•Original article•

Depressive symptoms among the visually disabled in Wuhan: an epidemiological survey

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Background: There are no representative studies on the mental health status of persons with disabilities in China.

Aim: Estimate the prevalence of depressive symptoms and identify the factors associated with depressive symptoms in a representative sample of individuals with serious visually disabilities in Wuhan, China.

Methods: A multi-stage stratified cluster sampling method was used to identify 1200 visually disabled individuals from among the 22,000 persons with serious visual disabilities who were registered with the Wuhan Disabled Persons' Federation. Identified individuals were administered the Center for Epidemiological Studies Depression Scale (CES-D) and the Revised Eysenck Personality Questionnaire-Short Scale for Chinese (EPQ-RSC) by trained interviewers.

Results: The adjusted prevalence of mild, moderate and severe depressive symptoms among the 1003 individuals who successfully completed the survey were 8.8% (95% confidence interval [CI]=5.7-11.8%), 15.6% (CI=12.8-18.5%) and 16.0% (CI=13.7-18.3%), respectively. Factors significantly associated with more severe depressive symptoms in the multivariate logistic regression analysis (in order of importance) were emotional instability (OR=5.84, CI=4.19-8.14), introverted personality (OR=2.94, CI=2.10-4.12), having religious beliefs (OR=2.03, CI=1.06-3.90), being blind (versus those who were only visually impaired) (OR=1.52, CI=1.09-1.95), being unmarried (OR=1.51, CI=1.06-2.15), and having less than 10 years of formal education (OR=1.49, CI=1.06-2.10).

Conclusions: Over one-third of all individuals with visual disabilities registered with the Disabled Persons' Federation in Wuhan have clinically significant depressive symptoms. Therefore, services for persons with serious visual disabilities – and for individuals with other types of serious physical or sensory disabilities – should include activities aimed at improving psychological wellbeing, periodic screening for psychological problems and, when needed, professional treatment for mental disorders.

1. Introduction

Visual disability is defined as either a significant loss of vision in both eyes that cannot be corrected or a visual field defect so extensive that it impairs an individual's daily life and social function.[1] In 2008, 1.29% of the Chinese population was visually disabled.[2] Among those 50 years of age or older, 10.8% were classified as 'visually impaired' and 2.3% were classified as 'blind'.[3] The public health importance of visual disabilities is widely recognized by community members and by government agencies in China, but there is little appreciation of the mental health effects of this severe disability. Negative societal attitudes about the disabled often magnify the limitations imposed by serious sensory and physical disabilities, undermining the self-confidence and psychological wellbeing of disabled individuals.[4,5] Studies from other countries report that the prevalence of depressive symptoms is two- to five-fold higher among individuals with visual disabilities than in the general population.[6,7] Previous studies in China, including two studies of students in special schools for the blind[8,9] and one study in blind community members,[10] also found that people with visual disabilities report lower self-esteem and higher levels of depressive symptoms compared to the general population. But these studies were conducted in small, unrepresentative samples and they did not consider the demographic and personality factors associated with depression in visually disabled individuals. The current study assessed the prevalence of depressive symptoms and the factors associated with depressive symptoms in a representative sample of all visually disabled individuals registered with the Disabled Persons' Federation in Wuhan, a municipality of ten million residents[11] in China's central Hubei Province.

