Depression and Related Factors among Health Science Students in Da Nang, Vietnam: A Cross-Sectional Study

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Abstract

Background: This paper aimed to investigate the prevalence of depression and related factors among health science students in Da Nang, Vietnam.

Method: A cross-sectional study was undertaken among 401 undergraduate students. Depression was measured using the Centre for Epidemiological Studies Short Depression Scale. Bivariate and multivariate logistic regression was applied to identify any associations.

Results: Findings indicated that the prevalence of depression among students was 41.6%. Factors associated with the depression were studying in second year (aOR = 3.15, 95%CI: 1.24−7.99), studying in third year (aOR = 2.60, 95%CI: 1.056−6.42), poor health status (aOR = 2.57, 95%CI: 1.54−4.29), low and moderate parents' relationships (aOR = 12.41, 95%CI: 2.83−54.56 and aOR = 5.71, 95%CI: 2.99−10.87) and high and moderate academic expectations (aOR = 9.45, 95% CI: 4.13−21.66 and aOR = 3.16, 95%CI: 1.68−5.95).

Conclusion: Depression puts Vietnamese university students at risk of health and social problems. Prevention efforts are important to determine factors related to depression and prevent the consequence of those problems.

Keywords: Depression, Health science students, Young people, Vietnam

1. Introduction

Depression among students in higher education remains an increasing concern. The World Health Organization has defined depression as a common mental health disorder [1]. It can impact on a student's psychosocial and emotional levels, interpersonal functioning, and academic performance [2]. The number of depression cases among undergraduate students has increased over time.

Health science students consist of those pursuing education in the field of medicine and public health. They are vulnerable to depression due to challenges relating to their personal life and academic activities. During the course of their academic studies, students have to adapt to university life and overcome challenges including academic pressure, family demands, financial difficulties, relationships with teachers or other students, and a large number of clinical skills to be mastered over a short period [3]. Students also endeavor to be more emotionally independent from their families and take on new social values and responsibilities [4]. Consequently, academic stress affects the students' motivation, concentration, and social interactions, i.e., factors contributing to students developing mental health disorders, particularly depression [4]. Depression can be long-lasting or reoccurring and is a risk factor for cardiovascular disease, multiple sclerosis, or attempted suicide [1]. Depression among young people may lead to separation from family and friends and an increased tendency to engage in threatening behaviors such as alcohol abuse and improper sexual involvements. Globally, about one-third of health science students are affected by depression, but the management and treatment rates are very low [5].

Recently, in Vietnam, depression has increased among young people. In all, 8−29% of young people in Vietnam have mental health illnesses, and at least 3 million are estimated to experience mental health disorders [6]. Because the risk for adverse health effects from depression has been rising, recent studies have addressed the depression found among health science students [7]. Many health science students simply enroll at a university due to external factors, such as family influences and social norms. They additionally face numerous challenges, including heavy workload and pressure from the clinical setting [6]. Moreover, regarding the global pandemic of COVID-19, in April 2020, the Vietnamese government have announced certain localities to lockdown and implemented strict social distancing rules throughout the country. Universities started online classes, and students attempted to retain a certain social distance from family members and friends. These situations have had unprecedented impacts on students, regarding both life and education, which can inevitably accelerate to stress and depression. Even before the pandemic, health science students have been shown to have higher rates of mental health problems than the general population, including depression. Numerous identified stressors contributed to the increasing levels of depression [7,8].

Therefore, studying depression among students majoring in health science is necessary, and possible approaches to mitigate such issues can be vital to preventing students from encountering adverse health effects. The present study aimed to assess depression and related factors, including personal and external factors among undergraduate health science students in Da Nang, Vietnam. This problem has never been examined in Da Nang so the results will help stakeholders develop interventions to support psychological wellbeing among students.

2. Methodology

A cross-sectional study was conducted from March to April 2020 among health science students in Da Nang, Vietnam. Da Nang is the biggest city in central Vietnam, and many of the students came from neighboring cities. A total of 403 students was calculated using the formula for estimating a single proportion. The inclusion criteria included full-time students, 18 years old and above, and students who voluntarily participated in the research. A simple random sample of a university population was taken from the three health science universities in Da Nang. Then the two-stage stratified sampling method was used to recruit the participants. At the first stage, the proportional stratified sampling was used to choose students from nine faculty/departments, so each stratum included a faculty/department. At the second stage, the number of students was obtained using proportional stratified sampling, with each stratum constituting the year of education. Finally, systematic random sampling in each year was performed to obtain the calculated samples. After obtaining permission for data collection from the President of the University, researchers received the selected student's email address from The Student Affairs Department. Then, researchers contacted students via e-mail. Invitations detailing information about the purpose of the study were sent to selected students, together with the informed consent form. After mail-backs of informed consent with signature were received, the link to self-administrated questionnaires was sent to students for completion.

