

## China–India Mental Health Alliance



# The magnitude of and health system responses to the mental health treatment gap in adults in India and China

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This Series paper describes the first systematic effort to review the unmet mental health needs of adults in China and India. The evidence shows that contact coverage for the most common mental and substance use disorders is very low. Effective coverage is even lower, even for severe disorders such as psychotic disorders and epilepsy. There are vast variations across the regions of both countries, with the highest treatment gaps in rural regions because of inequities in the distribution of mental health resources, and variable implementation of mental health policies across states and provinces. Human and financial resources for mental health are grossly inadequate with less than 1% of the national health-care budget allocated to mental health in either country. Although China and India have both shown renewed commitment through national programmes for community-oriented mental health care, progress in achieving coverage is far more substantial in China. Improvement of coverage will need to address both supply-side barriers and demand-side barriers related to stigma and varying explanatory models of mental disorders. Sharing tasks with community-based workers in a collaborative stepped-care framework is an approach that is ripe to be scaled up, in particular through integration within national priority health programmes. India and China need to invest in increasing demand for services through active engagement with the community, to strengthen service user leadership and ensure that the content and delivery of mental health programmes are culturally and contextually appropriate.

### Introduction

In recognition of the large gap between the need for treatment of mental disorders and the provision of that treatment, WHO's Mental Health Action Plan calls for an increase in service coverage for severe mental disorders by at least 20% by the year 2020.<sup>1</sup> The reduction of the treatment gap in India and China, the two most populous countries in the world, is crucially important for achievement of this goal. Systematic assessment of the scale of and health system response to the treatment gap could not only help these two countries to improve their mental health system performance, but also shed light on how other countries might achieve their mental health goals. In this Series paper we address four issues: estimation of the magnitude of the treatment gap; description of the response of the mental health-care systems; identification of the barriers to addressing the treatment gap; and identification of innovations with potential to overcome these barriers. We undertook a systematic review of the indexed literature and a non-systematic review of so-called grey literature on these four issues for depression, psychosis, bipolar disorder, epilepsy, dementia, and alcohol and drug use disorders, all deemed priority adult mental disorders by the WHO Mental Health Gap Action Programme.<sup>2</sup> We have focused on biomedical (modern) medicine, as traditional health-care systems, which are popular in both countries, are addressed in a dedicated paper in this Series.<sup>3</sup>

### The magnitude of the treatment gap

We used two indicators to estimate the magnitude of the treatment gap: contact coverage to measure service use,

and effective coverage to further measure the extent to which the service has effectively improved the health of people who used it.<sup>4</sup>

### Contact coverage

Five population-based studies from India and 14 from China contributed findings on contact coverage (table 1). The available evidence is weak, particularly in India, where there are no reliable studies to suggest contact with mental health-care providers for any of the priority disorders. In both India and China, contact coverage rates vary greatly across disorders and studies, but are particularly low for

Published Online

May 18, 2016

[http://dx.doi.org/10.1016/S0140-6736\(16\)00160-4](http://dx.doi.org/10.1016/S0140-6736(16)00160-4)

This paper forms part of the China-India Mental Health Alliance Series. Other papers in the series are available at <http://www.thelancet.com/series/china-india-mental-health>

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### Search strategy and selection criteria

We carried out a systematic review using the steps recommended in the PRISMA statement. for papers published in English or Chinese between Jan 1, 2005, and Dec 31, 2014. We searched MEDLINE, Embase, PsycINFO, PubMed, the Cochrane Library, and the Web of Science; we also searched country-specific databases including IndMED, the only database of Indian medical journals, many of which are not indexed on any other international database, and SinoMed, the most comprehensive electronic database of medical journals published in mainland China, covering publications since 1978. The search strategy sought to identify original studies related to contact and effective coverage, health systems response, barriers and innovations using a piloted search strategy developed by the authors (appendix). Publications without any original data (eg, correspondence and editorials), related to Chinese and Indian immigrants (from mainland China and India) and with small sample sizes (eg, case studies) or insufficient data (eg, conference abstracts) were excluded. Relevant studies were identified by title and abstract screening by two independent reviewers (ES, HC, DL, RP, SU, and YY in teams of two) with a specific requirement of mutual consensus over articles excluded. A more detailed search strategy is included in the appendix.

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See Online for appendix

common mental disorders and substance use disorders. Most people who seek medical care do so in the general medical sector.<sup>21,22</sup> In China, contact coverage for common mental disorders ranges from a low of 2.7% in Beijing and 3.1% in Shanghai according to the 2004 World Mental Health Survey<sup>8</sup> to just over 10% in a more recent investigation of four provinces of China.<sup>5</sup> In India, the contact coverage for depression is 12% in the six states that participated in the World Mental Health Survey.<sup>11</sup> An unpublished, population-based epidemiological study done by the Government of India between 2002 and 2005 reported a 12-month coverage rate of only 5% for prescriptive medical treatment for common mental disorders and substance use disorders (unpublished).