2. Methods

2.1 Pilot study

A pilot study was conducted with 50 visually disabled participants to assess the feasibility of the intended survey procedures and to make a crude assessment of the prevalence of 'severe depressive symptoms' (i.e. a score of 27 or higher on the Chinese version of the Center for Epidemiological Studies Depression Scale [CES-D] [12-14]) which would subsequently be used to estimate the required sample size in the main study.
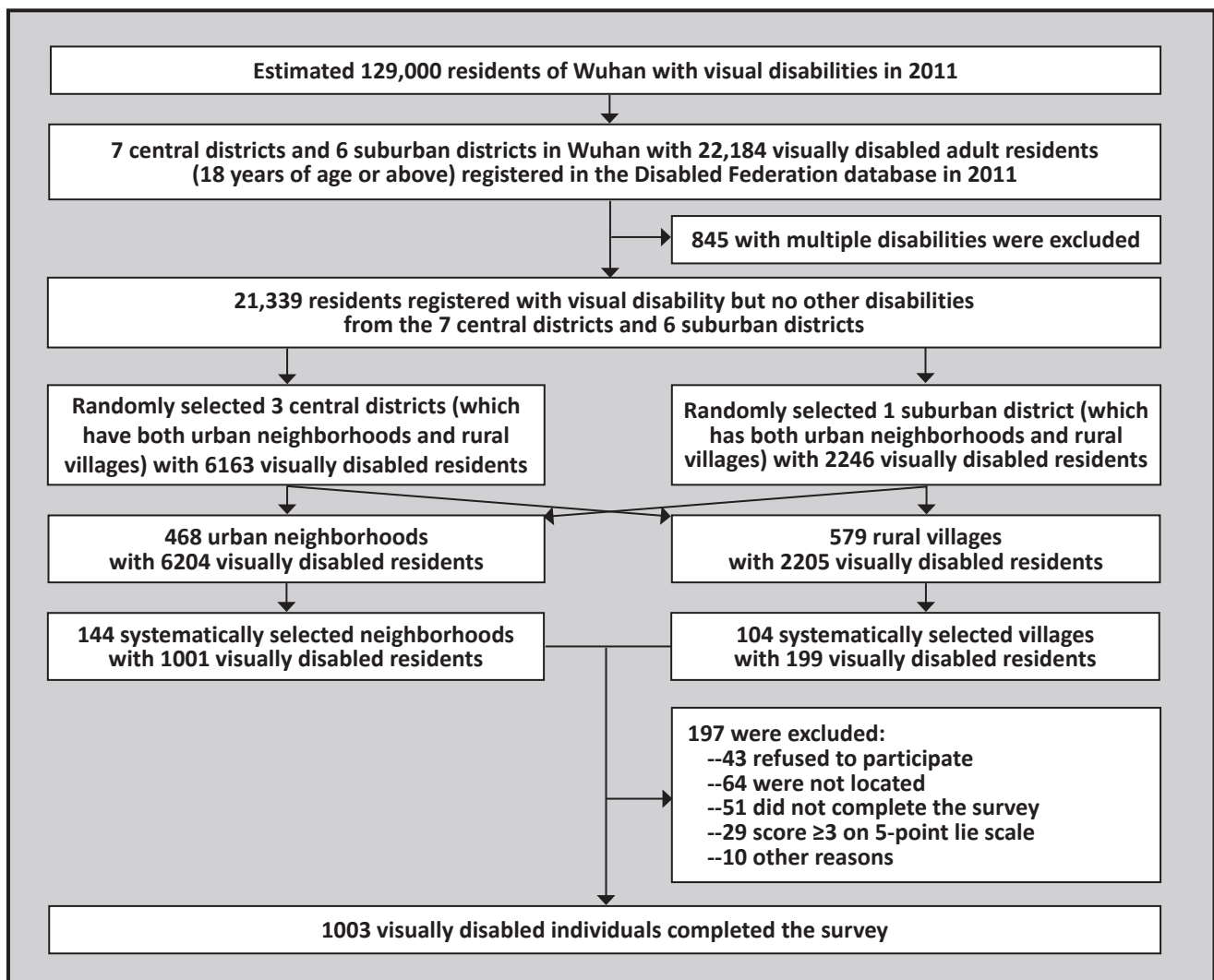
2.2 Sampling

PASS software 2005 (LLC, Kaysville, UT, USA) was used to estimate the sample size needed for the main study. The formula for finite population sampling was used with the following parameters: (a) based on the pilot survey, the estimated possibility of detecting severe depressive symptoms in this population was set as 0.1; (b) precision was set as 0.02; (c) type I error (alpha) was set as 0.05;

(d) the registered visually disabled population in Wuhan was 22,184; (e) respondent rate was set as 0.8; (f) the design effect was set as 1.1. This generated a required sample size of 1142.

