

<http://www.pjbs.org>

**PJBS**

ISSN 1028-8880

**Pakistan  
Journal of Biological Sciences**

**ANSI***net*

Asian Network for Scientific Information  
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan

## Depression Prevalence and Related Factors in Iranian Students

<sup>1</sup>Bayati A., <sup>2</sup>Mohammad Beigi A. and <sup>3</sup>Mohammad Salehi N.

<sup>1</sup>Department of Nursing, Arak University of Medical Sciences, Arak, Iran

<sup>2</sup>Department of Epidemiology, Faculty of Health, Qom University of Medical Sciences, Qom, Iran

<sup>3</sup>Department of Epidemiology, Arak University of Medical Sciences, Arak, Iran

**Abstract:** This study designed to determine prevalence and related factors of depression in student of Arak, Iran. An analytical cross-sectional study was conducted on 304 undergraduate medical and basic students in Arak Universities, Markazi Province, Iran from May 2008 to July 2008. GHQ-28 questionnaire has been used for data gathering and analyzed by t and Chi square tests. Mean of mental health in students was  $26.18 \pm 11.02$  and 52.3% of students scored above the threshold of the GHQ-28, indicating psychiatric disorder. Female sex, uninteresting of major, an uncertain future and positive family history were the most important risk factors of depression. In results didn't observe any significant relationship between age, education major and year. The prevalence of depression was higher than as compared to all population and in female exceed to male students. But there wasn't any difference between medical and non medical students. So attention to financial and occupational future graduated and under graduated students is essential.

**Key words:** Depression, related factors, general health, student, GHQ-28

### INTRODUCTION

Depression is an important health problem due to its prevalence and associated consequences. The lifetime prevalence of depression ranges between 10 and 21% in population (Noble, 2005). According to the precipitation of the World Health Organization (WHO), depression is estimated to become the second leading cause of dysfunction by the year 2020. Therefore, it was reported that by 2020 depression would be the leading cause of burden of disease in developing countries (Murray and Lopez, 1997; Ozdmir and Rezaki, 2007).

It is well known that stressful life events can cause psychological symptom. Highly, stressful life events were suggested to be antecedents and even predictors of the majority of depression symptoms (Eremsoy *et al.*, 2005). The university is a critical context for studying youth mental health (Weitzman, 2004). University students are often are subjected to different kinds of stressors, such as moving away from the family home for the first time, residing with other students, experiencing reduced adult supervision (Murray and Lopez, 1997), the pressure of academics with an obligation to succeed, an uncertain future and difficulties of integrating into the system. Students also face social, emotional and physical and family problems which may affect their learning ability and academic performance (Sreeramareddy *et al.*, 2007; Chew-Graham *et al.*, 2003) and these changes may

increase the risk of depression and affects general health status (Read *et al.*, 2002).

Evidence that suggests that university students are vulnerable to mental health problems has generated increased public concern in societies (Bayram and Bilgel, 2008). Previous studies suggest high rates of psychological morbidity, especially depression and anxiety, among university students in all over the world (Nerdrum *et al.*, 2006; Ovuga *et al.*, 2006; Voelker, 2003; Wong *et al.*, 2006).

In Malaysia, 41.9% of medical students were found to have emotional disturbances as reported by using the GHQ-12 questionnaire (Sherina *et al.*, 2003). Using the General Health Questionnaire (GHQ), 47.9% of year two medical students in Antalya, Turkey, were found to have emotional disorders, higher than the percentage of students studying economics (29.2%) and physical education (29.2%) (Aktekin *et al.*, 2001). Also, in a study among medical students in a Malaysian private medical school 46.2% were found to have emotional disturbances (Zaid *et al.*, 2007). Therefore, it has guesstimated that medical students have been shown to be more prone to emotional disorders as compared to non-medical students.

The objective of this study was to determine and compare the prevalence of emotional disorders among medical and non-medical students of Arak universities, Markazi province of Iran and to look for related demographic characteristics and contributing factors.

**MATERIALS AND METHODS**

An analytical cross-sectional study was conducted on 304 undergraduate medical and basic (non-medical) students in Arak Universities of Markazi province, Iran from May 2008 to July 2008. Participations were student at second and higher educational term that their class selected as a cluster for our study. They selected for study by systematic sampling method from each class and major to any student has equal chance for entering in the sample.

