Original Article

Mental Health and Its Sociodemographic Determinants among High School Students: A Cross-Sectional Survey in Qazvin City of Iran

Mehran Alijanzadeh

Department of Health Services Management, School of Health, Qazvin University of Medical Sciences, Qazvin, Iran

Abstract

Introduction: Adolescence is one of the most important stages of human life, and there is a lot of evidence in the literature that psychiatric disorders can be transmitted through adolescence social interactions in high school. The present study aimed to assess mental health and its sociodemographic determinants among high school students in Iran. **Methods:** In this cross-sectional study, 600 female high school students from Qazvin were selected using cluster sampling. The 28-item General Health Questionnaire was administrated to collect data. *t*-tests, analysis of variance, and Pearson's correlation analysis were applied to analyze the data. **Results:** Mental disorders were found in 60% of the students with 3.3% suffered from severe disorders. The participants' mean score of mental health was 29.31 ± 14.63. Somatic symptoms, anxiety, social dysfunction, and depression were presented in 36%, 49.7%, 50%, and 41.3% of the students, respectively. Students' mental health was significantly related with their father's education and household income. However, students' season of birth, school grade, body mass index, grade point average, mother's education, and father's occupation were not significantly related with their mental health. **Conclusion:** Poor mental health was found to be highly frequent among female students. Low income and father's low education level were identified as the risk factors of poor mental health among female students in Qazvin.

Keywords: *General health, mental health, sociodemographic determinants, students*

Introduction

Mental health is a critical component of people's health and well-being. Since all physical, mental, and social states are incorporated into the definition of this concept, a mere absence of diseases does not necessarily indicate one's good mental health. In other words, mental health, defined as one's ability to adjust to others, adapt to environmental changes, and resolve personal conflicts, comprises two major aspects: the absence of diseases and the presence of well-being.[1] Like other dimensions of health, mental health can be affected by a range of socioeconomic factors.[2] Considering the high levels of disability and mortality among people with mental disorders, mental health seems to have undeniable effects on other conditions such as cardiovascular and gastrointestinal diseases. Increasing attention has thus been paid to mental health during 1994–2012.[3]

Previous studies have highlighted the high prevalence of mental health issues among students. Ranasinghe *et al*. reported the high risk of mental health disorders in students across different countries and emphasized the need for relevant measures to prevent such disorders in students.[4] In addition to rapid technological, cultural, and social changes in the world nowadays, a variety of other problems including parental divorce, financial difficulties of the family, limited relationships, marriage, and changes in values and beliefs may affect adolescents' mental health.[5] A warm and friendly family environment along with intimate relationships between family members can positively affect adolescents' mental health. Indeed, family plays a major role in the promotion of adolescents' health.[6] Moreover, the effects of health promotion programs and attention to mental health-promoting factors should not be neglected.[7] During the past decades, mental disorders have caused increasing burden and significant destructive effects on the health and economy of different societies. Health policymakers need to pay particular attention to adolescents' mental health because the psychological characteristics of students is a very sensitive stage of life.[8]

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Address for correspondence:
Dr. Mehran Alijanzadeh, Social Determinants of Health Research Center, Qazvin University of Medical Sciences, Qazvin, Iran.
E-mail: mehranalijanzadeh@gmail.com

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Depression is the most common mental disorder and a major cause of disability worldwide. Depressive disorders are present in almost 400 million people of different ages and tend to affect females more than males. According to the available statistics, 76%–85% of mental disorders remain untreated.[9] The main symptoms of mental disorders include headaches, early fatigue, loss of appetite, sadness, insomnia, and nightmares.[10]

A previous study on students indicated that mental disorders were more frequent at the beginning of the school year than at the end of it. Therefore, although exposure to a new environment had negative effects on students' mental health, they learned to adapt to the new conditions over time.[11] A study in Hamedan (Iran) suggested the risk of social dysfunction, anxiety, depression, and hypochondriasis among the majority of the evaluated students and underscored the need for appropriate planning in this regard.[12] Likewise, Rückert documented the high prevalence of mental disorders in students and reported psychological counseling as an effective strategy to resolve students' problems.[13] Mental health is very crucial health issue whose better understanding will help identify the existing shortcomings and eliminate the present barriers. Due to the significance of adolescence, particularly in girls, attention to adolescents' mental health is essential. Therefore, the current study aimed to assess social factors affecting students' mental health in the city of Qazvin (Iran).

