

# Mental Health Service Use Among Chinese Adults With Mental Disabilities: A National Survey

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**Objective:** Mental disability in China has become a significant public health problem. However, few studies have examined utilization of mental health services in China among people with mental disabilities. This study explored patterns of service use and associated socioeconomic factors among Chinese adults with mental disabilities. **Methods:** Data from a population-based survey representing approximately 75% of the Chinese population were analyzed. Mental disability was defined as having a mental disorder (cognitive, affective, or behavior disorder) lasting more than one year that limited daily life and social functioning. The study assessed use of any mental health specialty care and use of specific types: medical services only, rehabilitation services only, and medical and rehabilitation services. Standard weighting procedures were used. Population weighted numbers, weighted proportions, and the odd ratios (ORs) were calculated. **Results:** A total of 1,909,199 non-institutionalized adults (weighted N=984,698,518) age 18 and older were interviewed. The weighted prevalence rate of mental disability was .81%. More than 4.2 million adults with a mental disability (52%) had never used a mental health service. Several variables were associated with greater use of mental health services: urban residence (OR=1.65), high school education or higher (OR=1.66), being married (OR=1.12), medical insurance coverage (OR=1.39), and higher annual family income (OR=1.28). **Conclusions:** The findings indicate unmet needs for mental health services among Chinese adults with mental disabilities, as well as socioeconomic inequalities in use. Strategies are needed for enhancing community mental health service systems and reducing barriers to mental health service use in China. (*Psychiatric Services* 64:638–644, 2013; doi: 10.1176/appi.ps.001232012)

Mental disorders have become a global challenge—a challenge that is more evident in fast-growing developing countries (1–3). Studies have found that approximately 17% of adults in China had at least one

mental disorder in the past month (4–6). By 2020, mental disorders are expected to account for 20% of the total disease burden in China (3,7).

People with mental disorders may have severe difficulties in social and

cognitive functioning and may be disabled (8,9). An Australian national survey found that 24% of persons with mental disorders met criteria for moderate disability and 20% met criteria for severe disability (10). A survey in four provinces in China reported that 24% of persons with mental disorders may have had moderate to severe functional impairment (4). Among persons with mental disorders, diminishment in the capacity to carry out daily roles proceeds along multiple pathways. However, deterioration in functioning caused by illness may prevent individuals from seeking needed mental health services, including pharmacotherapy and psychosocial rehabilitation, which would further impair social and cognitive functioning. Because persons with mental disabilities may be more vulnerable to developing comorbid psychiatric and general medical conditions and thus may have greater needs for treatment and rehabilitation (11–13), an understanding of mental health service utilization by persons with mental disabilities would inform the development of intervention strategies to help these individuals achieve their full life potential and reduce the disability burden on patients, families, communities, and societies.

Many studies have addressed the high need for mental health services among persons with mental disorders (4,14–21). However, few studies have explored use of mental health services

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among individuals with mental disabilities. Using data from a national survey in Australia, Andrews and colleagues (16) found that 55% of persons with mental disabilities had consulted a health professional for their problem. However, such studies are lacking in China, where there were more than eight million people with mental disabilities in 2006 and where the prevalence of mental disabilities has risen significantly from .3% in 1987 to .5% in 2006 (22).

In the study reported here, we used nationally representative data from the second China National Disability Survey conducted in 2006 (23) to explore patterns of mental health service utilization and investigate the socioeconomic factors associated with utilization among Chinese adults with mental disabilities.

## Methods

### *Data source*

We used data from a nationally representative population-based survey conducted in 2006. This survey aimed to describe the prevalence of disabilities in China, explore characteristics of people with disabilities, and analyze factors related to disabilities. The survey targeted the community-dwelling population; persons in institutions were not included.