Prior approval from the ethical committee of the research vice-chancellor of university was obtained and informed consents were obtained from the participants after the aims and objectives of the study had been explained. Participation in the study was on a voluntary basis and in order to guarantee confidentiality, the participants were not identified. The students completed the General Health Questionnaire (GHQ-28), it is a self-administered instrument with well-established psychometric properties in clinical and community samples and has been shown to differentiate between the four dimensions of psychological disorder.

The validity and reliability of the Persian version of questionnaire was assessed by others Iranian studies as identifying a probable case of psychiatric disorder such as depression (Noorbala *et al.*, 2004; Assadi *et al.*, 2007). Each item can be rated on a four point Likert-type scale (0-1-2-3) giving a potential score of 0-84, participations with higher scores representing greater distress. Using the recommended GHQ-28 cutoff point (more than 23) as a screening treshold, it has been validated locally and had been used in local studies on emotional disturbances (Jahani Hashemi and Noroozi, 2004; Dadkhah *et al.*, 2006).

Statistical analysis were conducted with the SPSS version 11.5 for Windows. Chi square, t tests and analysis of variance tests were performed to compare differences in GHQ-28 scores between different student groups. Those variables that have significant value lower than 0.25 included in logistic regression model. Regression analysis conducted by forward stepwise method. In all analysis 0.05 considered as significant level.

**RESULTS**

Out of 350 undergraduate medical and non-medical students, a total of 304 students completed the questionnaires carefully; so the overall response rate was 86.8% after removing bad quality answered questionnaires. Non responders were in first term of education or did not return questionnaire to researchers. The responders were 158 males (52%) and 146 females

(48%) and 172 (56.6%) medical and 132 (43.4%) non-medical students. Ninety tree (30.7%) students were ingeniousness level, 184 (60.7%) were bachelor level and 26 (8.6%) were doctorate level. Overall the mean age of the respondents was 20.9±1.78 years, with a range of 18-29 years and the mean score of GHQ-28 calculated 26.18±11.02.

The overall prevalence of psychological morbidity was 52.3%. There was a significant difference between male and female student regarding to GHQ, physical health and anxiety scores (p<0.05), but there wasn't any difference by social practice and depression scores between to gender groups. Also didn't observe any differences between single and married students in GHQ score and four dimensions (Table 1).

The difference in proportion of GHQ-cases according to age, term of study, education level and university sciences (basic or medical) were not statistically significant. But the difference in proportion of GHQ-cases was statistically significant according to gender, interest to major, hopefulness to future, family and self history of psychiatric disorder, Satisfaction from roommates and university facilities (Table 2).

Table 3 shows the results of regression analysis. Female sex, uninteresting to major, hopeless to future,

Table 1: Mean scores differences of GHQ questionnaire and its dimensions in male and female students

Gender score	Male students	Female students	p-value
GHQ score	24.33±10.92	28.2±10.82	0.002
Physical health	5.44±3.83	6.99±4.16	0.001
Anxiety	5.92±4.49	7.42±5.06	0.007
Social practices	8.20±4.24	4.64±5.56	0.109
Depression	4.64±5.56	5.02±5.21	0.539

Table 2: Relationship between morbidity to psychiatric disorder with characteristics of student

