PREVALENCE OF MENTAL HEALTH PROBLEMS AND THE ASSOCIATED FACTORS AMONG UNDERGRADUATE STUDENTS IN A PUBLIC UNIVERSITY, MALAYSIA

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Abstract:

Background Majority of mental problems diagnosed in adulthood may have begun earlier during adolescence period. This study aimed to determine the prevalence and associated factors of mental health problems among undergraduate students in a public university in Malaysia.

Methods A cross-sectional study among students between the ages of 19 and 25 years old was conducted using stratified sampling from four randomly selected faculties . Respondents were required to answer a self-administered questionnaire consisting of socio-demographic questions, Depression Anxiety Stress Scale-21 (DASS-21), Body Shape Questionnaire-8C (BSQ-8C), Body Mass Index (BMI), Religious Personality, smoking, alcohol consumption and drug use.

Results Out of 481 students, 385 completed the questionnaires (80% responce rate). The median age was 20 years, majority of respondents were female (82.9%). Majority (75.1%) were Malay. The prevalence of depression, anxiety and stress symptoms were 27.3%, 60.0% and 22.6% respectively. Factors related to depression included male gender (OR=2.656), Malay ethnicity (OR=3.647), mild (OR=7.297), moderate (OR=3.821) and severe (OR=22.60) concern of body image and religious personality (OR=2.648). There were significant associations between anxiety and mild (OR=3.939), moderate (OR=2.431) and severe (OR=7.785) concern of body image as well as alcohol consumption (OR= 0.316). Furthermore, Malay ethnicity (OR=4.858), lower family monthly income (OR=1.924), mild (OR=3.574) moderate (OR=3.279) and severe (OR=8.632) concern of body image were related to stress.

Conclusion The mental health status of undergraduate students are influenced by social and cultural factors that should be the center of attention for inteventions to prevent or reduce mental health problems.

Key Words: Mental Health Problems, Depression, Anxiety, Stress, Associated Factors, University Students

1.0 Introduction:

Mental health is a basic element of overall health and well-being [1]. Nowadays, there is a growing international concern about the increasing prevalence of mental health problems. Although mental illnesses are common, they are mostly underdiagnosed by doctors [2].

In Malaysia, the National Health and Morbidity Survey IV (NHMS IV) in 2011 revealed the prevalence of Generalized Anxiety Disorder for adults (16 years and above) to be 1.7% (0.3 million) and 1.8% (0.3 million) for current depression. [3]. Common psychological problems among students are depression, anxiety and stress [4]. University students are hypothesised to experience mental disorders due to academic commitments, financial pressures and lack of skill on time management [5]. Moreover, among the university students in different years of study, first-year students are more likely to develop mental health problems including stress because they face new stressors during the transitional period of beginning a new life in university [6].

A number of factors including socio-demographic, body image and religious personality were found to be associated with mental health in university students. As for socio-demographic factors, a study performed among Chinese university students proved that there was a significant association between depression and age and family monthly income [7]. While previous studies showed female students' anxiety scores were significantly higher compared to their male counterparts [8,9]. Previously, a Malaysian study in four public universities theorized that Malay undergraduates were prone to stress due to cultural factors [10]. On the other hand, it was previously shown that university students with body image dissatisfaction were prone to anxiety [11]. Perception of someone on his or her body image is an important associated factor to self-esteem and was shown to have a direct effect on mental health [12]. Thus, when self-esteem is low, mental health problems would a raised.

Moreover, a previous study revealed that religious faith was linked with positive mental health outcomes such as lower levels of depression [13, 14]. A significant association was also reported between smoking, an indicator of life style, and depression in a previous study [15]. Another study revealed that illicit drug use was associated with increased anxiety disorders [16]. Most of these studies were conducted in developed and developing countries but not Malaysia. Moreover, the suggested associated factors have not yet been studied as a whole in university students. The aim of this study was to determine associated factors that might lead to development of mental health problems among undergraduate university students.

2.0 Methodology

2.1 Sample

This cross-sectional study was conducted on first year undergraduate students from four faculties of a public university in Malaysia. Four hundred questionnaires were collected but analysis was done on 385 students (80% response rate) who provided complete data on the variables of interest in this study.

