



Original Article:

Prevalence and Associated Factors of Current Depressive Symptoms among Staff of a Public University in Malaysia

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Abstract: Introduction: Depression is an important global public health problem and one of the most common and serious mental disorders. It initiates with the presentation of symptoms before it progresses to a lifetime disorder. The aim of the study was to determine the prevalence of and factors associated with current depressive symptoms among university staff of a public university in Malaysia. Methodology: A cross-sectional study design was employed using a probability proportionate to size sampling method to select 683 academic and non-academic staff. A structured validated questionnaire was used for data collection. Results: The prevalence of current depressive symptoms was 14.9% (19.0% among males, 12.5% among females). Gender, age, marital status, monthly family income and self-esteem were significantly associated with current depressive symptoms ($p < 0.05$). The logistic regression model showed that male gender (AOR = 2.04; 95%CI 1.29, 3.20) and younger age (AOR = 2.79; 95%CI 1.16, 6.76) were predictors of current depressive symptoms. Conclusion: The prevalence of current depressive symptoms was 14.9% (19.0% among males, 12.5% among females) among university staff. A mental health promotion intervention is needed to prevent the threat depression poses on the health of the university staff.

Key Words: Prevalence, Factors associated, Depressive symptoms, University staff

Introduction:

Depression is regarded as one of the most common mental disorders which affects 350 million people worldwide (1). Over the years, depression has become a vital global public health problem due to its relatively high lifetime prevalence and the significant disability it causes. Depression has been

reported to be responsible for the greatest proportion of burden which is linked to non-fatal health outcomes, and this accounts for almost 12% of total years lived with disability worldwide (2). It is considered the single most important cause of Years Lost due to Disability (YLD) in middle and high-income countries, the third cause of disability worldwide and it accounts for 4.3% of total Disability Adjusted Life Years (DALY) (3). Projections show that by 2030 depression-related morbidity will increase in rates and in its significance in the total burden of disease (4). Among the working class, depression is reported to be an important cause of mortality, loss of productivity, absenteeism and co-morbidity such as anxiety disorders and substance abuse (5). Nearly 15% of clinically depressed and treated persons eventually die by suicide (6). The percentage of death by suicide is estimated to be higher among untreated individuals (5). Due to the high recurrence and persistent rates of depressive symptoms, depression has become a significant economic burden that requires substantive use of health care resources (7).

In Malaysia, mental health problems had increased from 10.7% (NHMS II) in 1996 to 29.2% (95%CI 27.9, 30.5) (NHMS, 2015) in 2015 (8, 9). The study conducted in 2015 also reported that prevalence of mental health problems were found to be highest among Other Bumiputras [41.1% (95%CI 37.4, 45.0)], followed by Others [33.2% (95%CI 27.8, 39.2)], Indians [28.9% (95%CI 24.6, 33.6)], Malays [28.2% (95%CI 26.6, 29.7)], Chinese [24.2% (95%CI 21.3, 27.3)]. Prevalence was higher among females [30.8% (95%CI 29.2, 32.5)] as compared to males [27.6% (95%CI 25.9, 29.3)]. Adults from lower income families had a higher prevalence (9). In both surveys General Health Questionnaire (GHQ12) was used to determine mental health problems. There was a difference in

the methodology used in the two surveys (NHMS, 1996 and NHMS, 2015). In 1996, the GHQ12 was administered by either self-administered or read out by the interviewers. In 2015 survey GHQ12 was self-administered. In a review on the Prevalence of Depression in Malaysia, Mukhtar & Oei (10) stated that the high prevalence reported in these two surveys were due to the fact that mental health problems were determined using a screening questionnaire (GHQ 12). Mukhtar & Oei (10) reported that the prevalence of depressive symptoms, current depression and lifetime depression in Malaysia ranged from 3.9% to 46%.

Studies on depressive symptoms among university staff in Malaysia are very few. This study was conducted to know the extent of current depressive symptoms among university staff. The job demand and stress associated with working in a university coupled with depression would negatively affect the productivity and health of university staff. The objectives of the study were to determine the prevalence of current depressive symptoms, association between self-esteem and current depressive symptoms and the predictors of current depressive symptoms among the members of staff of a public university in Malaysia.

