Published in final edited form as:

Perspect Psychiatr Care. 2015 April ; 51(2): 128–135. doi:10.1111/ppc.12074.

Screening and Correlates of Neurotic Disorders Among General Medical Outpatients in Xi'an China

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Abstract

PURPOSE—Little is known about the distribution and correlates of neurotic disorders among general medical outpatients. The aim was to identify the population distribution and associated factors of neurotic disorders among general medical outpatients.

DESIGN AND METHODS—A cross-sectional design was used. Computer-assisted interviews of 372 general outpatients aged 16 years or older in Xi'an China were conducted using a Chinese version of the World Health Organization Composite International Diagnostic Interview version 3.0 (CIDI-3.0).

FINDINGS—The estimated lifetime prevalence of any ICD-10 neurotic disorder among general medical outpatients was 10.8%. The most prevalent subtype of neurotic disorders was specific phobias (5.7%) followed by obsessive-compulsive disorders (3.8%) and social phobias (1.3%). General outpatients who visited the department of internal medicine (OR = 6.55, 95% CI 1.51–28.38), who were under 40 years old (OR = 4.44, 95% CI 2.05–9.62), had less than high school

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Conflict of Interest Statement

The authors report no actual or potential conflicts of interest.

education (OR = 4.19, 95% CI 1.79–9.79), and were female (OR = 2.25, 95% CI 1.14–4.47) were most likely to report neurotic disorders.

PRACTICE IMPLICATIONS—Effective identification of neurotic disorders is crucial for its early detection and targeted intervention among general medical outpatients. Those outpatients who had younger age and lower education level, and were female and had visited internal medicine departments require additional attention.

Search terms

Cross-sectional study; neurotic disorder; outpatient; population distribution; risk factor

In 2010, mental and substance use disorders accounted for 7.4% of all disability-adjusted life years and 22.9% of all years lived with disability worldwide. The burden of mental and substance use disorders increased by 37.6% between 1990 and 2010, which for most disorders was driven by population growth and aging (Whiteford et al., 2013). Neurotic disorders are a group of common mental disorders that affect health and quality of life, which have imposed an immense burden on individuals, families, communities, and health (Herrman & Chopra, 2009; Nilsson, Bogren, Mattisson, & Nettelbladt, 2007). The population with neurotic disorders is estimated to be five times that of severe psychotic disorders (Dupont et al., 1996; Greenberg et al., 1999). With the rapid development of society, there has been an increasing tendency toward neurotic disorders. Among outpatients in primary care, 20–40% of outpatients were initially diagnosed as having neurotic disorders (Anseau et al., 2004; Nisenson, Pepper, Schwenk, & Coyne, 1998). In community-based epidemiological studies in China (Li et al., 1998; Zhang et al., 2006; Zhou, Zhang, Jiang, & Wang, 2000), the prevalence of neurotic disorders was reported to be 2.2%, 2.8%, and 13.4% in 1993, 2000, and 2005, respectively.

In Chinese general hospitals, a large number of patients suffering from physical and mental disorders come to outpatient departments to seek care. Due to Chinese traditions of viewing the body and mind as unitary rather than dualistic, patients tend to focus more on physical discomforts than emotional symptoms, leading to an overrepresentation of somatic complaints (Lin & Cheung, 1999). It was found that 90% of patients with neurotic disorders were repeatedly seen by physicians from nonpsychiatric departments in general hospitals over an approximate time of 1 year. Furthermore, the time until diagnosis was delayed by 3–5 years for some patients (Wang, 2002). It is important for healthcare providers to learn about the distribution and correlates of neurotic disorders in this patient population. However, a lack of knowledge is a major obstacle to the treatment and recovery of patients with mental disorders (Lin, Spiga, & Fortsch, 1979; McEvoy et al., 1989; Schwartz, Cohen, & Grubaugh, 1997; Yen, Yeh, Chen, & Chung, 2002).

