

Original Article

Trends of Mental Health Status in Iranian Population Aged 15 and above between 1999 and 2015

Ahmad Ali Noorbala MD^{*1}, Seyed Abbas Bagheri Yazdi MSc², Soghrat Faghihzadeh PhD³, Koorosh Kamali MD PhD⁴, Elham Faghihzadeh PhD Candidate⁵, Ahmad Hajebi MD⁶, Shahin Akhondzadeh PhD⁷, Sophia Esalatmanesh MD⁸, HanihalSadat Bagheri Yazdi MA⁹, Maryam Abbasnejad MD¹⁰, Ali Asadi MSc¹¹

Abstract

Introduction: The main objective of this study was to compare the results of mental health surveys on adult populations of all provinces in Iran, between 1999 and 2015.

Methods: This study was an overview of two cross-sectional, descriptive studies that were performed in 1999 and 2015. The study population of these two studies consisted of urban and rural residents of all provinces in Iran. Samples were recruited by systematic random cluster sampling. In both studies, the General Health Questionnaire (GHQ-28) was used to assess mental health status of respondents. Trained psychologists completed questionnaires, and data were analyzed using SPSS software-18.

Results: The results showed that in the survey of 1999, 21% of participants suffered from mental disorders (25.9% of females and 14.9% of males). In the survey of 2015, 23.4% of samples were suspected of having mental disorders (27.6% of females and 19.3% of males). The prevalence of mental disorders increased from 1999 to 2014 by about 1.12 fold (1.06 fold in females and 1.3 fold in males). In the survey of 1999, rural residents were more at risk of mental disorders, while in the survey of 2015, urban residents were more prone to mental disorders. In both studies, the risk of suspicion for mental disorders increased with increasing age, and was higher in people aged 65 and above, as well as widowed, divorced and illiterate individuals.

Conclusion: The results of this study showed an increase in suspected cases of mental disorders in Iran from 1999 to 2015. Therefore, it is vital for policymakers and health officials to take action in order to improve and maintain mental health status of the people who are at risk in the country.

Keywords: Adult population, general health questionnaire (GHQ-28), Iran, mental health status, trends of change

Cite this article as: Noorbala AA, Bagheri Yazdi SA, Faghihzadeh S, Kamali K, Faghihzadeh E, Hajebi A, Akhondzadeh S, Esalatmanesh S, Bagheri Yazdi HS, Abbasnejad M, Asadi A. Trends of mental health status in Iranian population aged 15 and above between 1999 and 2015. *Arch Iran Med.* 2017; **20(11 Suppl. 1):** S2–S6.

Introduction

The Islamic Republic of Iran is a sovereign state in the eastern Mediterranean region. It is bordered to the northwest by Armenia and Azerbaijan, to the north by the Caspian Sea, to the northeast by Turkmenistan, to the east by Afghanistan and Pakistan, to the south by the Persian Gulf and the Gulf of Oman, and to the west by Turkey and Iraq. Comprising a

land area of 1,648,195 square kilometers, it is the second-largest country in the Middle East and the 18th largest in the world. Tehran is the country's capital and largest city, as well as its leading economic and cultural center.¹

With over 79.92 million inhabitants (40.49 million males and 39.42 million females), Iran is the world's 18th-most-populous country. Iran is divided into 5 regions with 31 provinces. The provinces are divided into districts, and each district has a defined number of cities (urban areas) and also villages (rural areas). The country has one of the highest urban growth rates in the world. From 1950 to 2002, the urban proportion of the population increased from 27% to 60%. According to the official national data of the Iran Statistics center, 74% of the population live in urban areas (59.14 million). Most internal migrants have settled around the cities of Tehran, Isfahan, Ahvaz, and Qom. Iranian people are referred to as Persians generally, and the religion of the majority is Islam.²

Iran is ranked as an upper-middle income economy by the World Bank. The inflation rate has become steady through the past 4 years and is standing on 7.6%, but the unemployment rate is 12.6% which is considerably high. The literacy rate of the population 87.6%.³