Material and Methods

Study design

An analytical cross-sectional study was carried out among university staff of a public university in Selangor, Malaysia. This university was established in 1931 and consists of 16 faculties and 9 institutes. The study population was Malaysian staff employed in the university. The sample size was calculated using the formula for hypothesis testing for two proportions (11). The sample size estimated was 733 respondents. The level of significance was set at 0.05. The sampling frame consisting of the names of 4067 university staff was obtained. A probability proportionate to size (PPS) sampling method was used for the selection of the faculties and institutes from where the respondents were picked. Using the PPS sampling method, all the institutes and faculties were first divided into three strata (low, medium and high) based on their population sizes. To achieve the desired sample size, seven clusters were needed. The clusters were then selected using a systematic sampling method and this was done by dividing the total staff population by the number of clusters needed to get the sampling interval. These clusters were selected systematically using a sampling interval and this was done by picking a starting point using the table of random numbers. One institute and six faculties were selected. These include: Institute of Advanced Technology; Faculty of Food Science and Technology; Faculty of Human Ecology; Faculty of Engineering; Faculty of Veterinary Medicine; Faculty of Medicine and Health Sciences; and Faculty of Science. In determining the number of respondents needed from each cluster, a proportionate allocation was used to make up the required sample size needed. The respondents were randomly picked through a simple random technique from the list of staff from each institute and faculty.

Data collection/study instrument

A validated pre-tested bilingual (English and Malay versions) questionnaire was used to collect the data. The questionnaire was self-administered to the respondents. Rosenberg Self-Esteem Scale was used in measuring self-esteem (12). A nine-item validated Patient Health Questionnaire (PHQ-9) was used to measure current depressive symptoms (13). A validated Malay version of the PHQ-9 was also used (14). Permission was sought and obtained to use the Malay translation of the PHQ-9. The Likert scale of the questionnaire ranged from zero for not at all to three for nearly every day. The nine items were scored and the score ranged from zero to 27. Scores from 0 –

9 were categorised as No Current Depressive Symptoms, 10 – 27 as Current Depressive Symptoms.

Ethics

Ethics approval to carry out the study was obtained from Universiti Putra Malaysia, Faculty of Medicine and Health Sciences Medical Research Ethics Committee [REF NO: UPM/FPSK/100-9/2-MJKEtikaPen(JKK_April(12)43].

Written approvals were sought and obtained from the Director and Deans of the Institute and Faculties respectively in order to carry out the study. Both verbal and written informed consents were also sought and obtained from all the respondents before and/or during data collection. The confidentiality of respondents' answers was guaranteed.

Data analysis

The data were analysed using IBM SPSS version 22. Descriptive statistics are presented in frequencies and percentages. Continuous variables are presented as means with their 95% Confidence Intervals (CI). Categorical variables were tested for associations by using the Pearson's chi-square and they were presented as frequencies and percentages. Variables that were associated with current depressive symptoms at $p < 0.05$ were entered into the univariate logistic regression model to determine the crude odd ratio. Variables that were associated with current depressive symptoms at $p < 0.25$ were entered into the multivariate logistic regression model to determine the adjusted odd ratio. The result are interpreted based on the obtained adjusted odds ratio and p value. A p -value less than 0.05 in the multivariate logistic regression model was considered statistically significant and predictors for current depressive symptoms.