Socio-demographic correlates to neurotic disorders have been explored in various populations. With regard to age, there were no consistent findings across studies. In community studies, the prevalence of neurotic disorders took on a rising trend with age, and the high-risk age was 70–79 years (Zhou et al., 2000). Neurotic disorders mainly occurred in people aged 40–59 years, with a peak prevalence at age 45–49 years (Zhang et al., 2005). In contrast, Li et al. found the prevalence of neurotic disorders decreased with age, with an

increased risk between the ages of 18 and 24 years (Li et al., 2008). Additionally, epidemiological surveys consistently indicate that gender, the level of education, and marital status are significantly related to diagnoses of psychiatric disorders. These findings suggest more neurotic disorders among women, individuals with less education, and individuals identifying themselves as being divorced or widowed (Li et al., 2008; Zhang et al., 2005; Zhou et al., 2000). The previous published studies on psychiatric disorders have been conducted either in rural settings (Kishore, Reddaiah, Kapoor, & Gill, 1997; Pothan, Kuruvilla, Philip, Joseph, & Jacob, 2003) or in specific departments of general hospitals (Channabasavanna, Sriram, & Kumar, 1995; Shamasundar, Krishnamurthy, Prakash, Prabhakar, & Subbakrishna, 1986). Among general medical outpatients, whether the prevalence and population distribution of neurotic disorders are the same as the findings in community or specific settings needs to be studied. Currently, the relationship between socio-demographics and neurotic disorders among general outpatients in hospitals still remains unclear.

In China, the first national mental health law of 2012 came into force on May 1, 2013. A major contribution of this new law is a call to expand access to mental health services by shifting services from urban psychiatric hospitals to general hospitals and community health clinics in both urban and rural communities (Phillips, 2013). This underscores the importance of early identification and treatment of mental disorders. To date, little research has focused on screening for neurotic disorders among general medical outpatients in China. There is still a lack of evidence to provide guidelines for general healthcare providers in identifying which patients are at highest risk for neurotic disorders.

In the United States, there are valid screening tools of mental disorders available for use in primary care settings. Screening in primary care settings in China remains a challenge. The *Minnesota Multiphasic Personality Inventory-2* (MMPI-2) (Butcher, Dahlstrom, Graham, & Kaemmer, 1989) is one of the most widely used clinical assessment instruments in mental health and is often used in primary care settings. Tellegen et al. (2003) developed the *MMPI-2 Restructured Clinical Scales* (RCSs) to address item redundancy and increase the independence of each scale in order to provide more valid indicators of pathology. Although the MMPI has been cited as clinically valid in the Chinese culture, studies in China have also found that scores were consistently elevated in the MMPI and MMPI-2, calling into question the cultural differences that contribute to diverse normative samples. Future studies should focus on further validation of the MMPI-2 to examine possible deficiencies in the translated version of the measure (Cheung, Cheung, & Zhang, 2004).

The purpose of this study was to (a) identify the lifetime prevalence and population distribution of neurotic disorders among general medical outpatients in Xi'an China, and (b) explore the association between socio-demographic factors and neurotic disorders.

Methods

Design

After approval by the Institutional Review Board of Mental Health of Peking University Institute, a cross-sectional survey was conducted from June to September 2010.

Measures

The study applied a computer-assisted personal interview (CAPI) using the Chinese version of the World Health Organization (WHO) Composite International Diagnostic Interview version 3.0 (CIDI 3.0), a fully structured diagnostic questionnaire designed to assess the presence of psychiatric diagnoses (Kessler & Ustun, 2004). It has been found to have good validity and reliability (First, Spitzer, Gibbon, & Williams, 2002), and was translated into Chinese and back-translated using a standard WHO protocol. Clinical reappraisal found generally good concordance with the Chinese version CIDI diagnoses of mental disorders (Huang et al., 2010). This instrument covers both the diagnostic criteria of International Classification of Diseases (ICD-10) and the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV) criteria, but takes less time to complete.