Contact coverage rates increase with severity of mental disorder in both countries and are highest for

schizophrenia, dementia, and epilepsy. In China, contact coverage for dementia approaches 90% in rural areas, and 98% in urban areas.<sup>20</sup> Contact coverage for schizophrenia and other psychotic disorders is 77% in urban areas and 70% in rural areas. Contact coverage for epilepsy is 65% in all areas in Yueyang<sup>19</sup> and 95% in urban Beijing.<sup>23</sup> In India, the contact coverage for schizophrenia is much lower, at 40–50%,<sup>10,11</sup> which is consistent with the WHO estimation of service contact of people with severe mental disorders in low-income and middle-income countries.<sup>1</sup> Contact coverage for epilepsy could range from a low of 6% in a tribal population<sup>17</sup> to 92% in an urban population.<sup>18</sup> Studies from both countries show that contact coverage differs significantly between rural and urban samples and between high and low socioeconomic groups.<sup>11,17,18</sup>

	India		China	
	Patients having contact with any health-care providers (%)	Patients having contact with mental health-care providers (%)	Patients having contact with any health-care providers (%)	Patients having contact with mental health-care providers (%)
Any disorder	Prescriptive medical treatment in past 1 year, 5.1	NA	Lifetime, 8.3–15.5 <sup>5,7</sup>	Lifetime, 4.9 <sup>5</sup> –6.7 <sup>7</sup>
Any disorder with any severity	NA	NA	1 year, 2.7 <sup>8</sup> –3.4 <sup>9</sup>	1 year, 0.6 <sup>9</sup>
Any disorder* with mild severity	NA	NA	1 year, 1.7 <sup>8</sup> –2.0 <sup>8</sup>	1 year, 1.7 <sup>9</sup>
Any disorder* with moderate severity	NA	NA	1 year, 11.9 <sup>8</sup> –19.8 <sup>9</sup>	1 year, 4.6 <sup>9</sup>
Psychotic disorders	NA	NA	Lifetime, 24.0; <sup>7</sup> 72.4 <sup>5</sup> 1 year, 10.6 <sup>7</sup>	Lifetime, 15.4 <sup>7</sup> –60.4 <sup>5</sup> 1 year, 4.8 <sup>7</sup>
Schizophrenia	Current, 40.0 <sup>10</sup> –49.8 <sup>11</sup>	NA	Lifetime, 71.5 <sup>12</sup>	Lifetime, 63.6 <sup>12</sup> 1 year, 92.8 <sup>13</sup>
Bipolar disorder	NA	NA	Lifetime, 23.1 <sup>7</sup> 1 year, 6.2 <sup>7</sup>	Lifetime, 16.9 <sup>7</sup> 1 year, 3.1 <sup>7</sup>
Mania	NA	NA	Lifetime, 17.3 <sup>7</sup> 1 year, 9.9 <sup>7</sup>	Lifetime, 9.9 <sup>7</sup> 1 year, 3.7 <sup>7</sup>
Anxiety disorder	Prescriptive medical treatment in past year, 5.6	NA	Lifetime, 6.1–44.7 <sup>5,14</sup> 1 year, 10.7 <sup>7</sup>	Lifetime, 2.9–21.4 <sup>5,214</sup> 1 year, 10.7 <sup>7</sup>
Panic disorder	Prescriptive medical treatment in past year, 11.6	NA	Lifetime, 22.2 <sup>7</sup> 1 year, 14.8 <sup>7</sup>	Lifetime, 11.1 <sup>7</sup> 1 year, 7.4 <sup>7</sup>
Phobia	Prescriptive medical treatment in past year, 1.7	NA	Lifetime, 10.6 <sup>7</sup> 1 year, 5.7 <sup>7</sup>	Lifetime, 6.2 <sup>7</sup> 1 year, 2.5 <sup>7</sup>
Depression	Current: 12 <sup>11</sup> Prescriptive medical treatment in past year: 5.5	NA	Lifetime, 14.8 <sup>7</sup> 1 year, 6.3 <sup>7</sup>	Lifetime, 9.5 <sup>7</sup> 1 year, 2.5 <sup>7</sup>
Depression in the elderly	NA	NA	Lifetime, 25.2 <sup>15</sup>	Baseline, 1.0 <sup>16</sup> 1 year after baseline, 3.2 <sup>16</sup>
Obsessive compulsive disorder	NA	NA	Lifetime, 17.1 <sup>7</sup> 1 year, 9.4 <sup>7</sup>	Lifetime, 10.1 <sup>7</sup> 1 year, 4.4 <sup>7</sup>
Substance abuse disorder	Prescriptive medical treatment in past year: 5.3	NA	Lifetime, 1.2 <sup>5</sup> –25.7 <sup>6</sup> 1 year, 2.8 <sup>6</sup>	Lifetime, 0.4 <sup>5</sup>
Epilepsy	Lifetime: 6.3 <sup>17</sup> Current: 5.7 <sup>17</sup> –91.6 <sup>18</sup>	NA	Lifetime, 65.0 <sup>19</sup>	Lifetime, 7.7 <sup>19</sup>
Dementia	NA	NA	1 month, 87.9 (rural), <sup>20</sup> 97.5 (urban) <sup>20</sup>	NA

NA=not available. \*Disorders include anxiety disorders (agoraphobia, generalised anxiety disorder, obsessive compulsive disorder, panic disorder, post-traumatic stress disorder, social phobia, specific phobia), mood disorders (bipolar I and II disorders, dysthymia, major depressive disorder), disorders that share a feature of problems with impulse control (bulimia, intermittent explosive disorder, and adult persistence of 3 childhood-adolescent disorders—attention deficit/hyperactivity disorder, conduct disorder, and oppositional-defiant disorder—among respondents in the 18 to 44-year age range), and substance disorders (alcohol and drug abuse and dependence).