Results

A total of 683 members of staff participated in the study. Table 1 shows the response rate by faculty and institute. The overall response rate for the study was 95.3%. However, only 679 questionnaires were completed filled in and were used for further analysis.

| Faculty/ Institute | Total no of staff | Sample size needed | Non response | Ineligible | No of respondents | Response rate (%) |
|------------------------|----------------------------|--------------------------|-----------------|------------|----------------------|-------------------------|
| Advanced Technology | 56 | 20 | - | - | 20 | 100.0 |
| Food Science | 165 | 60 | - | - | 60 | 100.0 |
| Engineering | 445 | 163 | 5 | 2 | 156 | 95.7 |
| Ecology | 172 | 63 | 2 | 2 | 59 | 93.7 |
| Veterinary | 242 | 89 | 3 | 5 | 81 | 91.0 |
| Medicine | 592 | 217 | 13 | 3 | 201 | 92.6 |
| Science | 330 | 121 | 11 | 4 | 106 | 87.6 |
| TOTAL | 2002 | 733 | 34 | 16 | 683 | |

Sociodemographic characteristics of respondents

The result in Table 2 shows that 63.5% of the respondents were female. The overall mean age was 36.06 (95%CI 35.33, 36.79) years. Most of the respondents (43.9%) were in the 30 – 39 years age group. Majority of the respondents were Muslims (93.7%), Malays (92.6%), married (74.3%), and 58.8% were non-academic staff. More than half (51.9%) of the

respondents earned above RM4000 as their monthly family income.

| Table 2: Sociodemographic characteristics of respondents (n = 679) | | |
|--|-----------|------------|
| Characteristics | Frequency | Percentage |
| Gender | | |
| Male | 248 | 36.5 |
| Female | 431 | 63.5 |
| Age group (Years) | | |
| 20 - 29 | 188 | 27.7 |
| 30 - 39 | 298 | 43.9 |
| 40 - 49 | 103 | 15.2 |
| 50 and above | 90 | 13.2 |
| Ethnicity | | |
| Malay | 629 | 92.6 |
| Chinese | 24 | 3.6 |
| Indian | 17 | 2.5 |
| Others | 9 | 1.3 |
| Religion | | |
| Islam | 636 | 93.7 |
| Christianity | 13 | 1.9 |
| Buddhism | 11 | 1.6 |
| Hinduism | 13 | 1.9 |
| Others | 2 | 0.3 |
| No religion | 4 | 0.6 |
| Marital Status | | |
| Single | 161 | 23.7 |
| Married | 504 | 74.3 |
| Divorced | 7 | 1.0 |
| Widowed | 7 | 1.0 |
| Highest Educational level | | |
| Primary/Secondary | 210 | 30.9 |
| Bachelor/Diploma | 197 | 29.0 |
| Master | 104 | 15.3 |
| PhD | 168 | 24.8 |
| Occupation | | |
| Academic | 280 | 41.2 |
| Non Academic | 399 | 58.8 |
| Monthly Family income (RM)* | | |
| <2000 | 117 | 17.2 |
| 2000 - 3999 | 210 | 30.9 |
| =4000 | 352 | 51.9 |
| Self Esteem | | |
| Low | 11 | 1.62 |
| High | 668 | 98.38 |

* US \$1.00 = RM 4.00 Ringgit Malaysia (RM).

Prevalence and factors associated with current depressive symptoms

Table 3 shows the prevalence and factors associated with current depressive symptoms. The results show that the overall prevalence of current depressive symptoms among the university staff was 14.9%. The prevalence of current depressive symptoms was significantly higher in males (19.0%) when compared to 12.5% in females ($\chi^2=5.1$, $p=0.024$). Current depressive symptom was significantly associated with age ($\chi^2=15.0$, $p=0.002$), marital status ($\chi^2=5.3$, $p=0.022$), monthly family income ($\chi^2=9.9$, $p=0.007$) and low self-esteem ($\chi^2=22.0$, $p=0.001$). Ethnicity, religion,

educational level and occupation were not significantly associated with current depressive symptoms.