Parameters		GHQ-28 = 23	GHQ-28>23	
Age	≥20	63 (44.4)	79 (55.6)	0.152
	>20	82 (50.9)	79 (49.1)	
Gender	Female	51 (34.9)	95 (65.1)	0.001
	Male	94 (59.5)	64 (40.5)	
Interest to major	Yes	128 (52.2)	117 (47.8)	0.003
	No	17 (28.8)	42 (71.2)	
Hopefulness to future	Yes	97 (54.5)	81 (45.5)	0.003
	No	48 (38.1)	78 (61.9)	
Family history of psychiatric disorder	Yes	5 (15.1)	28 (84.9)	0.001
	No	140 (51.7)	131 (48.3)	
Self of psychiatric disorder	Yes	1 (5)	19 (95)	0.001
	No	144 (50.9)	139 (49.1)	
Satisfaction from roommates	Yes	124 (51)	119 (49)	0.01
	No	18 (32.7)	37 (67.3)	
Satisfaction from university facilities	Yes	40 (55.6)	32 (44.4)	0.005
	No	105 (45.3)	127 (54.7)	
Term	2 or 3	90 (46.2)	105 (53.8)	0.512
	>3	37 (46.8)	42 (53.2)	
University	Medical sciences	79 (45.9)	93 (54.1)	0.278
	Basic sciences	66 (50)	66 (50)	
Education level	Ingeniousness	48 (51.6)	45 (48.4)	0.637
	Bachelor	84 (45.7)	100 (54.3)	
	Doctorate	12 (46.2)	14 (53.8)	

Table 3: Regression analysis for predictors of psychiatric disorder in students

Predictors	OR	CI	p-value
Female sex	3.96	1.99-7.9	0.001
Uninteresting to major	3.07	1.05-8.98	0.040
Hopeless to future	2.58	1.30-5.3	0.01
Positive family history of psychiatric disorder	5.10	1.30-20.3	0.021

positive history of psychiatric disorder was the most important predictors of psychiatric disorder in students. But the variables, which are used in regression, explained only 54% of psychiatric disorder in students.

### DISCUSSION

This study found that the prevalence of emotional disorders among the medical and non-medical students was 52.3%, based on positive GHQ scores, that didn't observe any difference between them. In a study in Iranian medical students and doctors (Assadi *et al.*, 2007) founded that 44% had a probable psychiatric disorder. These prevalence is exceeds that of general population. A recent Iranian epidemiological survey (Noorbala *et al.*, 2004) estimated the prevalence of psychiatric disorder at 18-20% for 15-44 years old, using the same questionnaire, which suggests that psychiatric morbidity was over 2.5 fold higher in this study. The high prevalence in study can caused for sample students that they were dormitory resident students that undergoing more problems as students that live with parents and their family. Also because stress during advanced academic training is inevitable compare to society (Stecker, 2004) and students certainly need to be assessed to meet the minimum requirements and facilities, therefore students have more prevalence than as general population.

The near same results showed in another countries, 49.4% in a study (Ozdmir and Rezaki, 2007) and 47.9% in Turkish study (Aktekin *et al.*, 2001), In Malaysia, 41.9% in 2002 (Sherina *et al.*, 2003) and 46.2% In Malaysian medical students at 2005 to 2006 (Zaid *et al.*, 2007). But emotional disturbances in students that studying economics and physical education in Antalya (Aktekin *et al.*, 2001) was 29.2%, this morbidity prevalence was 50% in basic sciences students in this study. Likewise, another study in Manchester demonstrated that 36% of medical students had scores exceeding the GHQ threshold (Guthrie *et al.*, 1995).

Present study revealed an association between psychological disorders and some of the personal, family and related university variables investigated, such as gender, interest to major, hopefulness to future, family and self history of psychiatric disorder, satisfaction from roommates and university facilities in bivariate analysis, but in multivariate analysis, confirmed that positive family

history, female sex, uninteresting to major and hopeless to future are the most important predictors of psychological disorders in basic and medical students. These findings are consistent with previous research, literature data and other studies. In Italy (Marinoni *et al.*, 1997), Turkish (Ozdmir and Rezaki, 2007), Nigerian (Adewuya *et al.*, 2006; Abiodun and Adewuya, 2006) and Iran (Ahmadi *et al.*, 2004) study, had observed that female students had higher GHQ score.

So, seems that gender is one of the important variables in morbidity to psychiatric, as was emphasized by multivariate analysis, which confirmed what had emerged from regression analysis, female sex increase probability of morbidity to 4 fold as male sex. A tentative explanation for this finding is offered in the literature is due to the fact that women articulate depressive symptoms, even very minor ones, more easily than men, the authors conclude that the excess could actually be due to this fact as much as to a true expression of greater distress (Marinoni *et al.*, 1997).