The survey employed a multistage, stratified, probability-proportional-to-size, clustered random-sampling scheme. A total of 734 counties (cities or districts), 2,980 towns (townships or streets), and 5,964 communities were selected from 31 provinces, autonomous regions, and municipalities in China. Approximately 20,000 interviewers, 6,000 doctors, and 50,000 survey assistants were trained and participated in the survey. Details of the survey sampling procedures have been described elsewhere (22). The survey was approved by the State Council of China, and all respondents gave consent to participate.

### *Population*

During the survey, every family member of the selected households was interviewed. A disability screening scale was administered, and participants who screened positive for a suspected mental disability were then

examined by psychiatrists, who used the *ICD-10* (24) to provide a diagnosis and the World Health Organization Disability Assessment Schedule (WHO-DAS-II) (25) to assess severity. The survey protocol was determined by the members of the National Bureau of Statistics, the China Federation of Disabled Persons, and the United Nations (23). Details about field implementation and quality control have been published elsewhere (23).

Definitions for all types of disabilities were established by the expert committee of the Second China National Sample Survey on Disability and based on the WHO International Classification of Functioning, Disability, and Health (WHO-ICF) (26). Mental disability was defined as having a mental disorder (cognitive, affective, or behavior disorder) lasting more than one year that limited and restricted the patients' daily life and social functioning as assessed by the WHO-ICF (26). All survey respondents age 18 years and older who had a psychiatrist-confirmed mental disability were included in the study reported here.

### *Variables*

The primary study outcome was utilization of any mental health service or no utilization. Utilization was classified as use of any type of mental health specialty care (receipt of mental health services in settings such as psychiatric hospitals, psychiatric wards in general hospitals, and community mental health services). To assess the secondary outcome, mental health service utilization was further categorized as use of medical services only (mainly pharmaceutical treatment), use of rehabilitation services only (mainly nonpharmaceutical treatment) (27), and use of medical and rehabilitation services.

Data were obtained on age (18–24, 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, 60–64, 65–69, 70–74, 75–79, or ≥80 years), marital status (married, unmarried, or divorced or widowed), education (illiterate, elementary school, junior high school, or high school or higher), annual family income divided by the number of persons in the household (higher than the national average or equal to or

lower than the national average), medical insurance coverage (yes or no), severity of mental disability (mild, moderate, severe, or extremely severe), and causes of mental disability (organic mental disorders; mental disorders due to psychoactive substance use; schizophrenia or schizotypal or delusional disorders; mood disorders; neurotic, stress-related, or somatoform disorders; disorders of adult personality and behavior; epilepsy; or other).

### *Data analysis*

We used standard weighting procedures calculating the inverse probability of inclusion of individual survey respondents in the multistage sampling frame to construct sample weights accounting for the complex survey sample design (28). Population-weighted numbers and proportions were calculated where appropriate. Multivariate logistic regression models were used to calculate adjusted odd ratios (ORs) and 95% confidence intervals (CIs). The Taylor series linearization method was used to estimate variance and corresponding CIs (29). The procedures SURVEYFREQ and SURVEYLOGISTIC of the SAS 9.1 package were used to perform all data analyses (30). We set the significance level at  $p \leq .05$ .

## Results

### *Service use by adults with a mental disability*

The total survey population was 2,526,145 persons, and the response rate was 83.5%. Among adults (≥18 years), 1,909,199 noninstitutionalized persons (weighted  $N=984,698,518$ ) representing approximately 75% of the Chinese population were interviewed; a weighted eight million persons were diagnosed as having a mental disability (.6% of the Chinese population). The weighted prevalence rate of mental disability was .81% (CI=.80%–.83%). Among Chinese adults with a mental disability, more than 4.2 million (52%) had never used any mental health services.

Table 1 presents data (weighted percentages) on use of various types of services by Chinese adults with a mental disability. Use of rehabilitation services was quite low.

