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ORIGINAL PAPER

The relationship between socio-economic status and mental health funding, service provision and national policy: a cross-national study

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A recent editorial in *International Psychiatry* (Cox, 2008) described the importance of a new initiative by the *Lancet* (Horton, 2007) to promote the development and delivery of mental health services and treatments in low- and middle-income countries (LMICs). This initiative was supported by a series of outstanding papers (Chisholm et al, 2007; Jacob et al, 2007; Patel et al, 2007; Saraceno et al, 2007; Saxena et al, 2007).

The availability of generic mental health services in individual countries is contingent upon several factors. First, there is a need for a national mental health policy (Jacob et al, 2007; Saxena et al, 2007). Although 80% of countries had a national mental health policy, LMICs were less likely to have one (Jacob et al, 2007). Second, there is a need for a national plan for the implementation of that policy (Saxena et al, 2007). Third, mental health services actually need to be developed and delivered (Saxena et al, 2007). LMICs, compared with high-income countries (HICs), have poor resources, including fewer psychiatric beds and fewer doctors, nurses, psychiatrists and other mental health professionals (Jacob et al, 2007), per head of population. Fourth, the availability of effective and cost-effective treatment interventions is important in the design, development and delivery of mental health services (Chisholm et al, 2007; Patel et al, 2007). All these sequential steps are underpinned by satisfactory funding (Jacob et al, 2007; Saxena et al, 2007). LMICs, compared with HICs, spend a lower proportion of their gross domestic product (GDP) on health, are less likely to have a dedicated mental health budget and, when such a dedicated budget exists, it forms a lower proportion of the total health budget (Jacob et al, 2007; Shah, 2007).

The five seminal *Lancet* papers primarily used the World Bank categorisation of LMICs and HICs as a categorical variable in their data analyses. Similar analyses are repeated in this study instead using GDP (a continuous variable) as

a measure of socio-economic status. Additionally, similar analyses were repeated using a measure of income inequality, the Gini coefficient.

Methods

Data on GDP for the year 2002 were taken from the website of the World Health Organization (WHO) (<http://www.who.int/countries/en>). The website of the United Nations Development Programme (<http://hdr.undp.org/en/reports/nhdr>) provided data on the Gini coefficient; a higher Gini coefficient suggests greater income inequality. The median (range) year when the latest data on the Gini coefficient were available was 2000 (range 1983–2003).

Box 1 lists the precise parameters examined for national policy on mental health, funding for mental health services and mental health service provision. Data on mental health funding, service provision and national policy were ascertained from the Mental Health Atlas 2005 (<http://www.who.int/GlobalAtlas>) published by the WHO.

The relationship between GDP and the Gini coefficient and the continuous variables (see Box 1) was examined using Spearman's rank correlation coefficient (ρ). The relationship between GDP and the Gini coefficient and the dichotomous variables (see Box 1) was examined using the Mann–Whitney *U*-test (reported below with the *Z* statistic).

Results

A total of 192 countries were listed on the WHO website. Data on the different measured parameters were available for a median (range) of 187 (100–191) countries. With the exceptions of the Gini coefficient ($n = 125$) and percentage of the health budget spent on mental health ($n = 100$),

Box 1 Parameters of mental health funding, service provision and national policy

A. National policy on mental health

1. Presence of a national mental health policy
2. Presence of a national mental health programme
3. Presence of mental health information-gathering system
4. Presence of substance misuse policy
5. Presence of mental health legislation
6. Presence of national therapeutic drug policy and essential list of drugs

B. Funding mechanisms for mental health

1. Presence of a specific budget allocation for mental health
2. Percentage of the total health budget spent on mental health

C. Service provision

1. Total number of psychiatric beds per 10 000 population
2. Number of psychiatric beds in mental hospitals per 10 000 population
3. Number of psychiatric beds in general hospital per 10 000 population
4. Number of psychiatric beds in other settings per 10 000 population
5. Number of psychiatrists per 10 000 population
6. Number of psychiatric nurses per 10 000 population
7. Number of psychologists per 10 000 population
8. Number of social workers per 10 000 population
9. Mental health being part of primary healthcare system
10. Availability of acute treatment for severe mental disorders in primary care
11. Availability of mental health training to professionals in primary care
12. Availability of community care for mental health
13. Involvement of non-governmental organisations in mental health
14. Availability of special programmes for the elderly
15. Availability of special programmes for children
16. Availability of special programmes for refugees and displaced people

Items A1–6, B1 and C9–16 were categorical variables measured as present or absent. Items B2 and C1–8 were continuous variables.

data on all other parameters were available for at least 165 countries (86%).

GDP was significantly higher in countries with a national policy on mental health ($Z = -2.4$, $P = 0.015$), a national substance misuse policy ($Z = -3.2$, $P = 0.003$), mental health legislation ($Z = -2.2$, $P = 0.03$) and a mental health information-gathering system ($Z = -2.7$, $P = 0.006$); it was significantly lower in countries with a national therapeutic drug policy and essential list of drugs ($Z = -3.7$, $P < 0.00001$). There was no significant relationship between GDP and the presence of a national mental health programme.

The Gini coefficient was significantly higher in countries with a national mental health programme ($Z = -1.98$, $P = 0.047$) and was significantly lower in countries with a mental health information-gathering system ($Z = -1.95$, $P = 0.052$). There was no significant relationship between the Gini coefficient and the presence of national policy on mental health, mental health legislation and national therapeutic drug policy and essential list of drugs.

