Mental health survey of the adult population in Iran

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Background No national data on the prevalence of mental disorders are available in Iran. Such information may be a prerequisite for efficient national mental health intervention.

Aims To determine the mental health status of a population sample aged 15 years and over.

Method Through random cluster sampling, 35 014 individuals were selected and evaluated using the 28-item version of the General Health Questionnaire. A complementary semi-structured clinical interview was also undertaken to detect learning disability ('mental retardation'), epilepsy and psychosis.

Results About a fifth of the people in the study (25.9% of the women and 14.9% of the men) were detected as likely cases. The prevalence of mental disorders was 21.3% in rural areas and 20.9% in urban areas. Depression and anxiety symptoms were more prevalent than somatisation and social dysfunction. The interview of families by general practitioners revealed that the rates of learning disability, epilepsy and psychosis were 1.4%, 1.2% and 0.6%, respectively. Prevalence increased with age and was higher in the married, widowed, divorced, unemployed and retired people.

Conclusions Prevalence rates are comparable with international studies. There is a wide regional difference in the country, and women are at greater risk.

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According to the World Health Organization, the next two decades may witness worldwide changes in the pattern of epidemiology of diseases. Non-communicable diseases such as mental disorders may replace infectious and communicable diseases as the leading factor in disability and premature death (Murray & Lopez, 1996). A review of epidemiological studies of mental disorders in different countries shows that grossly different prevalence rates have been obtained as a result of differences in the tools employed, sampling methods, interview techniques and diagnostic classifications. A review of studies on the prevalence of mental disorders in Iran (Noorbala et al, 1998) indicates differences in prevalence rates throughout the country. Efficient planning for provision of mental health care in Iran requires basic demographic data and a survey of the country's health status. Our survey was intended to determine the population's mental health status, as well as providing the country's planning authorities with estimates of the dimensions of mental health problems.

METHOD

The population sample of this survey consisted of urban and rural dwellers in the age group 15 years and above. The country's population, according to statistics provided by the health system, was 63 042 188 in 1999, of whom 64.2% lived in urban areas and 35.8% in rural areas. The total number of households was 12 685 113.

Sample

Cluster sampling was conducted, with each cluster comprising eight households. The choice of cluster size was based on the daily performance capacity of the data collection group. The statistical framework was based on the household lists available from every health department in the provinces. The ratio of sample size to the total number of households was taken as 1:1000 (13 478 households through 1681 clusters). In total, 35 014 persons (22 564 from urban areas and 12 450 from rural areas) in the age group 15 years and above were studied.

Measures

The 28-item General Health Questionnaire (GHQ–28) was used as a screening tool for the detection of mental disorders. This questionnaire was developed by Goldberg & Hillier (1979) for screening for somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. A review of studies on the validation of the GHQ–28 in different countries demonstrates its high validity and reliability as a screening tool of mental disorders in the community. This questionnaire was translated into the official language of Iran (Persian), which is comprehensible to almost every Iranian, and its validity and reliability were approved in an independent study (Noorbala et al, 1999). The best cut-off point, determined using the conventional scoring method and the minimum overall misclassification rate, was 6: that is, those scoring 6 and above were designated as possible cases of mental disorder. Sensitivity, specificity and overall misclassification rate for a GHQ–28 cut-off score of 6 were 84.7%, 93.8% and 8.2%, respectively. The reliability of the GHQ–28 was assessed on a sample of 90 participants retested 1 week after the initial referral. The estimated intraclass correlation between the test–retest scores was 0.85 (Noorbala et al, 1999). To detect psychosis, epilepsy and learning disability ('mental retardation'), a simple semi-structured clinical interview with its limited validity and reliability was used.

Collection of data

This survey was implemented as a part of the National Health Survey in Iran. In each province, specially trained general practitioners from the provincial health centres visited the selected households and completed the GHQ–28 for the age group 15 years and above. Detection of cases of psychosis, epilepsy and learning disability was based on semi-structured clinical interviews by the general practitioners, and on available medical and paramedical records.

Statistical methods

Data relating to the survey were analysed using the Statistical Package for the Social Sciences, version 8.0 for Windows. Logistic regression modelling was used to determine the factors that affect mental disorders. Mental disorders were considered as dependent variables and gender, age, education, occupation and marital status were considered as independent variables. Using the logistic regression model, the odds ratios, their level of significance and standard deviation were calculated. Backward logistic regression ($P_e=0.15$ and $P_r=0.2$) was also used (Hosmer & Lemshow, 1989).

RESULTS

A fifth of the population under survey (21%, range 20.5–21.5) had mental disorders. The figure for women was 1.7 times that for men (29% *v.* 15.8%). Data regarding prevalence of mental disorders in terms of gender, place of residence, age, marital status, education and occupation are presented in Table 1. Based on the logistic regression analyses (Table 2), the following conclusions can be drawn.

(a) Women had a relative risk of mental disorders of 1.632 compared with men.

(b) The risk of mental disorders increases with age.

(c) Married people were 1.142 times more at risk of mental disorders compared with unmarried people. Divorced or widowed people were 1.751 times more at risk of mental disorders compared with unmarried people.