**Table 1**Characteristics of Chinese adults with a mental disability, by service use<sup>a</sup>

Characteristic	Weighted N (thousands)	Use of services (weighted %)			No service use (weighted %)
		Medical	Rehabilitation	Both	
Gender					
Male	3,679	39.5	.9	7.4	52.2
Female	4,336	39.7	1.0	6.9	52.5
Residence					
Rural	5,920	37.7	.9	5.4	56.1
Urban	2,095	45.0	1.1	12.1	41.8
Education level					
Illiterate	3,012	33.9	1.2	5.2	59.7
Elementary school	2,493	40.8	.7	7.2	51.4
Junior high school	1,755	44.4	1.0	8.7	45.9
High school or higher	755	47.1	1.0	10.9	41.1
Marital status					
Unmarried	1,886	38.1	1.1	7.4	53.4
Married	4,701	41.0	.9	7.1	51.0
Divorced or widowed	1,428	36.9	1.1	6.8	55.3
Annual family income <sup>b</sup>					
≤National average	7,049	38.9	1.00	7.0	53.1
>National average	966	44.7	.6	8.3	46.5
Medical insurance					
No	5,568	37.2	1.0	6.6	55.2
Yes	2,447	45.0	.8	8.3	45.9
Cause of mental disability					
Organic mental disorder	1,596	37.7	1.4	8.6	52.3
Mental disorder resulting from psychoactive substance use	243	26.0	1.3	2.9	69.8
Schizophrenia, schizotypal, or delusional disorder	4,410	41.7	.9	7.1	50.4
Mood disorder	441	40.8	.1	8.2	50.9
Neurotic, stress-related, or somatoform disorder	399	37.9	.5	7.7	53.9
Disorder of adult personality and behavior	82	36.8	1.6	7.3	54.3
Epilepsy	492	42.8	.3	4.2	52.8
Other	353	28.4	2.0	5.6	64.1
Severity of mental disability					
Mild	3,232	39.9	.9	6.9	52.3
Moderate	1,235	41.1	.5	6.8	51.7
Severe	1,091	38.4	.8	7.4	53.3
Extremely severe	2,457	39.0	1.3	7.5	52.3

<sup>a</sup> Source: the second China National Disability Survey, 2006 (weighted total N=984,698,518)<sup>b</sup> Divided by the number of persons in the household**Factors associated with service use**

We used two separate multivariate logistic regression models to investigate factors associated with use of mental health services. Use of any mental health service among Chinese adults with a mental disability was the primary study outcome. Several variables were associated with greater use of any service: urban residence (OR=1.65), any level of education (compared with illiterate) (elementary school, OR=1.35; junior high

school, OR=1.59; high school or higher, OR=1.66), being married (OR=1.12), medical insurance coverage (OR=1.39), and higher annual family income (mean±SD household size=3.73±1.47, range of one to eight members) (OR=1.28) (Table 2). Causes of mental disability were also associated with use of any mental health service; persons with a mental disability resulting from psychoactive substance use were less likely to use mental health services (OR=.40).

Use of various types of services among Chinese adults with a mental disability was the secondary study outcome. Several variables were associated with greater use of medical services: urban residence (OR=1.50), any level of education (compared with illiterate) (elementary school, OR=1.33; junior high school, OR=1.55; high school or higher, OR=1.62), being married (OR=1.14), medical insurance coverage (OR=1.39), and higher annual family income (OR=1.27) (Table 3). Variables associated with greater use of both medical and rehabilitation services were urban residence (OR=2.67), any level of education (compared with illiterate) (elementary school, OR=1.61; junior high school, OR=1.91; high school or higher, OR=1.96), medical insurance coverage (OR=1.38), and higher annual family income (OR=1.42).

**Discussion**

Persons with a mental disability may be more vulnerable to developing a comorbid condition and thus may have greater needs for treatment and rehabilitation to achieve their full life potential and reduce the burden on patients, families, communities, and societies. This analysis of data from a nationally representative survey described utilization of mental health services and associated socioeconomic factors among Chinese adults with a mental disability. Not surprisingly, less than half of this population (48%) had ever used a mental health service. This finding is consistent with low-use patterns reported by previous studies in China, although those studies focused on persons with a mental disorder rather than on those with a mental disability (4,21).