| Table 3. Association between current depressive symptoms and gender, age, ethnicity, religion, marital status, highest educational level attained, occupation, total family monthly income, self-esteem. | | | | | | |
|--|----------------------------------|------|--------------------------------|------|----------|--------------------|
| Variables | With current depressive symptoms | | No current depressive symptoms | | χ^2 | p value |
| | n | % | n | % | | |
| Overall | 101 | 14.9 | 578 | 85.1 | | |
| Gender | | | | | | |
| Male | 47 | 19.0 | 201 | 81.0 | | |
| Female | 54 | 12.5 | 377 | 87.5 | 5.128 | 0.024* |
| Age group | | | | | | |
| 20 – 29 | 41 | 21.8 | 147 | 78.2 | | |
| 30 – 39 | 45 | 15.1 | 253 | 84.9 | | |
| 40 – 49 | 7 | 6.8 | 96 | 93.2 | | |
| 50 and above | 8 | 8.9 | 82 | 91.1 | 15.006 | 0.002* |
| Ethnicity | | | | | | |
| Malay | 96 | 15.3 | 533 | 84.7 | 1.013 | 0.314 |
| Other ethnic groups | 5 | 10.0 | 45 | 90.0 | | |
| Religion | | | | | | |
| Islam | 96 | 15.1 | 540 | 84.9 | 0.382 | 0.536 |
| Other religions | 5 | 11.6 | 38 | 88.4 | | |
| Marital status | | | | | | |
| Single | 33 | 20.5 | 128 | 79.5 | | |
| Ever Married | 68 | 13.1 | 450 | 86.9 | 5.268 | 0.022* |
| Highest educational level | | | | | | |
| Primary/Secondary | 35 | 16.7 | 175 | 83.3 | | |
| Tertiary | 66 | 14.1 | 403 | 85.9 | 0.771 | 0.380 |
| Occupation | | | | | | |
| Academic | 36 | 12.9 | 244 | 87.1 | | |
| Non academic | 65 | 16.3 | 334 | 83.7 | 1.532 | 0.216 |
| Monthly family income | | | | | | |
| <2000 | 26 | 22.2 | 91 | 77.8 | | |
| 2000 – 3999 | 36 | 17.1 | 174 | 82.9 | | |
| =4000 | 39 | 11.1 | 313 | 88.9 | 9.846 | 0.007* |
| Self esteem | | | | | | |
| Low | 3 | 27.3 | 8 | 72.7 | | |
| Normal/High | 98 | 14.7 | 570 | 85.3 | - | 0.216 ^a |

(*) - Significant at $p < 0.05$; (^a) – p-value for Fisher's exact test

Simple and multivariate binary logistic regression analysis of predictors of current depressive symptoms

Table 4 shows the results of simple and multivariate binary logistic regression analysis of predictors of current depressive symptoms. Univariate logistic regression analysis results showed that four variables (gender, age, marital status and monthly family income) showed statistically significant association with the current depressive symptoms ($p<0.25$). However, the results of multivariate logistic regression analysis showed that only age and gender were significant predictors of current depressive symptoms. The male staff were about two times more likely to have current depressive symptoms than female staff (AOR = 2.03; 95%CI 1.29, 3.20). Staff between the age group of 20 – 29 years were approximately three times more likely to be depressed as compared to those staff of age groups 50 years and above

(AOR = 2.79; 95%CI 1.16, 6.76). The variables were also checked for the possibility of multicollinearity and interaction and none was found. The Hosmer-Lemeshow test for assessing the goodness of fit ($p = 0.509$) showed that the model fits the data well. The overall accuracy of this model to predict that the respondents have depressive symptoms was 85.1%. Nagelkerke $R^2 = 0.074$; indicates a weak relationship between the predictors and the prediction. The area under the ROC curve 0.656 (95%CI 0.600, 0.712, $p < 0.001$) shows that the model can discriminate 65.6% of the cases.

