**Recognition and beliefs about treatment for mental disorders in mainland China: A
systematic review and meta-analysis**

Abstract

Purpose

This review aimed to systematically investigate the Chinese public's ability to recognize specific mental disorders and their knowledge and beliefs about available treatments.

Methods

Eight electronic databases were searched to identify quantitative studies examining recognition of depression, anxiety and/or schizophrenia, knowledge and beliefs about treatments, and/or correlates of each of the three constructs among the general population in China. Prevalence estimates were calculated for themes under each construct. Effect size r was computed for each relationship between an independent variable and one of the three constructs.

Results

A total of 65 studies ($N = 174,253$) were included in this review. Depression (25.4%), anxiety (18.2%) and schizophrenia (18.4%) had low recognition rates. More than 80% of people agreed that one should seek professional help for mental illnesses, but fewer than 40% were likely to use professional services for their own mental health issues. Regarding psychiatric medications, 57% of the respondents agreed that medications should be taken regularly, but more than 60% believed that they would be harmful. Gender, income, residential area, occupation, education and marital status were significantly associated with level of mental health knowledge.

Conclusions

The public's level of mental health literacy related to recognition of specific mental disorders, and knowledge and beliefs about treatments is still relatively low. The government should consider public education campaigns to improve this.

Introduction

Mental health has been receiving growing attention in China since the first National Mental Health Plan was released in 2002 [1]. Given that mental disorders such as depression and schizophrenia had become the leading causes of disability in mainland China, there has been an increased focus on improving services, including the integration between hospital- and community-based mental health care, and to improving community health workers' ability to prevent, treat and manage severe mental disorders (e.g., schizophrenia) [13, 14]. A prominent example of this is the 686 program, which has made a significant contribution to the scale-up of mental health services in China [13-15]. In 2005, a total of 12,278 health facilities in 60 demonstration sites (2 in each of 30 provinces) participated in the program, and by the end of 2010, the number had increased to 74,397, covering 113 cities [15].

In addition to improving services, one of the goals specified in the plan was to improve the public's knowledge of mental health and raise their awareness of mental disorders [1]. However, despite government efforts, a low level of Mental Health Literacy (MHL) has been identified [2, 3]. MHL has been defined as "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" [4, p.183]. It consists of several components, including the ability to recognize mental disorders; knowledge and beliefs about risk factors, causes, self-help and professional help; attitudes which promote recognition and help-seeking; knowledge of how to seek mental health information; and knowledge of first aid skills to help people with mental health issues [5].

The importance of MHL in accessing early and appropriate treatment has been demonstrated, with evidence showing that poor MHL is a major barrier to seeking professional help [6, 7]. The ability to recognize mental disorders is often the first step to seeking support [5].

Compared with Western countries, the rates of recognizing disorders (e.g., depression) were poorer in China [3, 5, 8, 9]. Studies conducted in Western countries have identified several socio-demographic variables related to lower recognition, namely older age, male gender, lower level of education, and no previous use of mental health services [10-12]. However, little is known about whether and how these or other culturally-specific variables may influence the recognition rate in China, thereby underlining the need to investigate the correlates of Chinese people's recognition of mental disorders.

After recognizing a disorder, in order to get appropriate help, people also need to know about professional services and believe that available treatments are helpful [5]. However, limited knowledge and negative views of professional services are still common in Chinese populations [2, 16]. For example, cross-cultural studies have shown that in comparison with their British counterparts, Hong Kong Chinese were less likely to choose professional mental health services (e.g., medications, psychotherapy) for schizophrenia or to believe that those services are helpful [17, 18]. Limited information is available about the factors influencing Chinese people's understanding of mental health care. To increase the use of services and improve mental health outcomes in China, it is essential to understand the public's level of knowledge and their beliefs about available treatments.

No review, to date, has systematically examined the Chinese public's level of MHL and the associated factors. Hence, we aimed to consolidate the available research by performing a systematic review and meta-analysis of empirical studies that investigated mainland Chinese people's ability to recognize depression, anxiety and schizophrenia and/or their knowledge and beliefs about treatments. Considering differences in economic, educational, and geographical contexts, Chinese people living in different regions may have different levels of knowledge and

beliefs about mental disorders. Thus, there is a need to explore the possible variations between North and South China. Furthermore, it is also important to examine whether the Chinese public's MHL has been improved over time. The specific objectives were to investigate (a) the public's ability to recognize depression, anxiety and schizophrenia, their level of knowledge about professional help, and their beliefs about available treatments, (b) the demographic and/or psychosocial factors related to each of the three components, and (c) the effects of region and year (in which a study was conducted) in the reported findings.

Method

Literature Search

A comprehensive search was undertaken of Cochrane Library, Embase, PsycINFO, PubMed and Scopus as well as three Chinese electronic databases – CNKI, VIP and WanFang (see search terms in online supplemental material, Table A). To retrieve additional eligible studies, this was supplemented with a search of relevant journals (e.g., *BMC Psychiatry*, *Public Health*) and reference lists of relevant reviews [19-22] and included studies. The initial search was kept broad to capture all relevant articles.

Eligibility Criteria

Studies that investigated recognition of depression, anxiety and/or schizophrenia, knowledge about professional help, beliefs about treatments, and/or correlates of each of the three domains among the general population in mainland China were considered eligible for inclusion in this review. To reduce bias in the reported findings, studies that exclusively targeting specific sample groups (e.g., health professionals, patients) were excluded due to their better access to mental health knowledge in comparison to the general public. In addition, eligible studies had to be journal articles published in English or Chinese between January 1997 (in

conjunction with the definition of MHL) and May 2019, and provided quantitative data that could be converted into effect size r (e.g., odds ratio). To ensure data independence, 13 studies with overlapping samples were combined resulting in 6 independent studies [i.e., 23, 24-28]. In total, 65 studies were included in this review (see Figure 1).

Data Collection

Study information (author, year, geographical region), sample characteristics (age, gender), and methodological factors (sample size, study design, measures, independent variables, domains of MHL) were extracted from eligible studies as per the PRISMA guidelines [Table 1; 29].

Assessment of Study Reporting Quality

The quality of each included study was evaluated against the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement [30]. For the purpose of this review, each of the 22 STROBE criteria (e.g., “state specific objectives, including any prespecified hypotheses”) was rated as *met*, *met with some limitations*, or *not met*. The percentage of studies that met each criterion was calculated.

Statistical Analyses

All data analyses were conducted using the Comprehensive Meta-Analysis software [CMA Version 2.0; 31]. Consistent with previous research, prevalence statistics (i.e., the rates of recognizing depression, anxiety and schizophrenia and the response rate for each item relating to knowledge or belief about professional services) were entered into CMA as *event rate* [32]. If more than one prevalence for an item was reported in a study (e.g., for each gender group), an average was calculated [33]. Thematic analysis was firstly performed to extract the theme that each item tests, the themes were then grouped according to the three components of MHL (i.e.,

recognition of the illness and knowledge or beliefs about professional help). The pooled prevalence estimates were only computed for studies that examined the same theme. The details of included items can be found in the supplemental material (Table B).

Pearson's correlation coefficient (r) was the main effect size index used in this review and several stages were involved in the calculation. First, each r value or a value that can be converted into an r (e.g., odds ratio, X^2 statistic, t -value), representing each relationship between an independent variable and one of the three domains of MHL, was obtained. For those studies that reported F -values [34-36], r s were converted using effect size calculators [37]. Second, if more than one r was reported for a variable in a study (e.g., for each gender group), an average r was calculated for that study. Finally, each r value was transformed into a Fisher's Z . The Fisher's Z scores were then averaged and back transformed to r for interpretation. Cohen's [38] guidelines were adopted to assess the magnitude of r , with values of .10, .25, and .40 representing small, medium, and large correlations, respectively. 95% confidence intervals (CIs) and p -values were also computed to examine the statistical significance of the results [33].

