

WELL-BEING, DEPRESSION AND SUICIDAL IDEATION AMONG MEDICAL STUDENTS THROUGHOUT VIETNAM

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ABSTRACT

Medical school is a stressful environment that can affect the well-being of students. Research worldwide indicates that medical students experience high stress and depression. However, little is known about the mental health of medical students in Vietnam.

Objectives

This study investigated psychological well-being, depressive symptoms and suicidal ideation among Vietnamese medical students, and examined associations with a wide range of possible influences on mental health.

Methods

A cross-sectional survey was conducted in 2013 at eight medical universities throughout Vietnam. A total of 2,099 students from years 1, 3 and 5 completed the anonymous self-report questionnaire.

Results

A positive finding shown that over half of these students (54.5%) reported good well-being. However, about one in every fourth experienced recent mild to moderate depression. Past year suicidal thoughts, planning or attempts were reported by 8.7%, 3.9% and 0.9%, respectively. Importantly, 5.8% of the students may have clinically significant difficulties as they reported both depression and suicidal thoughts. Female students generally and first year males and females experienced higher levels of depression. Problems finding suitable accommodation, financial difficulties, interpersonal problems with peers including breakup of romantic relationships, and conflict with parents were most strongly related to adverse mental health.

Conclusion

Although many medical students in Vietnam report good quality of life, a significant minority do not. Interpersonal difficulties appear to be more strongly associated with poor mental health than are study-related factors. To promote students' psychological wellbeing, medical universities should provide counseling services to assist students, especially in first year as they are making the transition into this career.

Keywords

Well-being, depression, suicidal ideation, medical students, Vietnam

BACKGROUND

It has long been recognized that medical school is a stressful environment that can affect the well-being of students. Research worldwide indicates that many medical students experience higher stress and more depression in comparison to the general population and other undergraduate groups [1, 2]. Findings from cross-sectional surveys and longitudinal studies show that the prevalence of depression among medical students ranges from 8% and 15% in the US [3, 4], and Sweden [2]. In Brazil, a recent study revealed that 38.2% of medical students had depressive symptoms with Beck Depression Inventory (BDI) score > 9 [5], and other studies in the Middle-Eastern countries have somewhat higher estimates [6, 7, 8]. In East Asian countries including Vietnam, much less is known about medical students' psychological well-being.

Depression is associated with risk of suicide. Research into suicidal ideation in medical students in western countries indicates that between 5% to 15% report such thoughts or actions in the past year [3, 9]. In Asia, a study in Taiwan found the prevalence of suicidal ideation among medical students was 11.6% [10], while among medical students in Korea and China the prevalence was higher, at 18.3% and 24.5%, respectively [10, 11].

Students' well-being can be affected by many complex factors including family, social, and school influences. In addition to coping with the normal stress of everyday life, medical students must deal with high academic workloads, exposure to patients' suffering and death, witnessing patients' families suffering trauma, and pressure from their own families to succeed.

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To date, little is known about the psychological well-being of medical students in Vietnam. This study was conducted at a national large scale to investigate the general well-being, depressive symptoms and suicidal ideation among medical students. The study also examined possible determinants of poor mental health in medical students in order to gain evidence to assess the need for professional counseling services in universities.

METHODS

Subjects

The study was conducted at eight medical universities in Ha Noi, Thai Nguyen, Hai Phong, Thai Binh, Thua Thien Hue, Ho Chi Minh City, Can Tho, and Tay Nguyen from January to April 2013.

Methods

Design study

A cross-sectional survey was conducted during class time in standard classroom settings.

Sample size and sampling

Sample size was estimated using the formula: $n = Z_{1-\alpha/2}^2 \times \sigma^2 / \epsilon^2 \mu^2$ In which: n = sample size; $Z_{1-\alpha/2} = 1.96$ (Confidence interval = 95%); σ = standard deviation estimated from pilot study; ϵ (relative precision) = 0.05; μ = population mean estimated from pilot study.

From pilot study of 300 medical students, mean and standard deviation of depression scale found to be 12.81 ± 9.19 . After calculation, the minimum sample size was 791. This number was multiplied by 2 (design effect) and 5% (contingency), then we obtained a sample size of 1,661.

Sampling was stratified by eight campuses and students from year 1, year 3 and year 5 were recruited. A class was selected randomly to be representative for each year in course. All students available in classroom at study point were invited to participate voluntarily in the survey. Therefore, the total participants in this survey were 2,111. There were 2,099 completed the questionnaires, resulting a respondent rate of 99.4%.

Variables

Dependent variables

Subjective well-being, depression level of the participants and suicidal behaviors.

Independent variables

Demographic background (age, year in course, gender, ethnic, religion, residence, parent's education).

Study related factors: Grade Point Average (GPA), study satisfaction, failure an exam, choosing medical career.

