

# Need for Mental Health Services and Service Use Among High School Students in China

Ping Wu, Ph.D.  
Li-Ping Li, Ph.D.  
Jue Jin, M.S.  
Xiao-Hong Yuan, M.Sc.  
Xinhua Liu, Ph.D.

Bin Fan, M.D.  
Cordelia Fuller, M.A.  
Yao-Gui Lu, B.S.  
Christina W. Hoven, Dr.P.H.

**Objective:** Rapid economic growth and social change in China in recent years have been accompanied by increased rates of mental health problems among the country's adolescents. This study examined rates of mental health service use and associated factors among Chinese adolescents. **Methods:** A survey of 1,891 high school students in grades ten through 12 from three high schools in Shantou, China, was conducted in 2009. Measures of mental health status, service need (perceived and objective), mental health service use, and informal help seeking were obtained. **Results:** Twenty-five percent of the adolescents reported a perceived need for the services of a mental health professional. Only 5% of the sample had used school-based mental health services and only 4% had used non-school-based services. Three factors emerged as independently associated with adolescent use of both school-based and non-school-based services: perceiving a need for mental health services, having turned to a teacher for help, and having turned to a relative other than one's parents for help. Male gender, being a 12th grader, and being an only child were independently associated with use of school-based services only, whereas a suicide attempt and having turned to one's parents for help were independently associated with use of non-school-based services. **Conclusions:** Findings indicate a high level of unmet need for mental health services among Chinese adolescents and highlight the need to improve the mental health knowledge of parents, teachers, and other significant individuals in adolescents' lives to facilitate adolescents' access to the mental health services that they need. (*Psychiatric Services* 63:1026–1031, 2012; doi: 10.1176/appi.ps.201200090)

The rapid economic and social change that China has experienced in recent years has been accompanied by a parallel increase in public concern about mental health problems (1,2). According to World Health Organization (WHO) estimates,

depression was the third leading cause of burden of disease worldwide in 2004 and will become the first leading cause by 2030 (3). It is estimated that among the 1.3 billion people of China, at least 16 million have a mental illness (4). The recent announcement by the Chinese

government regarding the circulation of a new draft of a China National Mental Health Act indicates that Chinese policy makers have recognized an urgent need to improve the mental health system in China to meet the population's increased need for mental health services (5).

Adults in China have a very low rate of mental health service utilization (6–8). A multicountry study conducted by WHO found that only 3.4% of adults in China had received any type of mental health treatment in the past 12 months (6). Phillips and colleagues (7) found that among individuals with mood disorders in China, only about 8.3% had ever received any professional help, and only 3.4% had ever seen a mental health professional. Among those with anxiety disorders, 6.9% had ever received any professional help, and only 2.9% had ever seen a mental health professional.

Recent reports indicate that among Chinese adolescents, mental health problems have become more common and more severe as the economy has grown (2). However, little is known about mental health service needs and utilization among Chinese adolescents or about personal and other factors that are associated with their service use. This study was conducted to help fill this knowledge gap.

Using data from a random sample of high school students from Shantou, China, this study examined perceived need for and use of school-based and non-school-based mental health services among Chinese adolescents. It

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Dr. Wu and Dr. Hoven are affiliated with the Departments of Psychiatry and Epidemiology, Ms. Jin is with the Department of Psychiatry, and Dr. Liu is with the Department of Biostatistics, all at Columbia University, 1051 Riverside Dr., Unit 43, New York, NY 10032 (e-mail: wup@nyspi.columbia.edu). Dr. Li and Mr. Lu are with the Injury Prevention Research Center, and Ms. Yuan is with the Psychology Center, all at the Shantou University Medical College, Shantou, China. Dr. Fan and Ms. Fuller are with the Department of Child Psychiatry, New York State Psychiatric Institute, New York City. Dr. Wu and Dr. Li contributed equally to this study.

was hypothesized that most adolescents with psychiatric problems have never received any kind of treatment services for those problems. Use of treatment services by adolescents is determined not only by the severity of their problems but also by recognition of the problems by other individuals with whom the adolescents have significant relationships. The policy implications of the findings, especially with regard to the health care reforms currently under consideration, are also discussed.