There are 61 medical universities providing public health and medical services, scattered in the 31 provinces, each province having at least one university. The medical universities are actually

Authors' affiliations: ¹Psychosomatic Medicine Research Center, Imam Khomeini Hospital, Tehran University of Medical Sciences, Tehran, Iran, ²Department of Mental Health, Ministry of Health and Medical Education of Iran, Tehran, Iran, ³Department of Biostatistics and Epidemiology, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran, ⁴Department of Public Health, School of Public Health, Zanjan University of Medical Sciences, Zanjan, Iran, ⁵Department of Biostatistics, Paramedical School, Shahid Beheshti University of Medical Sciences, Tehran, Iran, ⁶Research Center for Addiction and Risky Behaviors (ReCARB), Psychiatric Department, Iran University of Medical Sciences, Tehran, Iran, ⁷Psychiatric Research Center, Roozbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran, ⁸Department of Research, Ministry of Health and Medical Education of Iran, Tehran, Iran, ⁹Department of Culture and Student Affairs, Ministry of Health and Medical Education of Iran, Tehran, Iran, ¹⁰Department for Mental Health and Substance Abuse, Ministry of Health and Medical Education of Iran, ¹¹Department of Mental Health, Ministry of Health and Medical Education of Iran, Tehran, Iran.

***Corresponding author and reprints:** Ahmad Ali Noorbala MD, Head of Psychosomatic Medicine Research Center, Imam Khomeini Hospital, Keshavarz Blv., Tehran, Iran. Tel: +98-21-61190000, E-mail: noorbala1@tums.ac.ir.

Accepted for publication: 18 October 2017

the headquarters in charge for all public health, environmental health, and governmental medical services in the specified catchment areas.⁴

There are a total of 3,755 public health centers, of which 2,465 are located in urban areas and 1,290 in rural areas. There are 18,571 health houses in rural areas which provide health services for those living in these areas and 3,841 health posts in urban areas. Iran has 39 psychiatric hospitals with 6,735 beds. There are also 3,700 psychiatric beds in 159 general hospitals. Also, 11 hospitals with a total of 181 psychiatric beds for children and adolescents are scattered in psychiatric and to a lesser extent general hospitals. So, there are 1.32 psychiatric beds for every 10,000 people living in Iran. There are also 178 mental health community residential facilities with a capacity of 12,180 beds for those who are diagnosed with severe chronic mental disorders and do not have the ability to live independently or have no families to support them.⁴

Iran has over 7000 Methadone Maintenance Treatment (MMT) clinics and 106 Harm Reduction centers providing health services for those diagnosed with substance use disorders.⁴

Over 10,000 general physicians work in the public health care system, among which 3,501 are in urban health centers and 6,852 are in rural health centers. Multipurpose health workers known as *Behvarz* are the first-line health providers. There are over 39,000 multipurpose health workers in rural areas and over 15,000 in urban health centers. Over the past two years, more than 1,200 clinical psychologists have been placed in the public health centers providing primary mental health services in collaboration with the general physicians. There are approximately 1,600 psychiatrists and 120 child psychiatrists working in public and private settings in Iran, scattered quite unevenly throughout the urban areas. Most of these are settled in larger cities, but on an obligatory basis, there are psychiatrists available in all regions of the country.⁴

Review of literature on epidemiological studies of mental disorders in Iran indicates that four nationwide studies have been conducted during the last two decades. In the first nationwide study of mental disorders based on GHQ-28, Noorbala, et al. showed that, 21% of the population in Iran, aged 15 years and above, had mental disorders.⁵ The second national survey of mental disorders based on the Schedule for Affective Disorders and Schizophrenia (SADS) reported that the prevalence of mental disorders was 17.10%.⁶ In the third nationwide survey of mental disorders based on the GHQ-28 and the Composite International Diagnostic Interview (CIDI) as screening and diagnostic tools, Sharifi, et al. (2011) reported that the prevalence of mental disorders was 22.7%.⁷ In the fourth national study of mental disorders, Noorbala, et al. used GHQ-28 as the screening tool and found that 23.4% of the sample population were suspected for mental disorders.⁸

Regarding the key role of epidemiological studies in estimating the probable prevalence of mental disorders, and defining the correlating demographic features for the proper allocation of mental health resources available in the country, this study was performed to assess the trends of changes in mental health status of the Iranian population over the past 15 years.