The final model of our study showed that positive family history of psychiatric disorder increase the probability of depression, in the Italy study (Marinoni *et al.*, 1997), observed a same result. Also France study (Abiodun and Adewuya, 2006) showed that depression symptom followed by other psychological and depressive disorder, which the same result obtains in our study.

An interesting finding in our study was the significant association of depressive disorders and hopeless to future among university students, Psychological morbidity in undergraduate students represents neglected public problems such as uncertain future that can affected quality of life in young people.

Satisfaction and interesting to major was a protective factor for depression symptoms in regression model, this fact agreed to Bayramresult study in Turkish (Bayram and Bilgel, 2008). This is a true finding, because hopefulness is one of the most important parts of good quality of life.

Nevertheless, the environment of medical education and practice has long been considered a stressful one and this stressful environment may lead to various emotional disorders (Sreeramareddy *et al.*, 2007; Bayram and Bilgel, 2008), but in this study didn't any difference between medical and non-medical peers. Also there wasn't significant association between age and psychological disorder based GHQ cut of point. In Marinoni study older student have higher GHQ score (Marinoni *et al.*, 1997).

Furthermore, the levels of psychological distress in this sample of students appear to be higher than other studies in developed countries, which may result from psychosocial factors such as poor campus conditions,

large number of exams and limited job opportunities. However students are among the groups for which depression screening is frequently conducted and necessary. Studies on stress factors of education and possible psychiatric disorders showed that depression has a negative effect on teach (Dahlin *et al.*, 2005). Also, emotional problems can cause serious mental suffering, which in turn lead to work disability and economic loss (Zaid *et al.*, 2007). Especially among adolescents and young adults, emotional disorders are a serious risk to mental health which could lead to the further development of depression episodes and sometimes even influence them negatively during crucial phases of their life, in which many major decisions are made (Tomoda *et al.*, 2000).

Present study had been limited by our considering only students living inside the dormitory and we had also not considered other personal factors likely associated with depression like poor self-esteem and stressful life events. In addition, present study was cross-sectional in nature, which makes it limited to assessing only associated factors and not risk.

In conclusion, this study found a substantial number of medical students (52.3%) in the study sample with high GHQ scores, indicating emotional disorders, which present an unfavorable circumstance. So female student with family and self history of psychological or emotional disorder need to emergency screening for depression, also attention to a good and certain financial and occupational condition for future, in graduated and under graduated students is necessary. Also, an effective model for the prediction of the development of depression in university students needs to be developed and evaluated and interventions aimed at reducing the incidence of depression among this population need further research.

#### ACKNOWLEDGMENTS

The authors would like to thanks the vice-chancellor research of Arak Medical University for financial support of this study.