Life stressful events: adverse events occurred during past 12 month before survey time: major illness, death of relatives, end of friendship or romantic relationship, accommodation or finance difficulties, and others.

Study instrument

An anonymous self-report questionnaire was used to collect data. Mental health measures included WHO-5 Well-being Index scale [12], Center for Epidemiological Studies-Depression (CES-D) scale [13], and three questions about suicidal thoughts and behaviors [14]. Items concerning demographic background, study related factors and recent life stressful events were also included in the questionnaire. Both the WHO-5 and CES-D have been used in many studies worldwide and have good psychometric validity. In Vietnam, these scales have been validated in previous studies on Vietnamese youth mental health [15].

Data analysis

Data analysis was performed using SPSS 21.0 software. The associations between dependent and independent variables were evaluated using independent samples t-test, ANOVA or chi-square test where appropriate. Odd ratio (OR) and 95% Confidence interval (95%) were used to measure the strength of the association. Effect size (in standard deviation units) was used to measure the magnitude of the difference between two groups of means.

Ethical considerations

This study has been approved by Queensland University of Technology Human Research Ethics Committee (Approval number 1200000263) and Hanoi Medical University Biomedical Research Ethics Committee (No. 112/HĐĐĐ-DHYHN).

RESULTS

Sample characteristics

Of the 2099 respondents, 50.1% were male and 49.9% were female. The average age was 21.46, ranging from 18 to 30. The proportion of participants from years 1, 3 and 5 were 33.8%, 33.6% and 32.6%, respectively. The majority (84.5%) of respondents reported that they were from the Kinh ethnic group and 85.3% said that they did not belong to any formal religion. Over half (54.3%) of those surveyed reported that they originated from rural areas. Seventy percent of students reported they reside in a room for rent while 15% live in a campus dormitory and 15% lived with parents or relatives. In terms of parent's education, the proportion of fathers holding a high school diploma, a technical school diploma or a university degree were 28%, 11.7%, and 25.8%, respectively. Mothers had somewhat less educational achievement at 27.3%, 11.7%, and 19.7% respectively.

Estimates of well-being, depressive symptoms and suicidal ideation

Most of the students (54.5%) indicated that they experienced **good quality of life** (Wellbeing score >13). The prevalence of students having mild to moderate depressive symptoms (CES-D score between 16-21) was 23%. The prevalence of more severe depression (CES-D score > 21) was **20.2%**. Totally, **43.2%** of students reported experiencing at least mild depressive symptoms above the threshold of CES-D score of 16.

Past-year suicidal thoughts, suicidal planning and/or attempt were reported by 8.7%, 3.9% and 0.9%, respectively. The proportion of students **experiencing both depressive symptoms and suicidal ideation** was 5.8% (119 students). This subgroup is identified as having signs of serious depressive disorder.

Table 1. Depression and suicidal thinking and demographic background

	Depression score			Suicidal thinking	
	Number	Mean; SD	p-value	Number (%)	p-value
Gender					
Male	1035	14.50; 7.19	0.000	81 (7.7)	0.113
Female	1036	16.56; 7.69		101 (9.7)	
Year in course					
Year 1	700	16.43; 7.47	0.000^a	60 (8.5)	0.042
Year 3	698	15.79; 7.71		75 (10.7)	
Year 5	673	14.32; 7.19		47 (6.9)	
Ethnic group					
Kinh	1752	15.32; 7.42	0.003	147 (8.3)	0.152
Others	318	16.68; 7.89		35 (10.7)	
Religion					
No	1764	15.49; 7.52	0.626	152 (8.5)	0.494
Yes	303	15.72; 7.51		30 (9.7)	
Current residence					
In campus's hostel	311	16.26; 7.32	0.184	33 (10.4)	0.029
Renting a room	1444	15.40; 7.55		113 (7.7)	
With parent/relatives	290	15.61; 7.53		35 (12.1)	
Family residence					
Urban area	950	15.55; 7.46	0.910	96 (10.0)	0.045
Rural area	1121	15.51; 7.56		86 (7.6)	
Father's education					
Secondary school and lower	693	15.97; 7.80	0.166	58 (8.2)	0.435
High school and diploma	822	15.37; 7.45		68 (8.2)	
University degree and higher	538	15.23; 7.26		54 (10.0)	
Mother's education					
Secondary school and lower	845	15.78; 7.61	0.468	68 (8.0)	0.248
High school and diploma	803	15.44; 7.56		68 (8.3)	
University degree and higher	410	15.28; 7.25		44 (10.7)	

^ap-value of post-hoc testing: Year 1 - Year 3 = 0.245; Year 1 - Year 5 = 0.000; Year 3 - Year 5 = 0.001

Factors associated with depressive symptoms and suicidal ideation among medical students

Female students, males and females in first year of the course and students who belong to an ethnic minority group had significantly higher level of depression ($p < 0.01$). It is notable that Year 5 students reported the least depression. Religion, rural/urban family residence and parent's education were not significantly associated with higher numbers of depressive

symptoms (table 1).