**Table 1: Contact coverage of selected mental disorders in India and China**

	Coverage rates in India	Coverage rates in China
Any disorder	NA	Minimum standards for adequacy of treatment—pharmacotherapy ( $\geq 1$ month of medication and $\geq 4$ visits to a medical doctor) or psychotherapy ( $\geq 8$ visits with a professional)=1 year rate, 24.1%; <sup>22</sup> regular medication=lifetime rate, 37.5% <sup>24</sup>
Severe mental disorders or psychoses	Estimated adherence to antipsychotic medications according to doses, in past month: Adherent (took $\geq 90\%$ of prescribed doses)=40%; Partially adherent (took 30–90% of prescribed doses)=35%; Non-adherent (took $\leq 30\%$ of prescribed doses)=25%; <sup>25</sup> marked improvement defined as IDEAS score reduction of $\geq 41\%$ from baseline=median 46-month rate, 50%; <sup>26</sup> no or mild work-related disability=mean 47 month rate, 59% <sup>27</sup>	Disease stability maintenance: 5 year rate, 90.7%; <sup>28</sup> adherence to three consecutive monthly follow-up: 3-year rate, 94.7%; <sup>29</sup> estimated adherence to antipsychotic medications according to non-adherence, partial adherence, and adherence to treatment=1 month rate, 20–46%; <sup>25</sup> employment=current rate, 26.7% (urban), 93.9% (rural); <sup>12</sup> improved as assessed by the treating clinician=5 month rate, 60.4%; <sup>30</sup> normal functioning and without risk behaviour such as suicide or violent behaviour=1 year rate, 32.2% <sup>13</sup>
Obsessive compulsive disorder	Full remission on YBOCS=5 year rate, 53%; Partial remission on YBOCS=5 year rate, 28% <sup>31</sup>	NA
Substance use disorders	Abstinent rate (no substance use)=10.8 month rate, 58.7% <sup>32</sup>	Retention in treatment=1 month rate, 93.5–94.0%; <sup>33,34</sup> retention in treatment=3 month rate, 69.0–75.0%; <sup>34,35</sup> retention in treatment=6 month rate, 51.3–62.9%; <sup>34,36</sup> dropout (not visited the MMT clinic for at least 1 month before the study completion date)=6 month rate, 62.0%; <sup>27</sup> retention in treatment=12 month rate, 55.2–57.4% <sup>33,34</sup>
Epilepsy	Responders ( $\geq 50\%$ reduction in seizure frequency after treatment)=12 week rate, 94.1%; <sup>38</sup> seizure-free status (no seizures for $\geq 2$ years)=2 year rate, 61.9%; <sup>39</sup> seizure control=1 year rate, 74% <sup>18</sup>	Rate of receiving any AEDs after the Global Campaign Against Epilepsy demonstration project=lifetime rate, 63.4%; <sup>40</sup> rate of receiving reasonable and regular AEDs after the Global Campaign Against Epilepsy demonstration project=lifetime rate, 39.1%; <sup>40</sup> rate of receiving any anti-epileptic treatment after the Global Campaign Against Epilepsy demonstration project=4 year rate, 50.2% <sup>40</sup>

IDEAS=Indian Disability Evaluation Assessment Scale. YBOCS=Yale-Brown Obsessive Compulsive Scale. NA=not known. AED=anti-epileptic drug. MMT=methadone maintenance treatment.

**Table 2: Effective coverage of selected mental disorders in China and India**

## Effective coverage

Nine studies from India and 14 from China contributed findings on effective coverage (table 2). A range of indicators were reported, including receipt of evidence-based interventions, adherence with treatment, retention in care, and clinical and social outcomes. We identified only one study<sup>22</sup> on effective coverage for common mental disorders, from Beijing and Shanghai, which reported that only 24% of individuals received care that met “minimum standards of adequacy” one year before the study (2002–03). Quite a few studies on substance use disorders, epilepsy, and schizophrenia were identified. However, they report highly variable rates of effective coverage in both countries, probably because of variations in the types of participants enrolled, content of the services provided, outcome indicators, and the duration of follow-up.

Studies from both countries report an improvement in functional outcomes and higher rates of employment with effective treatment of schizophrenia.<sup>13,26,27</sup> In China, employment was reported to be much higher for rural rather than urban patients, perhaps an indicator of a lower skill requirement as many of these patients work on family farms.<sup>12</sup> Similarly, for people with substance use disorders, effective treatments reduce risk behaviours and promote abstinence.<sup>32</sup> However, the overall rates of effective coverage tend to be variable and the rates of treatment retention and adherence are low, particularly as the follow-up time increases.<sup>25</sup>

Large-scale programmes in China have shown substantial improvements in effective coverage rates. After the Global Campaign Against Epilepsy demonstration project in five Chinese provinces, the rate of people with a

lifetime history of epilepsy never having received antiepileptic drugs fell from 41% in 2000 to 37% in 2004, and in people with active epilepsy the rate of having received treatment in the week before the survey rose from 37% to 50%.<sup>40</sup> China’s national 686 programme to provide treatment for serious mental disorders was reported to greatly improve effective coverage in the country.<sup>29</sup>