Compared with previous studies in China and studies in developed and developing countries (1,14,15,20,31–34), the proportion of persons using mental health services was higher in the study reported here. This finding may be attributable to differences in study populations—that is, persons with a mental disorder and those with a mental disability may have different patterns of mental health service use. For example, Andrews and colleagues (16) reported a higher rate of mental health service use in Australia among persons with a mental disability than

among those with a past-year mental disorder (40.3% versus 17.4%). One possible explanation of this difference may be related to the escalating of severity of mental disorders; greater severity would result in greater use of mental health services (14,35,36). However, even though previous studies have found that the severity of mental disorders was positively correlated with mental health service utilization (1,14,35,36), we found that the severity of disability was not associated with utilization. A difference in instruments used to measure severity may explain this finding. For example, in the WHO World Mental Health Survey, the Sheehan Disability Scale was used (1), whereas we used the WHO-DAS-II (25) to assess severity.

It is also possible that care-seeking behavior or health beliefs among patients with mental disorders change after the disorder results in disability; that is, patients who have a mental disorder without impairment may more actively seek services when the disease progresses, whereas patients with a mental disability may not actively seek services. Thus our finding suggests the importance of taking steps to prevent disability in the course of mental health consultation and treatment. In addition, this finding further highlights the importance of assessing the disability status of patients with mental disorders when setting goals to improve their use of mental health services—a topic that has not been adequately addressed in the literature.

This study found that more than four million (52%) Chinese adults with a mental disability had never used a mental health service. Many reasons for this low utilization can be offered. Chinese policies do not support treatment seeking; China has not passed national mental health legislation that would give mental health the priority it deserves (37,38). In addition, China is currently short of state-funded mental health systems, and most insurance plans do not cover the costs of mental health consultations (39). Notably, Brazil, another developing country that is undergoing a rapid socioenvironmental transition, has a somewhat

**Table 2**

Logistic regression model of predictors of use of any mental health service by Chinese adults with a mental disability<sup>a</sup>

Variable	OR	95% CI
Female (reference: male)	1.04	.96–1.13
Urban residence (reference: rural)	1.65	1.45–1.88
Age group (reference: 18–24)		
25–29	1.09	.89–1.34
30–34	1.03	.85–1.24
35–39	1.01	.84–1.22
40–44	1.07	.88–1.29
45–49	.95	.78–1.16
50–54	1.08	.89–1.31
55–59	1.01	.82–1.24
60–64	1.01	.81–1.26
65–69	1.14	.91–1.43
70–74	1.09	.86–1.37
75–79	1.00	.76–1.30
≥80	.93	.71–1.22
Education level (reference: illiterate)		
Elementary school	1.35	1.23–1.49
Junior high school	1.59	1.41–1.78
High school or higher	1.66	1.42–1.93
Marital status (reference: unmarried)		
Married	1.12	1.00–1.25
Divorced or widowed	.94	.82–1.08
Annual family income >national average (reference: ≤national average) <sup>b</sup>	1.28	1.13–1.45
Medical insurance (reference: no)	1.39	1.24–1.55
Severity of mental disability (reference: mild)		
Moderate	1.02	.91–1.14
Severe	.99	.88–1.11
Extremely severe	1.10	1.00–1.22
Cause of mental disability (reference: schizophrenia, schizotypal, or delusional disorder)		
Organic mental disorder	1.01	.90–1.13
Mental disorder resulting from psychoactive substance use	.40	.32–.51
Mood disorder	.89	.76–1.06
Neurotic, stress-related, or somatoform disorder	.86	.71–1.03
Disorder of adult personality and behavior	.85	.58–1.24
Epilepsy	1.00	.85–1.17
Other	.67	.54–.84