2.2 Procedure

Ethical approval was obtained from Medical Research Ethics Committee of Faculty of Medicine and Health Science, Universiti Putra Malaysia. From the randomly selected four faculties, stratified random sampling was used to select respondents based on proportion of students in each of the faculties. Students who gave consent and fulfilled the inclusion criteria (healthy and without medical problems) were recruited for the study. Respondents were required to answer the self-administered questionnaires and return the completed questionnaires two days after the distribution.

2.3 Instrument

The questionnaire contained socio-demographic profile including age, gender, ethnicity, field of study and family monthly income. Mental health status was assessed using the exact English version of Depression Anxiety Stress Scale-21 (DASS-21). This questionnaire consists of three subscales that measure the negative emotional states of depression, anxiety and stress levels [17]. Each scale consists of 7 items and respondents were required to rate the extent to which they have experienced the symptoms described over the past week based on a 4-point Likert scale (0 = Did not apply to me at all, 1 = Applied to me to some degree, 2 = Applied to me to a considerable degree, or a good part of time, and 3 = Applied to me very much, or most of the time) [17]. DASS-21 was used because it is well-established, easy to use and reliable, based on Cronbach's alpha scores (0.91 for depression, 0.84 for anxiety and 0.90 for stress) in the normative sample [17]. Based on a pre-test performed on these study subjects, the Cronbach alpha was 0.843, 0.777, and 0.802 for depression, anxiety and stress scale respectively. In addition, the scores for each subscale were summed up and the respondents were categorized into one of the five categories (normal, mild, moderate, severe and extremely severe) based on the emotional states. The respondents who obtained scores of moderate to extremely severe levels in a subscale were considered as having mental health problem in that category. In this study, subjects who were categorized as moderate, severe and extremely severe were grouped as abnormal.

Body image was assessed using the English version of Body Shape Questionnaire-8C (BSQ-8C). It is a self-report scale which consists of 8 items to examine body shape dissatisfaction with Cronbach's Alpha of 0.953 based on a pre-test in this study. This questionnaire is derived from BSQ-34 [18]. BSQ-8C is a short version of BSQ-34 which is sufficiently robust to be used as an "alternate form" to save time and cost [19]. Each item was scored 1 to 6 with "never"=1 and "always=6" and the overall score was the sum of scores of the 8 items, in which a minimum of 8 and maximum of 48 were possible to be obtained. Based on the total score, the respondents were classified into four categories regarding their severity of concern with body shape (< 19 = No concern, 19 – 25 = Mild concern, 26 – 33 = Moderate concern, > 33 = Marked concern) [19].

The questionnaire also needed respondents to fill in anthropometry information including weight and height in order to calculate Body Mass Index (BMI). Furthermore, religious personality was assessed using a questionnaire from a local study which contained 23 items with Cronbach's Alpha of 0.94 [20] while a pre-test in this study showed the Cronbach's Alpha was 0.86. This questionnaire was adapted from a previous Malaysian study [21]. Lifestyle factors were assessed by a questionnaire that asked about smoking, alcohol drinking

and drug abuse history. Cronbach's Alpha of the pre-test showed that negative values may be due to the small sample size.

2.4 Data Analysis

Statistical Package for the Social Sciences (SPSS) version 21 was used to analyse the data. Descriptive analysis was used to find out the prevalence of depression, anxiety and stress. For analysis of each of the independent variables, frequency and percentage of the categories were obtained. Inferential analysis was used to analyse the associations between the independent and the dependent variables. Chi-square test was used to do the bivariate analysis. Based on chi squared test results for association between depression and other study variables, the variables that were found to be significant at $p<0.25$ were included in the regression model based on the statistical procedure suggested by Hosmer and Lemeshow (2000) which found that the usage of the traditional level of $p<0.05$ generally failed to recognize some variables that were known to be of significance [22]. Bivariate Logistic Regression was also used to determine the predictors of mental health status. The results were considered as significant if $p<0.05$.