## Health systems response

### Governance and organisation

Nine papers from China<sup>28,41–48</sup> and eight papers from India<sup>49–56</sup> addressed the health system response, in accordance with grey literature. Table 3 summarises the mental health-care systems in the two countries. Both countries have embarked on a restructuring of their mental health-care systems and advocating community-based care. However, health system responses, both across and within the two countries, vary substantially. The centralised governance of health in China potentially leads to greater uniformity in implementation across the country than in India where health systems are largely governed by states. The public sector in China is the major provider of mental health-care, and 86% of the psychiatric beds and close to 70% of all health facilities that provide mental health-care are directly funded by the government.<sup>42</sup> In India, however, the rapidly growing and mostly unregulated private sector is the largest service provider, accounting for more than 70% of general outpatient and 60% of general inpatient care; data specifically for mental health care were not available.<sup>58</sup> The not-for-profit sector of non-governmental organisations (NGOs) in India is also vigorous, unlike in China, and has an important role in mental health

	China	India
Mental health policy or plan availability and implementation status	Available and partially implemented	Available and partially implemented
Latest revision of mental health policy plan	2008	2014
Stand-alone law for mental health availability and implementation status	Available and partially implemented	Available and partially implemented
Latest revision of mental health law	2013	1987
Availability or status of mental health reporting	Mental health data have been compiled for general health statistics in the past 2 years, but not in a specific mental health report	No mental health data have been compiled in a report for policy, planning or management purposes in the past 2 years
Number of psychiatrists per 100 000 people	1.7*	0.3
Number of nurses working in mental health hospitals per 100 000 people	3.1	0.1
Number of mental hospital beds per 100 000 people	16.8	2.1
Total number of mental hospitals	728	43
Mental hospitals per 100 000 people	0.05	0.003
Average number of beds per mental hospital	323	604
Psychiatric beds in general hospitals per 100 000 people†	1	0.8
Admissions rate to mental hospitals per 100 000 people†	67.92	14.5

There was only one data reference resource in India during 2005–14, (the National Survey of Mental Health Resources carried out by the Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India between May and July, 2002). This might explain the minor changes in Indian data on human resources and mental hospital beds across time. \*In both China and India the data on psychiatrists in 2014 were based on psychiatrists at mental hospital only, so there is a possibility of underestimation of the total. All psychiatrists in China need to be registered to a mental hospital or psychiatric ward in a general hospital that provides inpatient service. †Data based on WHO ATLAS 2011.<sup>37</sup> All other data from WHO ATLAS 2014.<sup>41</sup>

**Table 3: Key indicators of mental health services in China and India from ATLAS 2014**

advocacy, rehabilitation, community care, research, capacity building, and providing active support to caregivers.<sup>49</sup> However, mental health services provided by the private sector and NGOs could increase in the future in China, in view of the recent encouragement of private investment in medical care by the Chinese Government.<sup>43</sup>

#### Public mental health-care delivery

The primary government programme in China is the National Continuing Management and Intervention Program for Psychoses, known as the 686 Program, launched in 2004,<sup>28</sup> which reported training of over 10000 psychiatrists (nearly 50% of all psychiatrists in China) and seven times expansion in the national community mental health service network between 2006 and 2011. The National Mental Healthcare System Guidelines (2008–2015) aimed to set up mental health clinics in 60% of primary and middle schools in urban areas by 2015, and provision of mental health-care at the community level in 85% of counties and cities.<sup>44</sup> These objectives were not met, and several of these goals are now reiterated in the National Mental Health Plan for 2015–2020, which also envisages providing rehabilitative services in 70% of the counties by 2020.<sup>45</sup> As an active

step to increase service coverage, China's National Mental Health Law, effective from May, 2013, instructs all general hospitals to provide mental health services and support community-based rehabilitation services.

In India, the primary governmental response has been through the National Mental Health Programme (NMHP), launched in 1982.<sup>59</sup> After initially supporting a few demonstration projects and the state-run mental hospitals, NMHP underwent a paradigm shift, when the District Mental Health Programme (DMHP) was launched in 1996 with the goal of providing community-oriented services. As of April, 2015, the DMHP was expected to cover 241 districts (36% of all districts in the country). When effectively implemented, the programme has successfully reduced use of inpatient mental health services.<sup>60</sup> However, the effectiveness of the programme varies across the states because of restricted funding, shortages of human resources, and low motivation among service providers at all levels.<sup>61,62</sup> In practice, DMHP is largely limited to psychiatric outreach clinics in a few primary health-care centres, and more than 60% of people with mental disorders access care directly at a district hospital, rather than the primary healthcare centres.<sup>61</sup> Access to mental health services in India continues to be a major challenge as up to 40% of patients travel more than 10 km to access DMHP services.<sup>61</sup>

Poor quality of care and violations of human rights, including involuntary admittance to an institution, abandonment by family members, restrictions and isolation, and inadequate living conditions, are long-standing concerns in mental hospitals in both China and India. Brutal practices such as chaining and incarceration, social exclusion, and denial of employment and education are documented in both countries.<sup>46,63</sup> A new mental health law<sup>47</sup> in China mandates voluntary admission and treatment, except in rare instances, and prescribes welfare measures for living, health-care, employment, and community security for people with psychological disorders. Similarly, India's pending draft Mental Health Care Bill 2013<sup>64</sup> seeks to mandate registration of all hospitals admitting people with mental disorders as mental health establishments, improve protection for human rights, and provide free legal aid and a right to complain against deficiencies in care. Welfare measures such as pensions, legal aid, and travel concessions are available for people with schizophrenia and intellectual disabilities through the Persons with Disabilities Act 1995.<sup>65</sup> The effective coverage of the welfare measures, however, remains doubtful in both countries.