Although year 1 students had the most depression, year 3 students (10.7%) were more likely than others to report suicidal thoughts. Students who lived in campus dormitories and those who came from urban areas were significantly more likely to have experienced suicidal ideation ($p < 0.05$). Gender, ethnic group, religion and parent's education were not significantly associated with suicide ideation (table 1).

Table 2. Prevalence of study-related factors and the association with depression and suicidal thought

	%	Depression score		Suicidal thinking	
		Mean; SD	Effect size	No. (%)	OR (95% CI)
GPA (Grade Point Average)					
Low	17.8	17.12; 7.74	0.3**	35 (11.2)	1.47 (0.99-2.19)
High		15.01; 7.44		114 (7.9)	
Study satisfaction					
No	56.5	15.92; 7.54	0.5**	171 (9.2)	1.81 (1.30-2.52)
Yes		12.53; 6.75		7 (3.1)	
Have failed an exam					
Yes	31.8	16.83; 7.99	0.3**	81 (12.2)	1.84 (1.35-2.51)
No		14.92; 7.20		100 (7.0)	
Being repeated a year					
Yes	0.5	15.73; 6.86	0.03	1 (9.1)	1.05 (0.13-8.26)
No		15.53; 7.52		181 (8.7)	
University policy offence					
Yes	7.1	17.10; 7.46	0.2**	15 (10.1)	1.20 (0.69-2.10)
No		15.41; 7.50		167 (8.6)	
Choosing medical career again					
Yes	72.3	14.85; 7.21	0.3**	40 (10.0)	1.59 (1.16-2.18)
No		17.08; 8.16		115 (7.6)	

* $p < 0.05$; ** $p < 0.01$

Table 2 shows the associations between study-related factors and the indicators of poor mental health. It is note worthy that nearly one third of the students said they had failed to pass at least one exam; over a half reported that they were not satisfied with their study results; and nearly 30% reported that they would not choose medical doctor course if they could decide again. However, only 0.5%

said that they had repeated a year.

Most factors in table 2 were associated significantly with depressive symptoms, except item of "being repeated a year". An effect size of 0.3 was found for the variables "GPA", "have failed an exam", and "would not choose a medical career again". Larger effect sizes of 0.5 standard deviation units were found for "Study satisfaction"

Table 3. Prevalence of stressful life events and the association with depression and suicidal thought

	%	Depression score		Suicidal thinking	
		Mean; SD	Effect size	Number (%)	OR (95% CI)
A major illness or injury					
Yes	11.3	18.01; 8.16	0.4**	27 (11.3)	1.41 (0.91-2.17)
No		15.21; 7.37		155 (8.3)	
Death of a close family member					
Yes	14.9	16.39; 7.43	0.1*	32 (10.3)	1.25 (0.83-1.86)
No		15.38; 7.52		150 (8.4)	
Death of a friend or a classmate					
Yes	8.0	16.86; 8.16	0.2*	18 (10.8)	1.31 (0.78-2.19)
No		15.41; 7.44		164 (8.5)	
End of romantic relationship					
Yes	23.7	17.81; 8.16	0.4**	67 (13.5)	2.05 (1.49-2.83)
No		14.83; 7.16		113 (7.1)	

End of another close relationship					
Yes	25.3	18.41; 8.00	0.5**	69 (13.1)	1.96 (1.43-2.7)
No		14.56; 7.08		111 (7.1)	
Accommodation difficulty					
Yes	16.0	19.53; 7.82	0.6**	49 (14.6)	2.09 (1.47-2.97)
No		14.76; 7.20		133 (7.6)	
Finance difficulty					
Yes	8.1	17.66; 7.86	0.3**	26 (15.3)	2.05 (1.31-3.21)
No		15.35; 7.45		156 (8.1)	
Problems with the police					
Yes	8.4	16.80; 7.29	0.2*	22 (12.4)	1.56 (0.97-2.51)
No		15.41; 7.52		160 (8.3)	
Relatives' serious illness					
Yes	22.1	17.28; 7.78	0.3**	45 (9.7)	1.19 (0.84-1.70)
No		15.04; 7.36		180 (8.6)	
Disagree with parent					
Yes	29.1	17.55; 7.37	0.4**	85 (14.0)	2.34 (1.72-3.19)
No		14.70; 7.41		96 (6.5)	

* $p < 0.05$; ** $p < 0.01$

Table 3 shows the associations between recent stressful life events over the past 12 months and the indicators of poor mental health. It is remarkable that approximately one fourth experienced negative emotions regarding ending of a romantic relationship or the breakup of another friendship; further, 30% of respondents reported that they had conflict with their parents during past 12 months.