The identification of participants in this survey is shown in Figure 1. Based on the national prevalence of visual disabilities of 1.29%[2] and Wuhan's population of 10 million individuals,[11] there are an estimated 129,000 visually disabled residents in the municipality. In China most individuals with serious disabilities who require government financial assistance or other types of services are registered with the local Disabled Persons' Federation, a semi-governmental agency with offices throughout the country that coordinate governmental and non-governmental services for disabled citizens and their families. The sampling frame for the study was all 22,184 persons with visual disabilities listed in the registry maintained by the Wuhan Disabled Persons' Federation (WDPF) as of 1 July 2011. (This registry includes approximately 17% of all persons with visual

Figure 1. Identification of the survey participants

disabilities living in Wuhan.) After excluding individuals with multiple disabilities and those under 18 years of age, multi-stage cluster random sampling was used to identify the sample. Given that 66% of the population and 60% of all registered persons with visual disabilities live in the central districts of the municipality, we randomly selected three of the seven central districts (Jiangan, Jianghan and Qiaokou) and one of the six suburban districts (Xinzhou). In the second stage of sampling, the urban neighborhoods and rural villages in each district were listed by population size and then every fourth neighborhood of the 468 urban neighborhoods was selected and every sixth village of the 579 rural villages was selected. This resulted in 157 urban neighborhoods and 115 rural villages, but 12 of the urban neighborhoods and 11 of the rural villages selected had no registered individuals with a visual disability. All 1200 registered individuals 18 years of age or older with visual disabilities (and no other disability) in the remaining 144 urban neighborhoods and 104 rural villages were potential subjects for the study. Among these identified subjects, 1003 (83.6%) were located and successfully completed the survey.

2.3 Assessments

The survey instrument employed in the current study consists of three parts: a questionnaire developed for the study that collects basic demographic information (age, gender, education, marital status, urban v. rural residence, registered degree of disability, family income, and self-reported presence of religious beliefs); the Chinese version of the Center for Epidemiological Studies Depression Scale (CES-D);[12-14] and the Revised Eysenck Personality Questionnaire-Short Scale for Chinese (EPQ-RSC).[15]

The CES-D is a 20-item scale used to assess the frequency of depressive symptoms during the past week. Each items is rated on a 4-point Likert scale (0='rarely or none of the time [less than 1 day]'; 1='some or a little of the time [1-2 days]'; 2='occasionally or a moderate amount of the time [3-4 days]'; and 3='most or all of the time [5-7 days]'). The total score ranges from 0 to 60 with higher scores representing more frequent depressive symptoms. The total score is classified as 'no significant depressive symptoms' (total score=0-15), 'mild depressive symptoms' (total score=16-19), 'moderate depressive symptoms' (total score=20-26), and 'severe depressive symptoms' (total score>26). The Chinese version of CES-D has good reliability and validity, with a reported Cronbach α of 0.88.[14]

The EPQ-RSC is a 48-item scale with dichotomous ('yes' or 'no') response sets. There are four subscales: an extraversion/introversion scale (lower scores indicate more introversion), a neuroticism/stability scale (higher scores indicate greater emotional instability), a psychoticism/socialization scale (higher scores indicate being more reclusive, indifferent to others, and intransigent), and a lie scale. Only the first three

personality traits were included in this analysis. The lie scale, which was used to assess the acceptability of respondents' answers, included three questions from the original EPQ-RSC and two new items that we previously developed for use with heroin users:[16] the original items were (a) 'Are all of your habits good and desirable ones?', (b) 'Have you ever blamed someone else for doing something you knew was really your own fault?', and (c) 'Have you ever taken anything (even a pin or button) that belonged to someone else?'; the two added items were (d) 'I'm worried because I have too much money to spend it all,' and (e) ' I'm not afraid of anything'. Responding 'yes' to items (a), (d), and (e) and responding 'no' to items (b) and (c) were considered untruthful; the survey results of individuals who had three or more untruthful responses were excluded.

2.4 Survey methods

The three survey instruments were administered in face-to-face interviews conducted in respondents' homes from 1 July to 28 December 2011. Before starting the survey interviewers explained the aims and the confidentiality principles of the study and obtained written informed consent from the participant. The interviewers read all the items to the participants and recorded their answers. When the respondent had difficulty understanding an item, interviewers provided a brief explanation.