<sup>a</sup> Source: the second China National Disability Survey, 2006 (weighted total N=984,698,518)

<sup>b</sup> Divided by the number of persons in the household

similar shortage of mental health services and incomplete insurance coverage (40). China has even fewer mental health resources than Brazil. In 2005, there were only 1.29 psychiatrists per 100,000 population and .11 psychiatric hospital beds per 1,000 population in China, compared with 4.8 and .26, respectively, in Brazil (41). Regarding insurance coverage, China is similar to Brazil in that not all costs of mental health care are covered by the current medical insurance system (39), which may partly explain why many persons in our study who had a mental disability and medical insurance remained untreated (46%). Strategies to improve

mental health utilization are warranted, especially in developing countries.

Our findings differ from some previous findings (40,42,43) in that persons with a mental disability who were married in our study were more likely to seek mental health services than those who were single or widowed or divorced. However, this finding was consistent with a study in China by Zhang (44), who reported that patients with schizophrenia in rural communities who were married were more likely than those who were single or widowed or divorced to use mental health services. Because of the existence of stigma in China and



**Table 3**

Logistic regression model of predictors of use of mental health service by Chinese adults with a mental disability, by type of service<sup>a</sup>

Variable	Medical service		Rehabilitation service		Both	
	OR	95% CI	OR	95% CI	OR	95% CI
Female (reference: male)	1.04	.95–1.13	1.36	.85–2.17	1.03	.88–1.22
Urban residence (reference: rural)	1.50	1.31–1.72	1.63	.98–2.71	2.67	2.09–3.42
Age group (reference: 18–24)						
25–29	1.02	.83–1.27	1.42	.65–3.08	1.55	.99–2.43
30–34	.99	.81–1.21	.84	.33–2.19	1.33	.87–2.02
35–39	.99	.81–1.20	.94	.42–2.10	1.19	.78–1.80
40–44	1.01	.83–1.23	.76	.31–1.83	1.63	1.08–2.45
45–49	.89	.72–1.10	.90	.34–2.39	1.46	.93–2.30
50–54	1.04	.85–1.27	.85	.37–1.95	1.43	.93–2.21
55–59	.99	.80–1.23	.53	.19–1.52	1.26	.79–2.00
60–64	.96	.76–1.21	.85	.32–2.28	1.46	.92–2.31
65–69	1.15	.91–1.45	.58	.15–2.21	1.20	.71–2.02
70–74	1.03	.81–1.32	.28	.06–1.20	1.76	1.08–2.86
75–79	.97	.74–1.28	.72	.26–2.04	1.23	.69–2.18
≥80	.87	.65–1.16	.40	.11–1.48	1.54	.91–2.61
Education level (reference: illiterate)						
Elementary school	1.33	1.21–1.48	.76	.45–1.30	1.61	1.31–1.98
Junior high school	1.55	1.38–1.76	1.15	.70–1.91	1.91	1.52–2.41
High school or higher	1.62	1.39–1.90	1.25	.62–2.52	1.96	1.46–2.63
Marital status (reference: unmarried)						
Married	1.14	1.02–1.28	1.03	.62–1.72	.97	.78–1.21
Divorced or widowed	.97	.84–1.12	1.16	.57–2.33	.77	.59–1.02
Annual family income >national average (reference: ≤national average) <sup>b</sup>	1.27	1.12–1.44	.75	.37–1.49	1.42	1.13–1.80
Medical insurance (reference: no)	1.39	1.24–1.56	1.10	.67–1.81	1.38	1.12–1.70
Severity of mental disability (reference: mild)						
Moderate	1.04	.92–1.17	.51	.26–1.00	.99	.79–1.25
Severe	.98	.87–1.11	.80	.45–1.44	1.09	.86–1.38
Extremely severe	1.08	.97–1.21	1.21	.76–1.92	1.17	.95–1.43
Cause of mental disability (reference: schizophrenia, schizotypal, or delusional disorder)						
Organic mental disorder	.96	.85–1.08	1.69	.97–2.94	1.29	1.05–1.58
Mental disorder resulting from psychoactive substance use	.41	.32–.53	1.34	.51–3.55	.27	.14–.50
Mood disorder	.88	.74–1.05	.11	.02–.75	1.06	.78–1.44
Neurotic, stress-related, or somatoform disorder	.83	.69–1.01	.60	.21–1.73	1.05	.74–1.50
Disorder of adult personality and behavior	.82	.55–1.21	1.68	.39–7.25	.94	.44–2.03
Epilepsy	1.06	.91–1.25	.39	.12–1.29	.66	.44–.98
Other	.63	.50–.79	1.79	.94–3.40	.81	.51–1.27

