

ORIGINAL ARTICLE

DETERMINANT FACTORS OF DEPRESSION: A SURVEY AMONG UNIVERSITY STUDENTS

Amal K Suleiman¹, Nur Farhan Izzaty Ismadi², Fahad Riaz Choudhry³, Khadeeja Munawar^{4*} and Muhammed Abdul Hameed²

¹Department of Pharmaceutical Practices, College of Pharmacy, Princess Noura bint Abulrahman University, Riyadh, Kingdom of Saudi Arabia.

²Vector-borne Diseases Research Group (VERDI), Faculty of Pharmacy, Universiti Teknologi MARA (UiTM), Puncak Alam, Selangor, Malaysia

³Department of Psychology, Jeffrey Cheah School of Medicine & Health Sciences, Monash University, Malaysia

⁴Department of Psychology, University of Wah, Wah Cantt, Pakistan

*Corresponding Author:

Khadeeja Munawar:

Email: khadeeja.munawar14@gmail.com

ABSTRACT

We compared the determinant factors of depression; among faculties in university, among junior and senior students, and gender differences among representative samples of faculties in university. Centre for Epidemiological Studies Depression (CES-D) consisting for 20 questions was used to assess the status of well-being of students. A total of 240 students participated and completed the assessment forms. The results were then compared and analyzed using the IBM SPSS Statistics version 21. There was no effect of faculty on depression ($p=0.854$). The association between year of study and depression was not statistically significant ($p\geq 0.05$). Likewise, the association between gender and depression was statistically not significant ($p\geq 0.05$). The study revealed absence of statistically significant effect of faculty on depression. It was also found that gender and depression as well as year of study and depression were not statistically significant.

Keywords: Depression, University students, Gender Differences, Determinant factors

INTRODUCTION

The past studies have been conducted in order to estimate the determinant factors of depression among Malaysians¹⁻⁸. Depression affects all people, regardless of social position, age, demographics, or geographic location^{9, 10}. For the past five decades, the average age of onset for depression has been 29 years whereas a recent study reported it to be 14.5 years^{11, 12}. The mental health issues are steadily aggravating in Malaysia^{13, 14}.

Due to high prevalence and morbidity, depression is under empirical exploration in Malaysia¹⁴. In Malaysia, the National Health Morbidity Survey IV of 2011 stated that the prevalence of depression and lifetime depression was 1.8% and 2.4% respectively¹⁵. According to a report, the prevalence of depression of clinical groups in Malaysia ranged from 3.9% to 46%⁹. In Malaysia, the prevalence of major depressive disorder was reported to be 5.6% and it was shown to be a powerful trigger of suicide, among college students^{16, 17}. In northwest Malaysia, the prevalence of depression is approximately 48.8% among elderly¹⁸. Likewise, hypertension, one of the most prevalent health problems in Malaysia, had high direct cost which increased further due to presence of co-morbid diseases¹⁹.

The first symptoms of depression are usually developed during college years²⁰⁻²². It was found that about 13.8% of college students reported feeling depressed which affected their academic performance, and about 16.0% students reported that they felt depressed for the last two months which influenced their functioning²²⁻²⁴.

Depression, anxiety and stress symptoms are not unusual among university, undergraduate and graduate college students and are recognized as the most frequent problem among them²⁵⁻²⁸. University students, especially the junior students, are exposed to various psychosocial changes as they have to adapt with the academic and social demands, prepare future prospects and deal with homesickness²⁹⁻³¹. However, a higher level of depression was reported in older students indicating that senior students had higher depression as compared to junior students³². Abuse of narcotics, a common issue during college time was found to be significantly reduced through logotherapy³³.

The past research studies have focused on gender differences in depression and revealed women to have more depression as compared to men³⁴⁻³⁸. Similarly, research studies revealed differences in depression levels with faculty of medicine students having 57.9% prevalence of depression and faculty of pharmacy students having 51.1% prevalence³⁹⁻⁴¹.