2.1. Ethical issue

All procedures were approved by the Ethics Committee for Research on Human Subjects, Faculty of Public Health, Mahidol University (Ref. No. MUPH 2020-034).

2.2. Instruments

The self-administrated questionnaire was developed based on related literature. The self-administered questionnaire included five parts as described below.

Part 1: General characteristics. This part consisted of age, sex, ethnicity, year of study, major, grade point average (GPA), health status, family history of depression, place of residence, lifestyle, parents' marital status, financial status, the mental healthcare system of the university, and motivation to study. The health status of students was assessed using the 12-item Short Form Health Survey (SF-12). Scores range from 0 to 100; a score over 50 has been used to identify good health status [9].

Part 2: Depression of students. The Centre for Epidemiology Studies Depression Scale (CES-D), a self-report instrument and acceptable screening tool for detecting depression was used to examine the depression status of students [10]. Currently, the validated CES-D has not been found in the Vietnamese language. Research in Vietnam indicates good internal consistency, with Cronbach's alpha from .72 to .85 [11,12]. The content validity index (CVI) in the present study was 1 and Cronbach's alpha was 0.79. The 20 items address six symptoms of depression, and each item was scored on a four-

point Likert scale ranging from 0 (rarely or none of the time) to 3 (most or all of the time). The total score ranges from 0 to 60; cut-off scores higher than 16 indicated depression [10]. The cut-off score has been validated in a meta-analysis with its sensitivity of 0.87 and specificity of 0.07 [13].

Part 3: Relationship with parents and friends. The Inventory of Parent and Peer Attachment (IPPA) was applied to measure students' perceptions of their attachment regarding trust, communication, and alienation towards parents and friends [14]. This part contained 28 items assessing the relationship with parents and 25 items evaluating the relationship with friends on a five-point Likert scale ranging from 1 (almost never or never true) to 5 (almost always or always true). The total scores were summed independently for the relationship with parents and the relationship with friends by adding trust and communication scores, then subtracting the alienation score. A higher score reflects better attachment [14]. In the present study, the equal width binning method was applied to divide the score into three groups (high, moderate, and low), with an equal range of each group and defined as (maximum-minimum)/3. The CVI in the present study was 1 and Cronbach's alpha was 0.98.

Part 4: Relationship with teachers. The five items developed by the researcher for students' perceptions of their attachment to teachers were measured using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). The equal width binning method was also applied to divide the score into three groups (high, moderate, and low), with an equal range of each group and defined as (maximum to minimum)/3. The CVI in the present study was 0.9 and Cronbach's alpha was 0.79.

Part 5: Academic stress. The Academic Expectations Stress Inventory (AESI) included nine items and was applied to measure academic stress among students arising from parents, teachers, and self-expectations. This part included five items of parent and teacher expectations, and four items of self-expectations, using a five-point Likert scale ranging from 1 (never true) to 5 (almost always true). The equal width binning method was applied to divide the score into three groups (high, moderate, low), with an equal range of each group equal and defined as (maximum to minimum)/3. A higher score indicated higher academic expectations of the students. The CVI in the present study was 1 and Cronbach's alpha was 0.95.

The questionnaire development was in English and translated to Vietnamese using forward-backward translation to ensure accuracy. The development of the items in the CES-D, IPPA, and AESI was mainly based on a review of recent Vietnamese and English literature and was tested with Vietnamese university students. In addition, content validity was examined by three experts in public health fields. A pilot testing with 30 Vietnamese university students not participating in the final survey was conducted to test the internal consistency reliability using Cronbach's alpha coefficient method.

Statistical Package for the Social Sciences (SPSS), Version 18.0 was used for data analysis. Descriptive statistics were applied to all variables. Chi-square tests and Fisher's exact tests were conducted to explore the association between factors and depression. The multicollinearity of variables was checked before testing multiple logistic regressions. The level of statistical significance was set at 0.05.

