Psychological Distress and Sources of Stressors amongst Medical and Science Undergraduate Students in Malaysia

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Abstract

Background: This study aims to compare the prevalence of psychological distress between medical and science undergraduate students and to assess the sources of stressors that are attributing to it. Methods: A sample of 697 undergraduate students participated in this study, in which 501 were medical students and the remaining 196 were Science students. Psychological distress was assessed using the 12-item General Health Questionnaire. The students were given a list of possible sources of stress which were chosen depending on previous studies. Results: The overall prevalence of psychological distress was 32.6%. Science students showed a significantly higher rate and mean score of psychological distress than medical students, and the mean score was significantly higher during the clinical phase rather than the pre-clinical phase in medical students. Overall, female students had a significantly higher mean score than males, however although the mean score was higher in females it was only significant in the pre-clinical phase. In addition to academic and psychological stressors, factors such as reduced holidays, lack of time for relaxation, and limitation of leisure/entertainment time were among the top ten stressors reported by the students. Conclusions: Psychological distress is common among university students, and it is higher among science students than medical students. Academic and psychological factors can be considered as sources of stressors which may precipitate psychological distress among college students.

Keywords: Psychological, distress, stressors, undergraduate, Malaysia

Introduction

Psychological distress is the state of poor psychological well-being that is characterised by undifferentiated mixtures of symptoms extending from depression and anxiety symptoms to personality traits, functional disabilities, and behavioural problems. Undergraduate students are subjected to different sources and levels of stressors during various stages of their study. The presence of stressors during education can affect the students in broad aspects, such as their learning process and functionality, their psychological well-being, and their physical health. A mentally healthy student is the one who thinks clearly and logically, is able to initiate proper social relationships, and is eager to learn with substantial ambition to implement his or her plans in the future. As students are at a crucial stage of development, being in the transition from adolescence to adult, they are more likely to experience mental illnesses. Studies among undergraduate students in Malaysia have assessed the impact of stressors on the mental health of students, such as emotional disturbances in the form of depression, anxiety, and stress, with variable results, using different tools.

The General Health Questionnaire (GHQ) which was developed by Goldberg, has been extensively used in various cultures as a screening tool to determine whether an individual is at risk of developing a psychiatric disorder. It was designed to assess psychological distress in population surveys and epidemiological studies, and to screen for non-psychotic mental disorders in clinical settings. It has been widely used by researchers and has been found to be reliable and well-validated.

Studies on psychological well-being among students have found that these disorders are under diagnosed, which may lead to an increased probability of mental disorders and may have serious effects on their careers and social life. Studies that compare psychological distress and sources of stressors between medical and non-medical students are limited. Moreover, the same above comparison between students of different phases...
within the same medical college are also restricted. Therefore, this study aims to compare the prevalence of psychological distress between medical and non-medical undergraduate students at the International Islamic University of Malaysia (IIUM) using the General Health Questionnaire (GHQ-12), and to assess the sources of stressors that are attributing to the psychological distress.

**Methods**

This is a cross-sectional study which was conducted among undergraduate medical and science students at the IIUM during the period from April 2012 to June 2013. A research grant sponsored by the IIUM was obtained for conducting this research. Ethical approval was obtained from the Research Ethics Committee of the IIUM with the reference number IIUM/305/20/4/10 prior to conducting the study. The participation was entirely on a voluntary basis; the researchers introduced themselves to the students in each grade and informed them about the aims of the study, guaranteeing confidentiality.

Consent was obtained from the students. The study was conducted in the middle of the course, before the examination period, so as to minimise the extra stress symptoms. The inclusion criteria were students who agreed to participate in the study, and the students had to be registered as undergraduate students of the Kulliyyah (Faculty) of Medicine (KOM) or the Kulliyyah (Faculty) of Science (KOS), IIUM. Students who failed to give consent and those who were not conversant in English were excluded from the study. Regarding the curriculum of KOM, it consists of a five-year study program divided into two phases; the pre-clinical phase (years 1 and 2) and the clinical phase (years 3, 4, and 5). For the curriculum of KOS, it is semester based and students are required to complete at least 134 credit hours (CH) of course work for a duration of three and a half years. The sociodemographic characteristics of the participants were obtained including information about their nationality, age, marital status, gender, year of study, accommodation during their study, and household income.