For the purposes of this study, the definitions and criteria for neurotic disorders were based on the ICD-10 classification of Mental and Behavioral Disorders which includes social phobias, specific phobias, panic disorders, obsessive-compulsive disorders (OCDs), generalized anxiety disorders (GADs), and agoraphobia (World Health Organization, 1993). In the study, lifetime prevalence of neurotic disorders was estimated as the proportion of respondents who had exhibited a disorder up to their age at the time of the interview.

In addition, the interview included an extensive socio-demographic section that assessed gender, age, education, marital status, registration number in outpatient service, and specific outpatient departments visited.

Sample

The sample size was estimated according to the following formula $N = t^2 \times P \times Q/d^2$ (P : prevalence, $Q = 1 - P$), which is commonly used in cross-sectional studies in epidemiology. Previous studies estimated that the average prevalence of neurotic disorders was 20% in general hospitals (Pan & Ning, 2005; Somers, Goldner, Waraich, & Hsu, 2006; Zhang et al., 2006). If $d=0.2P$ and $\alpha = 0.05$, the estimated sample would be 350 participants. An additional 20% was added to this sample estimate in anticipation that the final sample would include outpatients who would not consent to participate. Thus, the final sample size was estimated to be 420.

A stratified cluster sampling was used for this study. First, general hospitals in Xi'an were divided by care delivery system and bed capacity into three hospital clusters defined as primary, secondary, and tertiary hospitals (see definition in Table 1). Second, one hospital was selected from each hospital cluster, respectively. Third, general outpatients aged 16 years or older in the three selected hospital clusters were randomly recruited according to their order of registration. The general outpatients recruited were in proportion to the number of outpatients in different departments.

Exclusion criteria included unconsciousness caused by brain injury, brain tumor, and/or craniotomy or dementia; being in the acute phase of a cerebrovascular accident; experiencing a severe illness that obstructs communication; having any obvious cognitive disabilities; and/or currently suffering from deafness, aphasia, or other language barriers.

Data Collection

Face-to-face computer-assisted interviews were carried out by nine lay interviewers with the assistance of a laptop computer. Before the interview, hospital visits were made to explain the objectives of the study. Each participant was fully informed about the aims and methods of the survey. Written consent was obtained from each participant.

The interviewers were recruited from college students of a medical university. Prior to the survey, the students received standardized study-specific training. The training included general interviewing skills, review of the questionnaire, and in- and out-of-classroom practice. A final assessment test was held for all trainees. All nine trainees passed the test and were selected to be interviewers.

Statistical Analysis

Quantitative data analysis was performed using the SPSS statistics software package (version 17.0). Simple cross-tabulations were used to calculate prevalence. The significance of comparison of rates was assessed with design-corrected Wald χ^2 tests.

To assess the contributions of socio-demographic characteristics to neurotic disorders, backward stepwise multivariate nonconditional logistic regression analysis was performed, with or without neurotic disorders as the dependent variable, and six items including the category for hospitals, specific department visited, gender, age, education, and marital status as independent variables. For the multivariate logistic regression, odds ratios (ORs) and the 95% confidence intervals (95% CIs) were calculated from backward stepwise elimination model. Variables were selected for inclusion in the multivariate models if they were at least marginally significant ($p \leq .05$).

Findings

The original sample contained 453 general outpatients. Because of refusals, 382 outpatients were surveyed. After removing 10 participants whose questionnaires were not completed, data from 372 participants remained with an effective rate of 97% (372/382). Of the 372 participants, there were 221, 101, and 50 medical outpatients from tertiary, secondary, and primary hospitals, respectively. The sample included 196 men and 176 women with a mean age of 42.0 years ($SD \pm 16.8$, range 16–76). The socio-demographic characteristics of the participants are presented in Table 2.

The lifetime prevalence rate of ICD-10 neurotic disorders is presented in Table 3. Among 372 general outpatients, 47 outpatients met the criteria for neurotic disorders and 7 of them met the criteria for two or three subtypes of neurotic disorders. The total lifetime prevalence of neurotic disorders was 10.8%. The lifetime prevalence of social phobias, specific phobias, panic disorders, OCDs, GADs, and agoraphobia was 1.3, 5.6, 1.1, 3.8, 0, and 0.8%, respectively.