The heterogeneity of all pooled prevalence estimates and r values was assessed using I^2 index, with large I^2 statistics (i.e., $I^2 > 50\%$) representing considerable heterogeneity [33]. Moderator analyses were performed to test the possible effects of region (North versus South China) and year (in which a study was conducted) in the observed heterogeneity. Publication bias was examined using fail-safe N s (N_{fs}). N_{fs} statistics represent the hypothetical number of unpublished studies with non-significant findings (i.e., $r \leq .20$) that would be needed to overturn the reported results [33]. A N_{fs} value was considered adequate if it exceeded the number of studies that contributed to a given analysis (i.e., $N_{fs} > k$). The random effect model was chosen for all calculations [33].

Results

Characteristics of Included Studies

A total of 65 cross-sectional studies (9 in English and 56 in Chinese), involving a pooled sample of 174,253 participants (*Mean age* = 42), were included in the analysis. More than half of the participants were women (54%). Thirty-four included studies originated from South China ($N = 75,969$), with 9 from Shanghai, 7 from Guangdong, 6 from Zhejiang, 4 from Hunan, 2 from Fujian, Sichuan and Yunnan, and 1 from Chongqing and Hainan. Twenty-six studies were conducted in North China ($N = 85,876$), including Beijing ($k = 6$), Hebei ($k = 5$), Shandong ($k = 4$), Tianjin ($k = 3$), Ningxia ($k = 3$), Henan ($k = 2$), Shaanxi ($k = 2$), Gansu ($k = 1$), Heilongjiang ($k = 1$) and Liaoning ($k = 1$). Five studies recruited their participants across provinces of mainland China ($N = 17,008$).

Study Evaluation

Most studies reported their findings following STROBE guidelines – namely, presented participant characteristics (item 14a: 95.4%), descriptive statistics (item 15: 95.4%) and main results (item 16a: 95.4%). However, only a limited number of studies provided sufficient methodological information on sample size determination (item 10: 24.6%), sampling strategy (item 12d: 6.2%), process of recruiting participants (item 13a: 7.7%; item 13b: 6.2%; item 13c: 7.7%), missing data management (item 12c: 12.3%; item 14b: 1.5%) and measurements used (item 8: 27.7%). Less than 20% of studies described the scientific background (item 2: 15.4%), detailed the objectives (item 3: 16.9%), explained the variables tested (item 7: 10.8%), addressed the potential bias (item 9: 1.5%) or considered sensitivity analysis (item 12e: 0%). In addition, the findings were summarized (item 18: 93.8%) but not always carefully interpreted in the discussion (item 20: 13.8%; item 21: 7.7%; see online supplementary material, Figure A).

Recognition of Depression, Anxiety and Schizophrenia and Influential Factors

As shown in Table 2, the overall recognition rates of depression, schizophrenia and anxiety were 25.4%, 18.4% and 18.2% respectively. All of the studies in these analyses used vignette methodology (e.g., vignettes designed by Jorm and colleagues [4], CAQ [39]) – describing a person who met diagnostic criteria (i.e., DSM-IV or CCMD-3) for depression, schizophrenia, or anxiety - to examine participants' ability to recognise a specific disorder. It is worth noting that regardless of the low recognition rates, more participants indicated that they heard about depression (46.7%), schizophrenia (42.3%), and/or anxiety (20.2%) in the past. There was no significant difference between people from North and South China in the recognition of both depression and schizophrenia. A substantial increase in recognition of schizophrenia was identified from 2010 (8.3%, 95%CI [6.2% - 11%], $p < .001$, $k = 1$) to 2011 (29.7%, 95%CI [19.7%, 42.1%], $p = .002$, $k = 2$) and 2012 (27.9%, 95%CI [23.8%, 32.5%], $p < .001$, $k = 1$), then a small decrease in 2016 (24%, 95%CI [22.4%, 25.5%], $p < .001$, $k = 1$). Only one study explored the predictors of recognition of depression and anxiety, and found that older age and lower level of education were significant barriers for Chinese people to recognize both disorders. Employment, income, marital status, and anxiety demonstrated significant, albeit small, associations with the recognition of depression (Table 3).

Knowledge about Professional Help and Correlates of Level of Knowledge

Most people agreed that one should seek professional support for mental disorders (80.6%) and medications should be taken regularly (57.1%; Table 2). However, in the case of specific disorders, less than 30% of people would recommend a professional (e.g., psychiatrist, psychologist) for people with depression or schizophrenia. A large difference in service preference for anxiety was observed – only 5.2% of people would choose psychiatrists, but

instead 50% preferred counselors. There was a significant difference between people from North and South China in the preference of other mental health professionals (e.g., counselors) for depression (North: 35.2%, 95%CI [32.7, 37.7], $k = 1$; South: 28%, 95%CI [25.8%, 30.4%], $k = 1$) and schizophrenia (North: 36%, 95%CI [33.5%, 38.6%], $k = 1$; South: 30.9%, 95%CI [28.5%, 33.3%], $k = 1$).

In relation to the contact information of services, 54.3% declared that they knew the addresses of mental health services available in their cities, but only 16.2% knew a contact number of helplines. Importantly, there were more people from South (41.9%, 95%CI [30.8%, 54%], $k = 3$) than from North China (17.7%, 95%CI [16.8%, 18.7%], $k = 1$) reported that they knew the addresses of community mental health services. Moreover, the public's knowledge of the contact details of professional services – either a telephone number or an address – was increasing across years (2012: 32.5%, 95%CI [30.9%, 34.2%], $k = 1$; 2013: 56%, 95%CI [53.1%, 58.8%], $k = 1$). The top 3 most frequently cited functions of mental health services were publicizing mental health knowledge (67.8%), illness treatment (64.9%), and counseling (62.6%).

Most of the studies assessed the public's knowledge of mental health using the Mental Health Knowledge Questionnaire (MHKQ) developed by the National Health Commission of China [k = 29; 39]. Correlates of MHKQ score were examined by 21 studies, although the factors associated with knowledge about professional services were not investigated specifically. Both education level and marital status demonstrated medium to large associations with Chinese people's level of mental health knowledge. Small to medium effects of residential area and occupation were observed. Very small relationships were noted in the relationships with gender and income (Table 3). It is noteworthy that only those predictive factors investigated by three or

more eligible studies were involved in the meta-analysis to ensure the generalizability of the findings [40].

Beliefs about Professional Help and Correlates of Help-Seeking Intention

Only 38.3% of the respondents indicated that they would like to seek professional support, if they themselves or their family and friends had a mental health issue. However, when considering specific disorders, there were 68.1% of people would like to seek professional help for depression and 73.3% for schizophrenia. A large proportion of respondents (85.3%) believed that rehabilitation therapy would be helpful for treating mental illnesses, followed by medicine (48% - 56.6%), although 63.3% believed that psychiatric medications were harmful. Among the range of professionals and standard psychiatric treatments for depression, the public were more likely (i.e., more than 70%) to view clinical psychologists (83%), counseling (79.5%), psychotherapy (75%), psychiatrist (73.8%) and medicine alone (73.2%) as helpful, but pharmacist (21.5%) and traditional Chinese medicine (16.6%) less so.

In the case of schizophrenia, both psychiatrists (80.7%) and clinical psychologists (80.1%) were rated highly as helpful, and 90.6% of people believed that combining psychiatric medicine and psychotherapy would be an effective treatment method, followed by counseling (84.9%). Again, pharmacist (26.6%) and Chinese medicine (22.1%) were rarely rated as helpful. The public's beliefs about the helpfulness of psychotherapy (2001: 34.8%, 95% CI [15.8%, 60.3%], $k=1$; 2006: 69.9%, 95% CI [44.8%, 86.9%], $k=1$; 2010: 82.6%, 95% CI [62%, 93.3%], $k=1$) and Chinese medicine (2001: 14.3%, 95% CI [13.3%, 15.3%], $k=1$; 2010: 32.6%, 95% CI [28.7%, 36.7%], $k=1$) in treating schizophrenia were enhanced across years. Interestingly, compared with other treatments, antipsychotics and antidepressants were viewed as less likely to be helpful for both depression and schizophrenia..