## Methods

### Sample

The Shantou Adolescent Mental Health Survey was a cross-sectional survey conducted in 2009 of 1,891 students age 15 to 18 (1,173 girls and 718 boys) from three high schools in Shantou, China. Shantou is a city in eastern Guangdong Province, with an area of 2,043 square kilometers and a population of 5,391,028. It is considered a midsize city in China. Thirty-eight classes were randomly selected to participate in the survey, including 14 tenth-grade classes, 13 11th-grade classes, and 11 12th-grade classes. The response rate was 81%.

Questionnaires were distributed in the classrooms of the selected classes, and a study representative instructed the students on how to complete the questionnaire. Signed consent forms were obtained from both parents and adolescents. The survey was approved by Shantou University Medical College Institutional Review Board, and the secondary analyses were approved by the New York State Psychiatric Institute Institutional Review Board.

### Measures

*Adolescent help-seeking and mental health service utilization.* Adolescents were asked whether they had ever turned to someone, such as a parent, another relative, a friend, a teacher, a school counselor or a non-school-based mental health professional (for example, a psychologist or psychiatrist) for help in handling school- and exam-related stress. Those who reported having turned to a school counselor or a non-school-based mental health professional were classified, respectively, as users of school-based and of non-school-based mental health services.

Those who had turned to their parents, other relatives, friends, or teachers for help in coping were considered to have sought informal help.

*Perceived need for services.* Adolescents were asked whether they thought they were in need of the services of a mental health professional such as a psychologist or psychiatrist. Those who answered “yes” were classified as having a perceived mental health service need.

*Adolescent mental health problems.* Test anxiety was measured with the 37-item, yes-or-no Test Anxiety Scale, which was originally developed by Sarason (9). A Chinese version was used in this survey. It covers attitudes toward tests and emotional and physical symptoms of stress experienced before and after tests. Possible scores range from 0 to 37. Sarason divided adolescents into three groups on the basis of test anxiety: low, a score lower than 12; medium, a score from 12 to 20; and high, a score over 20. In this study, high was similarly defined as a score over 20, and the two lower-scoring groups were combined into one low-medium group.

The ten-item version of the Center for Epidemiologic Studies Depression Scale (CES-D-10) (10) was used as a depression screening scale. The items are rated on a 4-point scale ranging from “rarely” to “all of the time.” Two items require reverse coding. All items are summed to produce a possible total score ranging from 0, no depressive symptoms, to 30, severe depressive symptoms. For this study, we used 20 as the cutoff point for a high level of depressive symptoms. The prevalence of a high level of depressive symptoms in this sample was 7%, a rate that is consistent with previous findings for metropolitan China in general (11). Adolescents were also asked about their suicidal behaviors in the past year. The three objective measures of service need used in this study were high level of depressive symptoms, high test anxiety level, and past-year suicide attempt.

*Sociodemographic and family factors.* Demographic information collected in the survey included gender, grade in school, and urbanicity. A variable indicating urban residence was created. Adolescents

were also asked about their parents’ levels of education and marital status and their families’ annual incomes. The highest level of education completed by either parent was used as an overall measure of parental education in the analyses. An adolescent living with both biological parents was classified as having an “intact family.” An additional dichotomous variable indicating whether the child was from a single-child family or from one with more than one child was also created.

### Statistical analyses

The initial set of analyses compared adolescents with a perceived need for mental health treatment with those without a perceived need. Similar analyses were then conducted comparing those who had used school-based mental health services and those who had not and comparing users and nonusers of non-school-based mental health services. Next, multiple logistic regression analyses were used to examine the effects of sociodemographic factors on perceived service need and on use of school-based and non-school-based mental health services.