3.0 Results

Out of 385 respondents, most were in their 20s (68.8%) and the age of other respondents varied from 19 to 25 years old despite being first year students. Majority of respondents were female (82.9%), male only consisted of 17.1%. Malay students had the highest proportion (75.1%) followed by Chinese (20.8%), Indian (2.3%) and others, including Bumiputera from Sabah and Sarawak (1.8%). A larger proportion of the respondents were from science-based courses (51.2%) while the rest (48.8%) were from non-science-based courses. It was found that most of the respondents (43.1%) came from families with a monthly income between RM1000-RM3000 per month, while RM3000-RM5000, more than RM5000 and less than RM1000 were reported by 20.0%, 19.0% and 17.9% respondents respectively.

Analysis on DASS-21 showed that 27.3% of the respondents presented with positive depressive symptoms, while 60.0% were having anxiety and 22.6% with positive stress symptoms. Moreover, majority of the students reported to have no concern with shape which constitute 41.6% followed by 28.1% with mild concern, 17.9% with moderate concern and 12.5% with marked concern. More than half (68.6%) of the students had normal BMI, 17.1% were underweight, 11.2% were overweight and 3.1% were obese. According to analysis on Questionnaire of Religious Personality, 68.3% students were committed to their religion. For lifestyle factors, only 8.1% of the respondents had tried smoking in their lives, 13.0% tried alcohol before and only 0.3% of the respondents had positive history of drug use.

Chi-square test revealed that gender ($\chi2 = 7.468$, p=0.006, df=1), race ($\chi2 = 4.683$, p=0.030, df=1), body image ($\chi2 = 58.749$, p<0.001, df=3) and alcohol intake history ($\chi2 =5.104$, p=0.024, df=1) were significantly associated with depression. There were no significant associations between age, course, family monthly income, BMI, religious personality, smoking history and drug use history with depression. Anxiety was found to be significantly associated with race ($\chi2 = 6.497$, p=0.011, df=1), course ($\chi2 = 5.433$, p=0.020, df=1), body image ($\chi2 = 43.009$, p<0.001, df=3) and alcohol intake history ($\chi2 = 9.577$, p=0.002, df=1) but for age, gender, family monthly income, BMI, religious personality, smoking history and drug use history, no significant association was found. On the other hand, stress was related

with race ($\chi2$ = 12.783, p<0.001, df=1), body image ($\chi2$ = 30.008, p<0.001, df=3) and alcohol intake history ($\chi2$ = 7.000, p=0.008, df=1). No significant association was found between age, gender, course, family monthly income, BMI, religious personality, smoking history and drug use history with stress. In logistic regression analysis, Nagelkerke's R squared was 0.295 which indicated a weak relationship between prediction and grouping. Based on the logistic regression results, gender, race, body image and religious commitment were found to make a model where predictors could predict the presence of depressive symptoms by 20.3% to 29.5%.

Table 1: Relationship between Gender, Race, Body Image and Religious Personality with Presenting Depressive Symptoms.

	Wald	df	p	OR	95% CI for OR	
					Lower	Upper
Gender						
Male	8.878	1	0.003	2.656	1.397	5.050
Race						
Malay	13.161	1	<0.001	3.647	1.813	7.337
Body Image						
Overall	54.617	3	<0.001			
Mild concerned with shape	31.528	1	<0.001	7.297	3.646	14.603
Moderate concerned with shape	11.609	1	0.001	3.821	1.767	8.261
Severe concerned with shape	50.100	1	<0.001	22.604	9.533	53.601
Religious Personality						
Non-commitment	3.509	1	0.002	2.648	1.434	4.890

Statistical test: Binary logistic regression.
Female gender, non-Malay ethnicity, normal body image and commitment to religion were set as reference variables for analysis.

Table 1 shows the relationship between gender, race, body image and religious personality and presenting depressive symptoms. Odds ratio (OR) values indicated that if a subject is male the odds of demonstrating depressive symptoms increases by 2.656 times compared to the female gender while being Malay increases the odds of demonstrating depressive symptoms by 3.647 times compared to non-Malay ethnicity. Moreover the OR values indicated that mild, moderate and severe concern about body shape was related to 7.297, 3.821 and 22.604 times increases odds of presenting depressive symptoms in subjects compared with subjects with normal body image respectively. Non-commitment to religion was found to increase the odds of demonstrating depressive symptoms by 2.648 times compared to being committed to religion. In logistic regression analysis, Nagelkerke's R squared was 0.175 indicating a weak relationship between prediction and grouping. Logistic regression revealed that severity of concern with body image (p<0.001) and alcohol consumption (p=0.004) made a significant contribution to prediction.