The items on the GHQ-12 represent 12 manifestations of psychological distress, and respondents were asked to rate the presence of each of these manifestations in themselves during their study. Subjects responded to each question by choosing from four typical responses: ‘not at all’, ‘no more than usual’, ‘rather more than usual’, and ‘much more than usual’. A binary scoring method was used to evaluate responses. This method assigns a score of zero to the two least symptomatic answers and a score of one to the two most symptomatic answers (i.e. 0-0-1-1). Thus, responses can only be scored as zero or one. The minimum GHQ-12 total score was 0, and the maximum GHQ-12 total score was 12. ‘Caseness’ was defined as a total questionnaire score of 4 or more. The students were also given a list of a possible source of stressors which were chosen depending on previous studies.14-18

**Statistical Analysis:** We used the statistical package for the social science program, version 22.0 (SPSS 22.0) for analysing the data. The analysis of the variables such as age group, gender, nationality, monthly household income, marital status, year of study, and type of accommodation were presented in numbers and percentages. Mann-Whitney U test and Kruskal-Wallis test were used to determine the effects of the socio-demographic characteristics on the psychological distress among undergraduate students. Mann-Whitney U test was also used to assess the association between the ten stressor factors and the psychological distress among medical and science students. A p-value of less than 0.05 was considered statistically significant.

**Results**

The overall response rate in this study was 72.3% (196 out of 333 science students and 501 out of 630 medical students). In KOM, out of 501 students, 117, 112, 106, 95, and 71 students were from year 1, year 2, year 3, year 4, and year 5 respectively. While out of 196 science students, 34, 102, and 60 were from year 1, year 2, and year 3 respectively. The overall prevalence of psychological distress among the students was 32.6%, 227 out of 697 students. Regarding faculty, the rate was significantly higher in the KOS (38.8%) than the KOM (30.1%) (p = 0.029). In the KOM the rate was higher among year 5 medical students (35.2% out of 71 students), but it was not statistically significant than other years of study. Regarding the KOS, the rate was higher among first-year students (41.2% out of 117 students), but it was also not significant (Table 1).

In assessing factors that determine psychological distress, it was found that the mean score of the KOS (3.25) is significantly higher (p = 0.003) than the mean score of the KOM (2.76). In terms of overall gender, the mean score of the female students (3.11) was significantly higher (p = 0.003) than the male students mean score (2.51), and when we compared the gender in the KOM, we found that although the mean score was higher in females, it was only significant in the pre-clinical phase (p = 0.005). Regarding the phases of study in the KOM, comparisons between mean scores in the pre-clinical (2.46) and clinical phases (3.01) were significantly higher in the clinical phase (p = 0.018). There were no significant differences in comparing mean scores of other factors such as age, monthly house income, marital status, getting family support, and accommodation (Table 2).

In assessing the association of features of psychological distress based on the GHQ items with the KOM & the KOS, we found that features including “lost much sleep over worry”, “felt you could not overcome your difficulties
Table 1. The Prevalence of Psychological Distress among the Undergraduate Students

| Kulliyyah (Faculty) | n   | Positive No. | Positive % | Negative No. | Negative % | p-value |
|---------------------|-----|--------------|------------|--------------|------------|---------|
| Medicine (KOM)      | 501 | 151          | 30.1       | 350          | 69.9       | 0.029   |
| Science (KOS)       | 196 | 76           | 38.8       | 120          | 61.2       |         |
| Total               | 697 | 227          | 32.6       | 470          | 67.4       |         |
| Year of Study (KOM) |     |              |            |              |            |         |
| Year 1              | 117 | 31           | 26.5       | 86           | 73.5       | 0.446   |
| Year 2              | 112 | 29           | 25.9       | 83           | 74.1       |         |
| Year 3              | 106 | 37           | 34.9       | 69           | 65.1       |         |
| Year 4              | 95  | 29           | 30.5       | 66           | 69.5       |         |
| Year 5              | 71  | 25           | 35.2       | 46           | 64.8       |         |
| Year of study (KOS) |     |              |            |              |            |         |
| Year 1              | 34  | 14           | 41.2       | 20           | 58.8       | 0.951   |
| Year 2              | 102 | 39           | 38.2       | 63           | 61.8       |         |
| Year 3              | 60  | 23           | 38.3       | 37           | 61.7       |         |

Data was analysed using a Chi-squared test, *p-values* less than 0.05 were considered statistically significant.