#### Availability and distribution of mental health resources

There are 0.3 psychiatrists per 100 000 people in India, which is similar to the average of 0.4 in other lower-middle-income countries and neighbouring countries. However, there are 1.7 psychiatrists per 100 000 people in China, which is better than the average availability in neighbouring countries and upper-middle-income

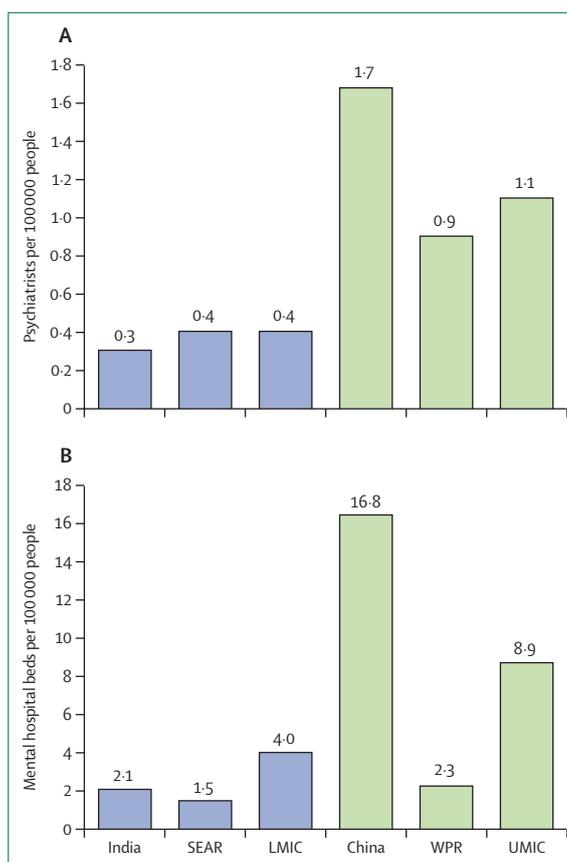
countries<sup>41</sup> (table 3, figure). Decentralisation of planning in the 1980s and investment in expanding mental health services since 2000 has led to a substantial increase in mental health resources in China, which outperforms India on most indicators, for example with eight times more mental hospital beds per person.<sup>44,48,66</sup>

Comparisons between the two countries are confounded by major differences in the quality and definitions of indicators. The most recent data from India is based on the 2002 National Survey of Mental Health Resources.<sup>67</sup> Against a reference standard of 1 psychiatrist, 1·5 clinical psychologists, and 2 psychiatric social workers per 100 000 people, the survey reported a formidable deficit of 77% for psychiatrists, 97% for clinical psychologists, and 90% for psychiatric social workers. This data source is substantiated by two state level assessments of Gujarat and Uttarakhand in 2005,<sup>68,69</sup> indicating that with the exception of some improvement in availability of psychiatrists in Gujarat, the availability of other human resources had not improved in either of the two states since 2002. In China, many psychiatrists lack formal training and in 2013, 29% of registered psychiatrists had only a technical school qualification (ie, three years post high school), and 14% of registered psychiatrists had no academic degree at all.<sup>48</sup> In India, however, all registered psychiatrists have a postgraduate medical degree or an equivalent diploma in psychiatry after completing medical graduation, although psychiatry continues to be a less preferred career choice for most medical students.<sup>50–53</sup> The mental health workforce shortage, particularly in India, is further aggravated by the migration of psychiatrists to high-income countries.<sup>48,54</sup>

The availability of mental health resources varies greatly across regions. In China, Shanghai and Beijing have the most mental hospital beds per 10 000 people, and Tibet and Qinghai have the fewest.<sup>42</sup> By 2012, 550 mental health facilities were either constructed or expanded in China, but most of the mental health facilities continue to be in urban areas and two-thirds of rural counties are still without any mental hospital beds.<sup>42</sup> India has 443 public mental hospitals, but six states, mainly in the northern and eastern regions of the country and with a combined population of 56 million people, are without a single mental hospital, whereas other states have several mental hospitals.<sup>70</sup> NGOs that provide mental health services are also concentrated in the southern and western regions of the country.<sup>71</sup> Most psychiatrists are also located in these states, showing the concentration of psychiatric training facilities.<sup>70</sup>

### Financing mental health-care

Chinese Governmental spending on mental health accounted for only 0·3% of the total governmental health expenditure in 2010.<sup>72</sup> However, the government has committed to increase allocation for mental health to more than ¥0·15 per head nationally and ¥0·5 for economically advanced regions in the Twelfth Five Year Plan (2011–15).



