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Socio-demographic Determinants and Prevalence of Depression, Anxiety, and Stress among Malaysian University Students

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Prevalence of depression, anxiety, and stress amongst undergraduate university students may exert a significant, adversative effect on their health and wellbeing. The main objective of the current study was to identify and examine the socio-demographic determinants of depression, anxiety, and stress amongst undergraduate students from a public university in Sarawak, Malaysia. An exploratory cross-sectional study was conducted by administering a self-report English language questionnaire to 254 students. The first section of the questionnaire was utilized to garner information about socio-demographic characteristics, and the second section comprised of the Depression, Anxiety and Stress Scale-21 (DASS-21). Results indicate a particularly high prevalence of anxiety amongst the respondents. The DASS-21 exhibited adequate reliability, with the three-factor model showing a good fit to the data from the current study. So far where the socio-demographic determinants are concerned, the results demonstrated that students receiving adequate parental social support were associated with higher stress. Poor relationship with parents was also found to be significantly associated with depression. It is anticipated that inferences drawn from this study could lead to a better understanding of the risk factors that imperil students.

Keywords: DASS-21, Factor structure, Malaysian students, Socio-demographic determinants.

Prevalence of mental disorders among college students is a growing concern, and these disorders appear to be increasing in number and severity (Hunt & Eisenberg, 2010), with depression, anxiety and stress indicated to be highly pervasive among this population (Aldiabat, Matani, & Navenec, 2014). For all students, involvement in higher education offers a matrix of challenges as well as opportunities. However, certain facets of the educational experience can cause stress for some students. Although a moderate level of stress may be required and even advantageous in encouraging an individual to succeed (Larson, 2006), chronic distress may increase anxiety, which is often found to increase alongside depressive symptoms (Craighead et al., 2010; Blalock & Joiner, 2000). Apparently, mental health problems are highly prevalent among college students (Hunt & Eisenberg, 2010), especially among the undergraduates.

Current research has implicated several key factors to be important contributors to the prevalence of mental health problems among university students, which include, academic pressure, financial burden, increased accessibility of higher education, increased female to male student ratio, increased use of technology, and dramatic change in the lifestyle of the students (Kruisselbrink, 2013). Some of these factors may either function at multiple interconnected levels, or may possibly influence each other, thereby leading to greater vulnerability and development of disorders. In essence, a confluence of these aspects or sometimes even a singular aspect may have negative ramifications on the physical, social, emotional, educational and vocational functioning of students, thereby affecting their future.

"Mental health problems may often exert significant adversative effects, not only on the students themselves but also on their families, communities, and society at large". Therefore,

the preponderance of negative outcomes underlines the necessity to ascertain the contributing risk factors and determinants that may predict increased or decreased likelihood of developing depression, anxiety, and stress amongst the students.

The main objective of the current study was to examine and identify the socio-demographic characteristics and determinants of depression, anxiety, and stress among the Malaysian university students. It is anticipated that findings from this study would facilitate in developing effective strategies for preventive and promotive interventions to enhance mental health and wellbeing of students.

Method

Participants

An exploratory cross-sectional study was conducted amongst the undergraduate students of University of Malaysia, Sarawak. A convenience sampling technique was implemented for selecting the participants who belonged to the Faculty of Social Sciences. Prior to assessment, students were briefed about the purpose of the study and assured about the anonymity of their responses. Participation was voluntary and signed consent was obtained from the students. The self-report questionnaire was distributed during the last 15 minutes of a two-hour class lecture and applied only to students who were present in class, on the day of assessment. The study received approval from the University's Research Committee.

Materials and Procedure

The self-administered English language questionnaire consisted of two parts. The first section included the socio-demographic characteristics of students and the second section comprised of the Depression, Anxiety, and Stress Scale (DASS) items, developed by Lovibond and Lovibond, (1995a). Participants were required to respond to the DASS-21 by rating the extent to which they had experienced each symptom over the last week, on a four-point Likert scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time). Overall the scores for each subscale were calculated by summing the scores of the relevant items.

The DASS severity ratings for depression, range from normal (0-9), mild (10-13), moderate (14-20), severe (21-27), and extremely severe (28+). Severity ratings for anxiety, range from normal (0-7), mild (8-9), moderate (10-14), severe (15-19), and extremely severe (20+). The severity ratings for stress, range from normal (0 - 14), mild (15-18), moderate (19-25), severe (26-33), and extremely severe (34+).

