

Poor Mental Health Status and its Related Socio-Demographic Factors: A Population-Based Cross-Sectional Study

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ABSTRACT

Background: There is still little information regarding mental health status in small communities. Given the various cultural characteristics of individuals in different societies, the purpose of the present study was to determine the rate of poor mental health status and its related socio-demographic factors in a general population.

Methods: A population-based cross-sectional study was conducted in the city of Gonabad, in north-eastern Iran in 2013. To this end, a 28-item General Health Questionnaire (GHQ-28) was used to examine mental health status considering a cut off point of 23. The relationship between mental health status and socio-demographic factors were reported in crude (unadjusted) and adjusted odds ratios with a 95% confidence interval.

Results: A total number of 800 participants were interviewed (response rate=98%). The mean age was 35.5 (SD $\pm$ 10.6) years old. 49.6% of participants were female, 41.8% of them aged 30 years or younger and 65.9% did not have any academic education. According to the results of GHQ-28, 24.7% of the participants were categorised as poor mental health individuals. Poor mental health status was associated with age, gender, level of education, family size, duration of residency in a neighbourhood, as well as SES status.

Conclusion: Mental health status entailed variances due to individual factors as well as socio-economic ones. Accordingly, socio-economic status seemed to play a leading role in enhancing individual's health which could lead to improvements in the level of health in a society. Moreover, these findings suggested that mental health programs should be targeted at women and elderly population through the newly established Family Doctor Plan.

Key words: mental health, mental disorder, cross-sectional study, Iran

INTRODUCTION

Along with modifications in disease-oriented approaches towards the emergence of health-oriented ones, the meaning of health has been expanded and

includes a broad concept of welfare ranging from physical to psychological to social well-being [1, 2]. Mental disorders are considered as the major public health problems [3] which contribute to economic, biological and social burdens of diseases worldwide [4]. Despite the use

of effective treatments, the prevalence of such disorders has augmented in recent decades both in developed and developing countries [5, 6].

Up until now, there have been two nation-wide epidemiological research studies to examine mental health status of a population by using the General Health Questionnaire (GHQ-28) in Iran [7, 8]. From 1999 to 2011, the results of such investigations have revealed an increased rate from 21.5% to 36.9% [8]. In spite of the increased trend in the prevalence of mental disorders, progress in the development and provision of mental health services has been slow enough across the world, especially in most of the low-income countries [9]. In this regard, a study concluded that more attention focused on some factors including politics, participation, leadership and planning has had effects on extensive progress in terms of access to mental health services [9].

Numerous studies have been conducted to investigate mental health status in subgroups of a population such as women [10, 11], the elderly [12], students [13, 14] and different groups of patients [15, 16]; however, relatively few investigations have been carried out in a general population [7]. Based on the current evidence, the prevalence of health-related problems varies among different groups and societies [17]. Moreover, reports have indicated that various individual [12, 18], biological [18], and social factors [13, 18, 19] could have effects on mental health status.

There is still not much information on health status in small communities. Considering different cultural characteristics of individuals, the present study aimed at determining the rate of poor mental health and the relevant socio-demographic factors based on GHQ-28 in a general population. As a whole, it should be noted that it is important to identify and modify these health-related factors to reduce the prevalence of mental disorders and in turn improve the level health in society.

METHODS

A population-based cross-sectional study was conducted in the city of Gonabad in north-eastern Iran in 2013. There are roughly 40,000 inhabitants living in the city of Gonabad with a traditional culture.

A record of all the households was obtained from each five Healthcare Centers and the individuals aged over 18 years were listed. A systematic sampling method was employed to select the required number of individuals from the Healthcare Centers. For this purpose, every 48th name from the list was pulled out and the selected individual was then invited to participate in this study. Totally, 800 individuals were selected and the questionnaires were distributed among them.

A 28-item General Health Questionnaire (GHQ-28) tested in terms of reliability and validity in Iran [20]

was administered in this study. The GHQ-28 contained 4 sub-scales, each with 7 items investigating physical symptoms, anxiety and sleeplessness, social function disorder and depression. The Likert-type scale was used to score the choices of the questionnaire items on a scale ranging from 0 to 3. Given the cut off point of 23, the individuals with scores higher than 23 were considered as ones with poor mental health and those with equal or lower scores in this regard were taken into account as individuals with better mental health.