The analyses predicting perceived service need were conducted in two steps. In the first step, all the sociodemographic and family-related variables were entered into the equations. In the second step, the three objective service need variables were added. The logistic regression analyses predicting the service use outcomes were conducted in three steps, of which the first step was the same as for the analyses of predictors of perceived need. In the second step, the service need variables (both objective and perceived) were added in. In the final step, use of the various informal sources of assistance (that is, parents, other relatives, friends, and teachers) was included in the model. By employing this modeling approach, we were able to see the independent effects of each factor in the model, with control for the variables that had been entered in the previous steps. We were also able to identify the mediating effects of specific variables. Possible differences across different schools were also controlled for in the analyses.

**Table 1**

Characteristics of 1,891 Chinese adolescents and their ability to predict perceived need for mental health services

Characteristic			Perceived need				
	Total		Bivariate analysis			Logistic regression analysis	
	N	%	N	%	p	AOR <sup>a</sup>	95% CI
<b>Sociodemographic</b>							
Gender					.192		
Female	1,173	62	311	27		1.00	
Male	718	38	171	24		.89	.76–1.05
School grade					.405		
10th	755	40	185	25		1.00	
11th	736	39	200	27		1.19	1.02–1.38
12th	400	21	97	24		.82	.65–1.03
Residence					.013		
Urban	1,590	84	388	24		1.00	
Nonurban	301	16	94	31		1.86	1.53–2.26
Family income (Chinese yuan)					.607		
<20,000	833	44	212	25		1.00	
20,000–69,999	795	42	209	26		1.13	.97–1.32
≥70,000	263	14	61	23		.90	.71–1.14
Parents' highest education level					.203		
Elementary school or less	204	11	48	24		1.00	
Middle to high school	1,349	72	334	25		1.19	.93–1.50
College or higher	325	17	95	29		1.44	1.05–1.96
Intact family					.078		
No	135	7	43	32		1.00	
Yes	1,756	93	439	25		.91	.70–1.19
Single-child family					.176		
No	1,371	73	338	25		1.00	
Yes	520	27	144	28		1.12	.94–1.34
<b>Mental health problem</b>							
Test anxiety level					<.001		
Low to medium	1,292	71	284	22		1.00	
High	536	29	181	34		1.48	1.27–1.72
Depressive symptom level					<.001		
Low	1,709	93	412	24		1.00	
High	137	7	61	45		1.92	1.51–2.45
Suicide attempt in the past year					<.001		
No	1,831	98	456	25		1.00	
Yes	40	2	23	58		3.42	2.26–5.18

<sup>a</sup> The adjusted odds ratios (AOR) are adjusted for all of the variables in the table and for participant's school.

## Results

Among the 1,891 students, 26% reported a perceived need for mental health services, but only 5% had used school-based services and 4% had used non-school-based mental health services.

As shown in Table 1, boys accounted for 38% of the sample, and 16% of the adolescents were not living in an urban area. Seven percent of the adolescents were from nonintact families, and 28% were from single-child families. With regard to mental health, 29% had high test anxiety, 7% had a high level of

depressive symptoms, and 2% had attempted suicide in the past year.

## Perceived need

Twenty-five percent of students considered themselves to be in need of some sort of mental health treatment. The results of bivariate analyses reported in Table 1 indicate that adolescents living in nonurban areas were more likely to see themselves as needing mental health services. No other sociodemographic factor was associated with perceived need. Of those with high test anxiety, 34% reported a need for mental health

services. Among those with a high level of depressive symptoms and those with a past-year suicide attempt, the proportions reporting rates of perceived service need were 45% and 58%, respectively.

Results of the multiple logistic regression analyses were similar to those of the bivariate analyses. Students from nonurban areas were significantly more likely than those from urban areas to have a perceived need for mental health services (adjusted odds ratio [AOR]=1.86,  $p<.001$ ). As expected, students with high test anxiety, a high level of depressive symptoms, or a past-year suicide attempt were more likely to report a perceived need for mental health services. For example, adolescents with a suicide attempt were more than three times as likely as others to report a perceived need (AOR=3.42,  $p<.001$ ). In addition, when the analyses controlled for other sociodemographic factors and child psychopathology, children in the 11th grade were more likely to report a perceived need than those in the tenth grade (AOR=1.19,  $p<.001$ ). Also, children from families with parents who had at least a college education were more likely to report a perceived need than those from families with parents who had an elementary school education or less (AOR=1.44,  $p=.024$ ).