Analysis of the data was conducted by Statistical Program Social Sciences (SPSS) version 21. Independent t-test and one-way analysis of variance (ANOVA) were used to measure the mean differences between dependent variables (depression, anxiety, and stress) and independent variables (potential socio-demographic risk factors). All tests were two-tailed and the significance level was set at $p < 0.05$. Data was normally distributed, hence no variable transformations were deemed necessary.

Exploratory Factor Analysis (EFA) was conducted to examine the dimensionality of the DASS-21, and thereby to determine whether the scale could maintain the same original structure of three constructs, within the Malaysian student sample. Factor analysis was performed by utilizing the extraction method of the principal component analysis with quartimax rotation of axes. Interpretation of factors was based on observation of factor loadings. Items with a loading of over 0.40 in one factor and less than 0.30 in each of the remaining factors were interpreted to be indicative of that factor. To determine the internal consistency of the scale, reliability analysis of the DASS-21 questionnaire was conducted by calculating Cronbach's alpha coefficients for the total scale as well as each of the subscales.

Results

Demographic data

Of the total 254 students who completed the survey, 35% were males and 65% were females. Participants were between the ages of 20 and 24 years (M=21, SD=0.92). Age was stratified as lower age group (20 to 21 years) and higher age group (22 to 24 years). The religiosity of the entire sample indicated that 63% were Muslims, 24% were Christians, 3% were Hindus and 10% reported as other religion. The present financial

Table 1. Factor Structure of the DASS-21

	Items	Factor I Depression	Factor II Anxiety	Factor III Stress
3.	I couldn't seem to experience any positive feeling at all	.597		
5.	I found it difficult to work up the initiative to do things	.643		
10.	I felt that I had nothing to look forward to	.581		
13.	I felt down-hearted and blue	.688		
16.	I was unable to become enthusiastic about anything	.697		
17.	I felt I wasn't worth much as a person	.519		
21.	I felt scared without any good reason	.520		
2.	I was aware of dryness of my mouth		.650	
4.	I experienced breathing difficulty (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)		.493	
7.	I experienced trembling (e.g., in the hands)		.523	
9.	I was worried about situations in which I might panic and make a fool of myself		.621	
15.	I felt I was close to panic		.686	
19.	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)		.443	
20.	I felt scared without any good reason		.580	
1.	I found it hard to wind down			.512
6.	I tended to over-react to situations			.572
8.	I felt that I was using a lot of nervous energy			.466
11.	I found myself getting agitated			.691
12.	I found it difficult to relax			.717
14.	I was intolerant of anything that kept me from getting on with what I was doing			.685
18.	I felt that I was rather touchy			.561

situation of the family was dichotomized as low-income group (< RM 3000 / month) and high-income group (> RM 3000 / month), with 77% in the former group and 23% in the latter. The majority (62%) reported they were currently in a romantic relationship, while 38% stated they were single. A small proportion of students (12%) revealed poor relationship with parents and 88% indicated good relationship. Adequate parental social support was reported by 67% students, whilst 33% divulged poor social support.

Factor Analysis

The initial data screening depicted a KMO coefficient of 0.84 and statistically significant Bartlett's test of sphericity ($\chi 2$ (210) = 2011.06, $p < 0.05$), thereby ensuring suitability for further parametric analysis. Moreover, each of the 21 items correlated to at least 0.40 with one other item, demonstrating reasonable factorability. Additionally, the commonalities were all above 0.30, further confirming that each item shared some common variance with other items. Based on these overall indicators, factor analysis of DASS-21 was conducted. On quartimax rotation, a three-factor solution was obtained, which explained 57.69% of total variance. The first factor, Depression (items 3, 5, 10, 13, 16, 17 and 21) obtained 32.59% variance, the second factor, Anxiety (items 2, 4, 7, 9, 15, 19 and 20) explained 13.90% variance, and the third factor, Stress (items 1, 6, 8, 11, 12, 14 and 18) accounted for 11.20% variance.