(d) The highest risk of mental disorders was related to unemployment (unemployed people were 1.813 times more at risk of mental disorders compared with employed people). Housewives (RR=1.361) and farmers (RR=1.224) were more at risk of mental disorders compared with employed people.

(e) With increasing educational level, the risk of mental disorders decreases.

According to the clinical interviews by general practitioners of household members, 1.4% had evident learning disability, 1.2% had epilepsy and 0.6% had psychotic disorders. It also shows that 21% of the sample experienced depressive symptoms, 20.8% anxiety symptoms, 17.9% somatic symptoms and 14.2% social dysfunction symptoms.

Table 1 Prevalence of mental disorders in terms of demographic variables (*n*=35 014)

Variable	Sample size (*n*)	Suspected cases (*n*)	Prevalence rate (%)
Gender			
Male	15 506	2304	14.9
Female	19 508	5054	25.9
Place of residence			
Rural	12 450	2647	21.3
Urban	22 564	4711	20.9
Age group (years)			
15–24	11 448	2017	17.6
25–44	14 367	2843	19.8
45–64	6136	1534	25.0
65+	3063	964	31.5
Marital status			
Unmarried	9899	1783	18.0
Married	23 188	4757	20.5
Divorced or widowed	1927	818	42.4
Occupation			
Student	4492	700	15.6
Unemployed	4393	1122	25.5
Housewife	14 218	3839	27.0
Employed	2778	354	12.7
Private sector	6430	950	14.8
Farmer	2703	393	14.5

Table 2 Estimated logistic regression coefficients and odds ratios

Variable	B	s.e.	P	OR	95% CI
Marital status					
Unmarried	–	–	–	–	–
Married	0.133	0.047	0.004	1.142	1.043–1.251
Widowed or divorced	0.56	0.053	<0.001	1.751	1.576–1.944
Age	0.01	0.001	<0.001	1.01	1.008–1.012
Gender					
Male	–	–	–	–	–
Female	0.49	0.046	<0.001	1.632	1.491–1.787
Education	−0.025	0.004	<0.001	0.976	0.968–0.983
Place of residence					
Urban	–	–	–	–	–
Rural	0.058	0.03	0.058	1.059	0.998–1.124
Occupation					
Employed	–	–	–	–	–
Unemployed	0.595	0.072	<0.001	1.813	1.575–2.085
Housewife	0.309	0.073	<0.001	1.361	1.179–1.572
Student	0.142	0.08	0.076	1.152	0.985–1.348
Private	0.026	0.072	0.717	1.026	0.892–1.182
Farmer	0.202	0.082	0.013	1.224	1.043–1.437
Constant	−2.199	0.093	<0.001		

DISCUSSION

Prevalence

Epidemiological surveys of mental disorders in Iran report rates varying between 11.9% and 23.8% (Noorbala *et al*, 2001). Comparison of prevalence rates in our survey with those detected in other surveys using different methods, tools or classifications, shows that the results of surveys using the GHQ–28 are approximately compatible. Differences in methods and tools for screening and diagnosis as well as different classification systems used and age groups studied may account for the minor differences in results.

Comparing the results with Western studies, the prevalence rate obtained in this survey is higher than rates in surveys conducted by Hoeper *et al* (1979), Hodiamont *et al* (1987) and Fones *et al* (1998), but lower than those obtained by Kessler *et al* (1994) and Lee *et al* (1990). It is approximately similar to prevalence rates found by Stansfeld & Marmot (1992) and Roca *et al* (1999). The findings further show that the maximum rates of positive responses to questions on the GHQ–28 were for headache, distress, insomnia, sorrow and disappointment, confirming findings of other studies conducted in Iran. Anxiety and depressive symptoms were common, which is comparable with results of similar surveys in Iran and in other studies reported by Kaplan & Sadock (2000).

CLINICAL IMPLICATIONS

■ The prevalence of mental disorders in Iran is comparable with most other countries.

■ Mental disorders are more prevalent in women than in men; unemployment and being divorced or widowed are other main correlates of morbidity.

■ Iranian mental health facilities should be extended to provide for the estimated 10–12 million persons suffering from psychiatric illness.

LIMITATIONS

■ This survey was conducted using the 28-item General Health Questionnaire, which is not a structured clinical interview, and was unable to assess the prevalence of different disorders.

■ Frequency of psychosis, epilepsy and learning disability was measured by general physicians using semistructured clinical interviews with limited validity and reliability.

■ The sample does not include children and adolescents, who constitute a major part of the Iranian population.

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Gender distribution

The study found higher prevalence rates of mental disorder in women than in men (25.9% *v.* 14.9%), compatible with results of other surveys in Iran and those conducted in other countries. Gender and marital roles can be considered as possible explanations for the higher rates. The majority of women are bound to their social roles as housewives; even when women work outside the home, they still have the burden of housework. Hence, the latter group should be more subject to strains and stress; however, our research showed that working only within the home has a more serious impact on psychiatric morbidity. The fact that women in Iran are more at risk of mental disorders than is the case in Western cultures may be due to the robust effect of biological factors or to social inconveniences experienced more by women than by men. However, the type of such social problems may differ between cultures. The study demonstrates higher rates in rural populations than in city dwellers (21.3% *v.* 20.9%), but the difference is not statistically significant.