Interviewers were 63 staff members (40 men and 23 women) from the local community service office in each neighborhood. They had all been recommended and trained through the WDPF. Ten volunteers with visual disabilities were recruited to participate in the training sessions for the interviewers. During the training sessions the inter-rater reliability of the interviewers of the overall CES-D score (intraclass correlation coefficient [ICC]=0.95) and of the three EPQ-RSC subscale scores (ICC=0.955-0.963) were excellent. During the main study, the interviewers in each selected neighborhood or village were supervised by an official from the WDPF who cross-checked all of the questionnaires and randomly phoned some of respondents to inquire about their impressions of the interview. Interviewers who failed to follow the survey protocol were identified and closely supervised.

The study was approved by the institutional review board of the Wuhan Mental Health Center.

2.5 Statistical methods

SPSS software version 19.0 was used to analyze the data. Most of the continuous variables were dichotomized at the median value, including years of schooling, duration of disability and scores of the three subscales of EPQ-RSC. Age was divided into three ranges in the analysis. The four levels of visual disability recognized by the WDPF were categorized as 'blind' (level 1 and level 2) or 'visually impaired' (level 3 and level 4). The prevalence

of depressive symptoms in different population cohorts was calculated and an overall adjusted rate was computed by adjusting the crude rate for differences between the gender ratio in the sample compared to that in all 22,000 visually disabled persons registered with the WDPF. Ordinal multivariate logistic regression models with a backward stepwise entry of variables were used to estimate the association between the severity of depressive symptoms, the level of visual disability and personality variables. All tests employed were two-tailed and the significance level used was $p<0.05$.

3. Results

3.1 Characteristics of survey participants

The demographic and other characteristics of the respondents are shown in Table 1. Among the 1003 respondents, 592 (59.0%) were male and 411 (41.0%) were female. The mean (sd) age was 46.7 (12.7) years, ranging from 18 to 99. Among these respondents, 218 (21.7%) had a level-1 visual disability (the most severe form), 181 (18.0%) had a level-2 visual disability, 188 (18.7%) had a level-3 visual disability, and 416 (41.5%) had a level-4 visual disability (the least severely

Table 1. Univariate ordinal logistic regression of the severity of depressive symptoms by different characteristics in 1003 visually disabled respondents in Wuhan in 2011

Characteristics	All respondents (N=1003) n (%)	Severity of depressive symptoms[a]				Univariate regression	
		No significant depressive symptoms (N=594) n (%)	Mild depressive symptoms (N=90) n (%)	Moderate depressive symptoms (N=160) n (%)	Severe depressive symptoms (N=159) n (%)	Odds ratio (95% CI)	p
Female gender	411 (41.0)	253 (42.6)	32 (35.6)	56 (35.0)	70 (44.0)	0.91 (0.70-1.17)	0.454
Age in years							
18-34 (reference)	163 (16.3)	95 (16.0)	17 (18.9)	23 (14.4)	28 (17.6)	1	---
35-59	718 (71.6)	444 (74.7)	66 (73.3)	108 (67.5)	100 (62.9)	0.82 (0.56-1.15)	0.224
$\geq$60	122 (12.2)	55 (9.3)	7 (7.8)	29 (18.1)	31 (19.5)	1.73 (1.09-2.75)	0.020
<10 years of schooling	562 (56.0)	296 (49.8)	54 (60.0)	106 (66.3)	106 (66.7)	1.82 (1.40-2.38)	<0.001
Currently not married[b]	257 (25.6)	136 (22.9)	29 (32.2)	39 (24.4)	53 (33.3)	1.40 (1.05-1.86)	0.020
Currently unemployed	581 (57.9)	318 (53.5)	44 (48.9)	106 (66.3)	113 (71.1)	1.66 (1.28-2.16)	<0.001
Reports religious beliefs	80 (8.0)	33 (5.6)	5 (5.6)	30 (18.8)	12 (7.5)	1.98 (1.25-3.15)	0.004
Blind (v. visually impaired)	399 (39.8)	212 (35.7)	39 (43.3)	76 (47.5)	72 (45.3)	1.47 (1.13-1.90)	0.004
Does not use any type of device to improve vision	704 (70.2)	411 (69.2)	72 (80.0)	127 (79.4)	94 (59.1)	0.98 (0.74-1.30)	0.907
Rural residency	120 (12.0)	51 (8.9)	11 (12.2)	36 (22.5)	22 (13.8)	1.82 (1.25-2.66)	0.002
Self-reported low family income	789 (78.7)	447 (75.3)	71 (78.9)	133 (83.1)	138 (86.8)	1.70 (1.22-2.35)	0.002
Cause of disability							
congenital (reference)	262 (26.1)	162 (27.3)	33 (36.7)	37 (23.1)	30 (18.9)	1	---
non-natural	730 (72.8)	427 (71.9)	56 (62.2)	118 (73.8)	129 (81.1)	1.29 (0.95-1.77)	0.107
unknown	11 (1.10)	5 (0.8)	1 (1.1)	5 (3.1)	0 (0.0)	1.49 (0.38-5.75)	0.565
Visually disabled >24 years	498 (49.7)	299 (50.3)	42 (46.7)	80 (50.0)	77 (48.4)	0.95 (0.73-1.22)	0.675
Personality type[c]							
high psychoticism	492 (49.1)	262 (44.1)	59 (65.6)	105 (65.6)	66 (41.5)	1.35 (1.04-1.76)	0.025
introversion	556 (55.4)	288 (48.5)	64 (71.1)	85 (53.1)	119 (74.8)	2.02 (1.55-2.65)	<0.001
unstable	468 (46.7)	200 (33.7)	28 (31.1)	104 (65.0)	136 (85.5)	6.72 (5.03-8.97)	<0.001

