Epidemiology of mental health problems in female students: A questionnaire survey

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Abstract   Mental health as a state of well-being can be affected by gender. The present work aims to examine the mental health status in female students and recognize its affecting factors. A cross-sectional study on female students of Payame-Noor University in West Azerbaijan, Iran, was conducted among 1632 students. Data collection tools were the demographic data and the General Health Questionnaires (GHQ-28). The results show that 51.5% of the population under study were healthy and 48.5% have had mental disorders. Based on the social effects on the mental health of students, the correlations between age ($p = 0.15$), location ($p = 0.29$) and parental education ($p = 0.34$) with general health status were assessed and there were no significant differences between them. However, birth order ($p < 0.002$), marital status ($p < 0.001$) and family income ($p < 0.000$) had significant differences with regard to mental health status. This study indicates that 43.6% of students are suspected to have mental and physical disorders, and the most effective factor is the socioeconomic condition. The strong correlation between birth order, marital status, and family income and mental health disorders suggests the necessity to pay more attention to all these issues in all at-risk students.

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1. Introduction

According to the World Health Organization definition, ''mental health is a state of well-being in

which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her community [1]''. Mental health as something more than an absence of a major mental health condition can be affected by the social, cultural, physical and education conditions [2,3]. Maintaining good mental health is important to improve one's life and present an enriching life [3]. Mental health disorders take many different forms; some of the most common are depression and anxiety disorders [4]. WHO estimates that nearly half the world's population is affected by mental illness [5].

One of the critical determinants of mental health and mental illness is gender. Gender differences occur particularly in the rates of common mental disorders — depression, anxiety and somatic complaints [6]. Women fulfill the multiple roles in society that render them at greater risk of experiencing mental disorders than others in the community. Studies show the prevalence rates of some mental disorders, like depression and anxieties, as well as psychological distress, are higher for women than men [7—9].

Rapid social and cultural changes in family structure, the complexity of social communication networks and the extensive information resources in human societies, especially youth and young adults, can result in many mental problems. Universities encompass a significant part of the community of young scholars [10]. Entering the university is a very sensitive position for efficient and active forces in each country and often it can cause students to be accompanied by a lot of changes in their social relations [11]. The studies show that the incidence and the severity of psychological problems have increased in students more than non-student populations [9]. Based on studies conducted in Europe and America, mental disorders are between 9% and 26% in women and between 5% and 12% in men [12]. Saki and Kaikhavani investigated the mental health status among Ilam Medical University students. The findings implied that an average mental health score by GHQ was 24.9 and 23.89 for female and male, respectively [10]. A study among undergraduate medical students in Malaysia found that 41.9% were under psychological stress [13]. A study on the relationship between social anxiety and stress conducted with Chinese students by the General Health Questionnaire found that women were suffering from stress more than men [14]. Another study in England shows that the economic pressure and the problems of childhood were the two common factors in mental disorders [15]. A study was conducted to investigate the relationship between anxiety and academic achievement. According to its results, there was a significant difference between reducing anxiety and increasing student GPA (Grade Point Average) [16]. Unfamiliarity of the new environment, living far away from family, lack of interest in the field, incompatibility with other people and inadequate educational, economic and welfare facilities all lead to psychological distress in students [17].

The objective of this study was to investigate the prevalence of psychological stress among the female students, to identify the risk factors and the vulnerable groups.

2. Materials and methods

2.1. Study design

A cross-sectional study was used in this study.

2.2. Survey site

The survey took place in Payame-Noor University, west Azerbaijan province, Iran, from September to November 2011. West Azerbaijan has 20 Payame-Noor universities. Eleven universities were randomly selected from the northern, central and southern regions to serve a relatively rich mix of students in terms of race, religion and urban or rural population.

2.3. Study population and sampling

Sample size — 1700 female students — was determined based on the selected outcome variables (the proportion of students who study in Payame-Noor University in west Azerbaijan). The study population consisted of all undergraduate students who have entered the University from 2009 and later. Students suffering from psychological problems before entering the University were excluded. Informed consent was obtained from the enrolled students. A total of 2400 questionnaires were distributed to the selected sample of the University and all of them were collected and analyzed.

Data collection tools consisted of two self-report questionnaires, one of which contains demographic data (age, marital status, family birth order, family size, family income and location) and the other one was the General Health Questionnaire (GHQ-28). This questionnaire was designed by Goldberg and Hillier to explore and identify mental disorders [18]. The GHQ works best as a screening test in psychiatry and based on the number of items used, it has several versions, including GHQ-60, GHQ-30, GHQ-28, and GHQ-12 [19].