## Use of services

Table 2 presents the results of bivariate analyses focusing on the two service use outcome variables. Use of school-based services was much more common among students in the 12th grade (11%) than among those in the other two grades. Students from nonurban areas were more than twice as likely as their urban counterparts to have used school-based services (9% compared with 4%). Students with high test anxiety or a past-year suicide attempt were also more likely than their respective comparison groups to have used school-based services. Perceived need was also positively associated with use of school-based services. Finally, relatively high rates of use of school-based services were found among those who had turned to informal sources of assistance for help. In this subgroup, those who had sought help from their

teachers had the highest rate of use of school-based services (12%).

The results of the analyses focusing on use of non-school-based services are also shown in Table 2. Most are similar to results found for use of school-based services, but two differences are notable. Whereas students from nonurban areas were significantly more likely than those from urban areas to have used school-based services, the difference between these groups in use of non-school-based services was not significant. Also, whereas high test anxiety was significantly associated with use of school-based services, its association with use of non-school-based services was not significant.

Results of the logistic regression analysis predicting use of school-based and non-school based services are shown in Table 3. When all the sociodemographic and family factors and the objective service need measures were taken into account (model 1), being in 12th grade predicted use of school-based services (AOR=2.35,  $p<.001$ ). Living in a nonurban area was also a significant predictor of use of school-based services (AOR=1.98,  $p<.001$ ), as was being from a single-child family (AOR=1.58,  $p=.018$ ). Among the behavioral measures, only a suicide attempt (AOR=2.30,  $p=.034$ ) predicted use of school-based services.

In model 2, the variables for perceived service need and help seeking from informal sources were entered into the logistic regression. Being a 12th grader and from a single-child family remained predictive of school-based service use. However, living in a nonurban area and making a past-year suicide attempt were not significant predictors in this model, and male gender emerged as a significant predictor. Students with a perceived need for mental health services were almost three times as likely those without a perceived

**Table 2**

Characteristics of 1,891 Chinese adolescents and their association with adolescents' use of mental health services

Characteristic	N	%	Use of school-based services			Use of non-school-based services		
			N	%	p	N	%	p
Sociodemographic								
Gender					.082			.092
Female	1,173	62	48	4		39	3	
Male	718	38	42	6		35	5	
School grade					<.001			<.001
10th	755	40	22	3		22	3	
11th	736	39	25	3		16	2	
12th	400	21	43	11		36	9	
Residence					<.001			.172
Urban	1,590	84	63	4		58	4	
Nonurban	301	16	27	9		16	5	
Family income (Chinese yuan)					.118			.461
<20,000	833	44	49	6		37	4	
20,000–69,999	795	42	32	4		26	3	
≥70,000	263	14	9	3		11	4	
Parents' highest education level					.077			.062
Elementary school or less	204	11	14	7		8	4	
Middle to high school	1,349	72	54	4		45	3	
College or higher	325	17	20	6		20	6	
Intact family					.857			.554
No	135	7	6	4		4	3	
Yes	1,756	93	84	5		70	4	
Single-child family					.305			.134
No	1,371	73	61	4		48	4	
Yes	520	27	29	6		26	5	
Mental health problem								
Test anxiety level					.014			.101
Low to medium	1,292	71	48	4		42	3	
High	536	29	34	6		26	5	
Depressive symptom level					.598			.927
Low	1,709	93	79	5		65	4	
High	137	7	5	4		5	4	
Suicide attempt in the past year					.002			<.001
No	1,831	98	82	4		65	4	
Yes	40	2	6	15		7	18	
Perceived service need					<.001			<.001
No	1,409	75	45	3		40	3	
Yes	482	25	45	9		34	7	
Informal service use								
Talked to parent					<.001			<.001
No	602	32	14	2		10	2	
Yes	1,288	68	76	6		64	5	
Talked to other relative					<.001			<.001
No	1,281	68	34	3		30	2	
Yes	609	32	56	9		44	7	
Talked to friend					.003			.011
No	436	23	9	2		8	2	
Yes	1,454	77	81	6		66	5	
Talked to teacher					<.001			<.001
No	1,260	67	12	1		15	1	
Yes	630	33	78	12		59	9	