The independent variables in this study included gender, age, marital status, family size, duration of residency, occupational status, socio-economic status (SES) and level of education. Then, the SES was assessed based on occupational status, level of education, monthly household income and self-reported SES. Such a variable was also categorised into five groups (lowest, low, moderate, high, highest). The level of education was also categorised into three groups: primary school (less than 9 years), diploma (9-12 years) and academic (more than 12 years). The monthly household income was categorised into five groups: less than 2,000,000 Iranian Rials (IR), 2,000,000-4,000,000 IR, 4,000,000-6,000,000 IR, 6,000,000-10,000,000 IR and more than 10,000,000 IR.

All the variables were reported based on participants' self-rating. The dependent variable of this study was mental health status of the participants with two categories (≤ 23 and > 23).

Data analysis

Descriptive statistics (table of frequency, mean and standard deviation) were calculated to describe the socio-demographic variables. The data were analysed by undertaking logistic regression whereby each independent variable was entered separately into the univariate logistic regression and then the variables with significant levels lower than 0.2 were fed into multivariate logistic regression model. Crude (unadjusted) and adjusted odds ratios (OR) and 95% confidence interval (95% CI) were also reported. A p-value of less than 0.05 was set as the significance level. All the statistical analyses were performed using the STATA software, version 12 (StataCorp, College Station, TX, USA).

Ethical Considerations

The study was approved by the Social Development and Health Promotion Research Center of Gonabad University of Medical Sciences (Grant No. P-T-566). Before conducting the research, an informed verbal consent was obtained from the participants. To reassure the participants about confidentiality, all the questionnaires distributed were anonymously completed.

RESULTS

A total of 784 out of the 800 questionnaires distributed were filled out and returned (response rate: 98%). Table 1 shows the distribution of socio-demographic characteristics of the participants in this study. The mean age was 35.5 (SD $\pm$ 10.6) years old, 49.6% of these individuals were female and 41.8% of participants aged 30 years or younger. Moreover, 65.9% did not have any academic education. The majority (83.2%) of the participants were married at the time of the study and most (88.4%) of them were unemployed. A large number of the participants (66.8%) were from households classified in the low and lowest income quintiles and 33.6% came from households with large family size. According to the results

obtained from GHQ-28, 24.7% of the participants were categorised as individuals with poor mental health.

Table 2 illustrates the crude and adjusted odds ratios of socio-demographic characteristics related to poor mental health status. In univariate analysis (Crude OR), poor mental health was associated with younger age (OR trend=0.97, P-trend=0.001), male gender (OR=1.47, 95% CI: 1.06, 2.05), academic education (OR=2.06, 95% CI: 1.36, 3.14), large family size (OR=0.07, 95% CI: 0.50, 0.98), second income quintile (OR=1.81, 95% CI: 1.12, 2.92), duration of residency in a neighbourhood (OR trend=0.84, P-trend=0.033) and higher SES status (OR trend=1.85, P-trend<0.001). However, there was no statistically significant relationship between occupational status, marital status and mental health.

TABLE 1. Distribution of socio-demographic characteristics of the participants by mental health status.

VARIABLE	SUBGROUPS	MENTAL HEALTH STATUS		TOTAL	P-VALUE
		HEALTHY	POOR MENTAL HEALTH		
Gender	Female	273(71.6)	108(28.4)	381	0.022
	Male	305(78.8)	82(21.2)	387(50.4)	
Age (year)	20-30	263(80.7)	63(19.3)	326(41.8)	0.001
	31-40	168(76.4)	52(23.6)	220(28.2)	
	41-50	108(69.2)	48(30.8)	156(20.0)	
	51 $\leq$	47(60.3)	31(39.7)	78(10.0)	
Education level	Primary	113(48.1)	122(51.9)	235(31.6)	0.001
	Diploma	130(51.0)	125(49.0)	255(34.3)	
	Academic	167(65.8)	87(34.2)	254(34.1)	
Marital status	Single	104(80.6)	25(19.4)	129(16.8)	0.118
	Married	475(74.1)	166(25.9)	641(83.2)	
Occupation status	Unemployed	517(74.7)	175(25.3)	692(88.4)	0.360
	Employed	72(79.1)	19(20.9)	91(11.6)	
Family size (person)	<5	398(77.3)	117(22.7)	515(66.4)	0.039
	$\geq$ 5	184(70.5)	77(29.5)	261(33.6)	
Residency in neighbourhood(year)	$\leq$ 5	186(78.2)	52(21.8)	238(30.6)	0.143
	6-15	165(76.7)	50(23.3)	215(27.6)	
	16-30	181(73.6)	65(26.4)	246(31.6)	
	$\geq$ 31	52(65.8)	27(34.2)	79(10.2)	
Income quintiles	Lowest	65(66.3)	33(33.7)	98(12.5)	0.126
	Low	332(78.1)	93(21.9)	425(54.3)	
	Moderate	149(73.4)	54(26.6)	203(26.0)	
	High	32(78.1)	9(21.9)	41(5.2)	
	Highest	10(66.7)	5(33.3)	15(2.0)	
SES status	Lowest	15(51.7)	14(48.3)	29(3.7)	0.001
	Low	71(58.7)	50(41.3)	121(15.5)	
	Moderate	404(78.5)	111(21.5)	515(66.1)	
	High	87(83.6)	17(16.4)	104(13.4)	
	Highest	8(80.0)	2(20.0)	10(1.3)	