| Table 4. Simple and multivariate binary logistic regression analysis of predictors of current depressive symptoms | | | | | | |
|--|-----------------------------------|------------|---------|---|------------|---------|
| Variables | Simple binary logistic regression | | | Multivariate binary logistic regression | | |
| | COR | 95%CI | p-value | AOR | 95%CI | p-value |
| Gender | | | | | | |
| Female | 1 | | | 1 | | |
| Male | 1.63 | 1.07, 2.05 | 0.024* | 2.03 | 1.29, 3.20 | <0.002* |
| Age group | | | | | | |
| 50 and above | 1 | | | 1 | | |
| 40 – 49 | 0.75 | 0.26, 2.15 | 0.589 | 0.83 | 0.29, 2.42 | 0.74 |
| 30 – 39 | 1.82 | 0.83, 4.03 | 0.137 | 2.10 | 0.93, 4.74 | 0.08 |
| 20 – 29 | 2.86 | 1.28, 6.39 | 0.01* | 2.79 | 1.15, 6.74 | 0.02* |
| Marital Status | | | | | | |
| Ever married | 1 | | | 1 | | |
| Single | 1.71 | 1.08, 2.70 | 0.023* | 1.20 | 0.70, 2.05 | 0.51 |
| Monthly family income | | | | | | |
| ≥4000 | 1 | | | 1 | | |
| 2000 – 3999 | 1.66 | 1.02, 2.71 | 0.042* | 1.52 | 0.80, 2.87 | 0.20 |
| <2000 | 2.29 | 1.32, 3.97 | 0.003* | 1.78 | 0.85, 3.75 | 0.13 |
| *Significant at $p < 0.05$; Nagelkerke $R^2 = 0.072$; Hosmer-Lemeshow test, $p = 0.639$; Overall percentage = 85.1%; Area under ROC curve = 0.653 | | | | | | |

Discussion

Currently, there are few comparative data available on the prevalence of current depressive symptoms among general adult population in Malaysia even though there are large volumes of data on the prevalence of depression. The results of this study showed that the prevalence of current depressive symptoms among the university staff was 14.9%. This prevalence is high compared to the prevalence of 8.1% found among German adults within the ages of 18 – 79 years (15), 8.7% (16) and 6.8% (17) among US adults. Gender, marital status, age, monthly family income and self-esteem were significantly associated with current depressive symptoms. Busch and colleagues (15) also found that age, sex and socioeconomic status were associated with current depressive symptoms. We also found out that the prevalence of current depressive symptoms was significantly higher among males (19.0%) than females (12.5%). This result is similar to other previous studies (5, 18, 19–22). Although many studies on current depressive symptoms and depression found that females are more depressed than males (15, 23, 24) and some found no differences (25).

The findings of our study showed that age was significantly associated with current depressive symptoms ($p = 0.002$). We found out that the prevalence decreases down the age group. The youngest age group (20 – 29 years) had the highest prevalence (21.8%). Bromet and colleagues (26) in their studies on 18 high and low- to middle-income countries reported that the average age of onset of depression was 25.7 years in high-income and 24.0 years in low- to middle-income countries. Our result is similar to the health surveys conducted among adults in Germany and USA (15, 16). Same decline was also observed among the monthly family income groups with those earning the lowest monthly income having the highest prevalence (22.2%) of current depressive symptoms. Various studies have showed that low socioeconomic status is associated with an increased risk of depression and other mental disorders (15, 26, 27, 28).

The result of the logistic regression model showed that being male (AOR = 2.04; 95%CI 1.29, 3.20) and being in the 20 – 29 age group (AOR = 2.79; 95%CI 1.16 – 6.76) were significant predictors of current depressive symptoms.

The results of this study were based on the current depressive symptoms experienced in the last two weeks prior to the survey based on the recommended PHQ-9 cut off (=10). The study instrument used is not a diagnostic tool for depression. We recommend that further studies be conducted to ascertain the 12-month and lifetime prevalence of diagnosed depression in the university. There is also a need to assess the level of knowledge on the risk factors and effects of depression on health in order to know if an educational intervention is needed. Further studies will enable the university authority to review its mental health policy and incorporate mental health promotion.

One of the strengths of this study is the sampling method used. The PPS combines all the four types of sampling designs and has a self-weighting characteristic. This study also revealed the likelihood of the university staff developing depression in the future. This study serves as a wake-up call to the university management to implement intervention programmes. One of the limitations of this study was that the research data were collected from a cross-sectional study, which makes it difficult to draw conclusions about causal relationships. The data from this study were also based on self-report.

Conclusion

The prevalence of current depressive symptoms (14.9%) among the staff of the university is high (14.9% (19.0% among males, 12.5% among females)). Gender and age were significant predictors of current depressive symptoms.

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