Table 2. Factors Determine Significant Psychological Distress Level

| Factors                        | n   | Mean Psychological Distress score | p-value |
|--------------------------------|-----|----------------------------------|---------|
| Kulliyyah                      |     |                                  |         |
| Medicine                       | 501 | 2.76                             | 0.003   |
| Science                        | 196 | 3.25                             |         |
| Phase of study (KOM)           |     |                                  |         |
| Pre-clinical (year 1, 2)       | 229 | 2.46                             | 0.018   |
| Clinical (year 3, 4, 5)        | 272 | 3.01                             |         |
| Gender (KOM & KOS)             |     |                                  |         |
| Male                           | 247 | 2.51                             | 0.003   |
| Female                         | 450 | 3.11                             |         |
| Gender (KOM)                   |     |                                  |         |
| Pre-clinical Phase             |     |                                  |         |
| Male                           | 69  | 1.67                             | 0.005   |
| Female                         | 160 | 2.80                             |         |
| Clinical Phase                 |     |                                  |         |
| Male                           | 121 | 2.82                             | 0.345   |
| Female                         | 151 | 3.17                             |         |
| Age                            |     |                                  |         |
| ≤21                            | 280 | 2.89                             | 0.549   |
| >21                            | 417 | 2.90                             |         |
| Household income               |     |                                  |         |
| ≤RM1500                        | 155 | 2.68                             |         |
| RM 1501-5000                   | 322 | 2.84                             | 0.491   |
| >RM 5000                       | 220 | 3.14                             |         |
| Marital status                 |     |                                  |         |
| Single                         | 653 | 2.87                             | 0.335   |
| Married                        | 44  | 3.27                             |         |
| Getting family support         |     |                                  |         |
| No                             | 135 | 3.24                             | 0.089   |
| Yes                            | 562 | 2.81                             |         |
| Accommodation                  |     |                                  |         |
| Hostel                         | 614 | 2.90                             | 0.901   |
| Non-Hostel                     | 83  | 2.89                             |         |

Data was analysed using Mann–Whitney U test for two independent variables and Kruskal–Wallis one-way analysis of variance for more than two independent variables, *p-values* less than 0.05 were considered statistically significant. Data was presented as mean.
ties”, “feeling unhappy and depressed”, and “thinking of yourself as a worthless person” were significantly associated with the clinical phase rather than the pre-clinical phase ($p < 0.05$) (Table 3).

Whilst in assessing the association of features of psychological distress based on the GHQ items between the pre-clinical and clinical phases of the KOM, we found that features of “constantly felt under strain”, “unable to enjoy your normal day-to-day activities”, and “been unable to face up to your problems” were significantly associated with the KOS ($p < 0.05$) (Table 3).

Data was analysed using a Chi-squared test, $p$-values less than 0.05 were considered statistically significant. OR: odd ratio 95% CI:

### Table 3. Association of Features of Psychological Distress Based on GHQ Items with KOM & KOS

| Features of Psychological distress based on General Health Questionnaire GHQ | KOM | KOS | $p$-value | OR | 95% CI (lower-upper) |
|---|---|---|---|---|---|
| Problem with concentration | Positive n(%) | Negative n(%) | Positive n(%) | Negative n(%) | 0.266 | 0.820 | 0.577–1.1640 |
| Lost much sleep over worry | 98 (19.6) | 403 (80.4) | 62 (31.6) | 134 (68.4) | 0.001 | 0.526 | 0.362–0.763 |
| Felt that you are not playing a useful part in things | 81 (16.2) | 420 (83.8) | 25 (12.8) | 171 (87.2) | 0.259 | 1.319 | 0.814–2.137 |
| Felt incapable of making decisions about things | 81 (16.2) | 420 (83.8) | 34 (17.3) | 162 (82.7) | 0.706 | 0.919 | 0.529–1.442 |
| Felt constantly under strain | 189 (37.7) | 312 (62.3) | 71 (36.2) | 125 (63.8) | 0.713 | 1.066 | 0.757–1.502 |
| Felt you could not overcome your difficulties | 120 (24.0) | 381 (76.0) | 65 (33.2) | 131 (66.8) | 0.013 | 0.635 | 0.442–0.911 |
| Unable to enjoy your normal day-to-day activities | 129 (25.7) | 372 (74.3) | 46 (23.5) | 150 (76.5) | 0.533 | 1.131 | 0.768–1.664 |
| Been unable to face up to your problems | 80 (16.0) | 421 (84.0) | 41 (20.9) | 155 (79.1) | 0.121 | 0.718 | 0.472–1.092 |
| Feeling unhappy and depressed | 147 (29.3) | 354 (70.7) | 79 (40.3) | 117 (59.7) | 0.005 | 0.615 | 0.436–0.868 |
| Been losing confidence in your self | 145 (28.9) | 356 (71.1) | 63 (32.1) | 133 (67.9) | 0.406 | 0.860 | 0.602–1.228 |
| Thinking of yourself as a worthless person | 83 (16.6) | 418 (83.8) | 49 (25.0) | 147 (75.0) | 0.011 | 0.596 | 0.399–0.889 |
| Unable to feel reasonably happy | 72 (14.4) | 429 (85.6) | 34 (17.3) | 162 (82.7) | 0.325 | 0.800 | 0.512–1.249 |

Data was analysed using a Chi-squared test, $p$-values less than 0.05 were considered statistically significant. OR: odd ratio 95% CI:

### Table 4. Association of Features of Psychological Distress Based on GHQ Items with Pre-clinical and Clinical Phases in Kulliyyah (Faculty) of Medicine

| Features of Psychological distress based on General Health Questionnaire GHQ | KOM: Pre-clinical Phase | KOM: Clinical phase | $p$-value | OR | 95% CI (lower-upper) |
|---|---|---|---|---|---|
| Problem with concentration | Positive n(%) | Negative n(%) | Positive n(%) | Negative n(%) | 0.773 | 1.058 | 0.771–1.551 |
| Lost much sleep over worry | 46 (20.1) | 183 (79.9) | 52 (19.1) | 220 (80.9) | 0.785 | 0.940 | 0.604–1.464 |
| Felt that you are not playing a useful part in things | 38 (16.6) | 191 (83.4) | 43 (15.8) | 229 (84.2) | 0.812 | 0.944 | 0.586–1.520 |
| Felt incapable of making decisions about things | 39 (17.0) | 190 (83.0) | 42 (15.4) | 230 (84.6) | 0.630 | 0.890 | 0.553–1.432 |
| Felt constantly under strain | 65 (28.4) | 164 (71.6) | 124 (45.6) | 148 (54.4) | 0.000 | 2.114 | 1.455–3.071 |
| Felt you could not overcome your difficulties | 50 (21.8) | 179 (78.2) | 70 (25.7) | 202 (74.3) | 0.308 | 1.241 | 0.819–1.879 |
| Unable to enjoy your normal day-to-day activities | 38 (16.6) | 191 (83.4) | 91 (33.5) | 181 (66.5) | 0.000 | 2.527 | 1.644–3.884 |
| Been unable to face up to your problems | 28 (12.2) | 201 (87.8) | 52 (19.1) | 220 (80.9) | 0.036 | 1.697 | 1.032-2.791 |
| Feeling unhappy and depressed | 60 (26.2) | 169 (73.8) | 87 (32.0) | 185 (68.0) | 0.157 | 1.325 | 0.897-1.955 |
| Been losing confidence in your self | 62 (27.1) | 167 (72.9) | 83 (30.5) | 189 (69.5) | 0.398 | 1.183 | 0.801-1.746 |
| Thinking of yourself as a worthless person | 37 (16.2) | 192 (83.8) | 46 (16.9) | 226 (83.1) | 0.821 | 1.056 | 0.658-1.696 |
| Unable to feel reasonably happy | 32 (14.0) | 197 (86.0) | 40 (14.7) | 232 (85.3) | 0.816 | 1.061 | 0.642-1.754 |

Data was analysed using a Chi-squared test, $p$-values less than 0.05 were considered statistically significant. OR: odd ratio 95% CI:

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Table 5. Association of the Top Ten Stressors with Psychological Distress in KOM and KOS

| Stressor                        | (KOM) |                | p-value | (KOS) |                | p-value |
|---------------------------------|-------|----------------|---------|-------|----------------|---------|
|                                | n     | Mean Distress Level |         | n     | Mean Distress Level |         |
| Fear of failing                 |       |                 |         | Yes   | 401               | 2.95    | 0.001 | Yes   | 179               | 3.35    | 0.171 |
| No                              | 100   | 2.01            |         | No    | 17               | 3.35    | 0.171 |
| Study pressure and obligation   |       |                 |         | Yes   | 383               | 3.15    | 0.000 | Yes   | 171               | 3.33    | 0.151 |
| No                              | 118   | 1.51            |         | No    | 25               | 2.72    |       |
| Examination and grades          |       |                 |         | Yes   | 368               | 3.01    | 0.000 | Yes   | 159               | 3.58    | 0.001 |
| No                              | 133   | 2.08            |         | No    | 37               | 1.84    |       |
| Time management problems        |       |                 |         | Yes   | 367               | 3.22    | 0.000 | Yes   | 158               | 3.44    | 0.049 |
| No                              | 134   | 1.50            |         | No    | 38               | 2.45    |       |
| Academic overload               |       |                 |         | Yes   | 351               | 3.08    | 0.000 | Yes   | 152               | 3.32    | 0.769 |
| No                              | 150   | 2.01            |         | No    | 44               | 3.0     |       |
| Reduced holidays                |       |                 |         | Yes   | 352               | 2.94    | 0.005 | Yes   | 149               | 3.68    | 0.000 |
| No                              | 149   | 2.34            |         | No    | 47               | 1.89    |       |
| Lack of time for relaxation     |       |                 |         | Yes   | 335               | 3.19    | 0.000 | Yes   | 148               | 3.53    | 0.007 |
| No                              | 166   | 1.90            |         | No    | 48               | 2.40    |       |
| Feeling of incompetence         |       |                 |         | Yes   | 311               | 3.52    | 0.000 | Yes   | 146               | 3.56    | 0.024 |
| No                              | 190   | 1.52            |         | No    | 50               | 2.34    |       |
| Lack of motivation to learn     |       |                 |         | Yes   | 302               | 3.44    | 0.000 | Yes   | 140               | 3.42    | 0.174 |
| No                              | 199   | 1.73            |         | No    | 56               | 2.82    |       |
| Limitation of leisure           |       |                 |         | Yes   | 291               | 3.12    | 0.000 | Yes   | 139               | 3.72    | 0.000 |
| No                              | 210   | 2.26            |         | No    | 57               | 2.11    |       |

Data was analysed using Mann–Whitney U test. "p-values less than 0.05 were considered statistically significant.

Discussion

The overall rate of psychological distress in our study was higher than the rate in the general population, however it was very close to another study completed in the United Kingdom. Previous studies have reported varying rates of psychological distress with some of these being higher than our results. However, a study completed in Malaysia found the rate to be 29.6%. These differences in rates may be due to differences in sample size, the course of study, and the method used to assess the distress; for example the type of questionnaire and the cutoff score used to indicate caseness, or conducting the study close to the period of examination.

In assessing the factors that may determine psychological distress, we found that both the rate and mean score of psychological distress were significantly higher among science students rather than medical students, this is inconsistent to a previous study done in India where the rate was higher among medical students rather than science and art students. Another study completed in...
Singapore revealed that although the rate was higher among medical students rather than non-medical (law) students, it was not statistically significant. The higher rate and mean score in this study among science students compared to medical students may be explained by the possibility that medical students are more aware of stress and its sources, and are more capable of coping with it than science students as they are taught to identify it and are trained clinically from the first year of their study onward. Also in the KOS, a possible reason is the language that their study is completed in, both faculties study in English however it might be more stressful and difficult for the KOS students as they tend to come from a background of lower school grades as the requirements to study at the KOM requires higher grades.

Gender wise, this study revealed that female students had a significantly higher mean score on the GHQ-12 when compared to the male students. This result was similar to previous studies among college students. One study in Malaysia revealed that the rate of psychological distress is slightly higher among female students, but it was not statistically significant, while another Malaysian study stated that no differences were observed between the genders. The reasons for the difference in gender can be hypothesised to involve hormonal differences, differing psychosocial stressors for women and men, and behavioural models of learned helplessness.

