

Conference Paper

Factors Associated with Depression among University Students in Malaysia: A Cross-sectional Study

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Abstract

Depression causes mental health problem among young group especially university students due to stress resulted from studies and independent living. Depression can cause disability and even mortality. This study aimed to determine the prevalence of depression and the factors influencing depression among university students in Malaysia. This cross-sectional study involved 1,023 university students (response rate 90.4%). Depression was assessed using the Centre for Epidemiological Studies Short Depression Scale (CESD -10). Binary logistic regression was used to determine predictors of depression based on sociodemographic, physiological, lifestyle, and health characteristics. Approximately 30% respondents experienced depression, which included 4.4% of severe depression. The risk of depression was 2.52 times higher (95% CI: 1.71-3.71) in second year students compared to first year students, and 1.63 times higher (95% CI: 1.08-2.45) in students staying outside campus compared to students staying inside campus. Students from poor, not well-off, and quite well-off family background had 15.26 (95% CI: 2.77-84.88), 4.85 (95% CI: 1.01-23.34) and 5.62 times (95% CI: 1.16-27.25) higher chance for depression than wealthier students, respectively. Students with mild, moderate, and severe sleeping problem were 2.50 times (95% CI: 1.61-3.88), 3.34 times (95% CI: 2.18-5.11), and 3.66 times (95% CI: 1.93 -6.94) more likely to be depressed than those without sleeping problem, respectively. Students with post-traumatic stress disorder (PTSD) were 1.42 times higher (95% CI: 1.07-2.56) to suffer from depression. Higher institution need to pay special attention to students especially those in their second year, living off campus, from lower economic status, with sleeping problem, and with PTSD.

Keywords: Depression, Abuse, PTSD, Sleeping problem, Life satisfaction, Mental health.

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1. INTRODUCTION

Depression is a significant mental health concern worldwide because of high prevalence rates, the chronic nature of the condition and difficult treatment and recovery [1]. It has been ranked as one of the four major illnesses [2], due to the utmost burden for individuals, families, and society [3]. Depression can be the cause of other diseases such as diabetes, cancer, heart disease, and Parkinson's disease [4]. Depression is linked with decreased quality of life [5], increased morbidity and mortality [6].

University students face many challenges including independent living, academic stress, as well as planning for their future careers [7] and this predispose them to depression [8]. This emotional and mental stresses can influence them to high risk behaviors' such as increased levels of smoking [9], increased alcohol consumption [10], increased self-injurious behaviors [11]. Furthermore, depression can also affect their physical and mental health [8] as it has been associated with acute infectious illness [12], suicidal ideation [4, 13] and suicide [4].

Increasing trend found for the prevalence of depression among university students [14, 15] as well as in severity [16]. In a recent review, the prevalence of depression among university students was reported to be higher than the general population [17]. Among Malaysian students, the prevalence of moderate depression found 27.5% and 9.7% found as severe or extremely severe depression [8]. Various risk factors for depression among university students have been identified such as higher study year [18, 19], lower socioeconomic status [17, 19], poor academic performance and life satisfaction [20], high level of alcohol consumption, smoking [21, 22], gambling [23], social support [24], life stressors [25], post-traumatic stress disorder [26], physical inactivity [27], overweight or obesity [28] and sleeping problems [29]. University students are a special group of people in critical transition from adolescence to adulthood and one of the most stressful moments in a person's life. University students have a potential influence on the family and their contribution to the country's workforce in the near future in a given country. Because of their potential role in society, as well as in the country, it is significant to study on their depression problem. Therefore, the purpose of this study is to determine the prevalence of depression and its association with socio-demographic, social and health variables among university students Malaysia.