Materials and Methods

This is a review of two cross-sectional descriptive surveys. The first study was done in 1999 as part of the “Health and Disease

Project” and the second study was done in 2015 as part of the “National Mental Health and Social Capital Survey”. The study populations of the two studies consisted of residents of rural and urban areas of Iran. The sampling technique was a simple randomized cluster sampling.

The 28-item General Health Questionnaire (GHQ-28) was used as the screening tool for detection of mental disorders in both surveys. This questionnaire was developed by Goldberg & Hillier (1979) for screening somatization, anxiety, social dysfunction and depression.⁹ A review of studies on the validation of the GHQ-28 in different countries demonstrated its high validity and reliability as the screening tool for mental disorders in the community.¹⁰ It includes four subscales with 7-item criteria related to somatization, anxiety, social dysfunction and depression symptoms. There are different ways of scoring GHQ-28, such as Likert and the traditional scoring method.¹¹ The scoring system used in both surveys was the traditional scoring method which gives a score of 0 to responses of no or little, and a score of 1 to responses of much or very much, with the total score ranging between 0 and 28. The cutoff point used in both studies was a score of 6 and a score of 2 was considered for each subscale. These cutoff points were obtained through a research on standardization of this screening tool in Iran.¹²

The first survey was done in 1999 and the second survey was done in 2015. The survey team were trained general practitioners from provincial health centers in the first study, and mental health expertise’s working in the health centers of the provinces in the second survey. In the first survey, the statistical framework was based on the household lists available from every health department in the provinces and the ratio of sample size to the total number of households was taken as 1:1000 (13,478 households through 1681 clusters), while in the second survey, the statistical framework was based on their 10-digit Postal Code and beginning with each of head clusters in accordance with the survey completion guideline manual and calculated to be 1,200 samples in each province, except Qom province with 600 samples. Therefore, the total number of subjects was estimated to yield an overall sample size of 36,600 people. The average time to complete each questionnaire was about 45 minutes in each survey.

Statistical Package of Social Science Software (SPSS version 18; IBM Company, USA) was used for statistical analysis. Logistic regression modeling was used to determine the factors that affect mental disorders. A p-value less than 0.05 was considered statistically significant.

Results

Table 1 presents information about the mental health status of people in both surveys. A total of 35,014 people participated in the first study and 35,813 people participated in the second survey. The results of both studies, based on demographic factors (including gender, age, place of residency, marital status and education), and also odds ratios derived from logistic regression, are presented in Table 2. The results showed that in both surveys, the rate of suspected cases of mental disorders was higher in females than males and has increased with age. In both studies, being suspected of suffering from a mental disorder was more prevalent among illiterate people, aged 65 years and over and those who had been divorced or widowed compared to other groups.

Table 1. Prevalence of suspicion for mental disorders in the provinces of Iran in 1999 and 2015 surveys