Only 2 included studies examined the predictors of Chinese people's help-seeking intentions. Gender, health status, mental health knowledge, education, depression, anxiety and recognition of depression demonstrated significant but small associations with help-seeking intentions. Only help-seeking attitudes and subjective norms had medium effects on intentions (Table 3).

Discussion

This systematic review examined the Chinese public's ability to recognize depression, anxiety and schizophrenia, and their knowledge and beliefs about treatments. All three mental disorders had low rates of recognition. More than 80% of people agreed that one should seek professional help for mental illnesses, but only 38.3% indicated that they would seek professional mental health care for their own mental health issues. Moreover, fewer than 30% of the respondents were likely to recommend specialists for those with either depression or schizophrenia, although professional services were rated highly as being helpful. More than half of the respondents agreed that medications should be taken regularly, while 63.3% believed that psychiatric medications were harmful. Gender, income, residential area, occupation, education and marital status were demographic factors significantly associated with Chinese people's level of mental health knowledge.

Compared with the findings from Western countries [5, 8, 17], the public's ability to recognize depression, anxiety and schizophrenia was much lower in China. One possible explanation is that most of the participants in the included studies were middle-aged adults (with a mean age of 42 years), and evidence has shown that compared with young adults, the recognition rates are lower among middle-aged and older adults in China [3, 23]. Future studies should consider further explore young Chinese adults' ability to recognize mental disorders.

Notably, despite the low recognition rates (as measured by vignettes), more than 40% of the respondents indicated that they had heard about depression and/or schizophrenia, perhaps indicating that reported knowledge is not as thorough as participants believe or that vignette methodology is more accurately able to assess symptoms knowledge than questions asking about what participants believe they know. Future qualitative studies using one-to-one interviews or focus groups will be also helpful to provide a deeper understanding of Chinese people's own perspectives regarding mental disorders (e.g., symptoms, causes).

In contrast to a recent finding [41] that recommendation of professional help (i.e., psychologist, psychotherapist and psychiatrist) was high for both depression (63% - 87%) and schizophrenia (81% - 97%) in Western countries, this review found that fewer than 30% of Chinese people were likely to recommend a mental health professional (i.e., psychiatrist, psychologist, psychotherapist, social worker or counselor) to those with either of the two disorders. Moreover, in the case of seeking help for their own or significant others' mental illnesses, only 38% of people believed that they would use professional services, even though 80% agreed that professional mental health care should be sought, and professional services were more often rated as helpful for depression and schizophrenia. This gap between knowledge and intention could be understood in the context of other variables known to have influence on Chinese people's willingness to seek professional help.

Both nonmodifiable (e.g., gender) and modifiable (e.g., help-seeking attitudes) variables were identified as significant predictors of help-seeking intentions in the current review. In particular, the importance of help-seeking attitudes and perceptions of social expectations (i.e., subjective norms) in shaping people's help-seeking intentions has also been demonstrated in other Chinese speaking populations [e.g., Hong Kong; 42, 43, 44]. Moreover, there is evidence

to suggest that positive personal and public attitudes are associated with greater willingness to seek professional help, and these positive attitudes can be enhanced by anti-stigma interventions – for example, normalizing help-seeking behaviors through public education campaigns [45, 46]. Future researchers should therefore consider developing culturally adapted interventions to enhance the Chinese public’s attitudes towards help-seeking, in turn promoting their use of professional services.

The reluctance to recommend and use professional services also suggests that it may be necessary to train primary healthcare workers (e.g., GPs) to better manage mental health issues. The Chinese government has launched a series of mental health policy initiatives (e.g., the 686 Program, the Mental Health Law) and invested more in training non-specialists to recognize, prevent, and manage mental illnesses [13, 14]. Future research would benefit from evaluating the effectiveness of these policies and health professionals’ MHL in China. Simultaneously, the public’s understanding of mental health professionals and treatment should also be improved, considering the identified conflicts in their beliefs about professional help – for example, despite more than 60% of the respondents believing that medicine alone or combined with psychotherapy is helpful for both depression and schizophrenia, 63.3% believed that psychiatric medications were harmful for physical health. Importantly, China’s mental health policies have instructed local authorities to increase education about mental health and pay more attention to some specific mental disorders [1, 13, 14, 47]. The current review provides some evidence that Chinese people’s ability to recognize schizophrenia may have substantially improved over time, although further studies using the same sampling and interview methodology would be necessary to confirm this. Moreover, compared to mental illness in general, more participants would seek professional support for depression and schizophrenia, and fewer viewed the medications for

both disorders as harmful. These findings may partly reflect the public's improved knowledge of depression and schizophrenia as a result of the implementation of mental health policies.

However, when considering mental health issues in general, only 38% of people intended to seek professional help. Hence, there is an ongoing need for the Chinese government to enhance the public's level of MHL, especially their knowledge about the effectiveness of different treatments (e.g., psychiatric medications).

We also identified a gap between political will and reality. For instance, the government expected that the public's level of mental health knowledge would be substantially improved by 2015 [48], but our findings indicate that the public's ability to identify mental disorders is still very low and there are conflicts in people's knowledge and beliefs about professional help. The government could consider increasing financial input in developing and delivering free educational campaigns (via the Internet, telecommunication, or communities) to the general public, as the effect of public awareness campaigns on enhancing the public's mental health knowledge has been demonstrated among various populations [e.g., 49, 50]. Future research should be done to evaluate the effectiveness and efficiency of different educational interventions for improving the Chinese public's MHL. In addition, as improving the public's MHL has become a national goal, a monitoring strategy involving national surveys covering the public's MHL would help to establish effectiveness.

Despite the Chinese government efforts to scale up community mental health services [13-15], our review found that more than half of the participants (65%) did not know the addresses of the mental health services available in their communities. Therefore, educational campaigns should also include information about how and where to seek professional help (e.g., contact numbers of the local mental health centers). Noticeably, we found that people from South

China had better knowledge about the locations of community mental health services than those from North China. Indeed, community-based services were introduced earlier and better established in South China. For example, community mental health services were first established in 1950s in Shanghai, and the “Three-Level Prevention Network Model” or “Shanghai model”, with a goal of establishing a community-based prevention, rehabilitation and support system, has now become the most successful model in China [13, 51]. The local governments in North China may therefore be able to learn from the “Shanghai model” and tailor the 686 program to develop their own community mental health care systems to meet the specific local needs. As mental health knowledge tends to be poorer in those with a lower level of education, specific consideration needs to be given to ways of reaching this group. This may involve education sessions or workshops, with materials written in simplified language or including visual elements.

The current findings should be interpreted in light of several limitations. First, to understand MHL among the general population in China and reduce bias in the results, studies targeting specific sample groups (e.g., health professionals) were not included in the analysis. Future reviewers should consider evaluating these populations’ MHL. Second, as this review only investigated three components of MHL – namely, ability to recognize specific mental disorders, and knowledge and beliefs about available treatment, future research would benefit from exploring whether and how other factors (e.g., knowledge of self-help strategies) facilitate help-seeking. Third, although the impact of region and time on Chinese people’s levels of mental health knowledge and their beliefs about professional help has been investigated, the analyses were based on cross-sectional data. The results could therefore be influenced by other contextual variables such as methodological and economic differences. Future longitudinal research or

cross-sectional surveys using the same sampling and interview methodology would assist in exploring changes in the public's MHL. Other potential moderator variables, such as the number of professional mental health services available in the area and social economic status, could not be tested due to the limited available data. Future studies should consistently provide contextual information, such as the accessibility of local services, to facilitate analysis and understanding of their influence on the public's MHL. Fourth, the small number of included studies for some constructs (e.g., helpfulness of professional services) may limit the generalizability of the results. Moreover, only limited research has been conducted on investigating the correlates of the public's ability to recognize mental disorders or their knowledge and beliefs about professional help, and this may restrict the development of effective interventions to increase public MHL in China. Thus, future empirical research should focus on exploring the factors that may affect the Chinese public's level of MHL.