The GHQ-28 consists of four subscales: somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression, each consisting of seven items; it was designed for detection and assessment of people with an increased likelihood of current psychiatric disorders. The advantages of GHQ-28 are the existence of four subscales that permits analyses within the subscales and its scale over the other versions [20].

The questionnaire consisted of 28 multiple choice questions that for each item four answer possibilities are available: 1 — much less than ever; 2 — less than ever; 3 — as always; and 4 — more than ever.

The reliability of the questionnaire in different studies in Iran has been reported between 84% and 91% [21]. Taghavi, Jacob [22,23] and Palahang [24] have found that the validity of the questionnaire was 72%, 88% and 91%, respectively. The Cronbach's alpha coefficients of reliability questionnaire is calculated at 84%, and the acceptable levels of inter-item correlations, which can be regarded as an indicator of the homogeneity of the scale, was achieved as follows: anxiety 85%, social dysfunction 79%, depression 81% and somatic symptoms 90% [24].

2.4. Data processing and analysis

The minimum and maximum score that can be obtained for each item is 0 and 21. The total scale score ranges from 0 to 84. The higher the score is, the poorer the psychological well-being is of the student. The analyses were performed by using SPSS 19. The Kolmogorov—Smirnov test was used to analyze the normal distribution of quantitative variables. Testing mean differences of a continuous variable between groups (categorical variable) and identifying relationships between variables were done by Chi-square, Mann—Whitney, Kruskal—Wallis and Pearson correlation tests. A 95% confidence level was considered for the results.

2.5. Ethical consideration

The study protocol was approved first by the Department of Community Health and then by the Ethical Clearance Committee of the Payame-Noor University. Informed consent was obtained from the enrolled students.

3. Results

3.1. Socio-demographic characteristics

Overall, 1632 students filled out completely the questionnaires and 68 samples were left out of the total 1700 (a response rate of 96%). Among the 1632 students, 1162 (71.2%) were permanent urban residents; and 470 (28.8%) were rural residents; 490 (30.1%) were married and 1,142 (69.9%) were not married. They were aged 18 to 35 with a mean age of 22.8 (±3.2) years. The percent of urban students who have both parents and only one biological parent was 80.7% and 19.3%, respectively. A significant proportion of rural students lived with their friends (46.1%) and alone (18.8%) (P-value < 0.0001); 427 (26.2%) were non-native and 1.205 (73.8%) were native. The birth orders of students are shown in Table 1. Most of the respondents were first children in their families. According to Table 2, the most common family size of students is 4 people. Regarding the parents' job classification, 702 (43%) had governmental jobs and 998 (57%) were self-employed; 609 (37.3%) fathers and 151 (9.2%) mothers had a college education. In terms of monthly family income, 359 (22%) earned under 300 USD and 506 (31%) earned more than 500 USD.

3.2. Mental health status

Mean GHQ score was 24.1 ± 1.2 and average scores of four subscales: somatic symptoms, social dysfunction, anxiety and depression were 5.9 ± 3.4, 6.8 ± 3.3, 6.8 ± 3.8 and 4.5 ± 4.6, respectively. This study's findings showed that the percent of

Table 1 Birth order frequency of students.

Birth order	Frequency	Percent (%)
1	**351**	21.5
2	340	20.8
3	225	13.8
4	264	16.2
5	150	9.2
6	126	7.7
7	88	5.4
8	88	5.4
Total	1632	100

Table 2 Family size frequency of students.

Family size	Frequency	Percent (%)
2	322	19.7
3	245	15
4	**552**	33.8
5	270	16.5
6	162	10
7	81	5

Table 3   Score frequency of four subscales.

Status	Mental health			
	Physical health (Somatic symptoms %)	Social health (Social dysfunction %)	Anxiety (%)	Depression (%)
Healthy (Subscale score = 0—6)	1118 (68.5)	778 (47.7)	752 (46.1)	1130 (69.2)
Suspected (Subscale score = 7—136)	465 (28.5)	703 (43.1)	666 (40.8)	277 (17)
Impaired (Subscale score = 14—21)	49 (3)	151 (9.2)	214 (13.1)	225 (13.8)

students suffering from somatic symptoms, social dysfunction, anxiety, and depression were 3.1%, 9.2%, 13.1%, and 13.8%, respectively.

Frequency of scores of four subscales in three categories: Healthy, Suspected and Impaired are presented in Table 3.