**Figure: Psychiatrists and mental hospital beds in China and India compared with other countries**

(A) Number of psychiatrists per 100 000 people in China and India, compared with median numbers of psychiatrists per 100 000 people in other countries of the Western Pacific Region, World Bank upper-middle-income countries, southeast Asia region, and other lower-middle-income countries. (B) Mental hospital beds per 100 000 people in China and India, compared with median numbers of mental hospital beds per 100 000 people in other countries of the Western Pacific Region, World Bank upper-middle-income countries, southeast Asia region, and other lower-middle-income countries. Median rates for SEAR, LMIC, WPR and MIC calculated after excluding data for India and China. Data from WHO ATLAS 2014.<sup>41</sup> SEAR=southeast Asia region. LMIC=lower-middle-income countries. WPR=western Pacific region. UMIC=upper middle-income-countries.

Further, free mental health services for severe mental disorders are stipulated by the National Mental Health Law (2012).<sup>47</sup> In India, although the funding for NMHP in 1985–90 was only 10 million rupees, the programme enjoyed a substantial increase in funds in the subsequent two 5-year plans (1997–2007).<sup>55</sup> However, the proportion of total health budget that is allocated to mental health still remains very low.<sup>55</sup> In 2012–13, only 1·3% of the expenditure by the Ministry of Health and Family Welfare was spent on the NMHP.<sup>73</sup> State governments also make budgetary contributions; for example, 2–3% of the health budget in Kerala and Gujarat, which might be the highest allocations.<sup>68,69</sup> Despite allocations being low, so-called poor absorptive capacity leads to large under-spending of resources. In 2012–13, only 42% of the total funds allocated for NMHP were spent.<sup>74</sup>

Budget allocations in both countries are disproportionately biased towards tertiary care. In China, in 2010, between 9% and 51% of the government funds for mental health were allocated to provincial mental health institutes, between 2% and 24% were allocated to city-level mental health institutes, and between 1.5% and 36% were allocated to county-level mental health institutions.<sup>75</sup> In 2004–05, 78% of government funds in Kerala and 90% of government funds in Gujarat spent on mental health were spent on state-run mental hospitals (Kerala and Gujarat are two states with some of the most active DMHPs, and where data were available).<sup>68,69</sup> In 2013, 58% of all health-care costs in India were out of pocket for patients compared with 34% in China.<sup>76</sup> The proportion of out-of-pocket expenses might be even higher for mental health-care in India as mental healthcare is not covered by health insurance schemes.<sup>77</sup> In China, mental disorders are covered through all three national insurance programmes.<sup>78</sup> By 2011, 95% of the population in China was reported to have at least some health insurance.<sup>44</sup> The effect of variable insurance coverage on use of mental health-care has been shown in some studies, suggesting the need to equalise depth of insurance coverage.<sup>78</sup>

### Barriers to improving access to care

In both India and China, some demand-side and supply-side barriers contribute to the treatment gap and limit timely access to mental health-care.<sup>79,80</sup>

#### Attitudinal or demand-side barriers

Low perceived need is a substantial barrier to access to care. The World Mental Health Surveys reported that in people with a serious mental disorder and not seeking care in the past 12 months, 99% of the Indians and 87% of the Chinese did not perceive a need for care; the mean corresponding proportion in all other countries was 48%.<sup>80</sup> Even in those who perceive a need to seek care, other attitudinal barriers hamper access to care. In a 2010 study in metropolitan China,<sup>81</sup> 83% of individuals with anxiety, mood, and alcohol use disorders reported attitudinal or demand-side barriers and 47% reported structural or supply-side barriers. Cultural factors result in different explanatory models that vary across disorders,<sup>82–86</sup> affecting patients' treatment choices. In most communities explanatory models for severe mental disorders, particularly those that result in acute and disruptive behaviours, judge the causes as biomedical in origin and most affected individuals and their families seek help from the biomedical health-care sector.<sup>87</sup> On the other hand, dementia is deemed a part of natural ageing by most communities in both China and India, and people do not often seek help from biomedical services in either country.<sup>88,89</sup>

Studies in general hospitals in northern China<sup>90,91</sup> report a smaller proportion of people with mental disorders seeking help from psychiatric service, initially (17% in

rural areas and 25% in urban areas), mainly because almost all of these people and their family members had poor knowledge of mental disorders or were concerned about the stigma associated with seeking care from a psychiatric service. Compared with people with schizophrenia from the USA, both insight and favourable attitudes towards medication were significantly lower in China.<sup>92</sup> Paucity of knowledge about mental disorders has been shown to predict discontinuation of antipsychotic drugs in people with psychotic disorders.<sup>25</sup> Results of studies from India<sup>87</sup> report that the most common explanatory models of causation are influenced by sociocultural beliefs and values that often encourage people to seek care at religious centres. When people do consult biomedical providers, a general physician is the first point of contact, and patients might consult several care providers before visiting a mental health professional.<sup>93</sup> Demand-side barriers thereby greatly affect patients seeking help in both countries, often leading people to favour self-help or traditional care.<sup>3,89,94–99</sup>