TABLE 2. Crude and adjusted odds ratios of socio-demographic characteristics of the participants on poor mental health status.

VARIABLE	SUBGROUPS	UNADJUSTED MODEL		ADJUSTED MODEL	
		OR (95% CI)	P-VALUE	OR (95% CI)	P-VALUE
Gender	Male	1.00	-	1.00	-
	Female	0.68(0.49, 0.95)	0.022	0.62(0.43, 0.90)	0.014
Age (year)	20-30	1.00	-	1.00	-
	31-40	0.77(0.51, 1.17)	0.226		
	41-50	0.54(0.35, 0.83)	0.006		
	51≤	0.36(0.21, 0.62)	0.001		
Age	Trend	0.97(0.96, 0.98)	<0.001	0.97(0.95, 1.00)	0.059
Education level	Primary	1.00	-	1.00	-
	Diploma	1.43(0.96, 2.12)	0.077	1.12(0.71, 1.75)	0.623
	Academic	2.10(1.36, 3.14)	0.001	1.36(0.81, 2.28)	0.239
Marital status	Single	1.00	-	1.00	-
	Married	0.69(0.43, 1.10)	0.119	0.99(0.50, 1.95)	0.983
Occupation status	Unemployed	1.00	-	1.00	-
	Employed	1.28(0.75, 2.20)	0.361		
Family size (person)	<5	1.00	-	1.00	-
	≥5	0.70(0.50, 0.98)	0.040	0.91(0.61, 1.36)	0.646
Residency in neighbourhood(year)	≤5	1.00	-	1.00	-
	6-15	0.92(0.60, 1.43)	0.720		
	16-30	0.78(0.51, 1.18)	0.241		
	≥31	0.53(0.31, 0.94)	0.029		
Residency in neighbourhood	Trend	0.84(0.71, 0.98)	0.033	0.87(0.72, 1.06)	0.175
Income quintiles	Lowest	1.00	-	1.00	-
	Low	1.81(1.12, 2.92)	0.015	1.41(0.81, 2.42)	0.220
	Moderate	1.40(0.83, 2.36)	0.206	1.10(0.57, 1.95)	0.851
	High	1.80(0.77, 4.22)	0.173	1.48(0.54, 4.11)	0.446
	Highest	1.02(0.32, 3.21)	0.979	0.73(0.19, 2.80)	0.650
SES status	Lowest	1.00	-	1.00	-
	Low	1.32(0.59, 3.0)	0.497		
	Moderate	3.40(1.60, 7.25)	0.002		
	High	4.78(1.95, 11.7)	0.001		
	Highest	3.73(0.67, 20.7)	0.132		
SES status	Trend	1.85(1.46, 2.36)	<0.001	1.87(1.43, 2.45)	<0.001

In the multivariate analysis (adjusted OR), poor mental health was only associated with male gender (OR=1.61, 95% CI: 1.10, 2.35) and higher SES status (OR trend=1.87, P-trend<0.001).

DISCUSSION

The purpose of this study was to determine the effect of socio-demographic factors on mental health status. Accordingly, the findings revealed that there is a relationship between mental health status and age, gender,

level of education, family size, duration of residency in a neighbourhood and SES status.

It was also found that, overall, 24.7% of participants had poor mental health status. Several research studies have been conducted to estimate the prevalence of mental health disorders worldwide and also in Iran in which the prevalence of such disorders varies from each region to another [20-22]. This difference might be due to various characteristics of the population, sample size, or the design of the study. In a study conducted in Iran in 2012, the prevalence of mental disorders was reported with an increase from 21.5% in 1998 to 34.2% in 2007 [5]. As

shown in the results of the present study, the prevalence also increased with age. Previous studies have also reported the same findings which are in agreement with the results of the present study [5, 12] despite the fact that mental disorders are important health problems with the highest economic burdens among the elderly [23]. As a result, screening and treatment of mental disorders can help policy-makers in the field of health to reduce costs on various communities.