Other limitations of the current literature on the Chinese public's MHL have also been identified. Firstly, most of the included studies employed vignette methodology (e.g., vignettes designed by Jorm and colleagues [4] and CAQ developed by the National Health Commission [39]) to examine participants' ability of recognizing depression, anxiety and schizophrenia, and their beliefs about professional services. This methodology however may not comprehensively reflect an individuals' understanding of mental health issues, as it targets on specific mental disorders and participants' answers are based on their recognition of the disorder [23, 52]. Furthermore, vignette-based measurements do not allow a total or subscale score to be generated, making it difficult to evaluate an individual's level of MHL [23, 52]. An alternative measure that was frequently used in China is MHKQ – a self-report measure used to assess an individual's level of mental health knowledge [39], but some of the items (e.g., “have you heard about World

Sleep Day?") are not closely related to the concept of MHL [4]. Hence, further efforts are required to develop a culturally adapted measure of MHL in China. Secondly, most of the included studies were conducted in South China and/or more affluent cities (e.g., Shanghai), which restricted our comparisons between regions on some variables (e.g., the recognition of anxiety). Future research is needed to explore the public's level of MHL in other areas of China (e.g., less affluent remote areas). Thirdly, the results of the study evaluation indicate that some important information, such as the sampling strategies and missing data management, are not consistently provided by the included studies. Future empirical researchers should always report sufficient methodological information to improve the study quality.

In conclusion, the current review has identified that the Chinese public's level of MHL – in the aspects of recognizing mental disorders, and knowledge and beliefs about professional help – is still very low. The government should continue implementing and monitoring the implementation of mental health policies to improve public MHL.

Figure 1. Flow chart of study selection

Table 1
Description of 65 Studies Included in the Review

Study	Year conducted	Region (Province)	N	Mean Age	Gender	Prevalence-Domains of MHL	Prevalence-Measure of MHL	Independent variables included	Measure of dependent variable
Wong & Li (2014)[26]	2010	South China (Shanghai)	522	39.1	Male (43.5%); Female (53.3%)	Recognition of depression & schizophrenia; Belief	Jorm's vignettes	n/a	n/a
Yu et al. (2015)[23]	11/2010 - 08/2011	South China (Hunan)	2,052	n/a	Male (44.2%); Female (55.8%)	Recognition of depression & anxiety	Self-designed vignettes	Gender	MHKQ
						Knowledge	MHKQ	Gender; age; education; employment; income; marital status; religion; depression; anxiety; alcohol abuse	Vignette-recognition of depression and anxiety
Chen et al. (2018a)[53]	2013	North China (Ningxia)	2,425	45.7	Male (44.5%); Female (55.5%)	Knowledge; Belief	self-designed 25 items	Age; gender; education; employment; income; marital status; religion; health status; depression; anxiety; alcohol abuse; mental health knowledge; recognition of depression; attitudes toward mental illness	Self-designed single help-seeking item
								n/a	n/a

Table 1
Continued

Study	Year conducted	Region (Province)	N	Mean Age	Gender	Prevalence-Domains of MHL	Prevalence-Measure of MHL	Independent variables included	Measure of dependent variable
Wang et al. (2013)[54]	2011	South China (Shanghai)	1,953	50	Male (51%); Female (49%)	Recognition of depression, anxiety & schizophrenia; Knowledge	CAQ MHKQ	Age; gender; education; marital status	MHKQ
Peng et al. (2011)[55]	2010	South China (Hunan)	1,563	41.9	Male (43.3%); Female (56.7%)	Knowledge	MHKQ	Age; gender; education; marital status; residential area; occupation	MHKQ
Gong & Furnham (2014)[56]	n/a	North China (Beijing)	212	33.9	Male (37.7%); Female (62.3%)	Recognition of depression & schizophrenia	Jorm's vignettes	n/a	n/a
Tong et al. (2015)[57]	2013	North China (Heilongjiang)	702	n/a	Male (39.0%); Female (61.0%)	n/a	n/a	Attitudes towards mentally ill; occupation; education	MHKQ
Lv et al. (2004)[58]	n/a	North China (Ningxia)	1,278	n/a	Male (55.1%); Female (44.9%)	Belief	self-designed vignette	n/a	n/a
Wang et al. (2017)[59]	2016	South China (Sichuan)	1,453	38.9	Male (53.3%); Female (46.7%)	Recognition of depression & schizophrenia; Knowledge	CAQ	n/a	n/a
Wang et al. (2010)[60]	n/a	North China (Tianjin)	582	45.3	Male (47.8%); Female (52.2%)	Know depression; Belief	Attitudes towards Suicide Questionnaire	-	-
Pan et al. (2016)[61]	2014	South China (Guangdong)	1,088	n/a	Male (38.1%); Female (61.9%)	Knowledge	MHKQ	n/a	n/a

Table 1
Continued

Study	Year conducted	Region (Province)	N	Mean Age	Gender	Prevalence-Domains of MHL	Prevalence-Measure of MHL	Independent variables included	Measure of dependent variable
Zhang (2011)[62]	n/a	North China (Shaanxi)	1,036	29.7	Male (45.6%); Female (54.4%)	Knowledge	MHKQ	n/a	n/a
Meng et al. (2005)[63]	2004	South China (Shanghai)	1,783	45.3	Male (41.3%); Female (58.7%)	Knowledge	Mental Health Knowledge in General Population Questionnaire	n/a	n/a
Cai et al. (2012)[64]	2011	South China (Guangdong)	2,560	41.7	Male (42.9%); Female (57.1%)	Knowledge	MHKQ	n/a	n/a
Xu et al. (2014)[65]	2012	South China (Shanghai)	201	n/a	Male (50.5%); Female (49.5%)	Recognition of depression & schizophrenia; Knowledge	CAQ	n/a	n/a
Gao et al. (2017)[66]	2014	South China (Hainan)	3,295	35.7	Male (50.4%); Female (49.6%)	Knowledge	MHKQ	Age; education; residential area	MHKQ
Wang et al. (2015b)[67]	n/a	Mainland (Shanghai, Beijing, Hunan)	1,805	44.1	Male (44.5%); Female (55.5%)	Knowledge	Self-designed vignettes	n/a	n/a
Meng et al. (2002)[68]	2002	South China (Shanghai)	2,697	45.2	Male (47.0%); Female (53.0%)	Knowledge	Mental Health Knowledge in General Population Questionnaire	n/a	n/a
Jiang et al. (2007)[69]	2006	South China (Shanghai)	2,443	47	Male (47.1%); Female (52.9%)	Knowledge	Mental Health Knowledge in General Population Questionnaire	n/a	n/a

Table 1
Continued

Study	Year conducted	Region (Province)	N	Mean Age	Gender	Prevalence-Domains of MHL	Prevalence-Measure of MHL	Independent variables included	Measure of dependent variable
Sun et al. (2009)[70]	2006	North China (Tianjin & Shangdong)	1,166	46	Male (49%); Female (51%)	Know depression & schizophrenia; Belief	Attitudes towards Suicide Questionnaire	-	-
Yang et al. (2014)[71]	n/a	North China (Beijing & Hebei)	1,007	42.4	Male (50.5%); Female (49.5%)	Know depression & schizophrenia; Belief	Attitudes towards Suicide Questionnaire	-	-
Zhao et al. (2010)[72]	2009	South China (Chongqing)	4,628	n/a	Male (49%); Female (51%)	Know anxiety & schizophrenia; Knowledge	Self-designed 11 items	n/a	n/a
Xiao et al. (2015)[73]	09/2013 – 06/2014	South China (Guangdong)	4,929	39.1	Male (51.5%); Female (48.5%)	Knowledge	MHKQ	Age; gender, education; attitudes towards mentally ill	MHKQ
Yang et al. (2016)[74]	n/a	North China (Gansu)	1,362	44.1	Male (43%); Female (57%)	Knowledge	MHKQ	n/a	n/a
Song et al. (2013)[75]	2011	North China (Beijing)	3,985	49.3	Male (49.0%); Female (51%)	Knowledge	MHKQ	n/a	n/a
Chen (2011)[76]	2010	South China (Fujian)	727	36.2	Male (39.9%); Female (60.1%)	Knowledge	Mental Health Knowledge in General Population Questionnaire	n/a	n/a
Yan et al. (2014)[25]	2011	North China (Hebei)	1,380	44.9	Male (63.8%); Female (36.2%)	Recognition of depression & schizophrenia; Knowledge	CAQ	n/a	n/a
Huang et al. (2015)[34]	2011	North China (Tianjin)	1,615	49.3	Male (44.6%); Female (53.4%)	n/a	MHKQ n/a	Age; gender; education; residential area; income	MHKQ