In different characteristics of general population, variation in mental health is shown⁴². However, there is little knowledge regarding potential risk factors of depression especially in student population²⁸. A great deal of research studies carried out on students have explored risk factors of suicide, such as sexual victimization, relationships issues, problems related with sexual identity, substance use, and other risky behaviors⁴³⁻⁴⁷. Studies have also explored the expectations of people regarding services in order to avoid complaints after providing services^{48, 49}.

Even though various studies on depression have been conducted, the exact determinant factors of depression among university students in Malaysia have yet to be fully ascertained. According to a research study, by the year 2020, depression is expected to stand second, after ischemic heart disease, as the leading cause of disability universally⁵⁰. The topic of psychological health of university students is serving as a vital and public health concern for which empirical data are always required. Hence, it is vital to identify those who have depression, especially students, in order to prevent steady rise of depression. Although the effects of depression have been explored in various populations; groups and subgroups, yet the challenging effects of this psychological problem have been unexplored in Malaysian university students. This research shows the influence faculty, year of study and gender on scores of depression. From public health point of views, this study brings forth the importance of screening for psychological problems, presence of mental health facilities in universities and potential importance of educating this population regarding availability of services. Thus, the current study aimed at comparing the determinant factors of depression in various faculties of university; the comparison of depression between junior students and senior students as well as gender differences in depression across students of various faculties.

METHODOLOGY

Procedure and Sample

The total sample consisted of 240 students (N = 240) from the first and third-year students from Faculty of Pharmacy (n=95), Faculty of Health Science (n=99), and Faculty of Education (n= 46). The sample was recruited through a non-probability purposive sampling technique. Inclusion criteria were set as follows; the first and third-year students of Faculty of Pharmacy and Faculty of Health Science were recruited. Furthermore, third-year

students of Faculty of Education were taken. Only those students who showed willingness to participate in this study were selected. After obtaining formal permission from the developers of the tool, data were collected. Prior to enrolment in the survey, potential participants were informed about details of the objectives and nature of the study. Questionnaire was administered after asking participants to provide a written consent. The participants were also assured of the confidentiality of their responses. Each survey consisted of a demographic section, and "20 questions Center for Epidemiologic Studies Depression Scale" (CES-D). Participants took an average of 10-15 minutes to fill in the questionnaires after receiving brief instructions from the researcher. Research process was completed in encouraging atmosphere. Participants were thanked for their participation in the study. Some questionnaires were excluded from the analysis as participants left more than one questions blank in "CES-D" or skipped details in demographic section. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Research Design and Statistical analysis

The cross-sectional research design was used in this study. The collected data were analyzed by Statistical Package for Social Sciences-version 21 (SPSS). Descriptive analysis, one way ANOVA and Chi-square were carried out to test the hypotheses of present study.

Assessment Measures

Demographic information questionnaire

The demographic section in the study included questions pertaining to age, gender, year of study, GPA during last semester, and hours spent on academic activities per week.

Center for Epidemiological Studies Depression Scale (CES-D)

All the participants completed CES-D⁵¹ having 20 questions. It was administered to detect current clinical or major depressive symptoms in students.

RESULTS

A demographic sheet was developed by the researchers, which provided necessary information about participants' age, gender, year of study, GPA last semester, and hours spent on academic activities per week. Demographic characteristics of the sample are shown in Table 1.

Table 1: Demographics characteristics of the sample (N=240)

Characteristics	Frequency (n)	Percentage (%)
i) Gender		
Men	51	21.3%
Women	189	78.8%
ii) Faculty		
Pharmacy	95	39.6%
Health Science	99	41.3%
Education	46	19.2%
iii) Age (years)		
	Mean	SD
19-25	21.80	±1.43

From the total participants (N=240), majority of the participants (78.8%) were women. The majority of participants were from Faculty of Health Science (41.25%), followed by 39.58% from Faculty of Pharmacy and 19.17% from Faculty of Education. The mean age of participants was 21.8 years (SD= ± 1.43).

A One-way ANOVA was conducted to compare the effect of faculty on depression (Table 2). Results showed that the effect of faculty on depression was not significant, $F_{(2, 237)} = .158, p = .854$. This meant that none of the faculties were influencing scores on depression. Students from all the three faculties had equal chances to have depression.