tive other than one's parents was also a predictor (AOR=1.44,  $p=.049$ ).

Results of the logistic regression analysis predicting use of non-school-based services are also reported in Table 3. In model 1, as with school-based services, being in the 12th

grade (AOR=1.76,  $p=.003$ ) and making a past-year suicide attempt (AOR=3.10,  $p=.003$ ) were significant predictors of use. The model 2 results indicate that when the informal help-seeking variables were taken into account, a suicide attempt



remained a significant predictor of use of non-school-based services. The pattern of the results for the help-seeking variables was similar to that for school-based service use, except that having sought help from parents was found to be a significant predictor (AOR=4.13,  $p<.001$ ).

## Discussion

Using a random sample of Chinese high school students from Shantou, China, this study examined need for and use of mental health services among Chinese adolescents. The findings indicate a high rate of unmet need for mental health services in this population and an urgent need for greater access to school-based psychological counseling, along with a need to educate both teachers and parents about child mental health.

Community studies of Chinese adults have shown that their rates of mental health service utilization are low (6–8), but very little research has been done on need for and use of

mental health services among Chinese adolescents or on the factors that may help to predict which Chinese adolescents use services. Previous studies have found evidence that during the recent period of rapid social change in China that began in the early 1990s, emotional problems have been on the rise among Chinese adolescents (2). This study's findings highlight the urgent need in this population for increased access to mental health services. To our knowledge, this is the first published study to examine perceived mental health service need and patterns of mental health service use among Chinese adolescents.

It was alarming to find that 25% of these high school students expressed a need for psychological counseling or other mental health treatment, whereas less than 5% of the entire sample had received school-based services and an even smaller proportion had received non-school-based mental health services. Among students with a suicide attempt, the group that pre-

sumably had the greatest need for mental health services, 58% reported a need for services, but less than 20% had received help from a mental health professional. This rate of service use is less than half that reported for adolescents with a suicide attempt in the United States (12).

A suicide attempt was the only behavioral factor that remained significantly predictive of service use when the analysis controlled for all other factors. This finding suggests that the adolescents' emotional problems were unlikely to be recognized by others at an early stage unless they attempted suicide or displayed other life-threatening behaviors.

The second important finding is related to the role of children's significant others in their gaining access to mental health services. For adults, predisposing characteristics, enabling resources, and need help determine health service use (13), but because children do not usually make service use decisions on their own, their

**Table 3**

Logistic regression analysis of predictors of mental health service use by 1,891 Chinese adolescents