Table 4 illustrates the lifetime prevalence of ICD-10 neurotic disorders by department visited, gender, age, education, and marital status group. There was a statistically significant difference in lifetime prevalence based on department visited, gender, age, and education.

The lifetime prevalence of general outpatients who visited departments of internal medicine (17.0%) was higher than those who visited departments of surgical medicine (7.5%) and other departments (3.0%) ($p = .00$). The prevalence of neurotic disorders was higher for female outpatients (14.8%) than for male outpatients (7.1%) ($p = .02$). The prevalence of neurotic disorders in outpatients with less than a high school education (23.2%) level was higher than those with a high school (7.7%) or college education level (6.7%) ($p = .00$). However, the prevalence of general outpatients 40 years or older (4.6%) was lower than those under 40 years (17.6%) ($p = .00$).

The total lifetime prevalence of neurotic disorders was 6.0%, 8.9%, and 12.7% in primary, secondary, and tertiary hospitals, respectively. The lifetime prevalence of social phobias (1.8%), specific phobias (7.2%), panic disorders (1.8%), and agoraphobia (1.4%) in tertiary hospitals was higher than that of primary and secondary hospitals. However, the lifetime prevalence of OCDs (6.9%) in secondary hospitals was higher than that of primary and tertiary hospitals.

Table 5 represents the associated factors of neurotic disorders among general outpatients. From the analysis of multivariate nonconditional logistic regression, five associated factors were entered in the logistic regression model, including outpatients who visited the department of internal medicine (OR = 6.55, 95% CI 1.51–28.38); being under 40 years old (OR = 4.44, 95% CI 2.05–9.62); having less than high school education (OR = 4.19, 95% CI 1.79–9.79); and being female (OR = 2.25, 95% CI 1.14–4.47). Over three quarters of the variance (78.3%) was explained by the model when these variables were included.

Discussion

The main finding in this current study was that the lifetime prevalence of neurotic disorders among general medical outpatients was 10.8%, which was lower than that found in recent surveys of internal medicine departments, primary care, and university settings (Ansseau et al., 2004; Kou et al., 2012; Leiknes, Finset, Moum, & Sandanger, 2007; Nisenson et al., 1998; Sun et al., 2008). It was comparable to the results (13.4%) found in a community study of Shenzhen China using CIDI (Zhang et al., 2006). When comparing the results of this study with previous studies, one should keep in mind the differences in sampling strategies, socioeconomic status, investigational instruments, the criterion-based classification system, and the diagnostic decision rules. Additionally, the influence of Chinese traditional culture might explain the low prevalence estimates. First of all, many people are afraid of the stigma of mental illness (Lee, Tsang, & Kwok, 2007). Only when the symptoms affect patients' overall health or health-related quality of life do they seek specialized psychiatric care. Second, Chinese people with neurotic disorders typically present in somatic distress (Chen, Kramer, & Chen, 2003), and they repeatedly seek care from a nonpsychiatric department physician in general hospital settings before being diagnosed with a neurotic disorder.

Regarding the subtypes of neurotic disorders, the most prevalent subtype of neurotic disorders was specific phobias (5.7%), followed by OCDs (3.8%) and social phobias (1.3%). This finding was consistent with the previous studies in community settings and hospitals

(Ansseau et al., 2004; Shi et al., 2005; Zhang, 2010). No participants in our study met the criterion for GADs. Whether these study results were sample specific should be studied further in large-scale, more generalizable populations.