Province	1999			2015		
	Sample size (n)	Suspected cases (n)	Prevalence rate (%)	Sample size (n)	Suspected cases (n)	Prevalence rate (%)
East Azerbaijan	2101	531	25.3	1164	290	24.9
West Azerbaijan	1358	183	13.5	1077	258	24
Ardebil	573	130	22.7	1116	239	21.4
Isfahan	2336	411	17.6	1167	357	30.6
Ilam	556	69	12.4	1089	353	32.4
Bushehr	489	91	18.6	1045	245	23.4
Tehran				1126	340	30.2
Alborz	6695	1417	21.2	1066	203	19
Charmahal & Bakhtiari	442	172	38.9	1117	278	24.9
South Khorasan				1113	190	17.1
Razavi Khorasan	3149	559	17.8	1122	266	23.7
North Khorasan				1102	245	22.2
Khuzestan	1949	417	21.4	1112	242	21.8
Zanjan	521	111	21.3	1099	313	28.5
Semnan	441	75	17	1024	148	14.5
Sistan & Bluchestan	664	165	24.8	1106	167	15.1
Fars	1985	455	22.9	1104	248	22.5
Qazvin	487	141	29	1010	261	25.8
Qom	490	113	23.1	557	90	16.2
Kordestan	714	156	21.8	1158	347	30
Kerman	1049	240	22.9	1104	208	18.8
Kermanshah	1025	197	19.2	1174	308	26.2
Kohgiluyeh & Bouyerahmad	496	130	26.2	1102	186	16.9
Golestan	808	301	37.3	1149	147	12.8
Gilan	1394	264	18.9	1070	193	18
Lorestan	762	150	19.7	1069	388	36.3
Mazandaran	1685	208	12.3	1123	191	17
Markazi	677	126	18.6	1113	279	25.1
Hormozgan	590	135	22.9	1147	323	28.2
Hamadan	984	341	34.7	1085	333	30.7
Yazd	592	69	11.7	1101	294	26.7
Total	35014	7358	21	35813	8394	23.4

Table 2. Prevalence of suspicion for mental disorders in terms of demographic variables and its odds ratio, in 1999 and 2015 surveys

Variables	Year 1999			Year 2015		
	Prevalence rate (%)	PV	OR	Prevalence rate (%)	PV	OR
Gender						
Male	14.9	---	---	19.3	---	---
Female	25.9	< 0.001	1.632	27.6	< 0.001	1.386
Place of residence						
Rural	20.9	0.058	1.059	24.6	---	---
Urban	21.3	---	---	20.9	< 0.001	1.432
Age group						
15-24	17.6	---	---	17.0	---	---
25-44	21.0	0.221	1.029	21.4	0.126	1.118
45-64	26.1	< 0.008	1.305	26.8	< 0.005	1.443
+65	40.9	< 0.001	1.989	42.5	< 0.001	2.163
Marital status						
Unmarried	16.7	---	---	18.6	---	---
Married	21.8	0.195	1.142	22.3	0.170	1.076
Widowed or divorced	43.8	< 0.001	1.751	40.8	< 0.001	2.118
Education						
Above diploma	17.3	---	---	16.1	---	---
Diploma	18.7	0.178	1.196	19.9	< 0.004	1.350
Primary & Secondary	18.9	0.154	1.203	21.1	< 0.001	1.515
Illiterate	24.5	< 0.001	1.666	32.7	< 0.001	2.015

OR = odds ratio; PV = P-value

Discussion

The results of the two studies demonstrated that more than one fifth of samples were suspected of having mental disorders. The prevalence rate of mental disorders suspicious was 21% in the first study⁵ and 23.3% in the second survey.⁸ Comparison of the results of national mental health surveys in Iran showed an increase in prevalence rates of mental disorders during 15 years.⁵⁻⁸ This increase happened in prevalence of suspicion for mental disorders in Iranian provinces and can be attributed to social, political, financial, and cultural problems that have occurred in Iran and the world during these 15 years.

In the first survey, the prevalence of mental disorders ranged from 11.7% in Yazd province to 38.9% in Chahmahal and Bakhtiari province.⁵ In the second study, it ranged from 12.8% in Golestan province to 36.3% in Lorestan province.⁸ The prevalence rate of suspicion for mental disorders increased significantly in the western provinces of Iran compared to other regions. This part of Iran suffered directly during the Iran- Iraq war in 1980 – 1988. In some provinces such as Yazd and Isfahan, the prevalence of mental disorders was considerably increased, while in Chahmahal and Bakhtiari province, this rate decreased.