This study showed that the mean score of the GHQ-12 among medical students was significantly higher during the clinical phase over the pre-clinical phase of their study. Whilst other studies found there was no significant difference in the prevalence of psychological distress according to the phase of the study. This higher rate during the clinical stage may be due to the beginning of exposure to patients and the hospital atmosphere, challenges in dealing with clinical cases, and implementing theory towards clinical practice. The pre-clinical phase is characterised by more theory and lecture oriented learning, whilst when the students move to the clinical phase, they need to depend more on themselves for the preparation of seminars, and obtaining patient history and examination for the preparation of case presentations. They also have to attend ward rounds and on-calls, where they shadow the medical officers in the ward. Moreover, the increased distress, especially in the final year, may be due to the pressures of academic achievements such as passing the final professional exam and thinking about the responsibilities of real life clinical practice. This is supported by our further analysis of the features of the GHQ-12 between the clinical and pre-clinical phases, whereby most of the features are higher in clinical phase students, with the following three features “constantly felt under strain”, “unable to enjoy your normal day-to-day activities”, and “been unable to face up to your problems” being significantly higher in clinical students that reflected higher psychological distress.

In assessing the response of different items of the GHQ-12 between medical and science students, statistical analysis using Chi-squared test showed that factors including “lost much sleep over worry”, “felt you could not overcome your difficulties”, “been feeling unhappy and depressed”, and “been thinking of yourself as a worthless person” were significantly associated with science students rather than medical students.

Our study revealed five features of psychological distress, based on the GHQ-12, that can be considered as a mix of depressive and anxiety symptoms which were significantly causing psychological distress among science students over medical students. This may highlight the importance of assessment of depression and anxiety among psychologically distressed science students.

Academic and psychological factors played an important role as a source of stressors as most of the top ten stressors chosen by both medical and science students were related to them. This finding is comparable with other studies, in which the academic related factors were considered as the main sources of stressors. In addition, three other important stressors were reported by medical students to be an important source of stressor namely “reduced holidays”, “lack of time for relaxation”, and “limitation of leisure and entertainment time”.

In this study, the analysis shows a significant association between all of the top ten stressors and psychological distress among medical students. Whilst among science students, six factors had a statistically significant association with psychological distress.

The result of this study may aid in designing appropriate intervention strategies and planning modifications in the Medical and non-medical curriculum to enhance the students' learning abilities and their lifestyles.

Conclusions

Psychological distress is common among university students, and it is higher among non-medical (science) students rather than medical students. It is higher during the clinical phase rather than the pre-clinical phase of the medical study. Female students are at a higher risk for psychological distress. Academic, psychological, and other important factors such as reduced holidays, lack of time for relaxation, and limitation of leisure and entertainment time can be considered as sources of stressors that may precipitate psychological distress in both medical and science students. One of the ways to help the students to overcome these difficulties in their academic life is to improve the mentor/mentee programs, and implement them on regular basis. Additionally, aims to thoroughly discuss students’ problems, which will help them to release the pressure applied to them and motivate them to overcome these difficulties in their academic life is to improve the mentor/mentee programs, and implement them on regular basis. Additionally, aims to thoroughly discuss students’ problems, which will help them to release the pressure applied to them and motivate them to...
put a better effort into their study should be explored. To ensure better academic performance and the psychological wellbeing of the students, it is also worthy to highlight the importance of regular assessment and review of the academic curriculum, especially in the aspect of difficulty and frequency of assignments given to the students, so the students will not be overloaded leading to physical and mental exhaustion.

**Conflict of Interest Statement**

The authors declare no conflict of interest.