Characteristic	Use of school-based services				Use of non-school-based services			
	Model 1		Model 2		Model 1		Model 2	
	AOR <sup>a</sup>	95% CI	AOR <sup>a</sup>	95% CI	AOR <sup>a</sup>	95% CI	AOR <sup>a</sup>	95% CI
<b>Sociodemographic</b>								
Male (reference: female)	1.20	.84–1.71	1.61	1.08–2.39	1.13	.77–1.65	1.48	.99–2.23
School grade (reference: 10th grade)								
11th	1.14	.78–1.66	1.16	.78–1.73	.81	.55–1.21	.76	.51–1.15
12th	2.35	1.53–3.61	1.93	1.20–3.10	1.76	1.09–2.84	1.63	.99–2.68
Nonurban residence (reference: urban)	1.98	1.33–2.96	1.35	.88–2.09	1.42	.88–2.30	1.07	.65–1.75
Family income (reference: <20,000 Chinese yuan)								
20,000–69,999	.91	.64–1.29	.81	.56–1.19	.74	.50–1.10	.66	.44–.99
≥70,000	.78	.45–1.35	.64	.35–1.14	1.12	.68–1.86	.97	.57–1.65
Parents' highest education (reference: elementary school or less)								
Middle to high school	.70	.44–1.11	.73	.44–1.21	.89	.50–1.58	1.00	.55–1.80
College or higher	.89	.46–1.69	.78	.39–1.58	1.48	.72–3.02	1.57	.75–3.28
Intact family (reference: no)	1.34	.69–2.60	1.23	.60–2.52	1.38	.66–2.89	1.24	.57–2.66
Single-child family (reference: no)	1.58	1.08–2.31	1.60	1.05–2.43	1.27	.84–1.91	1.21	.79–1.86
<b>Mental health problem</b>								
Test anxiety level high (reference: low to medium)	1.34	.95–1.88	1.30	.90–1.89	1.34	.93–1.93	1.33	.91–1.96
Depressive symptom level high (reference: low)	.80	.44–1.45	.90	.47–1.72	1.02	.56–1.87	1.34	.72–2.51
Suicide attempt in the past year (reference: no)	2.30	1.07–4.95	1.96	.82–4.70	3.10	1.48–6.48	2.94	1.29–6.67
Perceived service need (reference: no)			2.99	2.12–4.22			1.67	1.15–2.43
<b>Informal service use</b>								
Talked to parent (reference: no)			1.45	.82–2.54			4.13	1.95–8.73
Talked to other relative (reference: no)			1.44	1.00–2.08			1.62	1.11–2.37
Talked to friend (reference: no)			1.24	.60–2.57			.92	.44–1.92
Talked to teacher (reference: no)			16.00	9.55–26.96			4.85	3.18–7.39

<sup>a</sup> The adjusted odds ratios (AOR) are adjusted for all of the variables in the table and for participant's school.

pathways to mental health services are not the same as for adults. Parents, teachers, and significant others play important roles both in identifying children's mental health problems and in obtaining professional treatment for them (14,15). Our findings on help seeking from informal sources indicate that Chinese adolescents were most likely to turn to their friends or parents for help in coping with their symptoms, but they were also very likely to turn to their teachers. These findings are consistent with those of previous studies conducted in the United States (14,16–19).

Talking to parents about their mental health problems was associated with adolescents' use of non-school-based mental health services. In China, because of the continuing influence of traditional concepts that can lead parents to focus almost exclusively on their children's academic performance rather than on psychological well-being (20), there may be a general lack of mental health awareness among Chinese parents and in Chinese society. The need to educate both teachers and parents about child mental health is urgent in order to ensure that adolescents' mental disorders are identified and treated early.

A third important finding is of health disparities between urban adolescents and their nonurban counterparts. The nonurban students in our sample were more likely than those in urban areas to report a need for mental health services and were more likely to have used school-based services. Because the analyses controlled for other socio-demographic factors and mental health status, this difference may indicate higher rates of psychiatric problems among those living in nonurban areas. Special attention should be paid to the mental health service needs of this vulnerable population.

The study had several limitations. First, it was conducted in and around a single midsized city in China, and the findings may not be generalizable to the whole country. The study is cross-sectional, and no causal inferences can be made about its findings.

Also, because complete diagnostic information was not available for any of the psychiatric problems examined, reported levels of psychiatric symptoms were used to estimate the students' service needs. Finally, the questions on help seeking that were asked of the adolescents in the survey focused on services to help with school- and exam-related stress; thus, our study did not directly examine use of services for other types of mental health problems and may have underestimated overall mental health service use.

## Conclusions

China's mental health care system is in great need of reform. The findings of this study highlight the importance of taking mental health service need into consideration when health care reforms are implemented. They also highlight the importance of educating both teachers and parents about child mental health. We hope that the findings will be of help in efforts to improve access to both school-based and non-school-based mental health services for Chinese adolescents.

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