[a] As assessed by the Center for Epidemiologic Studies-Depression Scale (CES-D): scores <15 = 'no significant depressive symptoms', 16-19 = 'mild depressive symptoms', 20-26 = 'moderate depressive symptoms', and $\geq$27 = 'severe depressive symptoms'

[b] 'Currently not married' includes single, separated, divorced, cohabitating and widowed

[c] Based on subscale scores of Revised Eysenck Personality Questionnaire-Short Scale for Chinese (EPQ-RSC): high psychoticism=psychoticism subscale score >3; introversion=extraversion subscale score $\leq$7; unstable=neuroticism subscale score >5

disabled). Thus 399 (39.8%) were classified as 'blind' (i.e., levels 1 and 2) and 604 (60.2%) were classified as 'visually impaired' (i.e., levels 3 and 4). Distributions of other demographic variables and of the three EPQ-RSC subscale scores are shown in Table 1. All 22,184 visually disabled individuals registered with the WDPF included 49.3% males and their average age was 47.3 years; the proportion of males in our sample was higher (χ^2=36.2, p<0.001), but the mean age was similar (t=1.5, p=0.135).

3.2 Prevalence and adjusted prevalence of depressive symptoms

Based on the CES-D scores, 594 respondents (59.2%, 95% confidence interval [CI]=56.2-62.3%) had no significant depressive symptoms, 90 (9.0%, CI=5.9-12.0%) had mild depressive symptoms, 160 (16.3%, CI=13.0-18.8%) had moderate depressive symptoms and 159 (15.9%, CI=13.6-18.1%) had severe depressive symptoms. The gender-standardized prevalences of these four categories of depressive symptoms (standardized to the gender distribution of all visually disabled individuals registered in Wuhan) were 59.6% (CI=56.4-62.7%), 8.8% (CI=5.7-11.8%), 15.6% (CI=12.8-18.5%) and 16.0% (CI=13.7-18.3%), respectively. The proportions of participants with various characteristics stratified according to the four severity levels of depressive symptoms (i.e., none, mild, moderate, and severe) are shown in Table 1.

Table 2. Multivariate ordinal logistic regression results of factors significantly associated with the severity of depressive symptoms in 1003 visually disabled respondents in Wuhan in 2011[a]

Characteristics	OR (95%CI)	p
<10 years of schooling	1.49 (1.06-2.10)	0.021
Currently not married[b]	1.51 (1.06-2.15)	0.023
Currently unemployed	1.60 (1.14-2.24)	0.007
Reports religious beliefs	2.03 (1.06-3.90)	0.032
Blind (v. visually impaired)	1.52 (1.09-1.95)	0.014
Personality type[c]		
high psychoticism	---	---
introversion	2.94 (2.10-4.12)	<0.001
unstable	5.84 (4.19-8.14)	<0.001

[a] Nagelkerke R^2 of the logistic regression model is =0.293

[b] includes single, separated, divorced, cohabitating and widowed

[c] Based on subscale scores of Revised Eysenck Personality Questionnaire-Short Scale for Chinese (EPQ-RSC): high psychoticism=psychoticism subscale score >3; introversion= extraversion subscale score ≤7; unstable=neuroticism subscale score >5

3.3 Factors associated with the severity of depressive symptoms among people with visual disability

The results of the univariate ordinal logistic regression analysis are also shown in Table 1. Several variables were significantly associated with the severity of depressive symptoms in these visually disabled individuals: advanced age, lower education, being unmarried or unemployed, having religious beliefs, being classified as blind (i.e., the most severe form of visual disability), living in rural areas, reporting low family income, and having high scores for psychoticism, introversion or neuroticism on the EPQ-RSC.