In a univariate analysis, the level of education among the participants was significantly associated with mental health. These findings were consistent with the results of previous reports in which people with higher levels of education had better mental health status [10, 12, 24]. Therefore, having a higher level of education could play an important role in the provision of healthcare services [25] and individuals with higher academic education are more sensitive to their health. However, there was no significant relationship between occupational status and mental health. Other studies have demonstrated that there is a high rate of prevalence in terms of mental disorders among unemployed people [5, 12] which might be due to some important factors such as income and the stress associated with joblessness in this population group. A significant relationship was also revealed between income and mental health but only in the second income quintile compared to the first one.

The results of both univariate and multivariate logistic regression models showed that married people were less likely to have better mental health even though without any statistical significance ($P > 0.05$). The findings of this investigation were in line with the results of previous studies in Iran [10, 26]. In this regard, married people might not have much free time due to their huge responsibilities and they might get through several risk factors related to their health conditions such as unhealthy diet and limited physical activities.

Large family size as one of the independent variables showed an inverse relationship with better mental health status. According to the evidence provided in the review of the related literature, relationship between family size and different health outcomes has been investigated and presented in various ways [27-29]. For example, Riordan et al. conducted a study to evaluate the relationship between family size and prenatal variables as mental disorders in a Scottish birth cohort. They illustrated that family size had a broad effect on mental health outcomes [27]. In addition, higher prevalence of mental disorders was reported in children from smaller families than those from larger ones [24, 28].

Based on the results of the univariate analysis, duration of residency in a neighbourhood was in a significantly negative relationship with mental health status. Hence, this relationship might be confounded by individual-level socioeconomic factors and some other reasons such as problems in a neighbourhood although no information was available on

the problems in the neighbourhoods in the present study. Furthermore, previous studies have suggested a relationship between neighbourhood-related problems and poor mental health status [30, 31]. In this line, an investigation in the U.S. reported that problems in a neighbourhood are positively associated with depression [32].

In addition to the role of gender differences in the prevalence of mental disorders [22, 33, 34], gender inequality has also been reported effective on education [35], employment rate [36], and health-related outcomes [37]. Similar to previous studies in the related literature [22, 33, 34], it was found that women were less likely to have better mental health than men in this study ($OR = 0.7$, $P = 0.022$). Another determining factor affecting gender differences are biological factors including postpartum depression that have impacts on women's health status. In this regard, a meta-analysis reported the prevalence of postpartum depression among Iranian women by 25.3% [19]. Accordingly, policy-makers should focus on health-related factors, public health interventions and equal distribution of economic resources to improve population health and to decrease gender inequality in society.

Socio-economic status is also considered as an important issue associated with mental health. According to the findings of the present study, both univariate and multivariate logistic regression models showed that self-reported socio-economic status was in a significant relationship with mental health status. On the other hand, through increasing one unit in socio-economic status, the odds of having better health approximately increases two times than those with poor health status. In addition, there have been reports on the relationship between the quality of individual's mental health and their socio-economic status [11, 38, 39]. Although some important factors such as income, occupational status and level of education were used as common predictors of socio-economic status associated with mental health, individuals' self-rating was used to report their socio-economic status. Accordingly, there is the probability to underestimate or overestimate the proportion. Socio-economic inequality of mental health is also reported in previous studies and they have revealed that economic status, level of education, age, and occupational status are important contributors to this inequality [11, 38, 39].

As a whole, there were a number of limitations to this study. A cross-sectional design was employed in this study; therefore, a causal inference of the associations between mental health and socio-demographic variables could not be derived. Thus, longitudinal studies are needed to confirm the direction of the relationship and the causality. Self-reporting of some variables such as income from salary and socio-economic status might be unreliable. This issue may lead to information bias. Although the participants of this study were randomly selected from urban regions, the individuals from the rural regions were overlooked in this

study. Hence, the generalisation of the results should be warily considered.

CONCLUSION

Mental health status varied according to individual as well as socio-economic factors. Socio-economic status seemed to play an important role in enhancing individual's health which could lead to improvements in the health status of a community. These findings also suggested that mental health programs should be targeted at women and elderly population through the newly established Family Doctor Plan.

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