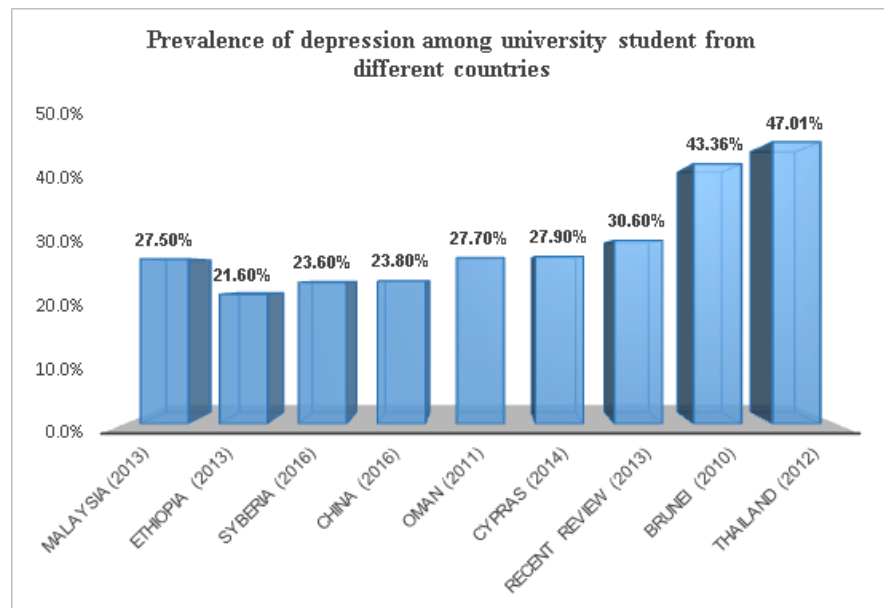


Figure 1: Prevalence of depression among university student from different countries (Sources: Shamsuddin et al., 2013; Dessie et. Al., 2013; (Lei, Xiao, Liu, & Li, 2016); Ramler et al., 2016; Zakiya et al., 2011; Dessie et al., 2013; Sokratous, 2014; Mundia, 2016; Ratanasiripong, 2012).

2. METHODS

2.1. Materials

A two-stage stratified sampling was utilized for this cross-sectional study. A random sample of 1,023 undergraduate students from a university (response rate 90.4%) were interviewed using a pre-tested validated questionnaire by self-reported methods. Data were collected through all faculties of University of Malaya, Malaysia. Besides depression; data on socio-demographic, lifestyle and health characteristics were obtained.

2.2. Response Variable

The response variable for this study was Depression. The Center for Epidemiological Studies Short Depression Scale (CESD -10) was used to detect presence of depressive symptoms [30] (Cronbach alpha=0.87). Depression was classified into three categories: i) no or mild depressive symptoms (0-9), ii) moderate depressive symptoms (10-14) and iii) severe depressive symptoms (≥ 15) [31]. For multiple regression model, depression was classified into two categories: 1. depression (CED ≥ 10) = 1 as a reference case and, 2. no depression (CED < 10) = 0 as non- reference case for the binary model.

2.3. Statistical Analysis

Before analyzing the data, outliers were checked and six participants were removed from the analysis [32]. Finally, a list of 1,017 undergraduate students in a public university in Kuala Lumpur, Malaysia was used. Descriptive analysis was performed for calculating the prevalence of depression and background characteristics of the students. To select significant independent variables for regression model, chi-square test was conducted. Finally, binary logistic regression model was used to detect significant factors and to estimate the crude and adjusted odds ratios for depression among university students in Malaysia. Statistical analyses were carried out using Statistical Package for Social Scientists (IBM SPSS version 23.0) software.

3. RESULTS

A total of 1,017 undergraduate students were analyzed for this study. The mean age of respondent was 20.72 ± 1.47 years (ranging from 18 to 25 years) and there were 51.0% female and 49.0% male. Approximately 30% (29.4%) of the respondents experienced depression, whereas 25.0% and 4.4% had moderate and severe depression, respectively. Overall, there were a higher proportion of female students (53.5%) and third year students (41.6%) who were depressed, while 9.2% of the second-year students experienced severe depression. About 63.4% of students from poor economic background experienced depression.

TABLE 1: Prevalence of depression among university student in Malaysia (n=1,017).

Variables	Total sample	Depression	Depression (Moderate)	Depression (Severe)
	n (%)	n (%)	n (%)	n (%)
All	1,017	299 (29.4)	254 (25.0)	45 (4.4)
Socio-demography				
Gender				
Male	498 (49.0)	139 (46.5)	133 (26.7)	19 (3.8)
Female	519 (51.0)	160 (53.5)	121 (23.3)	26 (5.0)
Age (year) [Mean (SD)]				
18-19	253 (24.9)	79 (31.2)	67 (26.5)	12 (4.7)
20-21	440 (43.3)	117 (26.6)	102 (23.2)	15 (3.4)
22 and above	324 (31.9)	103 (31.8)	85 (26.2)	18 (5.6)
Year of study				
		***	***	®
First	381 (37.5)	75 (19.7)	65 (17.1)	10 (2.6)
Second	284 (27.9)	108 (38.0)	82 (28.9)	26 (9.2)