Age distribution

The study revealed a significant correlation between age and the occurrence of mental disorders. Prevalence rates increase with age, supporting the results of Lee *et al* (1990) and Hodiamont *et al* (1987). This may be explained by reduction in physical vigour and the greater vulnerability of older people to stress as well as mental and physical diseases. This finding is not compatible with those of similar surveys conducted in Iran showing higher rates in people aged up to 45 years compared with those aged 45 and above (Noorbala *et al*, 2001).

Stress

This study supports the results of earlier studies showing higher rates of mental disorders among illiterate and semi-literate groups. Sociocultural constraints in such groups posing limits to their coping styles in the face of stress may be considered as one of the main factors. Confirming the results of other epidemiological studies in Iran (Noorbala *et al*, 1998), our survey's findings demonstrate higher prevalence rates of mental disorder among the married: these may be due to economic and social stress factors such as financial matters, family management and child care. The study's findings of higher rates of mental disorder among housewives and unemployed men also reported by Hodiamont *et al* (1987), Stansfeld & Marmot (1992), Murthy & Burns (1992), Bahar *et al* (1992) and Noorbala *et al* (1998) may be explained as the overall outcome of

insufficient income, the stress of unemployment, limited social relations and monotonous lifestyle. There is also a possibility that mental disorders have contributed to unemployment.

Implications for health care

Our finding that about a fifth of the population surveyed in the age group 15 years and above suffers from mental disorders suggests that 10–12 million persons in Iran require mental health care. Taking into consideration the present number of Iranian psychiatrists (735) and the present number of Iranian mental hospital beds (7850; Yasamy *et al*, 2001), the need to provide appropriate staff and facilities to render mental health care is more evident than ever.

REFERENCES

Bahar, E., Henderson, A. S. & Mackinnon, A. J. (1992) An epidemiological study of mental health and socioeconomic conditions in Sumatra, Indonesia. *Acta Psychiatrica Scandinavica*, **85**, 257–263.

Fones, C. S., Kua, E. H., Ko, S. M., et al (1998) Studying the mental health of Singapore. *Singapore Medical Journal*, **53**, 251–260.

Goldberg, D. & Hillier, V. F. (1979) A scaled version of the General Health Questionnaire. *Psychological Medicine*, **9**, 131–145.

Hodiamont, P., Peer, N. & Syben, N. (1987) Epidemiological aspects of psychiatric disorder in a Dutch health area. *Psychological Medicine*, **17**, 227–241.

Hoeper, E. W., Nycz, G. R., Cleary, P. D., et al (1979) Estimated prevalence of RDC mental disorders in primary medical care. *International Medical Journal of Mental Health*, **8**, 6–15.

Hosmer, D. & Lemshow, S. (1989) *Applied Logistic Regression*. New York: John Wiley.

Kaplan, H. & Sadock, B. J. (2000) *Comprehensive Textbook of Psychiatry* (7th edn). Baltimore, MD: Lippincott, Williams & Wilkins.

Kessler, R. C., McGonagle, K. A., Hao, S., et al (1994) Lifetime and 12 month prevalence of DSM–III–R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Archives of General Psychiatry*, **51**, 9–19.

Lee, C. K., Kwak, Y. S., Yamamoto, J., et al (1990) Prevalence of mental disorders in South Korea. *Journal of Nervous and Mental Disease*, **178**, 242–246.

Murray, C. & Lopez, A. (1996) *Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020.* Geneva: WHO.

Murthy, R. S. & Burns, N. (1992) *Community Mental Health.* Bangalore: National Institute of Mental Health and Neuroscience (NIHMANS) Publications.

Noorbala, A. A., Mohammad, K. & Bagheri Yazdi, S. A. (1998) A survey of psychiatric disorders in Tehran city. *Hakim Magazine*, **4**, 212–223.

Noorbala, A. A., Mohammad, K., Bagheri Yazdi, S. A., et al (1999) Validation of GHQ–28 in Iran. *Hakim Magazine*, **5**, 101–110.

Noorbala, A. A., Mohammad, K., Yasamy, M. T., et al (2001) *A View of Mental Health in Iran.* Tehran: Iranian Red Crescent Society Publications.

Roca, M., Gili, M., Ferrer, V., et al (1999) Mental disorders on the Island of Formentera, Spain. *Social Psychiatry and Psychiatric Epidemiology*, **34**, 410–415.

Stansfeld, S. A. & Marmot, M. G. (1992) Social class and minor psychiatric disorder in British civil servants: a validated screening survey using the General Health Questionnaire. *Psychological Medicine*, **22**, 739–749.

Yasamy, M. T., Shahmohammadi, D., Bagheri Yazdi, S. A., et al (2001) Mental health in the Islamic Republic of Iran: achievements and areas of need. *Eastern Mediterranean Health Journal*, **7**, 381–391.