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## Social anxiety disorder in the Chinese military: Prevalence, comorbidities, impairment, and treatment-seeking



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## ABSTRACT

The objective of this work is To investigate the prevalence, comorbidities, impairment, and treatment-seeking of social anxiety disorder in the Chinese military personnel. Military personnel ( $n=11,527$ ) were surveyed from May to August 2007 using a multistage whole cohort probability sampling method. A Chinese version of the World Health Organization Composite International Diagnostic Interview (CIDI) was used for assessment, and a military-related socio-demographic questionnaire was used to describe the prevalence distribution. A unified survey was performed to investigate 11 different social situations. The short-form health survey was used to assess role impairment. The 12-month and lifetime prevalence rates of social anxiety disorder were 3.34% (95% CI: 3.25–3.42%) and 6.22% (95% CI: 6.11–6.32%), respectively. Social anxiety disorder was associated with increased odds of depression, substance abuse, panic attacks/disorder, and generalized anxiety disorder. Childhood foster, female, stressful life events, younger age, and being divorced/widowed increase the incidence of social anxiety disorder. Treatment-seeking was relatively rare. Social anxiety disorder is a common disorder in military personnel in China, and it is a risk factor for subsequent depressive illness, substance abuse and other mental disorder. Early detection and treatment of social anxiety disorder are important because of the low rate of treatment-seeking.

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### 1. Introduction

Social anxiety is pervasive, with a majority of people expressing discomfort in at least one type of social situation (Stein et al., 1994). Investigation of social anxiety disorder in representative civilian showed that social anxiety disorder has a high lifetime prevalence of approximately 5–12% (Kessler and Ustun, 2004; Shields, 2004; Grant et al., 2005; Stein, 2006; Hsu and Alden, 2007). Social anxiety disorder is associated with increased disability, decreased quality of life, poor role functioning, and suicidal behavior (Stein and Kean, 2000; Wittchen et al., 2000; Wittchen and Fehm, 2001; Simon et al., 2002; Shields, 2004; Ruscio et al., 2008; Mather et al., 2010). In addition, social anxiety disorder has been shown to be a risk factor for the development of major depression (Stein et al., 2001; Beesdo et al., 2007; Mather et al., 2010). Recently, a comprehensive examination of the epidemiology and characteristics of social anxiety disorder in a representative sample of active military

personnel showed that the military population had characteristics that were similar to the general population (Mather et al., 2010). In the Israeli military, the rate of social phobia was 4.5% (Iancu et al., 2006). Therefore, social anxiety disorder is an extremely important disorder in both general and military populations. Furthermore, the impacts of social anxiety disorders could be exacerbated in military personnel, since they are exposed to situations like adaptation to new places, exposure, discipline, stress associated with ranks and combat situations (Sareen et al., 2007). In China, military service is not compulsory, but the discipline is very strict. Furthermore, the age at enlistment is relatively young, and a large proportion of recruits are from rural areas (Wang et al., 1996).

There are few recent reports on the mental health of Chinese military personnel since a mental disorder survey carried in 1994 (Wang et al., 1996). In addition, most studies on the mental health in the military tend to focus on post-traumatic stress disorder (PTSD), depression, and alcohol abuse. In this background, the data about social anxiety disorder are especially rare.

Therefore, in the present study, we examined the prevalence of social anxiety disorder and social fears in the military, and determined the sociodemographic correlates and role impairment associated with this disorder. In addition, we tested how social

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anxiety disorder is related to other mental disorders among military personnel, and examined whether social anxiety disorder interacts with the incidence of other mental disorders. Finally, we determined the frequency of treatment-seeking in military personnel who meet criteria for a diagnosis of social anxiety disorder.

## 2. Methods

### 2.1. Subjects

Surveyed subjects included active soldiers in service, officers ranked below lieutenant, and students in military universities, all among the Land Forces, Navy, Air Forces and Missilery Forces of the People Liberation Army (PLA) in China.

### 2.2. Sampling

The survey was based on a multistage clustered area probability sampling that involved personnel in the seven military regions of the PLA and different Army Services (Navy, Air Forces, Missilery Forces, Military Students, and Other Forces). The target sample was 14,000, and the final number of responses was 11,527 (82.33%). Additional factors were used to adjust for differential probabilities to match the samples to military region and Army Services distributions.

### 2.3. Measures

#### 2.3.1. Psychiatric diagnoses

The WHO Composite International Diagnostic Interview (CIDI 3.0), a fully structured diagnostic interview, was used for psychiatric diagnosis (Kessler and Ustun, 2004; Kessler et al., 2005). Both the International Classification of Diseases (ICD-10) (Demyttenaere et al., 2004) and *Diagnostic and Statistical Manual (DSM-IV) (1994)* diagnoses were examined; DSM-IV diagnoses were used in the present study. A military-related sociodemographic questionnaire was used to describe the prevalence distribution and to estimate the risk factors in the PLA.

The CIDI was translated into Chinese and back-translated using a standard WHO protocol. An expert panel composed of three academic psychiatrists with epidemiological expertise and a survey methodologist from the Research Center for Contemporary China (Beijing, China) evaluated its content validity, tested it with Chinese patients, and revised it to ensure that the Chinese terms used were easily understood by lay interviewers. All interviewers were trained at the Fourth Military Medical University (Xi'an, China).