<sup>a</sup> Source: the second China National Disability Survey, 2006 (weighted total N=984,698,518)

<sup>b</sup> Divided by the number of persons in the household

widespread unawareness of mental health problems (44), it is noteworthy that significant others (spouses, relatives, or friends) were an important pathway to mental health service use. Significant others can have an important role in help-seeking behavior (45), but how this plays out in Chinese communities remains unknown, and further studies are needed to explore the underlying reasons.

Results of this study support previous findings of an association between a lower likelihood of mental health service use and public attitudes toward and beliefs about mental

illness and its treatment (37,38,46), lack of insight (39), inadequate coverage of mental disability by social security systems (18,47), lower income (40,48–50), illiteracy (51), and rural residency (31). These findings suggest that current strategies to increase access and reduce barriers to mental health services should incorporate disability indicators, which are unfortunately lacking in China (39). Future initiatives could specifically target knowledge deficiency, such as training for psychiatrists to promote early intervention and identification of mental disability and public education

programs to increase awareness and promote the prevention of disability.

This study also revealed unmet need for psychosocial and nonpharmaceutical rehabilitation services among Chinese adults with mental disabilities. Early in the 1980s, China began to establish psychiatric specialties in hospitals, and 30 years later mental health services are still predominantly institution based and focused on pharmaceutical treatment (39). Therefore, efforts are warranted to strengthen legislation improving insurance coverage of mental disabilities and to establish rehabilitation

centers in communities. Strategies and programs to improve community-based rehabilitation should take into consideration factors such as accessibility and availability, as well as system-level factors related to integration into primary health care systems. During the current socioeconomic and health transitions in China, such efforts may be most urgently needed by socioeconomically disadvantaged populations, which have a great burden of mental disabilities.

This study had several limitations. First, recall bias could have led to an underestimated rate of mental health service utilization. Second, we did not analyze specific aspects of mental health service use, such as frequency, provider type, and adequacy of treatment. Further analysis of the quality of mental health services provided by various facilities may inform our understanding of the low use of services among Chinese adults with mental disabilities. Because persons who used mental health services may have been undertreated, further studies could focus on identifying factors to increase use of mental health services or improve and enhance these services. Despite these limitations, this study sheds light on mental health service use by persons with mental disabilities in China, where a rapid socioenvironmental transition is significantly increasing this burden (22), and calls attention to appropriate strategies to increase service use.

## Conclusions

The findings of this study indicate unmet needs for mental health services among Chinese adults with mental disabilities, as well as socioeconomic inequalities in use. A substantial number of persons with mental disabilities remain untreated, and more attention and effort are required to increase their use of services.

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## First-Person Accounts Invited for Column

Patients, family members, and mental health professionals are invited to submit first-person accounts of experiences with mental illness and treatment for the Personal Accounts column in *Psychiatric Services*. Maximum length is 1,600 words.

Material to be considered for publication should be sent to the column editor, Jeffrey L. Geller, M.D., M.P.H., at the Department of Psychiatry, University of Massachusetts Medical School, 55 Lake Ave. North, Worcester, MA 01655 (e-mail: jeffrey.geller@umassmed.edu). Authors may publish under a pseudonym if they wish.