Primary care doctors can help address gaps in accessibility, but studies in both countries reported that primary health-care doctors are often inadequately trained, and reluctant or unable to detect, diagnose, or manage common mental disorders.<sup>20,100–105</sup> Furthermore, as reported by up to a third of respondents in studies in India<sup>53,106–108</sup> staff at public hospitals might harbour discriminatory attitudes towards people with mental disorders. Even when patients wish to seek care and have access to providers, the high out-of-pocket costs of mental health services might limit their access to care. One study from India<sup>109</sup> showed that depression in women was much more likely than anaemia or reproductive tract infections to be associated with the risk of catastrophic health-care costs. A retrospective study from Sichuan Province (China) in 2008<sup>110</sup> reported that the annual direct cost for epilepsy was US\$483 (the per head income in China that year was \$697 in rural areas and \$2309 in urban areas). In India, in 2010, the total direct and indirect cost of caring for a family member with dementia was estimated to be \$925,<sup>111</sup> nearly as much as the \$1205 annual per head income in 2010.<sup>112</sup>

A nationwide survey in China,<sup>113</sup> done before the scale-up of the national health insurance scheme, showed that absence of medical insurance coverage and lower annual family income were associated with reduced use of mental health services in adults with a mental disability.<sup>113</sup> No systematic assessment has yet been done on the effect of the new national health insurance scheme on the use of mental health services.

### Innovations to improve access to care

A major strategy for addressing workforce shortages has been the use of task-sharing. Growing evidence has shown that non-specialists can be trained to identify, diagnose, and treat people with mental health problems, improving adherence and clinical outcomes in a range of

mental disorders.<sup>17,26,110,114</sup> For example, a programme in Haryana, India, used peer educators to lead outreach activities for male drug users. In this programme, the proportion of injecting drug users who shared needles substantially decreased, particularly in those who attended three sessions or more.<sup>115</sup> Task-sharing was also used to provide psychosocial care to at-risk populations after the 2004 tsunami in India.<sup>116</sup> In India, randomised controlled trials<sup>117,118</sup> for the management of common mental disorders, including psychoses, showed the effectiveness of collaborative care involving task-sharing of front-line care with non-specialist workers who are supervised by primary care physicians or psychiatrists. However, the evidence is not consistent across studies; a collaborative care programme in China<sup>119</sup> did not find a significant improvement in preventing anxiety and depression, which the authors attributed to the small sample size and the focus on sub-threshold symptoms. Other innovations have included the empowerment of people with mental disorders through self-help groups, family associations, and advocacy groups.<sup>26,120</sup>

Intersectoral programmes have also shown substantial promise. A WHO collaborative care study<sup>17</sup> on epilepsy in India tested a four-pronged delivery model with separate training sessions for various providers (including faith healers) to increase knowledge about epilepsy, an intensive community awareness campaign, treatment programme consisting of regular supply of anti-epileptic drugs, and continuous follow-up by local medical practitioners. This study showed the importance of engaging and working with faith healers without threatening their practices, and implementing a community awareness campaign to change help-seeking attitudes. Similarly, implementation of the Global Campaign Against Epilepsy demonstration project in five Chinese provinces led to significant improvements in the levels of effective coverage.<sup>40</sup>

In both China and India, the use of less stigmatising terms, rather than the psychiatric diagnoses, has been shown to reduce the stigma associated with mental disorders and enhance help-seeking. For example, neurasthenia was a well accepted, non-stigmatising term for psychological symptoms that was widely used in China from the 1950s to the 1980s.<sup>121</sup> Innovative approaches to improve access to psychological treatments for common mental disorders in India have adopted similar strategies, eschewing the use of diagnostic labels such as depression in favour of more widely acceptable constructs related to tension, and stress.<sup>85</sup> Training programmes for community-based mental health workers also help reduce their stigma towards people with mental disorders.<sup>101</sup>

Technology creates opportunities for extending mental health services to remote areas. One example is the mobile tele-psychiatry programme run by the Schizophrenia Research Foundation in Tamil Nadu, India, which enables specialists from urban areas to supervise non-specialist

workers and to provide consultations for people living with schizophrenia in rural areas through a mobile tele-psychiatry unit, which consists of a consultation room with video conferencing.<sup>122</sup> Most of the innovations in India have been initiated by NGOs; these innovations need to be scaled up in government-run health services.

## Discussion

This Series paper describes the first systematic effort to review the unmet mental health needs for adults with priority mental disorders in China and India. Evidence shows that contact coverage for common mental disorders and alcohol use disorders, which together account for more than 60% of the mental health related burden of disease in the two countries, is very low.<sup>123</sup> Effective coverage is even lower, not only for common disorders but also for severe problems such as psychotic disorders and epilepsy. Results of a 14-year follow-up study (1994–2008)<sup>124</sup> of people with schizophrenia in two provinces in China suggest that nearly 20% had not received any drugs at the end of follow-up in 2008, and health outcomes were worse in the untreated group compared with those who received some treatment. In fact, the levels of treatment coverage for mental disorders in both countries are far lower than for any key maternal and child health interventions, or even interventions for non-communicable diseases.<sup>11,125,126</sup> The largest treatment gaps are in rural regions and result from inequities in the distribution of mental health resources and variable implementation of mental health policies across states and provinces. A large proportion of people seek care from traditional and faith healers, particularly for psychoses and epilepsy, often delaying biomedical care.<sup>3</sup>

Both countries are well advanced in their demographic and epidemiological transition and, with concomitant rapid social change, will witness a continuing increase in the burden of mental disorders in the years to come. Because most people with mental disorders continue to stay with their families, family members are generally the primary care givers. However, with changing family norms, these caring systems are under increasing strain. Mental health programmes in both countries provide little recognition and support to address the caregiver burden. Furthermore, the elderly population is increasing rapidly in both India and China.<sup>127</sup> Both countries therefore need to actively incorporate interventions to address dementia, including psychological therapy in health programmes for elderly people and family caregiver burden associated with dementia and other mental disorders.

