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Original Article

Illness Anxiety Disorder Among Adults in the General Population in Iran: Findings from a Population-Based Survey

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Abstract

Background: Patients with illness anxiety disorder often seek medical cares, which in turn imposes financial costs on themselves and the country's medical system. They also face social and occupational disablements. The present study aimed to evaluate illness anxiety disorder and associated factors among adults aged 18-50 years in Kerman city, southeast Iran.

Methods: In this cross-sectional study, we recruited a multi-stage random sample of 630 people aged 18-50 years from November 2019 to February 2020. The Evans illness anxiety disorder questionnaire was used to assess this disorder. Data were described using frequencies, percentages, means, and standard deviations (SD) for population estimates and indices. Data were compared across groups using Chi-square, t-test, ANOVA, and multivariable linear regression tests.

Results: The overall mean (±SD) score of illness anxiety disorder was 26.2 (±10.2), which falls in the "borderline" category (i.e., below "mild"). The prevalence of any illness anxiety disorder was estimated at 31.4% (95% confidence intervals [CI] 28.7, 35.2). In the final multivariable linear regression model, the female sex was associated with illness anxiety disorder compared to the male (beta 1.55, 95% CI 0.06, 3.18, $P=0.06$).

Conclusion: This study found that nearly one-third of the general adult population of the Kerman city, Iran, exhibited some level of illness anxiety disorder. Findings suggest the need for evidence-informed programs to increase the knowledge and awareness of people about illness anxiety disorder and reduce associated harms and vulnerabilities.

Keywords: Mental health, Illness anxiety disorder, General population, Iran

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Introduction

Mental health and anxiety over illness are significant concerns, particularly at the current moment of the COVID-19 pandemic (1). For certain groups of people, the constant fear of being ill is so intense, even in perfect health, that they cannot cope with their everyday life (2). A general and delusional preoccupation with fears of having, or the idea that one has, a serious disease based on the person's misinterpretation of bodily symptoms is known as an illness anxiety disorder (3). Persons with this disorder amplify their somatic sensations; they may also have low thresholds for and low tolerance of physical discomfort (3). The illness anxiety disorder generally includes health checking and seeking to ensure the absence of disease, both of which are the result of fear of illness and suspicion of illness (4). The illness anxiety disorder can occur after the illness or death of one of the relatives, or because of a childhood physical illness that has been recovered from but left a hypochondriac condition in the person (5). Patients with this disorder often seek medical care, which in turn imposes financial costs on themselves and the country's medical system. They also face social and occupational disabilities (6).

Globally, the prevalence of illness anxiety disorder is understudied and varies between medical settings and community-based settings (7). Studies suggest that the prevalence of illness anxiety disorder is greater in a medical setting than in population samples (7, 8). Overall, evidence estimated that illness anxiety disorder prevalence is around 0.75% and 0.1% in the medical settings and in the general population, respectively (9). However, the estimated prevalence is highly variable. For example, a study among medical outpatients reported illness anxiety disorder prevalence at 7% (10). Studies among the general

population estimated illness anxiety disorder prevalence up to 13% (3, 11). Another study on 271 medical students in Saudi Arabia found that 17.0% of the students had an illness anxiety disorder (12). In Iran, Akhavan et al Showed that the prevalence of illness anxiety disorder among operating room personnel was 18.9% and the disorder was not significant among men and women (13). Another study conducted on 400 people in the general population aged 20-50 years in Gonabad, Iran also found that the prevalence of this disorder was 28%, and this disorder is more common among divorced individuals and younger individuals (14).

Given that there is a paucity of research on this issue in Iran and the high prevalence of mental health problems including this disorder in the current period, as well as the absence of any research on this subject, this study aimed to determine the prevalence of illness anxiety disorder and its association with socio-economic factors among adults aged 18-50 years in Kerman city in Iran.

Methods

Study Design and Setting

This cross-sectional study using multi-stage, cluster random sampling was performed on 630 people aged 18-50 years in Kerman, Iran, from November 2019 to February 2020. In this study, the general population of the city was divided into 10 clusters based on their urban health center catchment areas, with 63 people randomly selected from each cluster by knocking on the doors of their houses and asking them. The inclusion criteria were age 18-50 years, lack of known mental illness, disability, and providing consent to participate in the study.

Sample Size

The sample size was calculated based on the previous estimate (28.8%) in Gonbad city (14). The calculated sample size was 315 people based on a formula for estimating sample size to estimate the prevalence. To account for the cluster sampling design, the sample size was increased for a projected design effect of 2; therefore, a final sample size of 630 was targeted.