Table 2: Results of one-way ANOVA for the effect of faculty on depression

Source	df	SS	MS	F	P
Between groups	2	21.368	10.684	.158	.854
Within groups	237	16004.428	67.529		
Total	239	16025.796			

ANOVA, $F(2, 237) = .158, MSE = 3.97, P = .854, \eta^2 = .03$. ANOVA: Analysis of variance

The chi-square test of association was conducted to test the effect of faculty and gender on depression (Table 3). Results indicate that year of study and gender does not appear to be statistically associated with one's depression respectively. These results suggest that the level of depression is

similar for first and third year students. The test of association results also indicate that gender does not appear to be statistically associated with one's depression showing that the level of depression is similar for men and women.

Table 3: Results of test of association for the effect of faculty and gender on depression.

Status	Year of Study		Gender	
	First Year	Third Year	Men	Women
Depressed	56 (58.9%)	72 (72.7%)	32 (66.7%)	96 (65.8%)
Not Depressed	39 (41.1%)	27(27.3%)	16 (33.3%)	50 (34.2%)

Note. $\chi^2 = 4.10, df = 1; \chi^2 = .009, df = 2$. Numbers in parentheses indicate column percentages. * $p > .05$

DISCUSSION

This study was carried out to compare the determinant factors of depression across various faculties in university students. Based on the results of one-way ANOVA, it was seen that there was no effect of faculty on depression in students. Some research findings are consistent with the findings of present study. For instance, a research studies showed that there was no relationship between studying and happiness and that mood was only influenced by cognitive and behavioral factors ^{52, 53}.

In the same way, chi-square test of association revealed absence of statistically significant

association between year of study and depression which meant that first year students and third year students had similar levels of depression. Findings are in accord with the study ⁵². Authors showed absence of depression in most of the students and revealed that majority of the students had adequate mental health. These findings are contrary to some of the empirical studies. For instance, a study indicated that first year college students reported approximately 50% depressive symptomology ⁵⁴. In the same way, a study revealed that first year veterinary students were experiencing elevated depression and anxiety levels ⁵⁵.

The current research revealed absence of statistically significant association between gender and depression which meant that men and women had similar levels of depression. The present findings are in harmony with some of the research studies. For instance, a research revealed lack of statistically significant gender differences in terms of mental disorders in students⁵⁶. Findings of study showed absence of statistically significant gender and age differences in the amount of study, happiness and depression among students⁵². In the same way, absence of gender differences regarding mean scores of depression were also reported in undergraduate students⁵⁷.

CONCLUSIONS

Based on findings of this study, students in all the three faculties i.e. Faculty of Pharmacy, Faculty of Health Science and Faculty of Education showed equal presence of depression. Likewise, junior students from first year and senior students from third year degree showed equal presence of depression and no differences were seen on the basis of years of study. In the same way, absence of statistically significant gender differences in depression showed that both men and women had equal levels of depression

LIMITATIONS

In this study, few limitations should be well considered. One of the limitations is that there is a possibility of biased sampling as the samples were randomly selected from the first year students and third year students. The second limitation is that the sample size selected was not enough. Hence, larger sample size should be considered in future studies. Certain factors such as stressful events and family history of depression were not taken into consideration which might have influenced scores on depression. Furthermore, personality factors of students were not assessed. These limitations including environmental and genetic problems should be taken into consideration in future studies. Students' motivation, studies burden, attribution styles and presence or absence of proper facilities for studying should also be explored in future studies.

IMPLICATIONS

This study can help in developing new ideas and intervention strategies for campus health services in helping the students, especially the freshmen, to adapt and face challenging and unfamiliar situations in universities. Interventions can be designed to help freshmen in adjusting to early college life in order to help these students in becoming more effective in their personal as well as academic lives. This study is one of the very first few studies that are conducted in Malaysia to add in scientific

literature regarding determinant factors of depression among university students.