**References**

1. Payton AR. Mental Health, Mental Illness, and Psychological Distress: Same Continuum or Distinct Phenomena? *J Health Soc Behav.* 2009;50:213-27.
2. Drapeau A, Marchand A, Beaulieu-Prévost D. Epidemiology of Psychological Distress, Mental Illnesses – Understanding, Prediction and Control, Prof. Luciano LAbate (Ed.), InTech, 2012.
3. Giugliano RJ. The systemic neglect of New York’s young adults with mental illness. *Psychiatr Serv.* 2004;55:451-3.
4. Radeef AS, Faisal GG. Depression, anxiety and stress with possible sources of stressors among undergraduate medical students in Malaysia. *Brunei Int Med J.* 2016;12:18-25.
5. Shamsuddin K, Fariza F, Wan Salwina WI, et al. Correlates of depression, anxiety and stress among Malaysian university students. *Asian J Psychiatr.* 2013;6: 318-23.
6. Nikmat AW, Mariam M, Ainsah O, Salmi R. Psychological well-being, stress and coping style among pre clinical medical students. Res management in state, University Teknol. 2010.
7. Radeef AS, Faisal GG, Ali SM, Mohamed Ismail MKH. Source of stressors and emotional disturbances among undergraduate science students in Malaysia. *Inter J Med Res Health Sci.* 2014;3:401-10.
8. Singh I, Jha A. Anxiety, optimism and academic achievement among students of private medical and engineering colleges: A comparative study. *J Edu Develop Psychol.* 2013;3:222-33.
9. Goldberg, D.P., and P. Williams. 1991. A User’s Guide to the General Health Questionnaire. Great Britain: NFER-NELSON Publishing Company.
10. Goldberg, D. P., Gater, R., Sartorius, N., Ustun, T. B., Piccinelli, M., Gureje, O. Rutter, C. The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychol Med.* 1997;27:191-7.
11. Zulkefly NS, Baharudin R. Using the 12-item General Health Questionnaire (GHQ-12) to assess the psychological health of Malaysian college students. *Glob J Health Sci.* 2010;2:73.
12. Ko SM, Kua EH, Fones CSL. Stress and the Undergraduates. *Singapore Med J.* 1999;40:627-30.
13. Hunt J, Eisenberg D. Mental health problems and help-seeking behaviour among college students. *J Adolesc Health.* 2010;46:3-10.
14. Yusoff MS, Abdul Rahim AF, Yaacob MJ. Prevalence and Sources of Stress among UniversitiSains Malaysia Medical Students. *Malays J Med Sci.* 2010;17:30-7.
15. SupeA N. A study of stress in medical students at Seth G.S. Medical College. *J Postgrad Med.* 1998;44:1-6.
16. Alzahem AM, van der Molen HT, Alaujan AH, Schmidt HG, Zamakshary MH. Stress amongst dental students: a systematic review. *Eur J Dent Educ.* 2011;15:8-18.
17. Firth J. Levels and sources of stress in medical students. *Br Med J.* 1986;292:1177-80.
18. Shannon ER, Bradley CN, Teresa MH. Sources of stress among college students. *Coll Stud J.* 1999; 33:312.
19. Abdulghani HM, AlKanhal AA, Mahmoud ES, et al. Stress and Its Effects on Medical Students: A Cross-sectional Study at a College of Medicine in Saudi Arabia. *J Health Popul Nutr*. 2011;29:516-22.
20. Sani M, Mahfouz MS, Bani I, Alsomily AH, Alagi D, Alsomily NY. Prevalence of stress among medical students in Jizan University, Kingdom of Saudi Arabia. *Gulf Med J.* 2012;1:19-25.
21. Mahawar P, Phadnis S, Ghosh G, Kataria OP, Dixit S. Psychological Morbidty in Students of Medical College and Science and Art College Students- A Comparative Study. *Online J Health Allied.* 2011;10.
22. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among US and Canadian Medical students. *Acad Med.* 2006;81:354-73.
23. Sherina MS, Rampal L, Kaneson N. Psychological stress among undergraduate medical students. *Med J Malaysia.* 2004;59:207-11.
24. Sreraramreddy CT, Shankar PR, Binu VS, Mukhopadhyay C, Ray B, Menezes RG. Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal. *BMC Med Educ.* 2007;7:1.
25. Shah M, Hasan S, Malik S, Sreraramreddy CT. Perceived Stress, Sources and Severity of Stress among medical undergraduates in a Pakistani Medical School. *BMC Med Education.* 2010;10:2.
26. Al-Dubai SA, Al-Naggar RA, Alshagga MA, Rampal KG. Stress and Coping Strategies of Students in a Medical Faculty in Malaysia. *Malaysian J Med Sci.* 2011;18:57-64.