Gender was found to have a significant effect on neurotic disorders in this study. Consistent with the results of previous studies (Pan & Ning, 2005; Zhang et al., 2006; Zhou et al., 2000), female gender was found to be a significant risk factor for neurotic disorders. Compared to men, the risk of neurotic disorders in women was more than two times greater. These findings may reflect women's additional burdens in balancing work and family life. Chinese culture supports the premise that women are responsible for taking care of both their parents and the children in their family. Furthermore, stressors from their work in modern society, their desire to pursue a perfect life, a sensitive yet suspicious nature, and the female physiological cycle may also have adverse impacts on women's mental health (Li et al., 2004).

With regard to the association of age and neurotic disorders, the previous studies had no consistent findings. In the study, there was a significantly different lifetime prevalence of neurotic disorders between age groups under 40 years and 40 years or older. This finding suggests that general outpatients under 40 years were more vulnerable to neurotic disorders, which was consistent with the result of a community mental health survey in metropolitan China (Shen et al., 2006). There are two possible reasons for the finding. First, individuals who are younger than 40 years are in an important life period. Due to their pursuit of higher education, employment, and psychological and social pressures, they may be faced with more difficulties and social stigmas (Zhang, 2001). Second, with increasing age, individuals who are 40 years or older might have higher incidences of physical diseases. Since symptoms of physical diseases and neurotic disorders are often confused, neurotic disorders might be ignored, underreported, or misdiagnosed (Shen, Shi, & Du, 2006; Zhang, 2001).

Higher education was reported to be associated with a reduced prevalence of mental disorders (Pan & Ning, 2005; Riddle et al., 2007; Zhang et al., 2006; Zhou et al., 2000). Our results of the present study are in agreement with previous findings. The lifetime prevalence of neurotic disorders among those general outpatients with less than a high school education was significantly higher than those with a high school or above education. The explanation for lower prevalence of neurotic disorders among well-educated outpatients in previous findings suggests that those with more education may have more potential to cope with stresses (Wang et al., 2011). Compared to those well-educated individuals, people with lower education may have less opportunity to study coping strategies, which might lead to poor coping with increased exposure to stressors. Those individuals who are dissatisfied with work, change their work frequently, and lead a generally stressful life may also be at increased risk of neurotic disorders (Zhang, 2010).

Consistent with the previous study in several internal medicine departments in China (Sun et al., 2008), our findings showed that general outpatients being seen in internal medicine departments had a higher prevalence of neurotic disorders compared to those being seen in surgical departments. To a certain extent, the findings reflect negative attitudes toward mental disorders in Chinese traditional culture. In China, most patients with neurotic

disorders would first seek help in nonpsychiatric/nonpsychological departments of general hospitals rather than in psychiatric hospitals (Ding, 2003; Zhang, 2001). One previous study found that Chinese people with neurotic disorders typically presented to physicians with somatic distress, and they usually did not like to talk about their personal or emotional stress to physicians because of the fear of being labeled as insane (Lee, Tsang, & Kwok, 2007). Therefore, it is important for medical practitioners in nonpsychiatric departments, especially for internal medical doctors in general hospitals, to be alert to assess patients' psychological distress as they present their physical complaints, so that appropriate treatment or referral for mental health services can be offered.

Marital status was not found to be associated with the risk of neurotic disorders, which was not consistent with the previous studies (Li et al., 2008; Zhang et al., 2005). In this study, only 11 outpatients of the sample were divorced. Whether this result was a power issue should be explored in further studies.

There were two limitations in this study. First, this was a cross-sectional study performed in Xi'an, a city in northwest China, where regional and environmental factors may have influenced the prevalence and distribution of neurotic disorders. Second, although the sample size of the study was calculated according to a commonly used formula for cross-sectional studies in epidemiology, 372 outpatients limited further analysis to some extent. Therefore, further large-scale studies in different regional cities and hospitals are required.