Table 2. Demographic Characteristics

Variables	N (%)	Depression, mean (SD)	Anxiety, mean (SD)	Stress, mean (SD)
Gender				
Male	35	6.17(5.13)	10.22(5.51)	11.12(5.81)
Female	65	6.70 (5.92)	11.41(6.93)	12.63(6.91)
Age				
(20-21)	33	7.35(6.13)	9.23(6.18)	12.54(7.00)
(22-24)	67	6.16(5.30)	9.29(6.05)	11.70(6.34)
Religious Affiliations				
Muslims	63	6.84	8.85	12.38
Christians	24	6.19	7.60	11.96
Others	10	5.25	7.48	9.33
Hindus	3	9.20	9.79	13.60
Family Income				
<3000 RM	77	6.64(5.62)	9.55(5.80)	11.95(6.64)
>3000 RM	23	6.25(5.80)	8.28(6.91)	12.07(6.38)
Relationship Status				
No	38	7.06(5.45)	10.18(6.49)	12.30(6.93)
Yes	62	6.24(5.78)	8.70(5.75)	11.78(6.35)
Relationship With Parents				
Poor	12	8.37(7.55)	9.31(7.78)	13.31(7.52)
Good	88	6.29(5.30)	9.27(5.81)	11.79(6.41)
Social Support				
Poor	33	6.04(5.11)	9.41(6.28)	10.79(7.03)
Good	67	6.82(5.91)	9.20(5.99)	12.95(6.25)
Academic Achievement				
Poor	55	6.82 (5.85)	9.60 (6.18)	12.45 (6.57)
Good	45	6.22 (5.41)	8.87 (5.96)	11.40 (6.55)

Item 3 had a strong primary loading of 0.59 on Factor I, however, it also had a cross loading of 0.34 on Factor III. Item 10 had a strong primary loading of 0.52 on Factor II, however, it also had a cross loading of 0.21 on Factor III. Item 19 had a strong primary loading of 0.73 on Factor III, however, it also had a cross loading of 0.26 on Factor I. The item description and factor loadings of DASS-21 have been outlined in Table 1.

Reliability Analysis

A Cronbach's alpha of 0.88 for the whole sample indicated a reasonably high inter-item consistency. Adequate alpha values were obtained for each factor, with 0.77 for Factor I (Depression), 0.70 for Factor II (Anxiety), and 0.74 for Factor III (Stress).

DASS-21 Score Analysis

Analysis of the severity distribution for each subscale and the percentage of participants in each of the five categories (normal, mild, moderate, severe, and extremely severe), indicate that majority of the students did not display symptoms of depression and stress. However, a small proportion did exhibit moderate (12%) and severe (2%) depression, as well as moderate (7%) and severe (5%) stress. On the other hand, anxiety was demonstrated by the majority of students with 25% indicating moderate level and nearly 20% depicting severe to extremely severe anxiety.

Association with socio-demographic variables

For each domain of depression, anxiety, and stress, an independent sample t-test was

conducted to assess their respective associations with socio-demographic characteristics. The resulting outcomes have been depicted in Table 2. Analysis revealed that there was no significant relationship between the age and the mean depression, anxiety, and stress scores. Neither did religious affiliation, financial situation of the family, current relationship status nor academic achievement demonstrate any significant associations with the subscale scores. Although, depression and anxiety were not significantly associated with gender, stress did exhibit a statistically significant difference, with females (M= 12.63, SD = 6.91) presenting marginally higher mean scores than males (M = 11.12, SD = 5.81), t (252) = 1.74, p< 0.05.

The stress scores also demonstrated significant differences amongst students who received adequate social support from parents (M = 12.59, SD = 6.25) and those who received inadequate social support (M = 10.79, SD = 7.03), t (252) = 2.08, p< 0.05. However, relationship with parents showed a significant association with the depression scores only, wherein students acknowledging to poor relationship with parents (M = 8.37, SD = 7.55) exhibited higher mean scores compared to those with good relationship (M = 6.29, SD = 5.30), t (252) = 1.95, p< 0.05.

Discussion

Mental, emotional, and behavioral disorders incur high psychosocial and economic costs for the young people who experience them, for their families, and for the society in which they live, study, and will work (O'Connell, Boat, & Warner, 2009). Recognizing the ethos of fostering optimal mental wellbeing among young people, the present study endeavors to augment and contribute to the existing empirical literature on mental health issues of university students. By investigating the prevalence and determinants of depression, anxiety, and stress among this population, it is anticipated that inferences drawn from this study could add new insights and lead to a better understanding of the risk factors that imperil students.