Results of the stepwise multivariate ordinal logistic regression are shown in Table 2. After entering all statistically significant variables from the univariate analysis (Table 1), factors that were independently associated with the severity of depressive symptoms were identified using backward selection. The factors that remained in the final model included: low education, being currently unmarried or unemployed, reporting religious beliefs, being classified as blind, and having high scores on the introversion or neuroticism dimensions of the EPQ-RSC. Taken together, these factors accounted for 29.3% of the variance in the severity of depression among these subjects.

4. Discussion

4.1 Main findings

In this study, the estimated prevalence of having any depressive symptom (CES-D ≥16) was 40.8% among people with visual disabilities. This prevalence is much higher than that reported in other cohorts in China, including the 19.9% prevalence reported in the general urban population,[17] the 23.7% prevalence reported among rural-to-urban migrants,[18] the 24.8% prevalence reported in perimenopausal women,[19] and the 33.8% prevalence reported in outpatients with heroin dependence.[20] The prevalence we found in persons with visual disabilities is similar to that reported among older individuals with Parkinson's Disease (38.8%)[21] and among elderly patients in general hospitals (39.0%).[22] Compared to 1467 individuals with physical disabilities in Wuhan, persons with visual disabilities were more likely (at a trend level only) to have mild, moderate or severe depressive symptoms (9.0% v. 7.7%, 16.3% v. 15.2%, 15.9% v. 14.0%, respectively, Mann-Whitney Z=1.89, p=0.059).[23] However, the severity of depressive symptoms in individuals with visual disabilities was not significantly different from that reported among 485 individuals in Wuhan with hearing disabilities[24] (Z=0.90, p=0.370).

The high prevalence of depressive symptoms in persons with visual disabilities found in this study is concordant with findings reported in other studies. In other countries, a high prevalence of depression has been reported among blind adolescents[25] and among elders with visual impairments.[26] In China, a small community-based study[10] and two school-based studies[8,27] also

found an elevated prevalence of depression among visually disabled individuals.

Regression analysis found that the severity of depressive symptoms among visually disabled individuals is related to education level, marital status, employment status, religious beliefs, degree of visual disability and personality. On the whole, these findings are similar to those reported in previous studies about depression in the general population, which identify female gender,[28,29] low educational level,[30,31] unhappy marriage[29,31] and unemployment[28,29,31] as the primary risk factors for depression. There are, however, some differences. The vast majority of research in other cohorts reports substantially higher rates of depressive symptoms in women than in men, but we found no significant difference in the self-reported severity of depressive symptoms between males and females with visual disabilities.

Having a religious belief is generally viewed as a protective factor against depression in the general population.[32] But in this study the relatively small proportion of respondents who reported having religious beliefs had more severe depressive symptoms than respondents who reported having no religious beliefs. This finding – which suggests that holding religious beliefs is a risk factor for depression – is consistent with some other studies in China among outpatients in internal medicine departments[33] and among individuals with physical disabilities.[34] One possible explanation for this difference with studies from the West is that the majority of mainland Chinese are atheists; individuals who subsequently become religious (typically *after* becoming an adult) may do so because they are seeking more existential meaning to their life or because they are emotionally troubled. However, the questions used in our survey to identify those with religious beliefs did not assess the degree the individual participated in religious activities so it was only a crude measure of 'religiousness'. Further studies are needed to clarify the reasons for this apparent cross-cultural difference in the psychological valence of religious beliefs and religious participation.