Methods

This descriptive-analytical study was conducted in Qazvin. The study population included all female students in Qazvin, Iran. The sample size was determined based on related research[12] and considering $P = 0.6$, accuracy = 5%, and design effect = 1.5. Multistage cluster sampling was used to select 600 participants. Six schools were examined, according to population areas, two schools in the East, two schools in the North, one school in the South, and one school in the West of Qazvin. With about 33 female students were randomly selected from each grade, each school had 100 students invited to participate in this study. The exclusion criteria were (1) the presence of any acute diseases, (2) experiencing the loss of a family member or friends in the past 3 months, and (3) unwilling to participate in the study.

Instruments

The 28-item General Health Questionnaire (GHQ-28) was administered to collect data. It assessed mental health of high school students in four domains of somatic symptoms (items 1–7), anxiety (items 8–14), social dysfunction (items 15–21), and depression (items 22–28). Questionnaires were completed within schools by interviews with students. The interview was conducted by trained interviewers and completed questionnaire at break time.

The validity of the GHQ-28 has been investigated in earlier studies.[12,14] Each subscale of the GHQ-28 consists of seven items which are scored on a 4-point Likert scale from 0 to 3 (0 = absence of problem and 3 = existence of severe problem in each item). In each subscale, 0–7 indicates the absence of health problems; 7–12 indicates mild problems; 12–17 indicates moderate problems; and 17–21 indicates severe problems. Consequently, while the total score is between 0 and 23, it confirms the stable mental health of the participants; score higher than 23 denotes some level of symptoms associated with mental disorders, i.e., 23–41, 41–61, and 61–84 indicate the presence of mild, moderate, and severe problems, respectively. The questionnaire also contained demographic characteristics including the students' age, season of birth, school grade, body mass index (BMI), grade point average (GPA), household income, parents' education, and father's occupation.

Statistical analysis

The students were ensured of confidentiality replies, and the GHQ-28 was assessed by female interviewers who were skilled and trained experts because the trust can be built up. This process enhanced the accuracy of the obtained results. The Kolmogorov–Smirnov and Levene's tests demonstrated normal distribution of the collected data ($P = 0.750$ and 0.430). Cronbach's alpha for the GHQ-28 was satisfactory (0.86). The collected data were analyzed using *t*-tests, analysis of variance, and Pearson's correlation by SPSS (SPSS Inc., Chicago, IL, USA).

Ethical consideration

The Ethics Committee of Qazvin University of Medical Sciences approved this study. The importance of the study was explained to the students by interviewers, and the participants were assured that the information they provided would be confidential. A consent form was completed by each student.

Results

The mean age of the studied high school girls was 16.3 ± 1.08 years. Almost all the participants (98%) were single, and 31.3% of them were born in summer. The mean GPA and BMI of the students were 17.29 ± 2.42 and 20.90 ± 3.62 kg/m^2, respectively. Mean and standard deviation scores of the 28-item General Health Questionnaire is mentioned [Table 1]. Their parents mainly had a junior high school degree, and their mean household income was 15,590,000 ± 7,903,200 Rials. Moreover, 53% of the fathers were self-employed [Table 2].

Among the four subscales of the GHQ-28, the students scored the highest in social dysfunction (7.81 ± 3.39) and the lowest in somatic symptoms (6.70 ± 4.10). The mean total mental health score of the enrolled female students was 29.31 ± 14.63. While 60% of the students were found to have mental disorders, only 3.3% suffered from severe disorders. Moreover, somatic symptoms, anxiety, social dysfunction, and depression were present in 36.0%, 49.7%, 50.0%, and 41.3% of the students [Table 3].

No significant relations were detected between mental disorders and either GPA or BMI [Table 4]. However,

students with good mental health had significantly higher household income compared to those with poor mental health (P = 0.028). The most significant correlation was observed between anxiety and mental health (r = 0.855). The least significant correlation, on the other hand, was that between somatic symptoms and social dysfunction (r = 0.383) [Table 5].

Discussion

In this study, 60% of the evaluated students scored higher than 23 on the GHQ-28 and were thus suspected to have a mental disorder. Likewise, Sadeghian *et al*. reported the presence of mental disorders among 60.2% of female students in Hamedan, Iran.[12] Specifically, hypochondriasis, anxiety, social dysfunction, and depression were detected in 36.7%, 46.5%, 49%, and 45.8% of the students, respectively.[12] Similar cultural and economic conditions in the two cities along with the same gender of the participants can justify the agreement between the findings of the two studies. Habibzadeh found 67% of the students in Qom (Iran) to have depressive disorders.[14] This highlights the critical mental health status of students in the mentioned city.