#### REFERENCES

- Abiodun, O. and T. Adewuya, 2006. Prevalence of major depressive disorder in Nigerian college students with alcohol-related problems. *General Hospital Psychiatry*, 28: 169-173.
- Adewuya, A.O., B.A. Ola, O.A. Olutayo, B.M. Mapayi and O.O. Oginni, 2006. Depression amongst Nigerian university students, Prevalence and socio-demographic correlates. *Soc. Psychiatry Psychiatr. Epidemiol.*, 41: 674-678.
- Ahmadi, J., S. Pridmore and M. Fallahzadeh, 2004. Neurotic scores in a sample of medical students. *Ger. J. Psychiatry*, 7: 51-55.
- Aktekin, M., T. Karaman, Y.Y. Senol, S. Erdem, H. Erengin and M. Akaydin, 2001. Anxiety, depression and stressful life events among medical students: A prospective study in Antalya, Turkey. *Med. Educ.*, 35: 12-17.
- Assadi, S.M., M.R. Nakhaei, F. Najafi and S. Fazel, 2007. Mental health in three generations of Iranian medical students and doctors. *Soc. Psychiatry Psychiatr. Epidemiol.*, 42: 57-60.
- Bayram, N. and N. Bilgel, 2008. The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. *Soc. Psychiatry Psychiatr. Epidemiol.*, 43: 667-672.
- Chew-Graham, C.A., A. Rogers and N. Yassin, 2003. I would not want it on my CV or their records: Medical students experiences of help seeking for mental health problems. *Med. Educ.*, 37: 873-880.
- Dadkhah, B., M. Muhammadi and N. Mozaffari, 2006. Mental health status of the students in ardabil university of medical sciences 2004. *J. Ardabil Univ. Med. Sci. Health Services*, 1: 31-36.
- Dahlin, M., N. Joneborg and B. Runeson, 2005. Stress and depression among medical students: A cross-sectional study. *Med. Educ.*, 39: 594-604.
- Eremsoy, C.E., S. Celimli and T. Gencoz, 2005. Students under academic stress in a Turkish University: Variables associated with symptoms of depression and anxiety. *Curr. Psychol.*, 24: 123-134.
- Guthrie, E.A., D. Black, C.M. Shaw, J. Hamilton, F.H. Creed and B. Tomenson, 1995. Embarking upon a medical career: Psychological morbidity in first year medical students. *Med. Educ.*, 29: 337-341.
- Jahani Hashemi, H. and K. Noroozi, 2004. Mental health in students in Qazvin University of Medical Sciences. *Payesh*, 3: 145-152.
- Marinoni, A., A. Degrade, S. Villani and S. Gerzeli, 1997. Psychological distress and its correlates in secondary school students in Pavia, Italy. *Eur. J. Epidemiol.*, 13: 779-786.
- Murray, C.J. and A.D. Lopez, 1997. Alternative projections of mortality and disability by cause 1999-2020: Golden burden of disease study. *Lancet*, 349: 1498-1504.
- Nerdrum, P., T. Rustøen and M.H. Rønnestad, 2006. Student psychological distress: A psychometric study of 1750 norwegian 1st-year undergraduate students. *Scand. J. Educ. Res.*, 50: 95-109.
- Noble, R.E., 2005. Depression in women. *Metabolism*, 54: 49-52.

- Noorbala, A.A., S.A. Bagheri Yazdi, M.T. Yasamy and K. Mohammad, 2004. Mental health survey of the adult population in Iran. *Br. J. Psychiatry*, 184: 70-73.
- Ovuga, E., J. Boardman and D. Wasserman, 2006. Undergraduate student mental health at Makerere University, Uganda. *World Psychiatry*, 5: 51-52.
- Ozdmir, H. and M. Rezaki, 2007. General health questionnaire-12 for the detection of depression. *Turk. Psikiyat. Derg.*, 18: 13-21.
- Read, J.P., M.D. Wood, O.J. Davidoff, J. McLacken and J.F. Campbell, 2002. Making the transition from high school to college: The role of alcohol-related social influence factors in students drinking. *Subst. Abus.*, 23: 53-65.
- Sherina, M.S., R. Lekhraj and K. Nadarajan, 2003. Prevalence of emotional disorders among medical students in a Malaysian university. *Asia Pacific Family Med.*, 2: 213-217.
- Sreeramareddy, C.T., P.R. Shankar, V.S. Binu, C. Mukhopadhyay, B. Ray and R.G. Menezes, 2007. Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal. *BMC Med. Educ.*, 7: 26-26.
- Stecker, T., 2004. Well being in an academic environment. *Med. Educ.*, 38: 465-478.
- Tomoda, A., K. Mori, M. Kimura, T. Takahashi and T. Kitamura, 2000. One-year prevalence and incidence of depression among first-year university students in Japan: A preliminary study. *Psychiatry Clin. Neurosci.*, 54: 583-588.
- Voelker, R., 2003. Mounting student depression taxing campus mental health services. *JAMA*, 289: 2055-2056.
- Weitzman, E.R., 2004. Poor mental health, depression and associations with alcohol consumption, harm and abuse in a national sample of young adults in college. *J. Nerv. Ment. Dis.*, 192: 269-277.
- Wong, J.G.W.S., E.P.T. Cheung, K.K.C. Chan, K.K.M. Ma and S.W. Tang, 2006. Web-based survey of depression, anxiety and stress in first-year tertiary education students in Hong Kong. *Aust. N. Z. J. Psychiat.*, 40: 777-782.
- Zaid, Z.A., S.C. Chan and J.J. Ho, 2007. Emotional disorders among medical students in a Malaysian private medical school. *Singapore Med. J.*, 48: 895-899.