Variables	Total sample	Depression	Depression (Moderate)	Depression (Severe)
	n (%)	n (%)	n (%)	n (%)
Third	154 (15.1)	64 (41.6)	59 (38.3)	5 (3.2)
Fourth	187 (18.4)	51 (27.3)	47 (25.1)	4 (2.1)
Fifth	11 (1.1)	1 (9.1)	1 (9.1)	0 (0.0)
Residence		**	***	©
On campus	838 (82.4)	228 (27.2)	186 (22.2)	42 (5.0)
Off campus (on their residence)	140 (13.8)	57 (40.7)	56 (40.0)	1 (0.7)
With parents/relatives	39 (3.8)	14 (35.9)	12 (30.8)	2 (5.1)
Economic status		***	***	®
Poor	41 (4.0)	26 (63.4)	24 (58.5)	2 (4.9)
Not well off	558 (54.9)	159 (28.5)	138 (24.7)	21 (3.8)
Quite well off	397 (39.0)	112 (28.2)	91 (22.9)	21 (5.3)
Wealthy	21 (2.1)	2 (9.5)	1 (4.8)	1 (4.8)
Stress and health status				
Sleeping disorder		***	***	***©
No	341 (33.5)	52 (15.2)	52 (15.2)	0 (0.0)
Mild	290 (28.5)	95 (32.8)	80 (27.6)	15 (5.2)
Moderate	319 (31.4)	124 (38.9)	102 (32.0)	22 (6.9)
Severe	67 (6.6)	28 (41.8)	20 (29.9)	8 (11.9)
PSTD (4 or more)	110 (10.8)	19 (17.3)**	18 (16.4)*	1 (0.9)
Suicide plan (n=91)	42 (46.2)	15 (35.7)*	12 (28.6)*	3 (7.1)
Suicide attempt (n=91)	20 (22.0)	7 (35.0)	7 (35.0)*	0 (0.0)®
Obesity (BMI ≥ 27.5 kg/m ²)	128 (12.6)	51 (39.8)**	43 (33.6)*	8 (6.3)
Injury	58 (5.7)	23 (39.7)*	22 (37.9)*	1 (1.7)
Life style variables				
Physical activity		**	*	
Low	218 (21.4)	79 (36.2)	65 (29.8)	14 (6.4)
Moderate	754 (74.1)	213 (28.2)	183 (24.3)	30 (4.0)
High	45 (4.4)	7 (15.6)	6 (13.3)	1 (2.2)
Academic performance		*		
Excellent	316 (31.1)	79 (25.0)	69 (21.8)	10 (3.2)
Satisfactory	545 (53.6)	162 (29.7)	138 (25.3)	24 (4.4)
Poor	156 (15.3)	58 (37.2)	47 (30.1)	11 (7.1)
Life satisfaction		***	***	
High	188 (18.5)	36 (19.1)	31 (16.5)	5 (2.7)
Medium	622 (64.2)	166 (26.7)	142 (22.8)	24 (3.9)
Low	207 (20.4)	97 (46.9)	81 (39.1)	16 (7.7)

Variables	Total sample	Depression	Depression (Moderate)	Depression (Severe)
	n (%)	n (%)	n (%)	n (%)
*p<0.05, **p<0.01 and ***p<0.001				
©Fisher exact test, ® cannot perform chi-square test due to one or more expected cell count is less than one				

TABLE 2: Estimates adjusted odds ratios for depression among university students in Malaysia through multiple Logistic regression analysis.

Variables	Adjusted odds ratio (95% CI) ^a
Socio-demographics	
Gender	
Female	—
Male	1.17 (0.86-1.58)
Age (year)	1.09 (0.97-1.23)
Year of study	
First	
Second	2.52 (1.71-3.71)***
Third and above	1.38 (0.94-2.03)
Residence	
On campus	—
Off campus	1.63 (1.08-2.45)*
Economic status	
Wealthy	
Poor	15.26 (2.77-84.88)**
Not well off	4.85 (1.01-23.34)*
Quite well off	5.62 (1.16-27.25)*
Stress and health status	
Sleeping problem	
No	—
Mild	2.50 (1.61-3.88)***
Moderate	3.34 (2.18-5.11)***
Severe	3.66 (1.93-6.94)***
PTSD (4 or more)	1.42 (1.07-2.56)*
Suicide plan	1.20 (0.58-2.51)
Obesity (BMI ≥ 27.5 kg/m ²)	1.43 (0.91-2.24)
Injury	1.19 (0.64-2.24)
Life style variables	
Physical activity	
High	
Moderate	2.23 (0.85-5.82)
Low	1.62 (0.65-4.07)
Academic performance	
Excellent	

Variables	Adjusted odds ratio (95% CI) ^a
Satisfactory	1.57 (0.81-1.65)
Poor	1.31 (0.81-2.10)
Life satisfaction	
High	
Medium	1.27 (0.72-1.77)
Low	2.14 (1.27-3.61)**

Note: CI=Confidence Interval; PTSD= Posttraumatic stress disorder; ***p<0.001; **p<0.01; *p<0.05
^aMultiple logistic regression, 'Enter' method was applied; Multicollinearity were checked and not found; Hosmer-Lemeshow test, ($\chi^2=11.82$, p=0.1.60); Pearson chi-square and Significant for Model (p< 0.001) and Classification table (overall correctly classified percentage=83.5) were applied to check the model fitness