All adverse events in table 3 were associated significantly with depressive symptoms. An effect size of 0.3 was found for the variables "financial difficulty" and "Relatives' have a serious illness". Larger effect sizes of between 0.4-0.5 standard deviation units were found for "Student having a major illness or injury", "End of a romantic relationship", "Disagreement with parents", and "End of friendship". The strongest bivariate association with depressive symptoms was found for students experiencing difficulties with accommodation (effect size=0.6).

Suicidal ideation was more likely to be reported by students who experienced the ending of a romantic relationship (OR=2.05; 95%CI: 1.49-2.83), those who had serious difficulties in accommodation and/or finance (OR=2.09; 95%CI: 1.47-2.97 and OR=2.05; 95%CI: 1.31-

3.21) and students who reported conflict with parents (OR=2.34; 95% CI: 1.72-3.19).

DISCUSSION

To our knowledge, this is the first large-scale study investigating indicators of mental health among medical students in Vietnam. We found that, while over a half of students reported that they had good quality of life, depressive symptoms were reported by a substantial minority. Nearly 9% had experienced suicidal ideation in the past year. Although it is difficult to determine the clinical significance of self-report data based on general screening questions of the type used here, this study appears to show there is a sub-group with potentially serious mental health difficulties: more than over one in every twenty students (5.8%, or an average of 3 to 4 students in every class group of about 70) reported both depressive symptoms and suicidal ideation.

A study conducted at six medical schools in the USA using the CES-D scale found that 9.2% students had mild to moderate depression and 12% had more severe depression [3]. These estimates are lower than found among

Vietnamese medical students in this study. Further, the past year prevalence of suicidal ideation was slightly higher than this figure among their peers in the USA [3] and Sweden [2] but lower than in reported by medical students in Taiwan and Norway [9, 10].

In Vietnam, depressive symptoms were reported more often by females than males, and this is consistent with previous studies worldwide [1, 2, 3, 4, 6]. We also found that year 1 students may have the highest risk of depression; this might decline over later years of the medical course. This finding is similar to a nationwide survey conducted with Korean medical students [16]. Vietnamese medical students commence 6 years of medical training after graduating from high school and passing the national entrance exam. An increase in academic pressure and environmental change in the first year of medical school may contribute to the peak incidence of depressive symptoms at that time.

Associations between study-related factors and psychological well-being among medical school have been reported in previous studies. In our study, low GPA, low study satisfaction and failure in an exam were associated with depressive symptoms. It is not possible to draw causal inferences in this cross-sectional design; it may be that depressive symptoms preceded rather than followed poor academic performance.

A number of studies have examined the contribution of stressful life events to medical students' well-being. A systematic review of 40 articles during 1980-2005 examining psychological distress among US and Canadian medical students found that death of a family member, personal injury, and financial problems were correlated with student distress [1]. A study in Korea found that living in a rented room and financial difficulty were possible risk factors for depression in this group of students [16]. Research with Turkish medical students found that worry about the future and dissatisfaction with social activities were associated with depression and anxiety [17]. Similarly, in this study we found a number of stressful life events were significantly associated with depression. Of

these events, accommodation difficulty, end of close relationship, end of romantic relationship, personal illness, and conflict with parents had large effect sizes ranging from 0.4-0.6 indicating that the negative events group had higher scores for depression by about half of a standard deviation unit.

Identification of certain students a risk of suicidal ideation can aid mental health promotion programs in medical schools. Our study found that personal events including low study satisfaction, peer relationships, romantic relationship and parent-child relationship influence risk of suicidal ideation. It appears that interpersonal difficulties may be more influential than study-related factors in raising the level of depression, especially among a sub-group who also experience suicidal thinking.

This study has some limitations. First, the CES-D is designed for epidemiological research into depressive symptoms among populations; the classification of high levels of symptoms is different from clinically diagnosed major depression disorder. Nevertheless, this study indicates that clinical research may be warranted in this population. A second methodological limitation is the cross-sectional design, which does not enable conclusions about causal relationships. Third, although the response rate was high and sample size was large, the limitation of convenience sampling of universities should be taken into account.

CONCLUSIONS

Although over a half of this large sample of medical students report good quality of life, many students experience depressive symptoms. Low GPA, low study satisfaction, poor relationships with peers and family, difficulties in finding suitable residence and inadequate finance were significantly associated with mental health among medical students. To promote students' psychological well-being, medical universities should provide psychological counseling services to assist students (especially regarding interpersonal relationship problems) and also

provide comprehensive support to help disadvantaged students resolve financial and accommodation difficulties.

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