Poorghaz and Raghibi[15] calculated the frequency of depression among the high school students of Zahedan, Iran, as 47.5%, which is slightly higher than the results of the present study. Meanwhile, the frequency of hypochondriasis in their study (23.1%) was lower than that in the current research (36.0%). Dissimilar cultural and living conditions in the two areas might have been responsible for the differences observed between the two studies.[15] While the presence of mental disorders, for example, stress, anxiety, and depression among the students is undeniable, failure to identify and resolve such problems will negatively affect people's lives and students' health.[16]

Yarmohammadi and Rahayi reported mental disorders in 38% of students in Shahrekord (Iran). Furthermore, the most common disorder was social dysfunction (49%). Consistent with our findings, they found a significant relationship between father's education and mental health.[17] In Japan, Ohtsu *et al*. detected mental disorders in 36.6% of male students and 48.8% of female students.

Table 1: Mean and standard deviation scores of the 28-item General Health Questionnaire in female high school students of Qazvin, Iran

Subject	Mean±SD	Subject	Mean±SD
Item 1	1.06±0.92	Item 15	1.18±0.79
Item 2	0.65±0.88	Item 16	0.93±0.91
Item 3	1.11±0.98	Item 17	1.06±0.84
Item 4	0.67±0.83	Item 18	1.25±0.87
Item 5	1.19±0.95	Item 19	1.16±0.80
Item 6	0.69±0.92	Item 20	1.05±0.82
Item 7	1.27±0.93	Item 21	1.16±0.89
Item 8	1.11±0.92	Item 22	0.78±0.94
Item 9	0.95±0.83	Item 23	1.06±0.91
Item 10	1.31±0.96	Item 24	0.99±0.73
Item 11	1.62±0.92	Item 25	0.81±0.79
Item 12	0.74±0.87	Item 26	1.27±0.91
Item 13	0.77±0.76	Item 27	1.03±0.85
Item 14	1.26±0.98	Item 28	1.04±0.88

SD: Standard deviation

Table 2: The frequency distribution and significance of relationships between demographic characteristics and mental health of female high school students in Qazvin, Iran

Variable	Subsets	Frequency (%)	Mental health score*	*P*
Father's education	Illiterate	48 (8)	32.41	0.045
	Junior high school degree	270 (45)	31.08	
	High school diploma	190 (31.6)	27.42	
	Academic degree	92 (15.4)	26.41	
Mother's education	Illiterate	58 (9.6)	29.13	0.730
	Junior high school degree	256 (42.6)	30.22	
	High school diploma	222 (28.95)	28.95	
	Academic degree	64 (10.8)	27.09	
Season of birth	Spring	134 (22.3)	27.88	0.580
	Summer	188 (31.3)	30.22	
	Autumn	126 (21)	28.06	
	Winter	152 (25.3)	30.50	
Father's occupation	Worker	110 (18.3)	25.56	0.220
	Employee	148 (24.6)	30.23	
	Self-employed	318 (53)	29.91	
	Unemployed	24 (0.04)	34.16	
High school grade	First	200 (33.3)	29.32	0.980
	Second	200 (33.3)	29.16	
	Third	200 (33.3)	29.46	

*Obtained from the GHQ-28. GHQ: General Health Questionnaire

Table 3: The frequency and mean scores of the 28-item General Health Questionnaire and its subscales in female high school students of Qazvin, Iran

GHQ-28 subscale	Severity of problems	Frequency	Frequency percentage	Mean score
Somatic symptoms	None	384	64	6.70±4.10
	Mild	150	25	
	Moderate	62	10.3	
	Severe	4	0.7	
Anxiety	None	302	50.3	7.79±4.32
	Mild	200	33.3	
	Moderate	86	14.3	
	Severe	12	2	
Social dysfunction	None	300	50	7.81±3.39
	Mild	242	40.3	
	Moderate	54	9	
	Severe	4	0.7	
Depression	None	354	58.7	7.50±4.20
	Mild	120	20	
	Moderate	80	13.2	
	Severe	24	8	
Total (mental health)	None	240	40	29.31±14.63
	Mild	240	40	
	Moderate	100	16.7	
	Severe	20	3.3	

GHQ: General Health Questionnaire

Table 4: The significance of relationships between the mean scores of mental health and grade point average, household income, and body mass index of female high school students of Qazvin, Iran

Variable	Mental health	*n*	Mean±SD	*P*
GPA	Mental health (M <23)	240	17.26±2.65	0.870
	Mental disorders (M >23)	360	17.31±2.25	
Household income (Rials)	Mental health (M <23)	240	17,133,330±8,435,000	0.028
	Mental disorders (M >23)	360	14,561,110±7,866,000	
BMI	Mental health (M <23)	240	20.90±3.11	0.990
	Mental disorders (M >23)	360	20.91±3.93	