Practice Implications

Neurotic disorders often go unrecognized by healthcare providers in nonpsychiatric outpatient departments. Healthcare providers need to recognize and properly treat neurotic disorders among general medical outpatients. Healthcare providers need training to implement screening to ensure neurotic disorders are tackled early enough to avoid any misdiagnoses. This is the first multicenter study of its kind carried out among general medical outpatients in Xi'an China. The study provides valuable and previously unavailable information regarding population distribution and correlates of neurotic disorders among outpatient population. This will be very important for timely identification of patients and planning of suitable interventions that target patient needs. Prompt treatment of neurotic disorders in general medical outpatient populations could potentially decrease the economic burden of mental disorders. In this light, the study also provides important implications for nursing education concerning health care for patients with neurotic disorders in general hospitals.

Acknowledgments

The current study was supported in part by the Ministry of Science and Technology of People's Republic of China (grant 2007BA117B01), the Department of Science & Technology of Shanxi Province of China (grant 2010K16-02-01), the National Natural Science Foundation of China (grant 71373281), and Chinese Scholarship Council.

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Table 1

Definition of Three-Class Hospitals

	Care delivery	Bed capacity
Primary hospital	To provide prevention, health care, and rehabilitation service directly to a certain population community	100
Secondary hospital	To provide more comprehensive medical service to several communities and undertake certain teaching and scientific research task	101–500
Tertiary hospital	To provide high-level medical and health services to several regions and undertake higher teaching and scientific research task	501

Table 2Socio-Demographic Characteristics of the Participants ($N = 372$)

Socio-demographic characteristics	Category	<i>n</i>	%
Hospital category	Primary hospital	50	13.4
	Secondary hospital	101	27.2
	Tertiary hospital	221	59.4
Gender	Male	196	52.7
	Female	176	47.3
Age (years)	16–39	176	47.3
	40	196	52.7
Department visited	Internal medicine	159	42.7
	Surgical medicine	147	39.6
	Other department	66	17.7
Education	Less than high school	82	22.1
	High school	156	41.9
	College or above	134	36.0
Marital status	Married	258	69.3
	Unmarried	103	27.7
	Separated/divorced/widowed	11	3.0

Table 3Lifetime Prevalence of Neurotic Disorders' Subtype Among General Outpatients ($N = 372$)

Subtype of neurotic disorders	<i>n</i> (%)
Social phobias	5 (1.3)
Specific phobias	21 (5.6)
Panic disorders	4 (1.1)
Obsessive-compulsive disorders	14 (3.8)
Agoraphobia	3 (0.8)
Generalized anxiety disorders	0

Table 4Population Distribution Characteristics of Neurotic Disorders ($N = 372$)

Socio-demographic characteristics	Category	Total numbers of outpatients	Neurotic disorders $n(\%)$	Non-neurotic disorders $n(\%)$	χ^2	p
Department visited	Internal medicine	159	27 (17.0)	132 (83.0)	12.17	.00
	Surgical medicine	147	11 (7.5)	136 (92.5)		
	Other department	66	2 (3.0)	64 (97.0)		
Gender	Male	196	14 (7.1)	182 (92.9)	5.63	.02
	Female	176	26 (14.8)	150 (85.2)		
Age (years)	16–39	176	31 (17.6)	145 (82.4)	16.39	.00
	40	196	9 (4.6)	187 (95.4)		
Education	Less than high school	82	19 (23.2)	63 (76.8)	16.97	.00
	High school	156	12 (7.7)	144 (92.3)		
	College or above	134	9 (6.7)	125 (93.3)		
Marital status	Married	258	29 (11.2)	229 (88.8)	1.13	.57
	Separated/divorced/widowed	11	2 (18.2)	9 (81.8)		
	Unmarried	103	9 (8.7)	94 (91.3)		
Total		372	40 (10.8)	332 (89.2)		

Table 5
Logistic Regression OR and 95% CI for Neurotic Disorders of Associated Factors

Variables	B	SE	Wald χ^2	p	OR	95% CI
Internal medicine departments	1.88	0.72	6.30	.01	6.55	1.51–28.38
Under 40 years old	1.49	0.39	14.29	.00	4.44	2.05–9.62
Less than high school education	1.43	0.43	10.94	.00	4.19	1.79–9.79
Female	0.81	0.35	5.41	.02	2.25	1.14–4.47