Table 1
Continued

Study	Year conducted	Region (Province)	N	Mean Age	Gender	Prevalence-Domains of MHL	Prevalence-Measure of MHL	Independent variables included	Measure of dependent variable
Hu et al. (2012)[77]	2010	South China (Guangdong)	1,678	42	Male (47.1%); Female (52.9%)	Knowledge	MHKQ	Education; occupation; attitudes towards mentally ill	MHKQ
Yang et al. (2013)[78]	2011	South China (Guangdong)	1,599	38.7	Male (51.3%); Female (48.7%)	Knowledge	MHKQ	Gender	MHKQ
Yang et al. (2017)[79]	2015	South China (Hunan)	3,400	n/a	Male (52.4%); Female (47.6%)	Know depression, anxiety & schizophrenia	self-designed survey	-	-
Han et al. (2008)[27]	2007	South China (Yunan)	514	n/a	Male (35.6%); Female (64.2%)	Know depression, anxiety & schizophrenia; Knowledge	Community Mental Health Knowledge Survey	-	-
Sun et al. (2010)[80]	2009	South China (Zhejiang)	832	40.1	Male (38.9%); Female (61.1%)	Knowledge	Self-designed 8 items	n/a	n/a
Zhang et al. (2013)[81]	2012	North China (Hebei)	1,003	49.9	Male (51.9%); Female (48.1%)	Knowledge	MHKQ	Age; gender; education; attitudes towards mentally ill	MHKQ
Zhang et al. (2009)[82]	2009	North China (Shandong)	258	n/a	Male (53.5%); Female (46.5%)	Knowledge; Belief	Self-designed 35 items	n/a	n/a
Gao et al. (2016)[83]	2013	North China (Shandong)	1,138	43	Male (49.0%); Female (51.0%)	Knowledge; Belief	Revised MHKQ	Age; Gender; education; occupation	Revised MHKQ
Fang et al. (2010)[84]	2009	South China (Fujian)	9,581	41.3	Male (49.4%); Female (50.6%)	Knowledge; Belief	Self-designed 18 items	n/a	n/a
Pan et al. (2012)[85]	10/2009 – 10/2011	North China (Hebei)	1,036	30	Male (45.6%); Female (54.4%)	Knowledge	MHKQ	n/a	n/a

Table 1
Continued

Study	Year conducted	Region (Province)	N	Mean Age	Gender	Prevalence-Domains of MHL	Prevalence-Measure of MHL	Independent variables included	Measure of dependent variable
Li et al. (2014)[35]	n/a	South China (Sichuan)	1,984	48.4	Male (49.7%); Female (50.3%)	n/a	n/a	Age, gender, education; marital status; occupation	MHKQ
Zhang et al. (2016)[86]	2014	North China (Hebei)	3,890	43.4	Male (46.8%); Female (53.2%)	Knowledge Belief	MHKQ self-designed help-seeking intention measure	Gender; education; residential area	MHKQ
Liang et al. (2011)[87]	2010	North China (Shaanxi)	1,600	44.4	Male (36.4%); Female (63.6%)	Knowledge	MHKQ	Age; gender; education; occupation	MHKQ
Yao et al. (2013)[88]	2011	North China (Henan)	38,101	41	Male (49%); Female (51%)	Knowledge	MHKQ	Age; gender; education; income; residential area; occupation	MHKQ
Gao et al. (2014)[36]	n/a	North China (Henan)	10,819	44.1	Male (41.6%); Female (52.4%)	Knowledge	MHKQ	Age; Gender; education; income; occupation	MHKQ
Wang et al. (2015a)[89]	n/a	North China (Ningxia)	330	40.3	Male (54.6%); Female (45.4%)	Knowledge; Belief	Self-designed 18 items	n/a	n/a
Ge & Zhou (2013)[90]	2011-2012	South China (Hunan)	3,020	n/a	Male (49%); Female (51%)	Knowledge; Belief	Mental Health Knowledge in General Population Questionnaire	n/a	n/a

Table 1
Continued

Study	Year conducted	Region (Province)	N	Mean Age	Gender	Prevalence-Domains of MHL	Prevalence-Measure of MHL	Independent variables included	Measure of dependent variable
Tao et al. (2014)[91]	n/a	South China (Shanghai)	1,000	n/a	Male (44.2%); Female (55.8%)	Knowledge	MHKQ	Age; gender; education; marital status	MHKQ
Xiao et al. (2004)[92]	2001	South China (Shanghai)	3,815	n/a	Male (50.9%); Female (49.1%)	Belief	Self-designed 10 items	n/a	n/a
Zhang et al. (2017)[93]	n/a	North China (Shandong)	6,174	39.4	Male (48.5%); Female (51.5%)	Knowledge	Self-designed 4 items	n/a	n/a
Tian et al. (2018)[94]	2017	North China (Beijing)	3,284	44.8	Male (47%); Female (53%)	Knowledge	MHKQ	Age; gender; education; marital status	MHKQ
He et al. (2014)[95]	2013	North China (Beijing)	1,080	n/a	Male (30%); Female (70%)	Knowledge	MHKQ	Age; gender; education; occupation; marital status	MHKQ
Wang (2004)[96]	n/a	South China (Zhejiang)	917	42.5	Male (49.5%); Female (50.5%)	Belief	Self-designed 3 items	n/a	n/a
Xu et al. (2005)[97]	2001	South China (Zhejiang)	4,614	42.4	Male (50.5%); Female (49.5%)	Know depression & schizophrenia; Belief	self-designed survey	-	-
Qiu & Xie (2015)[28]	2004	South China (Shanghai)	1,317	n/a	Male (46.3%); Female (53.7%)	Know depression, anxiety & schizophrenia; Knowledge	Community Mental Health Knowledge Survey	-	-
Wang et al. (2005)[98]	n/a	South China (Zhejiang)	2,270	42.2	Male (51.1%); Female (48.9%)	Belief	Self-designed 30 items	n/a	n/a
Yao et al. (2008)[99]	2007	South China (Yunnan)	42	n/a	Male (40.5%); Female (59.5%)	Belief	Self-designed 17 items	n/a	n/a
Xu et al. (2010)[100]	n/a	South China (Zhejiang)	1,200	44.2	Male (44.1%); Female (55.9%)	Know depression, anxiety & schizophrenia	Self-designed 17 items	n/a	n/a