#### 2.3.2. Social fears

Eleven different social situations were investigated using a previously described method (Lee et al., 2009; Mather et al., 2010). Briefly, a unified survey was performed to investigate whether the respondents had ever felt shy, uncomfortable, or afraid in any of 11 different social situations (such as meeting new people, working while someone was watching, using public washrooms, etc.). Two qualitative and quantitative variables were created to analyze the associations between the number of social fears and a variety of outcomes, such as mental disorder comorbidities.

#### 2.3.3. Role impairment

The short-form health survey (SF-36) (Ware and Sherbourne, 1992; Ware, 1997) was used to assess role impairment. Respondents who endorsed at least one social fear were asked to which extent their health domains (physical functioning; social functioning; daily role limitations) were impaired in the past year by their fear or avoidance. For all subscales, higher scores reflected better mental health. The SF-36 raw scores for physical functioning, vitality, mental health, and general health were transformed into a 0–100 scale (according to scoring and formulas in the SF-36 Health Survey Manual) (Ware, 1997). Due to non-normal distributions, 3 subscales were transformed into categorical variables based on response distributions (i.e., role-physical on a 0–4 scale; social functioning and role-emotional on a 0–3 scale).

#### 2.3.4. Sociodemographic variables

A number of sociodemographic variables were examined to determine their association with social anxiety disorder and particular social fears. Specifically, age, gender, childhood foster (real parents vs. foster parents), trauma history during duty (negative vs. positive), rank (soldier, petty officer and officer), education, military rank, and arm of the service were included.

#### 2.3.5. Treatment-seeking

Respondents who endorsed at least one social fear were asked whether they had ever received professional help for their social fears. All respondents were also asked whether they had sought help for problems with their emotions, mental health, or use of alcohol or drugs. Among respondents who responded affirmatively,

information was collected regarding the types of services used. This information was used to characterize whether military personnel with social anxiety disorder seek help for their social fears and, if so, what types of help are sought.

### 2.4. Analysis methods

Data were reported as prevalence and 95% confidence interval (95% CI). Military Region and Army Services cross-tabulations were used to determine the prevalence of social anxiety disorder and social fears, comorbidities, role impairment, and treatment-seeking. Standard errors were estimated using the Taylor series linearization method (Wolter, 1985) implemented in the SAS8.2 software (SAS Institute, Cary, NY, USA) to adjust for the clustering and weighting of data. The stepwise logistic regression model method was used to examine the odds of meeting criteria for social anxiety disorder among the various social fear categories, the relationship between number of social fears and likelihood of mental disorder comorbidities, and the sociodemographic correlates of social anxiety disorder. Statistical significance was based on two-sided tests evaluated at a 0.05 level of significance.

## 3. Results

### 3.1. Demographic distribution

The mean age of the subjects was  $22.0 \pm 3.79$  years, without significant differences among the different military regions. Most subjects (98.0%) were male. The arm distribution of the final sample was: Land Forces 59.74%, Navy 13.26%, Air Forces 9.06%, Missilery Forces 8.31%, Military Students 4.07%, and Other Forces 5.55%, which was consistent with the general population of the PLA. The final sample properly covered all military regions in China.

### 3.2. Prevalence

For the entire sample, 3.08% of subjects ( $n=355$ ) met criteria for SAD diagnosis. The twelve-month and lifetime prevalence rates of social anxiety disorder were 3.34% (95% CI: 3.25–3.42%) and 6.22% (95% CI: 6.11–6.32%), respectively. The prevalence of social fears is presented in Table 1. The 12-month prevalence for at least one social fear was 21.2%. The most and least common social fears were “talking to people in authority or a person of a higher status” (18.9%) and “using public washrooms” (7.4%), respectively.

As demonstrated in Table 2, social anxiety disorder was associated with a number of sociodemographic variables. The low and intermediate social fear groups were significantly younger and more educated than respondents without any social fear. Childhood foster was significantly related to social anxiety disorder among military personnel. Female was more likely to suffer from social anxiety disorder. Individuals who were separated, widowed, or divorced had a higher likelihood of past-year social anxiety disorder (OR=2.21, 95% CI 1.38–3.31). Officers were less likely than those of junior rank to have either past-year (OR=0.49, 95% CI 0.12–0.85) or lifetime (OR=0.56, 95% CI 0.31–0.89) social anxiety disorder.

After adjusting for demographic characteristics and multiple comparisons, we examined the risk of psychiatric disorders associated with the occurrence of social anxiety disorder. As shown in Table 3, military personnel diagnosed with social anxiety disorder were significantly more likely than those without social anxiety disorder to have any lifetime or past-year mental disorder. In respect of lifetime prevalence, the analytic mental disorders (depression, panic attacks, panic disorder, generalized anxiety disorder, and post-traumatic stress disorder) were significantly associated with social anxiety disorder. Similarly, of the past-year disorders, all but alcohol dependence showed significant associations with past-year social anxiety disorder.

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