One of the perceptible findings from this study was the markedly high prevalence (45%) of moderate to extremely severe anxiety among the students. Besides this, a small proportion did exhibit moderate to severe depression (14%) and stress (12%).These results, although lower, are almost comparable to a previous study conducted among Malaysian university students which reported the incidence of depression, anxiety, and stress to be 29.3%, 55.0% and 21.6%, respectively (Gan, Nasir, Zalilah, & Hazizi, 2011). Reports of the prevalence of depression (37.2%), anxiety (63.0%) and stress (23.7%) symptoms, of moderate severity and above, have similarly been demonstrated by Shamsuddin et al. (2013), who utilized the DASS-21 for their assessment. High anxiety symptoms amongst the students, were consistently noted in the three studies. These findings are also analogous to Aldiabat et al. (2014) who have surmised in their review that depression, anxiety, and stress are currently the most highly prevalent mental health problems among university students.

Incumbent within the present study was the necessity to analyze the probable aspects affecting the mental health of students. Examination of the association between depression, anxiety, and stress in relation to the socio-demographic characteristics revealed that age, religious affiliation, the financial situation of family, relationship status, and academic achievement were not significantly associated with these symptoms. Although, not many studies have found any links with religion, the association of depression, anxiety, and stress with age as well as financial situation has been consistently demonstrated by some studies. For instance, Shamsuddin et al. (2013) reported that students in the older age group experienced higher levels of depression, anxiety, and stress. Bayram and Bilgel (2008), in their study, found that students from poor families were associated with higher stress scores, and senior students had higher depression scores compared to freshmen. Eisenberg, Gollust, Golberstein, and Hefner (2007) demonstrated that students from lower socioeconomic backgrounds were likely to be at a higher risk for depression and anxiety disorders.

A possible explanation for the contradicting results could be partly attributable to the fact that the sample in the present study mainly comprised of second-year students. This dynamic could have led to a status quo wherein the students may have already become

cognizant of the navigational challenges within the university environment, thereby developed better coping mechanisms, and hence were likely to interpret events as less stressful. It could also be purported that the students may have become relatively resilient and established a balance whilst steering through their academic, economic, emotional and/ or social experiences and challenges.

Findings from the present study also indicated that gender and parental social support were not associated with depression and anxiety. However, stress was significantly associated with these socio-demographic variables. Female students and those receiving adequate social support from parents exhibited higher stress scores. Comparable outcomes have been found by Shamsuddin et al. (2013), as well as Bayram and Bilgel (2008), wherein both studies demonstrated that female students were associated with higher stress scores.

According to Hall, Chipperfield, Perry, Ruthig, and Goetz (2006), female students report greater levels of stress and more health problems than their male counterparts. This result also parallels other studies which have indicated that women in general report more stressful life events (Kessler, McLeod, & Wethington, 1985), and are known to be more reflective than males when it comes to interpreting their areas of stress (Dyson, & Renk, 2006). Gender-based differences within this study were in keeping with the viewpoint that females may perceive similar life events as more negative compared to males, which could have contributed to their higher stress scores. Besides this, cultural and social norms may have led the male students to offer acceptable responses. Although stereotypical, these gender-typed expressions of stress could play a substantial role in differential responses. It is also worth mentioning that other vulnerabilities such as developmental (e.g., emerging adulthood) and biological (e.g., hormonal factors) differences between male and female respondents may likewise have accounted for the gender-based variance.

On the other hand, the significant linkage between higher stress scores and students getting adequate parental social support is surprising. This is because, social support which is indicative of the emotionally sustaining qualities of a relationship, underlines a sense that one is loved, cared for, and listened to (Umberson & Montez, 2010) may essentially have enhanced benefits for mental as well as physical health of individuals (Cohen, 2004; Uchino, 2004). Even though the findings from the current study is in contrast to this notion, it is nonetheless consistent with the disparate suggestion by Walcott and Music (2012) who indicated that although social support from family and friends has been found to be protective for a number of health problems in literature, these resources may not be adequate for serious mental health conditions experienced by young people. Therefore, it may seem obvious that supportive social rapport with parents represents a means for improving health barriers and outcomes.

Comparatively, however, it is also likely that undergraduate college students, whilst attempting to navigate the campus environment as an independent adult, may experience stress and role strain even as they still maintain daily contact with their parents, despite being geographically separated from them (Howard, Schiraldi, Pineda, & Campanella, 2006), which may have been the case for the present cohort of students too. Striking a balance between newly-found independence along with the opportunities of campus life, in juxtaposition with the Asian collectivist culture and familial restrictions, may cause considerable stress for students. In addition, filial obligations, pressure to succeed and familial expectations, most of which stems from prevailing cultural values and norms can be distressing for many students, despite the adequacy of parental support.