GDP was significantly higher in countries with a specific budget allocation for mental health ($Z = -2.3$, $P = 0.023$). There was a significant positive correlation between GDP and percentage of the total health budget spent on mental health ($\rho = +0.48$, $P < 0.00001$). There was no significant

Table 1 The relationship between GDP, the Gini coefficient and some measures of service provision

	GDP	Gini coefficient
Total number of psychiatric beds		
Rho	+0.48	-0.43
P	< 0.00001	< 0.00001
Number of psychiatric beds in mental hospitals		
Rho	+0.51	-0.42
P	< 0.00001	< 0.00001
Number of psychiatric beds in general hospitals		
Rho	+0.53	-0.49
P	< 0.00001	< 0.00001
Number of psychiatric beds in other settings		
Rho	+0.2	-0.33
P	0.009	0.001
Number of psychiatrists		
Rho	+0.75	-0.45
P	< 0.00001	< 0.00001
Number of psychiatric nurses		
Rho	+0.62	-0.5
P	< 0.00001	< 0.00001
Number of psychologists		
Rho	+0.67	-0.19
P	< 0.00001	0.038
Number of social workers		
Rho	+0.67	-0.2
P	< 0.00001	0.047

relationship between the Gini coefficient and a specific budget allocation for mental health. There was a significant negative correlation between the Gini coefficient and the percentage of the total health budget spent on mental health ($\rho = -0.43$, $P < 0.00001$).

Table 1 illustrates the relationship between GDP, the Gini coefficient and several measures of service provision. There were significant positive correlations between GDP and the total number of psychiatric beds, the number of psychiatric beds in mental hospitals, the number of psychiatric beds in general hospitals, the number of psychiatric beds in other settings, the number of psychiatrists, the number of psychiatric nurses, the number of psychologists and the number of social workers. GDP was significantly higher in countries where mental health was part of the primary healthcare system ($Z = -3.6$, $P < 0.00001$), acute treatment for mental disorders was available in primary care ($Z = -2.65$, $P = 0.008$), community care was available ($Z = -5.56$, $P < 0.00001$), non-governmental organisations were involved in mental health ($Z = -2.6$, $P = 0.009$) and special programmes for the elderly ($Z = -6.9$, $P < 0.00001$) and children ($Z = -4.48$, $P < 0.00001$) were available. GDP was not significantly associated with the availability of regular training in mental health for primary healthcare professionals and special programmes for refugees.

There were significant negative correlations between the Gini coefficient and the total number of psychiatric beds, the number of psychiatric beds in mental hospitals, the number of psychiatric beds in general hospitals, the number of psychiatric beds in other settings, the number of psychiatrists, the number of psychiatric nurses, the number of psychologists and the number of social workers (Table 1). The Gini coefficient was significantly lower in countries where regular training in mental health was available to primary healthcare

professionals ($Z = -2.46$, $P = 0.016$) and special programmes for children ($Z = -1.92$, $P = 0.055$) and refugees ($Z = -2.26$, $P = 0.024$) were available. The Gini coefficient was not significantly associated with mental health being part of the primary healthcare system, availability of acute treatment for mental disorders in primary care, availability of community care, involvement of non-governmental organisations in mental health, and special programmes for the elderly.

Discussion

The findings of this study, using a different methodological approach, are consistent with the findings reported in the *Lancet* series of papers (Jacob *et al*, 2007; Patel *et al*, 2007; Saraceno *et al*, 2007; Saxena *et al*, 2007). The current findings were that higher GDP was associated with the presence of national mental health policy, national substance misuse policy, mental health legislation and a mental health information-gathering system, mental health being part of the primary care system, treatment for mental disorders being available in primary care, availability of community care, involvement of non-governmental organisations in mental health, higher percentage of the health budget spent on mental health, and greater density of psychiatric beds, psychiatrists, psychiatric nurses, psychologists and social workers. Additionally, albeit previously unreported, broadly similar associations were observed with greater income inequality (measured by the Gini coefficient). Thus, in addition to the socio-economic status of countries, the degree of income inequality may also influence the development and delivery of mental health services. This is an important observation because it does not necessarily follow that lower socio-economic status implies greater income inequality.

The challenge for international organisations, including the WHO, the World Psychiatric Association and the World Bank, and for national governments, is to encourage fair and

equitable mental healthcare budgetary provision and the development of national mental health policies, including mental health legislation, with effective national implementation programmes in both LMICs and in countries with greater income inequality. This will require political will to give mental healthcare priority and support through satisfactory funding, although it may be difficult to achieve owing to poor socio-economic status, income inequality and different healthcare sectors competing for scarce resources. Otherwise, vulnerable patients with mental disorders, who are more likely to be at the receiving end of the effects of poor socio-economic status and greater income inequality, will continue to suffer in silence. The recent initiative by the *Lancet* (Horton, 2007) will no doubt assist in meeting this challenge.

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SPECIAL PAPER

Fairness, liberty and psychiatry

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According to Beauchamp & Childress (2001) the fundamental principles of biomedical ethics include 'justice'. But how do we approach 'justice'? Justice may be thought of in relation to an individual or society. An individual may be just or unjust. Justice in society may be thought of as 'retributive justice' (fair punishment), 'civil justice' (fair recompense), 'distributive justice' (fair shares) or 'social justice' (a fair social contract for citizens of a society).

The present paper introduces *A Theory of Justice* (1972), written by John Rawls (1921–2002), which looks at social justice. Because Rawls' first principle of justice is the 'liberty principle', some thoughts on liberty are also offered. The aim

is not to be comprehensive but to stimulate further interest and debate in these issues among psychiatrists. A more extensive summary of Rawls' theory has been provided by Ikkos *et al* (2006).

John Rawls' theory of justice

The two fundamental principles of social justice, according to Rawls, are the 'liberty principle' and the 'difference principle':

- according to the liberty principle, 'Each person [should] have equal right to the most extensive system of equal