Measures

The data collection tool used the Evans standard questionnaire and a demographic questionnaire. The illness anxiety disorder standard questionnaire was designed and developed by Evans. The questionnaire has 36 items, with measures of illness anxiety disorder using a Likert scale with questions, such as "How much do you think you are exposed to various diseases compared to your age group?". Individuals are classified based on the score obtained as healthy (0-20), borderline (21-30), mild (31-40), moderate (41-60), and severe (above 60) illness anxiety disorder. The reliability coefficient of this questionnaire in studies by Talaei et al was a Cronbach's alpha of 0.89 (15). The high correlation of the questionnaire with other illness anxiety disorder assessment tests such as the Minnesota Multifaceted Personality Questionnaire (MMPI) and the 90-question mark checklist (SCL-90) also supports its validity. The second part of the questionnaire included demographic questions such as age, gender, marital status, education status, and income level.

Data Collection

After knocking on the doors and describing the problem to ensure the confidentiality of personal information, we explained the objectives of the study to familiarize people with how to respond, as well as provide them with sufficient opportunities to respond. In illiterate people, the questionnaire was done by interview. To increase the accuracy of the questionnaire, the person is asked to answer the questions with the utmost care, considering the importance of the research for society or the respondents.

Ethical Considerations

Before doing the interview, verbal consent was obtained from the participant. The ethics committee of Kerman University of Medical Sciences reviewed and approved the study protocol (ethics code: IR.KMU.REC.1398.521).

Statistical Analysis

Data were described using mean and standard deviation (SD) indices for scale data, and frequency and percentage for other measures. The study outcome scale scores were compared by t-test, Analysis of Variance (ANOVA), and linear regression analysis. Bivariable and multivariable linear regression models were used to examine the correlates of the study outcome. Variables with P value < 0.25 in the bivariable analysis were included ina full multivariable regression model. P values < 0.1 were considered statistically significant in the final regression model. SPSS software version 25 was used for data analysis.

Results

A total of 630 people were enrolled. Over half (59.5%) were women, and in the 18-30-year age group (58.9%). Most were married (59.5%), had university and above education (68.6%), and low-income level (43.0%) (Table 1).

The mean score of illness anxiety disorder among all participants was 26.2 ± 10.2. Women had a higher illness anxiety disorder index score compared to men (26.8 ± 9.5 versus 25.2 ± 11.1) at a borderline level of significance ($P = 0.06$). Although differences did not achieve statistical significance, participants aged 18-30 years tended to have higher scores compared to those aged 41-50 years (26.7 ± 9.4 versus 24.6 ± 11.8), people who never married had higher scores than people divorced or widowed (26.4 ± 9.7 versus 26.0 ± 11.8). Participants who had low

Table 1. Illness anxiety disorder scores, overall and by subgroups, among adults aged 18-50 years in Kerman, Iran, in 2019-2020

Variables	Illness anxiety disorder Score			
	N (%)	Mean (SD)	95% CI	*P* value
Overall	630	26.2 (10.2)		---
Gender				
Male	255 (40.5)	25.2 (11.1)	23.90, 26.64	0.068
Female	375 (59.5)	26.8 (9.5)	25.86, 27.79	
Age, years				
18-30	371 (58.9)	26.7 (9.4)	25.74, 27.67	0.195
31-40	157 (24.9)	25.9 (10.7)	24.28, 27.68	
41-50	102 (16.2)	24.6 (11.8)	22.34, 27.00	
Marital status				
Never Married	233 (37.0)	26.4 (9.7)	25.18, 27.70	0.090
Married	374 (59.4)	26.0 (10.4)	25.00, 27.11	
Divorced/Widowed	23 (3.6)	26.0 (11.8)	20.96, 31.20	
Education level				
Less than high school	27 (4.3)	27.0 (12.1)	22.23, 31.84	0.645
High school to university	171 (27.1)	26.7 (10.1)	25.18, 28.24	
University and above	432 (68.6)	25.9 (10.1)	24.98, 26.90	
Income level				
Low (less than 15,00,000 Toman)	271 (43.0)	26.9 (9.9)	25.77, 28.15	0.266
Moderate (15,000,000 to 30,000,000)	208 (33.0)	25.5 (10.1)	24.20, 26.96	
High (higher than 30,000,000)	151 (24.0)	25.6 (10.8)	23.95, 27.42	

income had higher illness anxiety disorder scores than those with high-income level (26.9 ± 9.9 versus 25.6 ± 10.8) (Table 1).

Most participants (39.4%) were classified in the borderline category and none were in the severe category of illness anxiety disorder. The highest score of illness anxiety disorder obtained in this study was 58.0, which is in the middle category. The prevalence of any level of illness anxiety disorder was estimated at 31.4%. The prevalence of mild, moderate, and severe illness anxiety disorder in this survey was 23.6%, 7.8%, and 0.0%, respectively.

Linear regression models corroborated that women had a somewhat higher score of illness anxiety disorder compared to men (beta coefficient = 1.55, 95% CI: -0.06, 3.18), again being close to significance ($P = 0.06$) (Table 2).