Table 1
Continued

Study	Year conducted	Region (Province)	N	Mean Age	Gender	Prevalence-Domains of MHL	Prevalence-Measure of MHL	Independent variables included	Measure of dependent variable
Lin et al. (2015)[101]	n/a	South China (Guangdong)	235	n/a	Male (49.4%); Female (50.6%)	Knowledge; Belief	Self-designed 21 items	n/a	n/a
Xia et al. (2010)[102]	2008	South China (Guangdong)	218	n/a	Male (34.7%); Female (65.3%)	Belief	Self-designed 15 items	n/a	n/a
Chen et al. (2018b)[103]	2015	South China (Zhejiang)	1,239	43.1	Male (45.2%); Female (54.8%)	Knowledge	MHKQ	Age; gender; education; occupation; residential area	MHKQ
Chen et al. (2009)[104]	2007	Mainland (Jilin&Zhejiang&Guangdong&Gansu&Hubei&Yunan)	11,693	n/a	Male (49.7%); Female (50.3%)	Knowledge	Self-designed 4 items	n/a	n/a
Ma et al. (2012)[105]	2010	North China (Beijing)	213	n/a	Male (40.4%); Female (59.6%)	Belief	self-designed survey	-	-
Wang & Zhao (2016)[106]	12/2013 – 01/2014	North China (Liaoning)	200	n/a	Male (35.5%); Female (64.5%)	Belief	Self-designed 2 items	n/a	n/a
Huang et al. (2019)[9]	n/a	Mainland	1,812	47.4	Male (43.6%); Female (56.4%)	Recognition of depression & schizophrenia; Knowledge	Self-designed vignettes	n/a	n/a
Li et al. (2018)[107]	2017	Mainland	1,087	33.9	Male (36.2%); Female (63.8%)	Knowledge	MHKQ	Age; gender; education; residential area	MHKQ
Niu & Willoughby (2018)[108]	2015	Mainland	611	24	Male (34.7%); Female (65.3%)	n/a	n/a	Attitudes towards help-seeking; subjective norm	Revised Mo & Mak (2009) help-seeking measure

Note. MHKQ = Mental Health Knowledge Questionnaire; CAQ = Case Assessment Questionnaire.

Table 2

Prevalence of recognition of three mental disorders and each theme under knowledge and beliefs about professional help

Theme	<i>k</i>	<i>N</i>	Rate (%)	95%CI (%)		<i>I</i> ² (%)	Effect of region			Effect of year			References
				lower	upper		<i>Q</i>	<i>p</i>	<i>k</i>	<i>Q</i>	<i>p</i>	<i>k</i>	
Recognition of depression	8	9,410	25.4	20.1	31.5	97.4	0.31	.576	2(N) 5(S)	3.23	.358	6	[9, 23, 25, 26, 54, 56, 59, 65]
Recognition of schizophrenia	7	7,470	18.4	13.4	24.7	98.2	0.02	.877	2(N) 4(S)	10	.019	5	[9, 25, 26, 54, 56, 59, 65]
Recognition of anxiety	2	4,005	18.2	13.2	24.6	95.5	-	-	2(S)	-	-	-	[23, 54]
Heard/know about depression	8	13,800	46.7	36.8	56.8	99.2	33.3	<.001	3(N) 5(S)	2.09	.719	5	[27, 28, 60, 70, 71, 79, 97, 100]
Heard/know about schizophrenia	8	17,846	42.3	30.5	55.2	99.6	13.69	<.001	2(N) 6(S)	205.59	<.001	6	[27, 28, 70-72, 79, 97, 100]
Heard/know about anxiety	5	11,059	20.2	15.7	25.7	97.3	-	-	5(S)	143.19	<.001	4	[27, 28, 72, 79, 100]
<i>Knowledge about professional help</i>													
professional mental health services should be sought if one suspects the presence of mental health problems	34	118,671	80.6	77.2	83.6	99.5	0.19	.663	13(N) 19(S)	3.1	.989	28	[23, 25, 36, 54, 55, 61-66, 68, 69, 72-78, 80, 81, 83, 85-88, 91, 94, 95, 101, 103, 104, 107]
know a contact number of helplines	4	7,650	16.2	10.1	25	98.7	-	-	4(S)	0.47	.926	4	[63, 68, 69, 76]
know addresses of community mental health services	4	12,633	34.6	17	57.8	99.8	6.05	.014	1(N) 3(S)	5.45	.066	3	[27, 28, 72, 93]
know addresses of city mental health services	3	2,558	54.3	40.2	67.7	97.8	-	-	3(S)	84.3	<.001	3	[27, 28, 76]
know addresses of professional services or contact numbers of helplines	3	4,488	39.1	23.9	56.7	99	0.21	.645	2(N) 1(S)	185.8	<.001	2	[83, 89, 90]

Table 2
Continued

Continued														
Theme	<i>k</i>	<i>N</i>	Rate (%)	95%CI		<i>I</i> ² (%)	Effect of region			Effect of Year			References	
				lower	upper		<i>Q</i>	<i>p</i>	<i>k</i>	<i>Q</i>	<i>p</i>	<i>k</i>		
understand the role of mental health services														
publicizing mental health knowledge	3	6,923	67.8	61.6	73.5	96.5	-	-	3(S)	0.04	.979	3	[63, 68, 69]	
illness treatment	3	6,923	64.9	53.7	74.6	98.8	-	-	3(S)	170.44	<.001	3	[63, 68, 69]	
counseling	3	6,923	62.6	55.8	69	96.9	-	-	3(S)	65.35	<.001	3	[63, 68, 69]	
community services	3	6,923	57	43	70.1	99.3	-	-	3(S)	2.54	.281	3	[63, 68, 69]	
medications should be taken regularly	28	104,759	57.1	52.7	61.4	99.4	2.63	.105	14(N) 13(S)	3.51	.835	24	[23, 25, 36, 53-55, 61, 62, 64-66, 73-75, 77, 78, 81, 82, 84-88, 91, 94, 95, 103, 107]	
would recommend the person with Depression:														
go to see other mental health professionals (incl. psychologists, therapists, social workers, counsellors)	4	6,450	28.1	13.2	50.2	99.6	16.7 3	<.00 1	1(N) 1(S)	16.73	<.001	2	[9, 25, 59, 67]	
go to see a Psychiatrist	4	6,450	10.6	7.5	14.8	95.6	0.00 1	.979	1(N) 1(S)	0.001	.979	2	[9, 25, 59, 67]	
go to see a Western internist	3	4,638	3.1	1.8	5.4	91.2	16.5	<.00 1	1(N) 1(S)	16.5	<.001	2	[25, 59, 67]	
go to see a Chinese medical doctor	3	4,638	3.1	1.8	5.2	90.3	10.3 4	.001	1(N) 1(S)	10.34	.001	2	[25, 59, 67]	

Table 2
Continued

Continued														
Theme	<i>k</i>	<i>N</i>	Rate (%)	95%CI		<i>I</i> ² (%)	Effect of region			Effect of year			References	
				lower	upper		<i>Q</i>	<i>p</i>	<i>k</i>	<i>Q</i>	<i>p</i>	<i>k</i>		
would recommend the person with Anxiety:														
go to see a counselor	1	1,805	50	47.7	52.3	-	-	-	-	-	-	-	-	[67]
go to see a Western internist	1	1,805	10.4	9.1	11.9	-	-	-	-	-	-	-	-	[67]
go to see a Chinese medical doctor	1	1,805	7.1	6	8.4	-	-	-	-	-	-	-	-	[67]
go to see a psychiatrist	1	1,805	5.2	4.3	6.3	-	-	-	-	-	-	-	-	[67]
would recommend the person with Schizophrenia:														
go to see a Psychiatrist	3	4,645	22.4	8.4	47.7	99.6	0.004	.949	1(N) 1(S)	0.004	.949	2		[9, 25, 59]
go to see other mental health professionals (incl. psychologists, therapists, social workers, counsellors)	3	4,645	21.1	8.9	42.2	99.5	8.53	.003	1(N) 1(S)	8.53	.003	2		[9, 25, 59]
go to see a Western internist	2	2,833	2.2	0.6	7.7	95.4	0.02	.891	1(N) 1(S)	0.02	.891	2		[25, 59]
go to see a Chinese medical doctor	2	2,833	1.7	0.4	7.3	95.2	0.05	.828	1(N) 1(S)	0.05	.828	2		[25, 59]
<i>Beliefs about professional help</i>														
I will go to seek professional help, if I myself or my family and friends suspect having a mental health problem	11	24,894	38.3	27.7	50	99.6	0.48	.487	5(N) 6(S)	23.3	.001	9		[53, 83, 84, 86, 89, 90, 92, 99, 101, 102, 106]
I will go to seek professional help, if I have Depression	3	2,755	68.1	39	87.7	99.4	-	-	3(N)	-	-	1		[60, 70, 71]
I will go to seek professional help, if I have Schizophrenia	2	2,173	73.3	21.1	96.6	99.7	-	-	2(N)	-	-	1		[70, 71]
Psychiatric medications are harmful or addictive	3	3,265	63.3	50.3	74.6	97.1	-	-	3(N)	0	.991	2		[53, 60, 82]