Compliance with Ethical Standards

In order to conduct this research, ethics approval was sought from university and prior permission of the tool being used was sought from the author of tool. Prior to enrolment in the survey, participants were informed about details of the study being conducted and were assured of anonymity and confidentiality. Likewise, only those participants were recruited who gave consent to take part in the study. Data collection was carried out in three weeks in row and questionnaires were presented to those participants who met the required criteria.

Role of funding source

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Competing interests

There are no potential conflicts of interest regarding research, authorship, and/or in the publication of this article.

Authors' contributions

All the authors have equally contributed in drafting and finalization of the manuscript. All the authors have approved the final article.

REFERENCES

1. Barua A, Ghosh MK, Kar N and Basilio MA. Prevalence of depressive disorders in the elderly. *Annals of Saudi Medicine*. 2011; 31: 620-4.
2. Kader Maideen SF, Sidik SM, Rampal L and Mukhtar F. Prevalence, associated factors and predictors of depression among adults in the community of Selangor, Malaysia. *PloS one*. 2014; 9: e95395.
3. Kaur J, Cheong SM, Mahadir Naidu B, et al. Prevalence and correlates of depression among adolescents in Malaysia. *Asia-Pacific journal of public health*. 2014; 26: 53s-62s.
4. Mohd Sidik S, Mohd Zulkefli NA and Mustaqim A. Prevalence of depression with chronic illness among the elderly in a rural community in Malaysia. *Asia Pacific Family Medicine*. 2003; 2: 196-9.
5. Okonkwo Mukosolu FI, Lekhraj Rampal, Normala Ibrahim. Prevalence of Job stress and its Associated Factors among Universiti Putra Malaysia Staff. *Malaysian*

- Journal of Medicine and Health Sciences*. 2015; 11: 27-38.
6. Abdul Rashid AAM, Siti Rohana. Depression among the elderly malays living in rural Malaysia. *The Internet Journal of Public Health*. 2010; 1.
 7. Rashid A and Tahir I. The prevalence and predictors of severe depression among the elderly in Malaysia. *Journal of cross-cultural gerontology*. 2015; 30: 69-85.
 8. Maideen SFK, Sidik SM, Rampal L and Mukhtar F. Prevalence, associated factors and predictors of depression among adults in the community of Selangor, Malaysia. *PLoS one*. 2014; 9: e95395.
 9. Firdaus Mukhtar TPOS. A Review on the Prevalence of Depression in Malaysia. *Current Psychiatric Review*. 2011; 7: 234-8.
 10. Mukhtar F and Oei TP. A review on assessment and treatment for depression in Malaysia. *Depression research and treatment*. 2011; 2011.
 11. Elizabeth M VRM. *Essentials of Psychiatric Mental Health Nursing: A communication approach to evidence-based care*. China: Elsevier Health Sciences, 2013.
 12. Engmann M. *Screams of Silence*. HelpMate Publishing, 2011.
 13. Khan TM, Sulaiman SA and Hassali MA. Mental health literacy towards depression among non-medical students at a Malaysian university. *Mental Health in Family Medicine*. 2010; 7: 27-35.
 14. Ng CG. A review of depression research in Malaysia. *The Medical journal of Malaysia*. 2014; 69 Suppl A: 42-5.
 15. IPH. National Health and Morbidity Survey 2011, Non-Communicable Diseases. In: Umum IK, (ed.). Kuala Lumpur, Malaysia: Kementerian Kesihatan Malaysia, 2011.
 16. Farabaugh A, Bitran S, Nyer M, et al. Depression and suicidal ideation in college students. *Psychopathology*. 2012; 45: 228-34.
 17. Jammy Suzana AA NM, Sherina MS. The Prevalence of Depressive Disorders Among Adult Patients Attending Primary Care Clinics. *The Malaysian Journal of Psychiatry*. 2005; 13: 25-9.
 18. Abdul Rashid Khan, Narayan K A and AM A. The prevalence of cognitive impairment and depression and their associated factors in an elderly population in two villages in Kedah, Malaysia. *Malaysian Journal of Public Health Medicine* 2006; 6: 29-37.
 19. Azimatun Noor A, Amrizal MN, T Weng Kang, et al. Cost analysis of hypertension management in an urban Primary Medical Centre Kuala Lumpur. *Malaysian Journal of Public Health Medicine*. 2014; 14: 18-23.
 20. Irene Markman Geisner KM, Jason R. Kilmer. An Examination of Depressive Symptoms and Drinking Patterns in First Year College Students. *Issues in Mental Health Nursing*. 2012 33: 280-7.
 21. Pedrelli P, Nyer M, Yeung A, Zulauf C and Wilens T. College Students: Mental Health Problems and Treatment Considerations. *Academic psychiatry : the journal of the American Association of Directors of Psychiatric Residency Training and the Association for Academic Psychiatry*. 2015; 39: 503-11.
 22. Hershner SD and Chervin RD. Causes and consequences of sleepiness among college students. *Nature and Science of Sleep*. 2014; 6: 73-84.
 23. El Ansari W, Labeeb S, Moseley L, Kotb S and El-Houfy A. Physical and Psychological Well-being of University Students: Survey of Eleven Faculties in Egypt. *International Journal of Preventive Medicine*. 2013; 4: 293-310.
 24. Sohail N. Stress and academic performance among medical students. *Journal of the College of Physicians and Surgeons--Pakistan : JCPSP*. 2013; 23: 67-71.
 25. Lyubomirsky S, Kasri F and Zehm K. Dysphoric Rumination Impairs Concentration on Academic Tasks. *Cognitive Therapy and Research*. 2003; 27: 309-30.
 26. Bayram N and Bilgel N. The prevalence and socio-demographic correlations of depression, anxiety and stress among a