Table 2. Univariate analysis linear regression of illness anxiety disorder and associated factors, among adults aged 18-50 years in Kerman, Iran in 2019-2020

Variables	Regression coefficient (beta) matched	95% CI	*P* value
Gender			
Male	Reference		
Female	1.55	-0.06, 3.18	0.06
Age, years			
18-30	Reference		
31-40	-0.72	-2.63, 1.18	0.45
41-50	-2.03	-4.27, 0.20	0.07
Marital status			
Never Married	Reference		
Married	-0.38	-2.05, 1.29	0.65
Divorced/Widowed	-0.35	-4.74, 4.03	0.87
Education level			
Less than high school	Reference		
High school to university	-0.32	-4.48, 3.83	0.87
University and above	-1.09	-5.07, 2.89	0.59
Income level			
Low	Reference		
Moderate	-1.38	-3.22, 0.46	0.14
High	-1.27	-3.31, 0.76	0.21

Discussion

This study showed that illness anxiety disorder was prevalent, with about one-third of the participants measured with some level of the disorder. In addition, while evidence suggests that the prevalence of illness anxiety disorder is the same among men and women (7), our results show that women may have a higher mean score of illness anxiety disorder compared to men on the scale used in this study.

The estimate for illness anxiety disorder in our sample

falls within the range of studies in Iran and other international settings among different populations. For example, Tavakoli et al reported an average total score of illness anxiety disorder among elderly people as 33.7 (16). Another study among nurses estimated the average total score of hypochondriasis as 20.9 (17). The prevalence of illness anxiety disorder in the general population was also reported in studies in Iran. For example, a study reported a prevalence of 28.8% in the general population of Gonabad (14). In international studies, the prevalence of illness anxiety disorder in the general population also ranged from 4% to 10% (11, 18). This high prevalence of illness anxiety disorder observed among our sample underscores an urgent need for evidence-based interventions to reduce this disorder and mitigate its associated harms.

The high rate of illness anxiety disorder among people in Kerman could be attributed, at least in part, to the COVID-19 pandemic, which may alleviate symptoms in individuals diagnosed with this disorder (1). Although our data collection was completed before the first confirmed cases of infection in Iran were reported, we collected the data when the pandemic began in China This suggested critical considerations toward illness anxiety disorder, particularly at the current moment of the COVID-19 pandemic. Mental health programs should particularly target this disorder to reduce its elevated risk and address it with effective screening programs and treatment strategies for individuals with illness anxiety disorder and people with heightened health anxiety. The literature suggests that treating this disorder mainly should focus on helping patients cope with their health anxieties (9). Evidence also suggests that the most critical and first-line approach is psychotherapy, including Cognitive-behavioral therapy (7, 9). Education programs, particularly education about normal bodily functions also, play an important role in addressing illness anxiety disorder (7).

Moreover, women in our sample were relatively more likely to be affected by an illness anxiety disorder than men. While evidence examining illness anxiety disorder states that there are no strong gender differences about this disorder (7), our findings are consistent with previous evidence indicating that women are more likely than men to meet the criteria for anxiety disorders (19). Our findings suggest that due to the very important and undeniable role and position of women in the family and society, and the adverse effects of this disorder on women, which in some cases reduces their ability to fully play its positive role, there is an urgent need to address this disorder among women and make women more aware of this disorder. Prevention strategies could also consider gender-specific services to address the gender difference in anxiety disorders (19).

Some limitations must be considered when interpreting these findings. First, the cross-sectional design of the survey limits causal inferences of the associations reported in our study. Second, the illness anxiety disorder outcome was self-reported, which may be subject to social desirability bias. Lastly, we did not measure and include any relevant risk factors of illness anxiety disorder such as other mental health issues in the analysis. Further research is also needed to better understand illness anxiety disorder and its associated factors among adults in Iran's general population.

Conclusion

In summary, we found that illness anxiety disorder is common among adults in Kerman, Iran, particularly among women. While few studies have been conducted on this disorder in the country, the substantial prevalence of this disorder among the general adult population of the city of Kerman, Iran in the current period is concerning. Our findings underscore an urgent need for comprehensive mental health prevention programs to reduce illness and anxiety disorder and support those at higher risk.

Authors' Contribution

Conceptualization: Naser Nasiri, Mehrdad Khezri, Vida Nikvarz, Willi McFarland, Hamid Sharifi.
Data curation: Vida Nikvarz.
Formal analysis: Mehrdad Khezri.
Investigation: Naser Nasiri, Vida Nikvarz, Mehrdad Khezri, Willi McFarland, Hamid Sharifi.
Methodology: Naser Nasiri, Mehrdad Khezri, Hamid Sharifi.
Project administration: Hamid Sharifi, Mehrdad Khezri.
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Supervision: Hamid Sharifi, Mehrdad Khezri.
Visualization: Mehrdad Khezri, Vida Nikvarz.
Writing–original draft: Naser Nasiri, Vida Nikvarz.
Writing–review & editing: Mehrdad Khezri, Willi McFarland, Hamid Sharifi.

Competing Interests

None.

Ethical Approval

The ethics committee of Kerman University of Medical Sciences review and approved the study protocol (ethics code: IR.KMU.REC.1398.521).

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