Table 2 shows the relationship between body image and alcohol consumption and presenting anxiety symptoms. OR values indicated that mild, moderate and severe concern about body shape was related to 3.939, 2.431 and 7.785 times increased odds of presenting anxiety symptoms in subjects compared with subjects with normal body image respectively while alcohol consumption was found to increase the odds of demonstrating anxiety symptoms by 2.577 times compared to no history of alcohol consumption. Logistic regression revealed that

race (p<0.001), income (p=0.020) and severity of concern with body image (p<0.001) made a significant contribution to prediction.

Table 2: Relationship between Body image and Alcohol Consumption with Presenting Anxiety Symptoms.

	Wald	df	p	OR	95% CI for OR	
					Lower	Upper
Body Image						
Overall	39.119	3	<0.001			
Mild concerned with shape	24.904	1	<0.001	3.939	2.299	6.749
Moderate concerned with shape	8.720	1	0.003	2.431	1.348	4.385
Severe concerned with shape	21.558	1	<0.001	7.785	3.274	18.514
Alcohol consumption						
No history of alcohol consumption	8.243	1	0.004	2.577	1.350	4.918

Statistical test: Binary logistic regression.
Normal body image and no history of alcohol consumption were set as reference variables for analysis

Table 3 shows the relationship between race, family monthly income and body image with presenting stress symptoms. OR values indicated that if a subject is Malay the odds of demonstrating stress symptoms increases by 4.858 times compared to the non-Malay ethnicity while mild, moderate and severe concern about body image was related to 3.574, 3.279 and 8.632 times increased odds of presenting stress symptoms in subjects compared with subjects with normal body image. Moreover income below RM3000 was found to increase the odds of stress symptoms by 1.924 times compared with income of equal or above RM3000.

Table 3: Relationship between Race, Family Monthly Income and Body Image with Presenting Stress Symptoms.

	Wald	df	p	OR	95% CI for OR	
					Lower	Upper
Race						
Malay	15.796	1	<0.001	4.858	2.228	10.592
Income						
<RM3000	5.452	1	0.020	1.924	1.111	3.333
Body Image						
Overall	29.625	3	<0.001			
Mild concerned with shape	13.455	1	<0.001	3.574	1.810	7.058
Moderate concerned with shape	9.699	1	0.002	3.279	1.553	6.924
Severe concerned with shape	28.062	1	<0.001	8.632	3.888	19.162

Statistical test: Binary logistic regression.
Non Malay ethnicity, income of equal or above RM3000 and normal body image were set as reference variables for analysis.

4.0 Discussion and Conclusion:

In this study, the prevalence of depression, anxiety and stress symptoms, based on the moderate severity and above, were found to be 27.3%, 60.0% and 22.6% respectively. The observed prevalence of depression, anxiety and stress was lower compared to the prevalence shown in a previous study on undergraduate students in Malaysia, which demonstrated 37.2%, 63.0% and 23.7% for depression, anxiety and stress respectively [10]. Furthermore, another study on first year university students in Hong Kong reported the prevalence of depression, anxiety and stress to be 21.0%, 41.0% and 27.0% respectively [23]. The differences in the results of these studies could be due to the different methods used to conduct the study and different geographical and social factors which were included in the studies. Overall, these three studies reported that depression, anxiety and stress were prevalent among undergraduates. Even though DASS-21 questionnaire is not a diagnostic instrument, the levels of depression, anxiety and stress symptoms of moderate severity and above highlight the need for assessment by health care professionals and the university administrative personnel [9, 10].

In this study, male undergraduates were found to be more depressed when compared to female undergraduates. This finding was in line with the findings of a previous study on first year university students in Hong Kong [23]. The world health organisation (WHO) stated that mental health of a person can be determined by multiple social factors [24]. Thus, this finding may be due to different social factors encountered by each gender. On the other hand, this study revealed that Malay undergraduates were more depressed as compared to Non Malay undergraduates. These findings were persistent after performing logistic regression, where male gender and Malay race significantly increased the odds of depression. However, these findings were not in line with the previous Malaysian studies which stated that there was no significant association between ethnicity and depression status [10].