- group of university students. *Social psychiatry and psychiatric epidemiology*. 2008; 43: 667-72.
27. Eisenberg D, Golberstein E and Gollust SE. Help-seeking and access to mental health care in a university student population. *Medical care*. 2007; 45: 594-601.
 28. Eisenberg D, Gollust SE, Golberstein E and Hefner JL. Prevalence and correlates of depression, anxiety, and suicidality among university students. *The American journal of orthopsychiatry*. 2007; 77: 534-42.
 29. Uehara T, Takeuchi K, Kubota F, Oshima K and Ishikawa O. Annual transition of major depressive episode in university students using a structured self-rating questionnaire. *Asia-Pacific Psychiatry*. 2010; 2: 99-104.
 30. Aysan F, Thompson D and Hamarat E. Test anxiety, coping strategies, and perceived health in a group of high school students: a Turkish sample. *The Journal of genetic psychology*. 2001; 162: 402-11.
 31. Thurber CA and Walton EA. Homesickness and adjustment in university students. *Journal of American college health : J of ACH*. 2012; 60: 415-9.
 32. Shamsuddin K, Fadzil F, Ismail WSW, et al. Correlates of depression, anxiety and stress among Malaysian university students. *Asian Journal of Psychiatry*. 2013; 6: 318-23.
 33. Maryatun S. The effect of logotherapy to changes self-esteem of women prisoners with narcotics. *Malaysian Journal of Public Health Medicine*. 2013; 13: 58-66.
 34. Mazlan NH. Stress and Depression: A Comparison Study between Men and Women Inmates in Peninsular Malaysia. *International Journal of Humanities and Social Science*. 2014; 4: 153-60.
 35. Ghazali SR and Azhar A. Depressive Symptoms, Gender, and Ethnicity: An Exploratory Study among Cross Ethnic Adolescents in Sarawak, Malaysia. *Malaysian Journal of Youth Studies*. 2015; 13: online.
 36. Alabal BK, Koura MR and Alsowielem LS. Magnitude of depression problem among primary care consumers in Saudi Arabia. *Int J Med Sci Public Health*. 2015; 4: 205-10.
 37. NAMI. NAMI: The national alliance on mental illness. 2016.
 38. Z. Batool SRSA, M. I. Zafarand S. Hameed. Evaluation of risk factors and prevalence of depressive disorders among rural females in district Faisalabsd. *The Journal of Animal and Plant Sciences*. 2008; 18: 89-93.
 39. Nigar G. Khawaja KD. Using the University Student Depression Inventory to Investigate the Effect of Demographic Variables on Students' Depression. *Australian Journal of Guidance and Counselling*. 2008; 18: 1-15.
 40. Sarokhani D, Delpisheh A, Veisani Y, Sarokhani MT, Manesh RE and Sayehmiri K. Prevalence of Depression among University Students: A Systematic Review and Meta-Analysis Study. *Depression research and treatment*. 2013; 2013: 373857.
 41. Ibrahim MB and Abdelreheem MH. Prevalence of anxiety and depression among medical and pharmaceutical students in Alexandria University. *Alexandria Journal of Medicine*. 2015; 51: 167-73.
 42. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR and Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of general psychiatry*. 2005; 62: 593-602.
 43. Barrios LC, Everett SA, Simon TR and Brener ND. Suicide ideation among US college students. Associations with other injury risk behaviors. *Journal of American college health : J of ACH*. 2000; 48: 229-33.
 44. Kisch J, Leino EV and Silverman MM. Aspects of Suicidal Behavior, Depression, and Treatment in College Students: Results from the Spring 2000 National College Health Assessment Survey. *Suicide and Life-Threatening Behavior*. 2005; 35: 3-13.
 45. Brener NDH, Sohela Sabur; Barrios, Lisa Cohen. Suicidal ideation among college students in the United States. *Journal of*