3. Results

3.1. Depression among health science students

Results showed the prevalence of depression among health science students was 41.6%. Of this number, 11.4% of students experienced mild depression, 19.0% reported moderate depression, and 11.2% experienced severe depression.

3.2. Personal factors

A total of 401 students agreed to participate and responded to the questionnaire (response rate of 99.5%). The age of students ranged from 19 to 25, with a median age of 21 years, and 64.6% were female. One-quarter of the respondents were in the third year, and 28.2% studied for a Pharmacy major. About two-thirds of students had a GPA ranging from 2.50 to 3.19 (62.3%). Nearly one-half reported insufficient income without debt (47.4%). The majority of respondents performed physical activity less than 150 minutes weekly (72.1%). Over one-half of them never consumed alcohol (56.4%), and 44.9% of students were residing at home with their parents (Table 1).

3.3. External factors

The majority of students indicated that their parents were living together (89.3%) and had no family history of depression (86.5%). Altogether, 43.1% of students were not aware of the information concerning the availability of mental health counseling in the university. More than two-thirds of respondents stated they encountered difficulty accessing mental health services at a moderate level (68.3%). The majority of the students were found at

Table 1. Frequency and percentage of personal factors.

Variable	Total		Depression (n = 167)		No depression (n = 234)	
	n	%	n	%	n	%
Age (years)						
19	83	20.7	33	19.8	50	21.4
20	79	19.7	36	21.6	43	18.4
21	100	24.9	55	32.9	45	19.2
>21	139	34.7	43	25.7	96	41.0
Sex						
Male	142	35.4	60	35.9	82	35.0
Female	259	64.6	107	64.1	152	65.0
Ethnicity						
Kinh	385	96.0	160	95.8	225	96.2
Non Kinh	16	4.0	7	4.2	9	3.8
Year of study						
1st	79	19.7	31	18.6	48	20.5
2nd	81	20.2	41	24.6	40	17.1
3rd	101	25.2	51	30.5	50	21.4
4th	94	23.4	31	18.6	63	26.9
5th	46	11.5	13	7.8	33	14.1
Major						
Pharmacy	113	28.2	35	21.0	36	15.4
General Nursing	99	24.7	4	2.4	5	2.1
Medicine	71	17.7	35	21.0	64	27.4
Medical Imaging	29	7.2	4	2.4	14	6.0
Radiological Technology	23	5.7	9	5.4	13	5.6
Anesthetic Nursing	22	5.5	48	28.7	65	27.8
Dental Nurse	18	4.5	13	7.8	16	6.8
Physical Therapy	17	4.2	11	6.6	12	5.1
Public Health	9	2.2	8	4.8	9	3.8
Grade Point Average						
≤ 2.49	43	10.7	20	12.0	23	9.8
2.50–3.19	250	62.3	103	61.7	147	62.8
3.20–3.59	56	14.0	21	12.6	35	15.0
3.60–4.00	52	13.0	23	13.8	29	12.4
Financial status						
Sufficient	170	42.4	60	35.9	110	47.0
Insufficient without debt	190	47.4	25	15.0	16	6.8
Insufficient with debt	41	10.2	82	49.1	108	46.2
Physical activity (minutes weekly)						
<150	289	72.1	125	74.9	164	70.1
≥ 150	112	27.9	42	25.1	70	29.9
Alcohol consumption						
Yes	175	43.6	74	44.3	101	43.2
No	226	56.4	93	55.7	133	56.8
Health status						
Good (score ≥ 50)	241	60.1	75	44.9	166	70.9
Not good (score <50)	160	39.9	92	55.1	68	29.1
Place of residence						
Home with parents	180	44.9	76	45.5	104	44.4
Rental apartment	144	35.9	59	35.3	85	36.3
Dormitory on campus	53	13.2	23	13.8	30	12.8
Relative's home	24	6.0	9	5.4	15	6.4

the moderate level of relationships with parents (61.6%) and with friends (69.6%), while their relationship with their teacher was at a high level (73.8%). More than one-half of the students were at a moderate level of academic expectation (53.3%), Table 2.

3.4. Factors related to depression

Multiple logistic regression with the enter method was used to examine factors related to depressive symptoms among health science students (Table 3). The results indicated that students were likely to

Table 2. Frequency and percentage of external factors.