Evaluating general health showed that 840 students (51.5%) were healthy and 792 (48.5%) were at a low-level of mental illness. Moreover, 43.6% of students were suspected to have physical or mental disorders. Anxiety and depression were more common in female students than other types of mental health problems. Age ($p = 0.15$), location ($p = 0.24$) and parental education ($p = 0.34$) were not significantly related to the total GHQ-28 scores, but there was a significant relationship between mental health status and birth order ($p < 0.002$), marital status ($p < 0.001$) and family income ($p < 0.000$). A one-way ANOVA demonstrated the significant positive relationship between birth order and general health status ($p < 0.05$, $r = 0.35$). Results from the statistic analysis showed that students who come from low-income families have a higher risk of mental disorders according to the significant relationship between them (Table 4).

The findings indicated that married students experience less anxiety and better social performance than those who are single.

Students who had experienced parental divorce or death showed more mental disorders, and there was a significant relationship in each of the four components of mental health ($p < 0.05$). Most students mentioned that feelings of anxiety and stress were a result of fear of the future (74%), family disputes (19%) and disease among family members (7%).

4. Conclusion

The present study reveals that a substantial proportion of the student sample experience psychosocial problems (48.5%). Other studies have provided similar evidence on the prevalence of psychological stress among students [13,25—27]. Today, the students face different conditions lead-

Table 4   Relationship between mental health and family income level.

Mental health types	Family income level ($)	$\sigma \pm \mu$	P-value
Depression	<300	5.8 ± 5.6	0.05
	300—500	4.9 ± 4.5	
	>500	4.2 ± 3.9	
Social health	<300	7.5 ± 4.2	0.05
	300—500	3.4 ± 6.6	
	>500	2.9 ± 5.6	
Anxiety	<300	5.2 ± 7.8	0.001
	300—500	4.3 ± 6.5	
	>500	3.5 ± 5.8	
Physical health	<300	4.7 ± 7.1	0.01
	300—500	3.9 ± 6.2	
	>500	3.1 ± 4.2	

ing to stress (i.e., student debt, greater material expectations, greater pressure on academic institutions and staff, leaving one's family and making a new start elsewhere, a change in environment, and expansion of student numbers) than that experienced in the last two or three decades. This stress has serious consequences which may cause the development of mental problems [13].

The results of the present study indicated that the most common mental disorders among students were anxiety and depression, which correspond to other studies among students. Psychiatric morbidity research in the UK shows that psychological diseases within student populations are as high as 40%, with most students suffering from depression or anxiety, or both [13]. A study on psychological stress among undergraduate medical students in Malaysia found a high prevalence (41.9%), and there was also a significant association between psychological stress and depression among medical students [13].

In the present study, students were found to have somatic symptoms (36.6%), social dysfunction (52.3%), anxiety (53.9%) and depression (30.8%), which correspond to other studies [12,21,28—30]. The most important risk factor for mental disease among the female students was socioeconomic

conditions. One of the most consistently replicated findings in the mental disease field has been the negative relationship of socioeconomic status with mental disorders: the lower the socioeconomic condition, the higher the risk of mental illness [31].

According to the result of the research in Zahedan, Iran, the prevalence of socioeconomic-induced mental disorders was 38.8%; this result is consistent with one of the other studies in Iran [29,30]. The Hudson study indicated that there is a remarkably strong and consistent negative correlation between socioeconomic conditions and mental illness [31].

The information collected for this study, including family history of mental illness, having a good relationship with parents and friends, socioeconomic status and living far away from families, was found to be strong predictors for the prevalence of mental health problems among students. In this study, it was found that having better family relationships can play a protective role against mental health. Surveying their personal information showed that there was a significant relationship between mental health and the factors such as age and residence. However, patient education did not show a significant result as in other studies [12,29,30]. This study's results showed that married students have a better mental health situation than those who are single, corresponding with the findings of the Saki and Kaikhavani study [10]. Maleki and colleagues showed that the mental disorders among women can increase with age [32].

Since several studies in this field have highlighted the fact that students, as the creative and active force in each country, usually face a range of mental health difficulties that can have a serious impact on their ability to study effectively, paying more attention to this issue is necessary. Operating the mental health monitoring programs at universities can be helpful in identifying its initial symptoms and can prevent the prevalence of mental health problems among students, especially women, because across their reproductive life cycle, women face many hurdles that can result in mental illness, or at the least adversely affect their mental health and hence their quality of life [8].

5. Conflict of interest statement

None declared.

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