The results of the 1999 survey indicated that females had a greater odds of mental disorders than males (OR = 1.63). The risk of mental disorders increased with age and the highest risk of suspicion for mental disorders pertained to people aged 65 and more (OR = 1.989). Divorced or widowed people were 1.751 times more at risk of mental disorders compared to unmarried people. Rural residents were more at risk of mental disorders than urban residents. The risk of mental disorders decreased with increasing educational level and illiterate individuals had a greater odds of mental disorders than the educated individuals (OR = 1.666).⁵ In the second survey (2015), the results showed that females had a greater odds of mental disorders than males (OR = 1.386). The risk of mental disorders increased with age and the highest risk of suspicion for mental disorders pertained to people aged 65 and more (OR = 2.163). Divorced or widowed people were 2.118 times more at risk of mental disorders compared to unmarried people. Urban residents had a greater odds of mental disorders than rural residents (OR = 1.432), and also illiterate individuals had a greater odds of mental disorders than the educated individuals (OR = 2.015).⁸

Regarding gender, the results of both studies were consistent with other epidemiological studies conducted in Iran¹³ and the world.^{14,15} The higher prevalence of mental disorders suspicious in females might have been related to biological factors, gender roles and environmental and work-related stresses on them.

In the first study, rural dwellers were at higher risk of mental disorders than urban residents, but in the second survey, the prevalence of mental disorders was higher in urban residents compared to rural dwellers. The results of the second survey are congruent with the findings of surveys conducted by Mohammadi, et al.⁶ and Sharifi, et al.⁷ The higher prevalence of mental disorders in urban areas can be attributed to urbanization, cost of living, environmental pollution, and traffic consequences in urban areas of Iran.

In both studies, aging was associated with increased prevalence, so that people over 65 years were suspected to have the highest rate of psychiatric disorders. Results from other studies in Iran also indicated that the prevalence of suspicion for mental

disorders increases with age.¹⁶ The higher prevalence of mental disorders in the elderly can be attributed to factors such as retirement, menopause and anxiety caused by biological changes and loneliness of older people.

The prevalence of suspicion for psychiatric disorders was higher in people who were divorced, widowed or separated in both studies. The results were consistent with the findings of other nationwide studies in Iran.^{6,7} The higher prevalence of suspicious cases of mental disorders in both studies can be attributed to the impact of cultural and societal views, presence of stressors due to separation and divorce and financial problems. Prevalence of suspicious cases of mental disorder was also higher among married couples compared to single individuals. This is consistent with the findings of most studies conducted in Iran. The higher prevalence of suspicious cases of mental disorders among married couples can be due to marital and economic problems after their marriage.

The findings of both studies showed that illiterate or less educated people had a higher prevalence of psychiatric disorders compared to those more educated. National studies in Iran⁵⁻⁸ and surveys in the world,^{14,15} have shown that the prevalence of psychiatric disorders in illiterate people is higher, and that being educated is a protective factor against mental disorders. This higher prevalence can be attributed to social and cultural restrictions among illiterate people and their inability to use more efficient coping strategies in stressful situations.

In terms of place of residency, the highest prevalence of suspicion for mental disorders was among individuals residing in rural areas compared urban areas in 1999, and among people living in urban areas compared to rural. The results from the second study confirm the results of surveys done by by Noorbala, et al. and Ahmadvand, et al.^{16,17} and Mohammadi, et al.⁶ and Sharifi, et al.⁷ The higher prevalence of mental disorders in urban areas in the second study compared with first study can be attributed to cost of living, traffic, environmental pollution, and reduced cultural context of human communication in urbanity.

Considering the increase of suspicion for psychiatric disorders in Iran during the past 15 years, and also insufficient numbers of community mental health services within the country,¹⁸ there is a vital demand for most policymakers to pay more attention to mental health provision in the country. In our opinion, attention to employment issues and provision of recreational and sport facilities could have a positive effect on this unfortunate trend.

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgments

This paper is the product of two national mental health and social capital survey in Iran in the year 1999 and 2015, sponsored by the deputy of research and technology of the Ministry of Health and Medical Education of Iran and scientific research deputy of the Tehran University of Medical Sciences. Hereby, we thank all of them and particularly comprehensive support of Dr. Reza Malekzadeh, respectable deputy of research and technology of MOHME, and we are grateful for the support of the health deputy of Tehran University of Medical Sciences. We also thank all the trained psychologists who undertook this research and

provided a lot in collecting the data and appreciate the patience of participants and their respectful families in completing the questionnaires.