Variable	Total		Depression (n = 167)		No depression (n = 234)	
	n	%	n	%	n	%
Family history of depression						
No	347	86.5	5	3.0	3	1.3
Not sure/do not know	46	11.5	137	82.0	210	89.7
Yes	8	2.0	21	12.6	25	10.7
Parents' marital status						
Live together	358	89.3	149	89.2	209	89.3
Not live together	43	10.7	18	10.8	25	10.7
Availability of mental health counseling						
Yes	171	42.6	73	43.7	98	41.9
No	57	14.2	27	16.2	30	12.8
Do not know	173	43.1	67	40.1	106	45.3
Accessibility of mental health services						
Difficult	49	12.2	33	19.8	16	6.8
Moderate	274	68.3	107	64.1	167	71.4
Easy	78	19.5	27	16.2	51	21.8
Relationship with parents						
Low	16	4.0	13	7.8	3	1.3
Moderate	247	61.6	134	80.2	113	48.3
High	138	34.4	20	12.0	118	50.4
Relationship with friends						
Low	27	6.7	15	9.0	12	5.1
Moderate	279	69.6	131	78.4	148	63.2
High	95	23.7	21	12.6	74	31.6
Relationship with teachers						
Low	23	5.7	10	6.0	13	5.6
Moderate	82	20.4	40	24.0	42	17.9
High	296	73.8	117	70.1	179	76.5
Academic expectations						
Low	119	29.7	21	12.6	98	41.9
Moderate	214	53.3	96	57.5	118	50.4
High	68	17.0	50	29.9	18	7.7

have depression in the second year (aOR = 3.15, 95%CI: 1.24−7.99) and in the third year (aOR = 2.60, 95%CI: 1.056−6.42) compared with the fifth year. Students with poor health status were more likely to have depression compared with students presenting good health status (aOR = 2.57, 95%CI: 1.54−4.29). Students reporting low and moderate relationships with parents were more likely to have depression than those who reported high levels of relationship (aOR = 12.41, 95%CI: 2.83−54.56 and aOR = 5.71, 95%CI: 2.99−10.87, respectively). Students with high and moderate academic expectations were more likely to be depressed than those with low academic expectations (aOR = 9.45, 95%CI: 4.13−21.66 and aOR = 3.16, 95%CI: 1.68−5.95, respectively).

4. Discussion

The prevalence of depression among health science students in the study was relatively high at 41.6%, which was higher than that of the general population (2.88%) [15]. Regarding the use of CES-D, the prevalence of depression in the present study was lower than that of Cambodian university students [16] but higher than that in a study among students in Malaysia [17]. The willingness to report depression might differ across countries or cultures. The findings of this study were consistent with related research statements that depression among health science students was expected and higher than that found in the general population.

The findings supported the concept that depression is affected by a complex of social, biological, and psychological factors [1]. Personal factors, including the year of the study, health status, and academic expectation, as well as external factors of relationship with parents, were related to depression among health science students. Second-year and third-year students were more likely to be depressed than other years. As the second-and-third-year health science students commence the clinical practice in the health care setting, they need to adjust themselves, contact patients, and think about situations they will have to face in their future careers. Therefore, future concerns might denote a

Table 3. The association between factors and depression in the multiple regression analysis.

Factors	Crude odds ratio (OR)	95% confidence interval (CI)	Adjusted odds ratio (OR)	95% confidence interval (CI)
Year of study				
1st	1.64	0.75−3.59	1.605	0.62−4.14
2nd	2.60	1.20−5.65	3.15	1.24−7.99
3rd	2.59	1.22−5.49	2.60	1.06−6.42
4th	1.25	0.58−2.71	1.41	0.55−3.60
5th	1		1	
Financial status				
Sufficient	1		1	
Insufficient without debt	2.87	1.42−5.78	2.17	0.92−5.16
Insufficient with debt	1.39	0.91−2.13	1.02	0.59−1.75
Health status				
Good	1		1	
Poor	2.99	1.98−4.54	2.57	1.54−4.29
Accessibility of mental health services				
Difficult	3.89	1.83−8.31	2.30	0.89−5.95
Moderate	1.21	0.72−2.05	0.78	0.41−1.50
Easy	1		1	
Relationship with parents				
Low	25.57	6.68−97.82	12.41	2.83−54.56
Moderate	6.99	4.09−11.96	5.71	2.99−10.87
High	1		1	
Relationship with friends				
Low	4.41	1.79−10.84	1.25	0.39−3.99
Moderate	3.12	1.82−5.35	1.39	0.66−2.94
High	1		1	
Academic expectation				
Low	1		1	
Moderate	3.79	2.21−6.53	3.16	1.68−5.95
High	12.96	6.34−26.52	9.45	4.13−21.66