- Consulting and Clinical Psychology*. 1999; 67: 1004-8.
46. Silverman MM, Meyer PM, Sloane F, Raffel M and Pratt DM. The Big Ten Student Suicide Study: a 10-year study of suicides on midwestern university campuses. *Suicide & life-threatening behavior*. 1997; 27: 285-303.
 47. Stepakoff S. Effects of sexual victimization on suicidal ideation and behavior in U.S. college women. *Suicide & life-threatening behavior*. 1998; 28: 107-26.
 48. Jadoo SAA, Aljunid SM, Seher Nur Sulku, et al. Peoples expectations from healthcare providers - A Turkish Perspective. *Malaysian Journal of Public Health Medicine* 2013; 13: 88-97.
 49. Saad Ahmed Ali Jadoo, Syed Mohamed Aljunid, Seher Nur Sulku, et al. Health system reform from the people's point of view: development of reliable and valid questionnaire. *Malaysian Journal of Public Health Medicine* 2013. 2013; 13: 65-76.
 50. Murray CL. *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries and Risk Factors in 1990 and Projected to 2020*. Geneva, Switzerland;: World Health Organization, 1996.
 51. Radloff LS. The CES-D Scale: A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement*. 1977; 1: 385-401.
 52. Bahrami S, Rajaeepour S, Rizi HA, Zahmatkesh M and Nematolahi Z. The relationship between students' study habits, happiness and depression. *Iranian Journal of Nursing and Midwifery Research*. 2011; 16: 217-21.
 53. Jafari A, Abedi, M. R., & Yaghtadar, M. J. Happiness in medical students of Isfahan University of Medical Sciences and factors affecting it. . *Journal of Teb and Tazkeh*. 2004; 14: 15-23.
 54. Brandy JM, Penckofer S, Solari-Twadell PA and Velsor-Friedrich B. Factors predictive of depression in first-year college students. *Journal of psychosocial nursing and mental health services*. 2015; 53: 38-44.
 55. Hafen M, Jr., Reisbig AM, White MB and Rush BR. Predictors of depression and anxiety in first-year veterinary students: a preliminary report. *Journal of veterinary medical education*. 2006; 33: 432-40.
 56. Dadkhah BAM, Mohammad%A Mozaffari, Naser. Mental Health Status of the Students in Ardabil University of Medical Sciences, 2004. *Journal of Ardabil University of Medical Sciences*. 2006; 6: 31-6.
 57. Hammen CL and Padesky CA. Sex differences in the expression of depressive responses on the Beck Depression Inventory. *Journal of Abnormal Psychology*. 1977; 86: 609.