When adjusted for other factors, the binary logistic regression showed that; study year, residence, socio-economic status, sleeping problem, PTSD and life satisfaction were found to be significant predictors of depression. Second year students were 2.52 (95% CI: 1.71-3.71) times more likely to suffer from depression compared to first year students. Students who stayed outside campus had 1.63 times (95% CI: 1.08-2.45) higher risk for depression than students staying on campus. Students from poor, not well off, and quite well off family background had 15.26 (95% CI: 2.77-84.88), 4.85 (95% CI: 1.01-23.34) and 5.62 times (95% CI: 1.16-27.25) higher chance for depression than wealthier students, respectively students with mild, moderate, and severe sleeping problem were 2.50 times (95% CI: 1.61-3.88), 3.34 times (95% CI: 2.18-5.11), and 3.66 times (95% CI: 1.93-6.94) more likely to be depressed than those without sleeping problem, respectively. Students with PTSD and low life satisfaction were 1.42 times (95% CI: 1.07-2.56) and 2.14 times (95% CI: 1.27-3.61) more likely to be at risk for depression, respectively (Table 2).

4. DISCUSSION

4.1. Depression related with subjects socio-demographic factors

The study found a considerable proportion (29.4%) of depression among undergraduate students in Malaysia. Compared to other studies, it was lower than other neighbor countries; Thailand (47.01%) [33] and Brunei (43.36%) [34]; relatively comparable to Oman (27.70%) [35] and Cyprus (27.90%) [36]; higher than China (23.8%) [37], Ethiopia (21.60%) [38] and Syberia (23.60%) [19]. A study by Shamsuddin et al. (2013) performed recently on Malaysian students, found slightly lower prevalence (27.50%) of

depression compared to the current study (29.4%) [8]. Maybe this was because University of Malaya ran a regularly consultancy service through undergraduate students for psychological pressure.

We noted that female students were more depressed than male students but the difference was not statistically significant. A study from Kenya [39] recorded a higher prevalence for female but other studies from Kenya [40] and China [18] did not find any significant gender difference.

A considerable proportion of the second years students' experienced severe depression (9.2%) and was 2.52 (1.71-3.71) times more likely to be depressed than first year students. Probably, first year students have yet to experience study difficulties and stress as the course progresses in later years [41]. Another reason could be, senior students were more worried about their future uncertainties regarding work and employment opportunity [42].

Students who were living away from their parents (5.1%) were 1.63 times (95% CI: 1.08 -2.45) more likely to develop depression than were those staying with their parents. The findings were consistent with some previous studies [18, 43-45]. This could be due to the undertaking to a new surroundings and the loss of the familiar environment.

More than three fifth (63.4%) of students came from poor economic condition. Results from logistic regression revealed that students from poor, not well off, and quite well off background had 15.26 (95% CI: 2.77-84.88), 4.85 (95% CI: 1.01-23.34) and 5.62 (95% CI: 1.16-27.25) higher risk for depression than wealthier students, respectively. The result was in contrast to findings in some other studies [14, 17, 18, 22], but was similar to a Chinese study and Canadian study, which found that those who were economically is advantaged were more likely to be depressed [18, 44]. Another study on American college students found economic status was a significant factor of depression among students [46].

4.2. Depression related with students psychosocial and health factors

The findings also showed that sleeping problem was a significant factor for students' depression. Students with mild, moderate, and severe sleeping problem were 2.50 times (95% CI: 1.61-3.88), 3.34 times (95% CI: 2.18-5.11) and 3.66 times (95% CI: 1.93-6.94) respectively, were more likely to be depressed than those without sleeping problem. Similar results were found from more recent studies [40, 45].

Though some of predictors like childhood emotional and physical abuse, suicide plan, obesity, drug use, physical activity, and academic performance were significantly associated with depression, these factors were found to be insignificant predictors. This may be due to confounding effect.

Life satisfaction and post-traumatic stress disorder (PTSD) were also found to be significant factors for depression. Regression results revealed that, students with PTSD were 1.42 times (95% CI: 1.07-2.56) and low life satisfaction were 2.14 times (95% CI: 1.27-3.61) more likely to be depressed.

The study had several limitations. Firstly, due to cross-sectional design, the causality of the associations could not be determined. Secondly, the data was collected using self-reporting method; hence the findings may be subjected to response or recall bias. Thirdly, as the data from this study was from only one university, findings may not be generalized to the whole nation. Fourthly, this study did not consider mental and physical health related variables like anxiety, stress, morbidity, mortality and disability.

5. CONCLUSION

This study found a considerable proportion of undergraduate students with depression (29.4%). Higher institutions need to pay special attention to students especially those in second year, living off campus, from lower economic status, with sleeping problem, and with PTSD. Psychosocial counselling or targeted intervention among the student is necessary. Future research could benefit from large-scale nationwide longitudinal studies which include all possible factors related to students' depression.

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