References

1. Encyclopedia Britannica, Iran, 2012. Available from: URL: <https://www.britannica.com/place/Iran>. (Accessed Date: October 2015).
2. Internet database of Iran Statistics Center of demography of the province of the country on the basis of the results of the population and house census, 2016. Available from: URL: <https://www.amar.org.ir>. (Accessed Date: October 2015).
3. The World Bank. Available from: URL: www.data.worldbank.org. (Accessed Date: October 2015).
4. Official Databases of the Deputy for Health of the Ministry of Health and Medical Education of Iran, 2017. Available from: URL: <http://www.behdasht.gov.ir>. (Accessed Date: October 2015).
5. Noorbala AA, Bagheri Yazdi SA, Yasamy MT, Mohammad K. Mental health survey of the adult population in Iran. *Br J Psychiatry*. 2004; 184: 70 – 73.
6. Mohammadi MR, Davidian H, Noorbala AA, Malekafzali H, Naghavi HR, Pouretamad HR, et al. An epidemiological survey of psychiatric disorders in Iran. *Clin Pract Epidemiol Ment Health*. 2005; 1: 16.
7. Sharifi V, Amin-Esmaili M, Hajebi A, Motavalian A, Radgoodarzi R, Hefazi M, et al. Twelve-month prevalence and correlates of psychiatric disorders in Iran: The Iran mental health survey-2011. *Arch Iran Med*. 2015; 18(2): 76 – 84.
8. Noorbala AA, Faghihzadeh S, Kamali K, Bagheri-Yazdi SA, Hajebi A, Mousavi MT, et al. Mental health survey of the adult population of Iran in 2015. *Arch Iran Med*. 2017; 20 (3): 128 – 134.
9. Goldberg DP. The detection of psychiatric illness by Questionnaire. Oxford University Press. 1973; London.
10. Goldberg DP, Hillier VF. A scaled version of general health questionnaire. *Psychological Medicine*. 1979; 9: 131 – 145.
11. Goldberg DP, Gater R, Sartorius N, Ustun TB. The validity of two version of GHQ in general health care. *Psychological Medicine*. 1997; 27(1): 191 – 197.
12. Noorbala AA, Bagheri Yazdi SA, Mohammad K. The validation of general health questionnaire-28 as a psychiatric screening tool. *Hakim Research Journal*. 2004; 11(4): 47 – 53.
13. Noorbala AA, Bagheri-Yazdi SA, Vaez-Mahdavi MR, Asadi-Lari M, Faghihzadeh S, Mohammad K, et al. Mental health changes in Tehran during a 12-year period: Comparing national health and disease survey in 1999 and project in 2011. *Sci Res J Shahed Univ*. 2014; 112: 37 – 45.
14. Kessler RC. Psychiatric epidemiology: Selected recent advances and future directions. *Bulletin of World Health Organization*. 2000; 78(4): 464 – 474.
15. Steel Z, Marnane C, Iranpour C, Chey T, Jackson JW, Patel V, et al. The global prevalence of common mental disorders: a systematic review and meta-analysis 1980–2013. *Int J Epidemiol*. 2014; 43: 476 – 493.
16. Noorbala AA, Bagheri Yazdi S, Asadi Lari M, Vaez Mahdavi M. Mental Health Status of Individuals Fifteen Years and Older in Tehran-Iran. *IJPCP*. 2009; 16(4): 479 – 483.
17. Ahmadvand A, Sepehrmanesh Z, Ghoreishi FS, Afshinmajd S. Prevalence of psychiatric disorders in general population of Kashan, Iran. *Arch Iran Med*. 2012; 15(4): 205 – 209.
18. WHO. Promoting mental health: concepts, emerging evidence and practice. Department of Mental Health and Substance Abuse, Geneva, World Health Organization. 2005: Available from: URL: http://www.who.int/mental_health/evidence/en/promoting_mhh.pdf. (Accessed Date: October 2015).