GPA: Grade point average, BMI: Body mass index, SD: Standard deviation

Table 5: Pearson's correlation coefficients between mental health and its subscales

Pearson correlation	Somatic symptoms	Anxiety	Social dysfunction	Depression	Mental health
Somatic symptoms	1				
Anxiety	0.622[i]	1			
Social dysfunction	0.383[i]	0.509[i]	1		
Depression	0.490[i]	0.633[i]	0.485[i]	1	
Mental health	0.753[i]	0.855[i]	0.691[i]	0.862[i]	1

[i]Significant at $P<0.01$

They introduced mental health-care provision to students as a major factor in public health promotion.[18] Chen and Ying underlined the significant effects of socioeconomic factors on individuals' mental health and confirmed the education and welfare status of the family as major determinants of children's health.[19] These findings are in line with the results of the present study.

Sorkhkalaee *et al*. detected mental disorders in 47.7% of the evaluated students. They reported depression in 53.7% of these cases.[20] While schools are responsible for improving students' knowledge and skills, they will not succeed in fulfilling their duties in the absence of adequate attention to basic issues such as mental health.[21] Due to the increasing prevalence of mental disorders in different communities, appropriate planning and policymaking are required to promote students' mental health.[22]

According to Tomsa *et al*., freshmen experience higher levels of mental disorders in high school students compared to other students.[23] Fathi *et al*. identified depression as a major problem in students.[24] Sakinepoor *et al*. reported athletes

to have better mental health than the general population.[25] The findings of Shakiba and Ziai highlighted higher levels of mental health in students living with their parents than in those under the custody of the State Welfare Organization of Iran.[26] These two studies revealed the positive effects of exercise and family support on improving students' mental health. Likewise, Soltanian *et al*. confirmed the beneficial role of physical activity in reducing stress and anxiety.[27] Koutra *et al*. underscored the critical role of psychological counseling in mental health promotion among university students.[28] Conley *et al*. suggested the necessity of self-management in decreasing anxiety and stress.[29] Manjunath and Kulkarni found depression to be highly frequent among medical students, i.e., the participants did not enjoy good mental health. In addition, similar to our findings, a significant relationship was observed between father's education and the main research variable (students' mental health).[30]

Due to the significance of mental health, the deteriorating effects of mental disorders on students need to be prevented by the planning and implementation of appropriate interventions. Such efforts will ultimately promote public health by helping the students develop their talents to the full and establish better interactions.[31] Soltanian *et al*. found that 48.9% of girls in Bushehr (Iran) had suspected mental disorders. Consistent with our findings, they detected positive relationships between mental health and both parents' education and household income.[32] On the other hand, while we found mental disorders in 60% of our participants, lower rates, i.e., 55.5% and 44%, were reported by Rael *et al*.[33] and Zivin *et al*.[22] Differences in research tools to assess mental health, along with sociocultural and economic variations in different countries, can justify the dissimilar rates. Masoodzadeh *et al*. administered two different tools to evaluate mental health in the same city (Sari, Iran) and reported mental disorders to be present in 39%–58% of the participants.[34] In the area of mental health of students, extensive research has been conducted in Qazvin Province.[35,36]

Based on the findings of the current research, female high school students in Qazvin (Iran) do not have good mental health. Therefore, the relevant authorities need to design and implement appropriate interventions to improve students' mental health. Rajaei *et al*. emphasized the need for creating a healthy environment and good atmosphere in schools to promote students' mental health.[37] Dalir and Mazloum stressed the benefits and efficacy of educational–psychological counseling in training centers.[38]

Limitation

A limitation of this study was the complicated bureaucratic processes to receive the introduction letter and reassure the security officials of the department of education about the importance of the study, and the standard nature of the administered questionnaire and the generalizability of the sample are limited in the age group of 15–18 years. In addition, with the cross-sectional design, we do not know the causal relationship between the mental health and the studied sociodemographic factors. All the enrolled students were willing to participate in the study, and the questionnaires were distributed in schools with the approval of the Security and Research Management of the Department of Education of Qazvin Province.

Conclusion

Attention to students' social function in Qazvin and reducing their anxiety are essential to improving their mental health. Schools are thus recommended to hold celebrations and happy morning routines, supply appropriate welfare and sports facilities, encourage the students to exercise, organize sports competitions and recreational camps, provide counseling services, promote parents' awareness and knowledge, and ultimately identify the students who need social or economic support.

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Conflicts of interest

There are no conflicts of interest.

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