It is not surprising that the severity of depressive symptoms was more pronounced among individuals classified as 'blind' than among those classified as 'visually impaired', which is a less severe form of visual disability.[34] This relationship between the degree of disability and a higher prevalence of depressive symptoms is also seen in the physically disabled[24] and in the hearing disabled.[25] Some previous studies have reported that blind individuals are more likely to have low self-esteem and to be introverted, emotionally unstable, and unassertive.[10,35] Our study confirmed these findings: there was a clear, independent relation-ship between the severity of depressive symptoms and high introversion and high neuroticism (i.e., emotional instability). This association has also been reported in the general population; in the general population the EPQ neuroticism score is positively related to depression[36] and the EPQ extraversion score is negatively related to depression.[37]

4.2 Limitations

The main limitation of this study is that the sampling was based on the registration system of the WDPF, a system that only captures an estimated 17% of all visually disabled persons in the community. Persons registered in the government-run WDPF database tend to have lower family incomes and higher degrees of disability, so our reported prevalence of depressive symptoms in the visually disabled may be an overestimate of the rates that exist among all visually disabled individuals in the community. However, individuals registered with the Disabled Persons' Federation are those whose disability is severe enough to require government assistance so they are an important target group for any subsequent interventions. A second limitation is that this is a cross-sectional study so the factors we found associated with depressive symptoms are not, strictly speaking, risk factors. Whether or not the identified factors *cause* depressive symptoms need to be determined by prospective longitudinal studies. A third limitation is that the current study only measured depressive symptoms, not depression; so it is not known how many of these individuals were sufficiently impaired to justify a clinical diagnosis and medical treatment. A final limitation is that some other risk factors of depression (negative life events, lack of social support, poor coping style, etc.) were not assessed in the study so it is uncertain whether or not these factors would also be associated with increased rates of depressive symptoms in visually disabled individuals.

4.3 Implications

This is the first study in China to provide a reliable estimate of the prevalence of depressive symptoms in visually disabled individuals who are registered with the national Disabled Persons' Federation. The extremely high reported rates of depressive symptoms – which were similar in males and females – indicate that individuals with visual disabilities have psychological needs that are not being met. Many of the risk factors for depression in the general population are also associated with depressive symptoms in the visually disabled but the negative psychological effect of these factors may be magnified by the visual disability, particularly in individuals who are more severely disabled. Services for the visually disabled (and for individuals with other types of severe disabilities) need to include periodic evaluation of depressive symptoms, expanded social supports that specifically focus on improving psychological wellbeing, and, when necessary, psychiatric assessment and treatment.

Conflict of interest

The authors declare no conflict of interest.

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●论著●

武汉地区视力残疾人群的抑郁症状：一项流行病学调查

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摘要

背景： 在中国目前还缺乏针对残疾人的心理健康状况的代表性研究。

目的： 在中国武汉具有代表性的严重视觉障碍的人群中，评估抑郁症状的发生率及其相关因素。

方法： 采用多阶段分层整群抽样方法，从武汉市残疾人联合会注册的 22000 名严重视力残疾的人群中抽取 1200 例。训练有素的调查员使用流行病学研究中心抑郁量表 (CES-D) 及修订版艾森克人格问卷简式量表 (EPQ-RSC) 中文版对样本人群进行评估。

结果： 成功完成调查的 1003 个人中轻度，中度和重度抑郁症状的校正患病率分别为 8.8% (95%CI =5.7-11.8%)，15.6% (95%CI=12.8-18.5%) 和 16.0% (95%CI=13.7-18.3%)。多因素逻辑回归分析显示，与严重抑郁症状显著相关的因素有 (按重要性顺序) 情绪不稳定 (OR= 5.84，CI=4.19-8.14)，内向性格 (OR= 2.94，CI=2.10-4.12)，有宗教信仰 (OR= 2.03，CI=1.06-3.90)，失明 (相对于那些仅有视力受损) (OR= 1.52，CI=1.09-1.95)，未婚 (OR= 1.51，CI=1.06-2.15) ，以及文化程度低 (OR= 1.49，CI=1.06-2.10)。

结论： 武汉残联注册的所有视碍人员有超过三分之一存在显著临床意义的抑郁症状。这些人几乎没有接受治疗。针对有严重视觉障碍患者的服务，也包括对其他严重的身体或感官残疾患者的服务，应包括开展改善心理健康的活动，定期筛查心理问题，以及必要时对精神障碍进行专业的治疗。