A significant association was found between body image and depression status in this study. In other words, students with no concern regarding their body image were less likely to demonstrate signs of depression. This finding was consistent with previous studies that revealed university students with body dissatisfaction are associated to be in depressed state [11, 25].

Logistic regression revealed a significant association between not being committed to religion and higher odds of showing depressive symptoms. This finding was supported by a previous study that revealed religious faith was linked to positive mental health outcomes such as lower levels of depression [13]. Another study on university students in Iran also showed that depression of students decreased with the increase in their religious orientation [26].

This study found a significant association between body image and anxiety status. This finding was consistent after performing logistic regression, where it was found that mild, moderate and severe concern about body image resulted in increased odds of anxiety. This result was supported by a study that manifested university students with negative body image concerns were prone to be anxious [11].

In this study only a significant relationship was found between alcohol intake history and anxiety, while this significant association indicates that the respondents who have not tried alcohol before (63.0%) were more anxious compared to respondents who have tried (40.0%).

Moreover, the logistic regression analysis also revealed that those with a positive history of alcohol consumption were less likely to have anxiety compared to the students with no history of alcohol consumption. This association was also not aligned with those reported in previous studies [27, 28]. This might be due to the small number of subjects with positive history of alcohol use in this study and that the previous studies were performed among the general adult population not university students.

According to the results of this study, race was the only socio-demographic factor that had association with stress status among the undergraduates. Malay respondents were found to be more stressed when compared to Non Malay respondents. After performing the logistic regression analysis, the results were consistent with the chi square test results. The findings of this study were supported by a previous study which was conducted among Malaysian undergraduates [10]. While no association was found between anxiety and other variables in chi square test, logistic regression analysis revealed a significant association between low income (below RM3000) and stress, indicating that students with lower income were more likely to have stress symptoms. This finding was in line with the results of previous studies in Turkey and Malaysia [9, 10]. A study reported that students presented with high distress levels used various coping strategies compared to those with lower levels of distress [29]. Hence, it could be theorized that the respondents in this study used various coping strategies to deal with stressful situations.

This study also reported a significant association between body image and stress status. Furthermore, undergraduates with marked concern towards body image were more stressed, followed by those with moderate concern, mild concern and no concern. This finding was also consistent after performing the logistic regression analysis. Logistic regression analysis revealed higher likelihood for stress in students with severe, moderate and mild concern about their body image respectively. These significant associations may be due to lack of self-esteem as lower self-esteem has deteriorative consequence on mental health [12].

This study had some limitations. The first limitation was that this study was limited to first year students. The reason only the first year students were chosen was that they were easier to be approached because they were not as busy as the students of subsequent years, so higher response rate was anticipated. Secondly, one of the exclusion criteria in this study presence of documented mental disorders. However, researchers could not be certain that all of the respondents were free from mental disorders. A future study is needed to propose a simple and rapid procedure in order to recognize major mental disorders. Furthermore, as the design of this study was cross-sectional, no clear temporal relationship could be obtained between the variables. Meaning that this study was not able to identify which variable is the cause and which is the consequence. Hence, a further longitudinal study with more precise investigations is required in order to confirm the findings of this study.

In conclusion, this study suggested a number of factors that can influence the mental health of undergraduate university students. Furthermore, this study found that the prevalence of anxiety was higher than depression or stress and that their associated factors were also different. Hence, results of this study may be helpful for counsellors, educators and psychologists in the design and developing proper intervention programs to reduce these mental health problems among students. Furthermore, enhancing knowledge and strategies in controlling these problems among students may help to increase their academic achievement as well as general performance in their lives.

Ethical

Ethical approval was obtained from Medical Research Ethics Committee of Faculty of Medicine and Health Science, Universiti Putra Malaysia (FPSK(EXP14-medic) U011).

Declaration of conflict of interest

We authors of the article declare that there is no conflict of interest regarding publication of this article.

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