significant stressor at the beginning of clinical years in the present study. Similar findings were revealed in a study conducted in Malaysia [17]. Second-and third-year students were more likely to have depression compared with fifth-year students. Given the fact that the clinical practice environment can be the stressors leading students to develop depression, in the higher year of the study, students have more clinical experience along with the opportunities and encouragement given by hospital staff that increases the confidence level and self-efficacy to deal with the stressors [18]. This clarified the necessity for prevention programs that are needed more in the second and third years of health science students. University counselors should recognize mental health issues by providing counseling to help students successfully adjust to their intense academic experiences. Furthermore, regular depression screening programs for early detection and professional mental health care for depression cases should be provided. However, for effective intervention, the unique challenges of each major should be further investigated.

Depression and physical health are interrelated [1]. In the present study, health status showed a statistically significant association with depression. Compared with students reporting good health status, those who reported poor health status had more depressive symptoms. Health status in this study was measured by the perception of students. This finding verified the perception among people experiencing depression who were dissatisfied with their health. Similar results were found in one study in Canada [19]. In addition, because students perceived that their health status was poor, they might feel stressed or worried, leading to depression. Regular health check-ups and treatment could help raise awareness about mental health and help students to prevent and protect themselves from the adverse effects of mental health. Likewise, the university should consequently be highly motivated to offer students the program in improving health status on both physical and psychological health. It includes such activities as encouraging students to join a sports club, maintaining a healthy diet, and participating in extracurricular activities.

Similarly, results indicated that poor relationships with parents increased the chance of experiencing depression. This result reinforces the Attachment Theory in which the relationship with parents

comes from experiences regarding needs for security, care, comfort, and the state of their relations. When these needs fail to be achieved, depression might occur. Moreover, this result supported the concept that the relationship with parents is considered an external factor affecting depression among health science students [1]. Students in this study indicated that their parents held high expectations for them, but they often relied on themselves when facing challenges. A similar result was noted in a related study in Thailand [20]. This suggests that universities should include families in a collaborative depression surveillance program for students.

Academic expectations exhibited a significant association with depression among health science students. The high level of academic expectations might be due to parents' expectations. Nearly one-half of the respondents sometimes blamed themselves when they could not live up to their parents', teachers' and self-expectations; some felt that they disappointed their parents, teachers, and themselves when they could not maintain a high academic performance. An increase in academic pressure may contribute to the rise in depressive symptoms. In Vietnamese culture, students are often placed in tight academic schedules and under constant pressure to maintain good grades. The success of children's academic results is one way that makes parents and family members proud. To meet these expectations, students must study hard to achieve high grades. These expectations could bring positive motivation for students to learn but sometimes could negatively influence students' emotional well-being. Therefore, developing counseling programs at the university level with support from academic advisors could help students reduce their academic pressure. Also, the students need effective coping strategies. This result was similar to that of a study in China [21].

4.1. Strength and limitation

The strength of this study was that it updated the depression situation among health science students in Da Nang, Vietnam. The findings enhanced understanding of personal and external factors associated with depression among students. Nevertheless, the methodological issue of a cross-sectional study created a limitation in this study so that its conclusions could only determine associations, not causal relationships. The tools or instruments used in our research were not to diagnose but only to screen for the existence of depression. The development of research instruments was mainly based on a review of recent Vietnamese and English literature and was tested with Vietnamese university students. Further validation and revision should be investigated. Regarding the sensitive issues involving mental health, data bias might exist due to the socially desirable answers of the respondents.

5. Conclusion

The prevalence of depression among health science students in Da Nang was high. The evidence stated that depression could be prevented by students' personal and external factors. Screening programs should be conducted in the early years of studying in the university and high-risk group, along with ongoing counseling and wellness programs to be implemented to prevent depression of health science students.

Recommendation

This study has created questions in need of further investigation. Longitudinal research and more in-depth facility studies concerning related factors should be conducted among health science students nationally. Additional experimental studies about related factors would be beneficial. Further, other factors which might impact university study life, such as social media, should be considered.

Funding

Conflict of interest

All authors declare no conflict of interest.

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