Both India and China have embarked on ambitious plans to reform their health-care systems, with greatly increased investment in mental health-care, but China seems to have made far more impressive strides in achieving higher rates of coverage and building mental health resources than India. In fact, the Chinese Government urges an 80% increase of treatment coverage for patients with psychotic disorders and a 50%

increase of treatment coverage for patients with depressive disorders in the next 5 years.<sup>45</sup> In part, this difference could be explained by the historical differences in the development of psychiatry and mental health care in the two countries, strong central government in China, the recognition of social sectors of education and health as crucial for social harmony and economic development,<sup>128</sup> and increasing concerns and awareness of mental health problems among the public.

Although the poor performance in India is in part because of low political will to specifically support mental health care, a major factor is the predominant orientation of the public health-care system towards addressing acute health disorders and the very low levels of public investment in health care.<sup>58</sup> The launch in India of the first national mental health policy in October, 2014, generated much enthusiasm towards improving mental health-care in the country, but the reduction in the government budget for healthcare and social sectors, and impasse on Mental Health Care Bill 2013, could negatively affect public programmes for mental health-care. Further, the burgeoning private sector in India has so far resisted investing in services for mental healthcare as these services are largely deemed unprofitable. This was also true in China in the 1980s and 1990s, when the unprofitability of mental health services resulted in shutdowns of community mental health centres as hospitals had to sustain themselves. However, the substantial new investment in mental health by the Chinese Government since 2000 by the identification of mental disorders as one of the priority non-communicable diseases gives hope that the gap in mental health care in the country will gradually shrink. Similarly, in India, the renewed attention on universal health assurance, combined with the specific policy attention to chronic diseases, including mental disorders, promise a higher likelihood of attainment of mental health service goals in the future.<sup>58</sup>

This Series paper has some limitations, not least the fact that neither China nor India are making any systematic attempt to incorporate indicators related to mental health in the health information systems. This is shown in the data on coverage, which are non-representative, have highly variable results, and are often of poor quality, and in the data on health system, which are fragmented, out-of-date, and include no reliable information about psychiatric care provided outside of government-run specialised psychiatric hospitals. National or regional surveys such as the National Mental Health Survey in both India and China might address some of these data gaps, but ultimately it is essential for both countries to routinely collect, process, analyse, and disseminate data based on a core set of indicators to monitor their progress towards the implementation of the WHO Mental Health Action Plan 2013–2020 targets.<sup>1</sup> The need for regular, up-to-date information on mental health systems in both countries cannot be over-emphasised.

Although both countries have shown renewed commitments to mental health care, this is not matched either by adequate resource allocations or by strengthened governance of mental health care, especially in India. Further, there are almost no preventive programmes targeted at common mental disorders, except a few activities aimed at improving mental health literacy, and reducing stigma and discrimination against people with mental disorders in both countries. Sharing tasks with community-based workers within collaborative systems is a care delivery model that could be scaled up to improve access in an affordable and contextually sensitive way. Integration of mental health with the care of other chronic disorders and in primary care offers an important opportunity for building on efficiencies that are needed to re-engineer health-care delivery systems to address these disorders.<sup>129</sup> Both India and China need to invest in increasing demand for services through active engagement with local communities by promoting service user leadership and by ensuring that the content and delivery of mental health programmes are adapted to be culturally appropriate for each target community. Both countries need to take immediate steps to enhance the availability and equitable distribution of mental health specialists, who have crucial roles in the mental health-care system, including as members of the collaborative care team and in the front-line care of people with acute and severe mental disorders.

Implementation research needs to assess the comparative effectiveness of different approaches for assuring the quality of primary care and community health worker-delivered mental health intervention, for example the accuracy with which these providers are able to identify mental disorders and the competency with which they deliver psychosocial interventions. However, the key in both countries is to translate political commitment into more effective governance and accountability that promote the implementation of evidence-based approaches to addressing the supply and demand barriers to the use of mental health services. If these countries are able to address their unmet needs, this will have substantial implications, not only for a large portion of the worldwide population but also as an inspiration for other low-income and middle-income countries.

#### Contributors

VP, SX, BGD, and SS designed the structure of the paper, provided oversight on data collection and synthesis, and led the drafting of the paper. ATJ developed the search strategy and did the database search. CH, RP, ES, SU, DL, and YY selected, reviewed eligible reports and extracted data, and prepared drafts of specific sections under the supervision of the senior authors. All authors have read and approved the final draft submitted to the journal.

#### Declaration of interests

We declare no competing interests.

#### Acknowledgments

The China-India Mental Health Alliance, which is jointly coordinated by the Shanghai Jiao Tong University and the Public Health Foundation of India, supported the multinational collaboration that made this paper possible. The activities of the Alliance have been supported by a grant

from the China Medical Board and by technical assistance from WHO, Emory University, the London School of Hygiene & Tropical Medicine, and Harvard University. VP is supported by a Wellcome Trust Principal Research Fellowship in Clinical Science. SX is supported by a China Medical Board grant. RP is supported by Vanderbilt-Emory-Cornell-Duke (VECD) Fogarty Global Health Fellowship.

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