Table 2
Continued

Theme	<i>k</i>	<i>N</i>	Rate (%)	95%CI		<i>I</i> ² (%)	Effect of region			Effect of year			References
				lower	upper		<i>Q</i>	<i>p</i>	<i>k</i>	<i>Q</i>	<i>p</i>	<i>k</i>	
Medications for treating Depression are harmful	2	2,173	36.6	24.4	50.9	97.7	-	-	2(N)	-	-	1	[70, 71]
Medications for treating Schizophrenia are harmful	2	2,173	41.8	26.4	59	98.4	-	-	2(N)	-	-	1	[70, 71]
each of the following professionals/treatments/medications is likely to be helpful for treating mental disorders:													
Rehabilitation therapy	1	2,270	85.3	83.8	86.7	-	-	-	-	-	-	-	[98]
Medicine alone	2	2,312	56.6	4.5	97.3	98.6	-	-	2(S)	-	-	1	[98, 99]
Medical treatment methods	1	1,278	48	45.3	50.7	-	-	-	-	-	-	-	[58]
Medicine and psychotherapy	1	218	32.6	26.7	39.1	-	-	-	-	-	-	-	[102]
Counseling	3	2,913	26.9	8.4	59.5	98.7	-	-	3(S)	-	-	1	[96, 99, 101]
Chinese medicine	2	2,854	23.3	0.4	96.3	99.8	-	-	2(S)	-	-	1	[96, 102]
Western medicine	1	2,636	5.3	4.5	6.2	-	-	-	-	-	-	-	[96]
each of the following professionals/treatments/medications is likely to be helpful for the person with Depression:													
Clinical psychologist	1	522	83	79.5	86	-	-	-	-	-	-	-	[26]
Counseling	1	522	79.5	75.8	82.7	-	-	-	-	-	-	-	[26]
Psychotherapy	5	7,891	75	65.9	82.3	98.2	0.05	.817	3(N) 2(S)	1.19	.551	3	[26, 60, 70, 71, 97]
Psychiatrist	1	522	73.8	69.9	77.4	-	-	-	-	-	-	-	[26]
Medicine alone	4	2,968	73.2	35.7	93.1	99.5	-	-	4(N)	8.4	.004	2	[60, 70, 71, 105]
Cognitive behavioral therapy	1	522	66.1	61.9	70	-	-	-	-	-	-	-	[26]

Table 2
Continued

Theme	<i>k</i>	<i>N</i>	Rate (%)	95%CI		<i>I</i> ² (%)	Effect of region			Effect of year			References
				lower	upper		<i>Q</i>	<i>p</i>	<i>k</i>	<i>Q</i>	<i>p</i>	<i>k</i>	
Counselor	1	522	63.8	59.6	67.8	-	-	-	-	-	-	-	[26]
Social worker	1	522	62.8	58.6	66.8	-	-	-	-	-	-	-	[26]
Medicine and psychotherapy	2	1,748	61.9	57	66.6	75.4	-	-	2(N)	-	-	1	[60, 70]
Hotline	1	522	55.6	51.3	59.8	-	-	-	-	-	-	-	[26]
GP	1	522	40.6	36.5	44.9	-	-	-	-	-	-	-	[26]
Chinese medical doctor	1	522	39.5	35.4	43.8	-	-	-	-	-	-	-	[26]
antidepressants	1	522	39.5	35.4	43.8	-	-	-	-	-	-	-	[26]
Psychiatric ward	1	522	36.8	32.8	41	-	-	-	-	-	-	-	[26]
antipsychotics	1	522	36.6	32.6	40.8	-	-	-	-	-	-	-	[26]
Western medicine	1	4,614	26.1	24.9	27.4	-	-	-	-	-	-	-	[97]
Electro convulsive therapy	1	522	25.9	22.3	29.8	-	-	-	-	-	-	-	[26]
Pharmacist	1	522	21.5	18.2	25.2	-	-	-	-	-	-	-	[26]
Chinese medicine	2	5,136	16.6	3.5	52.6	99.6	-	-	2(S)	259.1	<.001	2	[26, 97]
each of the following professionals/treatments/medications is likely to be helpful for the person with Schizophrenia:													
Medicine and psychotherapy	1	1,166	90.6	88.8	92.2	-	-	-	-	-	-	-	[70]
Counseling	1	522	84.9	81.6	87.7	-	-	-	-	-	-	-	[26]
Psychiatrist	1	522	80.7	77.1	83.9	-	-	-	-	-	-	-	[26]
Clinical psychologist	1	522	80.1	76.5	83.3	-	-	-	-	-	-	-	[26]

Table 2
Continued

Theme	<i>k</i>	<i>N</i>	Rate (%)	95%CI		<i>I</i> ² (%)	Effect of region			Effect of year			References
				lower	upper		<i>Q</i>	<i>p</i>	<i>k</i>	<i>Q</i>	<i>p</i>	<i>k</i>	
Cognitive behavioral therapy	1	522	61.7	57.5	65.8	-	-	-	-	-	-	-	[26]
Psychotherapy	4	7,309	60.6	38.9	78.8	99.6	0.003	.957	2(N) 2(S)	8.58	.014	3	[26, 70, 71, 97]
Medicine alone	2	2,173	60	58	62.1	0	-	-	2(N)	-	-	1	[70, 71]
Social worker	1	522	59	54.7	63.1	-	-	-	-	-	-	-	[26]
Counselor	1	522	57.1	52.8	61.3	-	-	-	-	-	-	-	[26]
Psychiatric ward	1	522	56.3	52	60.5	-	-	-	-	-	-	-	[26]
antipsychotics	1	522	54.6	50.3	58.8	-	-	-	-	-	-	-	[26]
Western medicine	1	4,614	49.9	48.5	51.3	-	-	-	-	-	-	-	[97]
Hotline	1	522	46.9	42.7	51.2	-	-	-	-	-	-	-	[26]
antidepressants	1	522	44.1	39.9	48.4	-	-	-	-	-	-	-	[26]
GP	1	522	37.4	33.4	41.6	-	-	-	-	-	-	-	[26]
Electro convulsive therapy	1	522	31.8	27.9	35.9	-	-	-	-	-	-	-	[26]
Chinese medical doctor	1	522	30.7	26.9	34.8	-	-	-	-	-	-	-	[26]
Pharmacist	1	522	26.6	23	30.6	-	-	-	-	-	-	-	[26]
Chinese medicine	2	5,136	22.1	9.1	44.6	99.1	-	-	2(S)	108	<.001	2	[26, 97]

Note. Included items for each theme can be found in the online supplemental material (Table B).

