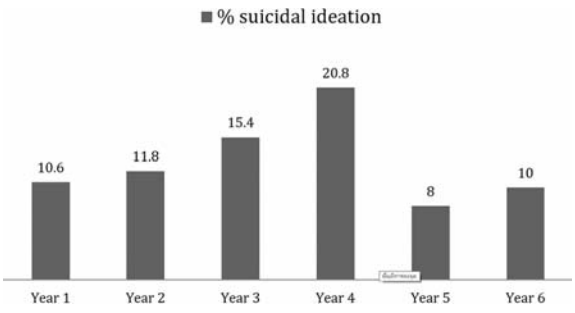

Figure 2. Suicidal ideation in medical students year 1 to year 6.

Table 2. Factors associated with depression using multiple logistic regression

Variable	Crude OR (95% CI)	*p*-value	Adjusted OR (95% CI)	*p*-value
Family status		0.027		
Staying together	1			
Seperated	2.34 (1.10 to 4.97)			
Personal illnesses		0.041		
No	1			
Yes	1.77 (1.02 to 3.06)			
Personal medications		0.001		
No	1			
Yes	3.33 (1.66 to 6.68)			
Pessimism		<0.001		
No	1		1	0.013
Sometime	7.37 (2.22 to 24.50)		6.48 (1.83 to 22.96)	0.004
Often	29.33 (5.49 to 156.73)		8.86 (1.34 to 58.31)	0.023
Family relationship		<0.001		<0.001
Good	1		1	
Poor	9.40 (3.35 to 26.41)		8.07 (2.49 to 26.09)	
Peer relationship		0.024		
Good	1			
Poor	2.38 (1.12 to 5.07)			
Sleep pattern		<0.001		<0.001
Adequate	1		1	
Inadequate	4.29 (2.28 to 8.08)		3.35 (1.71 to 6.56)	
Psychological abuse		<0.001		0.001
No	1		1	
Yes	3.37 (2.01 to 5.65)		2.55 (1.43 to 4.56)	

Thailand. Accordingly, the students are at higher risk for developing depression and mental problems.

This analysis identified prevalence of suicidal ideation was12.8%, which is similar to finding of Rotenstein LS, et al. In the present study, the overall pooled crude prevalence of suicidal ideation was 11.1%[8]. The highest rate of suicidal ideation from our study was found in fourth year medical students at 20.8%. Similar to Tija J, et al whose study found suicidal ideation while studying medicine was at a high rate of 20.4%[15].

The present study revealed that associated factors with statistical significance include pessimism, family relationship, inadequate sleep and psychological abuse. The results were different from Ngasa SN, et al who reported that associated factors were chronic diseases, major life events, female gender and being a student at the clinical level[5]. Tam W, et al found that top five statistically significant associated factors were year of study, gender, personal issues, family relationship and health status[7]. Limsricharoen K, et al reported that associated factors were romantic relationship problems, family problems and inadequate sleep[9]. Whereas Sidana S, et al found year of study and academic performance of students were associated with depression[13].

In the present study, pessimism and psychological abuse were interesting factors associated with depression as found in other studies. Perveen S, et al found positive relationship between depression and negative cognitive style among medical students. First year students had more negative cognitive style whereas last year students had more depression[16]. Richman JA, et al revealed that 72% of medical students reported at least one abusive experience during medical training; female more than male[17]. Elinicki DM, et al also reported that 11% of medical students felt that they had been abused during clerkship, of which belittlement was the most common type of abuse (47%) followed by being asked to perform inappropriate task (30%)[18]. In terms of future direction, we should encourage optimism and reduce every form of violence.

There were numbers of limitations in the present study. For instance, the questionnaire used was composed of primarily open-ended questions. Consequently, the answers were quite subjective. Questionnaire concerning associated factors contains non-specific questions which may affect interpretation of data. The data of the present study came only from medical students of Faculty of Medicine Vajira Hospital which is an urban university, so the generalizability might be limited in other settings. Study concerning differences of associated factors between urban and rural universities should be conducted in the future.

Conclusion

Rate of depression among medical students year 1 to year 6 in Faculty of Medicine Vajira Hospital was 30.5%, and that of suicidal ideation was as high as 12.8%. Factors associated with depression are pessimism, family relationship, inadequate sleep and psychological abuse. Early detection and early treatment of depression are crucial to prevent future loss. Awareness of depression in medical students is important to bring them to appropriate management.

What is already known on this topic?

Depression in medical students is a problem that has many consequences. Prevalence of depression among medical students is higher than that of general population. Multiple factors have shown to associate with depression in this population.

What this study adds?

Prevalence of depression in medical students in Thailand is rising. The fourth year medical students have the highest risk of depression and suicidal ideation. Associated factors were pessimism, family relationship, inadequate sleep and psychological abuse.

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Potential conflicts of interest

The authors declare no conflict of interest.

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