Students, who divulged that they had a poor relationship with parents, were found to be significantly associated with depression, compared to those indicating a good relationship. Family-level factors, including family connectedness and family cohesion, have been found to be protective features for mental health problems (Sujoldzić, Peternel, Kulenović, & Terzić, 2006). Given the salience, it follows that poor ongoing relationship and conflicts with parents may undermine mental health of students. Furthermore, insecure attachment has been associated with dysfunctional attitudes, which in turn predicted lower self-esteem, and

low self-esteem was related to higher depressive symptoms (Lee & Hankin, 2009). Thus, strained and poor relationship with parents might create or exacerbate depressive disorders for students, more so, when compounded with the distinctive demands of the university environment.

Based on extant literature, it could be postulated that the significant association between poor parental relationship and depression may have emerged due to particular pathogenetic dimensions within the family environment of the responding students. Either collectively or individually, factors such as the influence of parental characteristics (e.g., changes in family structure, maladaptive behavior, depressive mood), quality of parental bond (e.g., decreased parental nurturance, increased parental rejection, poor attachment), and parenting styles (e.g., harsh discipline, excessive monitoring/ permissiveness, abuse) may have increased student vulnerability to depression. Alternately, the possibility of bidirectional effects cannot be ignored. For instance, depressed youth themselves may exhibit negative cognitive patterns and appraise supportiveness of family relationships as hostile and insecure, hence, were more likely to report relationships as poor-quality. These assumptions, however, overarches the scope of the present study due to the inherent methodological limitations, which may have hindered from drawing firm conclusions. Nonetheless, complexities of this association, particularly its bidirectional nature warrants further research.

In trying to examine and encapsulate the significant determinants of depression, anxiety, and stress for this sample of students, the DASS – 21 was selected as a screening tool because of its brevity and feasibility, which enabled the respondents to complete the scale in appropriate time. Moreover, psychometric evaluations of the scale have extensively advocated its validity and reliability. However, no complete agreement in regard to the factor structure of the DASS – 21 has been achieved (one-factor vs. three-factor vs. bi-factor structure) by the different prior studies (Bottesi et al., 2015). Hence, as an addendum, the present study also endeavored to evaluate the factorial structure and reliability of the instrument amongst the undergraduate student sample.

In general, the study identified a three-factor structure of depression, anxiety, and stress wherein each domain, as well as the total scale, was found to be reliable with reasonably high internal consistency. These results echoed the findings of several other studies examining the factor structure (Antony, Bieling, Cox, Enns, & Swinson, 1998; Clara, Cox, & Enns, 2001; Henry & Crawford, 2005; Lovibond & Lovibond, 1995b; Sinclair et al., 2012) and psychometric properties (Apóstolo, Mendes, & Azeredo, 2006; Daza, Novy, Stanley, & Averill, 2002; Gloster et al., 2008; Oei, Sawang, Goh, & Mukhtar, 2013; Tran, Tran, & Fisher, 2013) of the instrument, in both English and non-English versions. Therefore, the present study was able to provide consistent evidence that the DASS-21 may well be a reliable scale for measuring the three distinctive factor domains of depression, anxiety, and stress among undergraduate students.

Conclusion

In conclusion, the present study was able to provide consistent evidence about the prevalence and determinants of depression, anxiety, and stress among students. Particularly concerning was the apparent pervasiveness of anxiety amongst the undergraduates, even in a setting with free access to counseling. Thus, on-campus initiatives and outreach programs should be aimed at encouraging students to seek help to handle their anxiety issues and other mental health problems. As far as socio-demographic determinants are concerned, the results epitomized the continued influence of parents on the psychosocial wellbeing of students.

The theorized proclivity of females to be associated with stress was also noted in this study. It could be purported that gender roles and contextual factors might possibly be associated with greater vulnerability to depression, anxiety, and stress amongst undergraduates. Further research would be required in future to elucidate the causal role and nature of these associations. Prospective studies could also include the examination of other likely determinants that may pertain to increased susceptibility to depression, anxiety, and stress among students to address any divergence in our understanding of these

issues. The ultimate goal is to mitigate risk factors and militate protective factors among students with a purpose of enhancing overall well-being, throughout their lifespan.

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