N = North China; S = South China

Table 3
Correlates of recognition, level of knowledge and help-seeking intention

Independent Variable (measure)	<i>k</i>	<i>N</i>	<i>r</i>	<i>p</i>	95%CI		<i>I</i> ² (%)	<i>Nfs</i>	Effect of region			Effect of year			References
					lower	upper			<i>Q</i>	<i>p</i>	<i>k</i>	<i>Q</i>	<i>p</i>	<i>k</i>	
<i>Correlates of recognition of depression</i>															
gender	1	2,052	-0.05	.196	-0.11	0.02	-	-	-	-	-	-	-	-	[23]
age	1	2,052	-0.25	<.001	-0.3	-0.19	-	-	-	-	-	-	-	-	[23]
education	1	2,052	0.42	<.001	0.37	0.47	-	-	-	-	-	-	-	-	[23]
employment	1	2,052	-0.09	.014	-0.16	-0.02	-	-	-	-	-	-	-	-	[23]
income	1	2,052	0.11	<.001	0.05	0.16	-	-	-	-	-	-	-	-	[23]
marital status	1	2,052	0.19	<.001	0.09	0.28	-	-	-	-	-	-	-	-	[23]
religion	1	2,052	-0.03	.600	-0.14	0.08	-	-	-	-	-	-	-	-	[23]
depression (PHQ-9)	1	2,052	-0.07	.075	-0.14	0.01	-	-	-	-	-	-	-	-	[23]
anxiety (GAD-7)	1	2,052	-0.12	.005	-0.21	-0.04	-	-	-	-	-	-	-	-	[23]
alcohol abuse (AUDIT)	1	2,052	-0.02	.689	-0.14	0.09	-	-	-	-	-	-	-	-	[23]
<i>Correlates of recognition of anxiety</i>															
gender	1	2,052	0.02	.564	-0.05	0.09	-	-	-	-	-	-	-	-	[23]
age	1	2,052	-0.22	<.001	-0.28	-0.16	-	-	-	-	-	-	-	-	[23]
education	1	2,052	0.34	<.001	0.28	0.40	-	-	-	-	-	-	-	-	[23]
employment	1	2,052	-0.03	.486	-0.1	0.05	-	-	-	-	-	-	-	-	[23]
income	1	2,052	0.04	.235	-0.02	0.1	-	-	-	-	-	-	-	-	[23]
marital status	1	2,052	0.05	.449	-0.08	0.17	-	-	-	-	-	-	-	-	[23]
religion	1	2,052	0.05	.410	-0.07	0.18	-	-	-	-	-	-	-	-	[23]
depression (PHQ-9)	1	2,052	-0.04	.374	-0.11	0.04	-	-	-	-	-	-	-	-	[23]
anxiety (GAD-7)	1	2,052	-0.04	.374	-0.11	0.04	-	-	-	-	-	-	-	-	[23]
alcohol use (AUDIT)	1	2,052	-0.03	.639	-0.15	0.09	-	-	-	-	-	-	-	-	[23]

Table 3
Continued

Independent Variable (measure)	<i>k</i>	<i>N</i>	<i>r</i>	<i>p</i>	95%CI		<i>I</i> ² (%)	<i>Nfs</i>	Effect of region			Effect of year			References
					lower	upper			<i>Q</i>	<i>p</i>	<i>k</i>	<i>Q</i>	<i>p</i>	<i>k</i>	
<i>Correlates of mental health knowledge (measured by MHKQ)</i>															
age	16	75,690	0.05	.234	-0.03	0.12	98.7	51	0.31	.576	8(N) 7(S)	4.02	.674	12	[34-36, 54, 55, 66, 73, 81, 83, 87, 88, 91, 94, 95, 103, 107]
gender	18	79,936	0.04	.008	0.01	0.06	90.0	64	2.50	.114	9(N) 8(S)	32.25	<.001	14	[23, 34-36, 54, 55, 73, 78, 81, 83, 86-88, 91, 94, 95, 103, 107]
education	19	80,327	0.31	<.001	0.16	0.45	99.8	34	0.14	.705	10(N) 8(S)	5.93	.431	15	[34-36, 54, 55, 57, 66, 73, 77, 81, 83, 86-88, 91, 94, 95, 103, 107]
marital status	6	10,864	0.25	.034	0.02	0.46	99.4	11	0	.989	2(N) 4(S)	12.23	.007	4	[35, 54, 55, 91, 94, 95]
residential area	7	50,790	0.13	.021	0.02	0.23	98.7	20	0.09	.759	3(N) 3(S)	7.03	.071	6	[34, 55, 66, 86, 88, 103, 107]
occupation	10	59,904	0.16	.022	0.02	0.29	99.4	18	0.14	.706	6(N) 4(S)	4.43	.219	8	[35, 36, 55, 57, 77, 83, 87, 88, 95, 103]
income	3	50,535	0.08	.015	0.02	0.14	96.6	11	-	-	3(N)	-	-	2 (2011)	[34, 36, 88]
attitude towards mentally ill (MHAQ)	4	8,312	0.02	.570	-0.06	0.10	90.6	13	0.49	.483	2(N) 2(S)	31.96	<.001	4	[57, 73, 77, 81]
<i>Correlates of help-seeking intention</i>															
age	1	2,052	0.02	.317	-0.02	0.07	-	-	-	-	-	-	-	-	[23]
gender	1	2,052	0.1	.004	0.03	0.16	-	-	-	-	-	-	-	-	[23]
education	1	2,052	-0.09	.002	-0.15	-0.03	-	-	-	-	-	-	-	-	[23]

Table 3
Continued

Independent Variable (measure)	<i>k</i>	<i>N</i>	<i>r</i>	<i>p</i>	95% CI		<i>I</i> ² (%)	<i>Nfs</i>	Effect of region			Effect of year			References
					lower	upper			<i>Q</i>	<i>p</i>	<i>k</i>	<i>Q</i>	<i>p</i>	<i>k</i>	
employment	1	2,052	-0.02	.508	-0.09	0.05	-	-	-	-	-	-	-	-	[23]
income	1	2,052	-0.03	.346	-0.09	0.03	-	-	-	-	-	-	-	-	[23]
marital status	1	2,052	-0.04	.462	-0.15	0.07	-	-	-	-	-	-	-	-	[23]
religion	1	2,052	-0.05	.445	-0.16	0.07	-	-	-	-	-	-	-	-	[23]
health status (SRHMS)	1	2,052	0.08	<.001	0.05	0.11	-	-	-	-	-	-	-	-	[23]
depression (PHQ-9)	1	2,052	-0.18	<.001	-0.28	-0.09	-	-	-	-	-	-	-	-	[23]
anxiety (GAD-7)	1	2,052	-0.15	.010	-0.27	-0.04	-	-	-	-	-	-	-	-	[23]
alcohol abuse (AUDIT)	1	2,052	-0.06	.246	-0.16	0.04	-	-	-	-	-	-	-	-	[23]
mental health knowledge (MHKQ)	1	2,052	0.05	.037	0.003	0.09	-	-	-	-	-	-	-	-	[23]
recognition of depression (Jorm et al. 1997 vignette)	1	2,052	-0.11	.010	-0.19	-0.03	-	-	-	-	-	-	-	-	[23]
attitudes toward mental illness (PDD)	1	2,052	0.03	.207	-0.02	0.07	-	-	-	-	-	-	-	-	[23]
attitudes toward help-seeking (Revised Mo & Mak (2009) help-seeking measure)	1	611	0.2	<.001	0.12	0.28	-	-	-	-	-	-	-	-	[108]
subjective norm (Revised Mo & Mak (2009) help-seeking measure)	1	611	0.29	<.001	0.22	0.36	-	-	-	-	-	-	-	-	[108]

Note. PHQ-9 = Patient Health Questionnaire; GAD-7 = Generalized Anxiety Disorder Scale; AUDIT = Alcohol Use Disorders Identification Test; MHKQ = Mental Health Knowledge Questionnaire; MHAQ = Mental Health Attitudes Questionnaire; N = North China; S = South China; Jorm et al. 1997 vignette = Jorm et al. "Mental health literacy": A survey of the public's ability to recognize mental disorders and their beliefs about the effectiveness of treatment. Medical Journal of Australia. 1997; 166:182–6; SRHMS = Self-Rated Health Measurement Scale; PDD = Perceived Devaluation-Discrimination Questionnaire; Mo & Mak (2009) help-seeking measure = Mo, P., & Mak, W. (2009). Help-seeking for mental health problems among Chinese. Social Psychiatry and Psychiatric Epidemiology, 44, 675–684.

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