

Under-treatment of people with major depressive disorder in 21 countries

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Abstract

Background

Major depressive disorder (MDD) is the 2nd leading cause of years lived with disability in the world. Addressing this problem clinically requires an understanding of at least four separate epidemiological parameters that we consider here: (i) the 12-month prevalence of DSM-IV MDD in the population; (ii) the proportion of these people who are aware that they have a problem serious enough to need treatment and who want to receive care; (iii) the proportion of the latter who receive treatment; and (iv) the proportion of such treatment that meets minimal standards for adequacy. We examine the relative importance of these parameters in the current report.

Methods

Data come from representative community household surveys carried out in 21 countries as part of the WHO World Mental Health Surveys.

Findings

Among the 51,547 respondents, 4.6% met 12-month criteria for DSM-IV MDD; prevalence was higher in high income (5.2%) than upper-middle income (4.7%) or low/lower-middle income (3.2%) countries. An average of 56.7% respondents with 12-month MDD reported that they perceived themselves as needing treatment. This recognition was more common in high income (64.9%) than in either upper-middle income (52.2%), or lower in low/lower-middle income (34.6%) countries. Among those who recognised their need for treatment, most (71.1%) made at least one visit to some type of service provider, although again with a gradient much higher in high income (77.9%), than upper-middle income (59.6%), or low/lower-middle income (52.6%) countries. Among those who received any treatment, finally, only 41.0% received treatment of a type and intensity that met minimal standards of treatment adequacy (44.2% in high, 36.7% in upper-middle, and 20.5% in low/lower middle income countries). The joint effects of lack of perceived need, receiving no treatment, and low treatment quality resulted in only 16.5% of all individuals with 12-month MDD receiving minimally adequate treatment (about one in six people), from a high of 22.4% in high income countries to 11.4% in upper-middle income countries and 3.7% in low/lower-middle income countries.

Interpretation

Among people with MDD in the 21 countries studied, only a minority received minimally adequate treatment: 1 in 5 people in high income countries, 1 in 9 in upper-middle income countries, and 1 in

27 in low/lower-middle income countries. Efforts to increase adequate treatment need to address the problems of low patient recognition of their depression, low initiation of treatment among those with this recognition, barriers to accessing care, and low treatment adequacy, each of which requires distinct intervention. Scaling up care for people with depression is an imperative and requires fundamental transformations in community education and outreach, supply of treatment, and quality of services.

Key words

Major depression, major depressive disorder, prevalence, recognition, treatment coverage, effective coverage, global mental health, scaling up.

Introduction

The Global Burden of Disease (GBD) 2010 Study indicated that major depressive disorder (MDD) ranked as the 2nd leading cause of years lived with disability in the world and the 1st-4th leading cause (out of nearly 300 considered) in each region of the world (1). These high estimates are due to MDD having both high prevalence (estimated by the GBD 2010 investigators to be the 19th most common disease in the world) (1), and high severity, and a relatively high proportion of cases with long illness duration (2-4).

Only a minority of people with MDD receive any treatment, despite MDD being a leading cause of disability that also significantly worsens the impact of comorbid non-communicable diseases (NCDs) (5, 6). There is an increasing awareness that MDD can be reliably diagnosed and treated in primary care settings using anti-depressant medications and/or brief structured psychological therapies (7), but substantial barriers exist to this care being delivered. These include supply-side factors (e.g. policies to invest resources, and consequent scarce mental health services, community and human resources), as well as demand-side issues (e.g., lack of awareness of MDD as a treatable illness, and stigma and social exclusion associated with lower rates of help-seeking) (8, 9). Substantial economic costs occur both to people with MDD (10), and to society (11), because of low rates of treatment and recovery (12).

In this context, the aim of this paper is to present findings from the World Mental Health (WMH) Surveys quantifying: (i) the 12-month prevalence of DSM-IV MDD in household surveys in 21 countries worldwide; (ii) the proportion of those people who are aware that they have a problem serious enough to need treatment and who believe that treatments exist that could help them; (iii) the proportion of the latter individuals who actually receive treatment ('contact coverage'); and (iv) the proportion of this treatment that meets minimal standards for adequacy.

Methods

Sample

Data come from the WHO World Mental Health (WMH) surveys, a series of 23 community epidemiological surveys administered in 21 countries. These included 10 countries classified by the World Bank (World Bank, 2009) as low or middle income (Brazil, Bulgaria, Colombia, Iraq, Lebanon, Mexico, Nigeria, Peoples Republic of China [PRC], Peru, and Romania) and 11 high income (Argentina, Belgium, France, Germany, Israel, Italy, Japan, Netherlands, Portugal, Spain, and the United States). The majority of surveys were based on nationally representative

household samples. Two were representative of all urban areas in their countries (Colombia, Mexico). Two were representative of selected regions in their countries (Japan, Nigeria). And a final 4 were representative of selected Metropolitan Areas in their countries (Sao Paulo in Brazil; Medellin in Colombia; Murcia in Spain; Beijing-Shanghai in PRC).

Trained lay interviewers administered the interviews face to-face in the homes of respondents aged 18 years or older and assessed MDD using a fully-structured diagnostic interview that produces validated diagnoses of common DSM-IV disorders. Standardized interviewer training and quality control procedures were used in each survey. Interviews were administered face-to-face by trained lay interviewers in respondents' homes. Informed consent was obtained before administering interviews. The institutional review boards of the organizations coordinating the surveys approved and monitored compliance with procedures for informed consent and protecting human subjects. Full details of the WMH Survey methodology are available elsewhere (13).

To reduce respondent burden, the interview was divided into two parts. Part I, which assessed core mental disorders including MDD, was administered to all respondents. Part II, which assessed additional disorders and correlates including service use, was administered to all Part I respondents who met criteria for any Part I disorder plus a probability subsample of other Part I respondents. Part II interviews, the focus of the current report, were weighted by the inverse of their probabilities of selection into Part II and additionally weighted to adjust samples to match population distributions on the cross-classification of key socio-demographic and geographic variables. Further details about WMH sampling and weighting are available elsewhere (13).

Measures

Mental disorders: Mental disorders were assessed with the WHO Composite International Diagnostic Interview (CIDI) Version 3.0, (14), a fully-structured lay-administered interview generating lifetime and 12-month prevalence estimates of 20 mood, anxiety, behavior and substance use disorders.

The WMH CIDI interview translation, back-translation, and harmonization protocol required culturally competent bilingual clinicians to review, modify, and approve key phrases describing symptoms (15). However, no attempt was made to go beyond DSM-IV criteria to assess

depression-equivalents that might be unique to specific countries. The latter expansion might have led to a change in results, although previous research has shown that the latent structure of major depression is quite consistent across countries (16-18). Blinded clinical reappraisal interviews with the Structured Clinical Interview for DSM-IV (SCID) (19) were carried out in four WMH countries. Good concordance was found with diagnoses based on the CIDI (20).

MDD was defined as meeting lifetime DSM-IV/CIDI criteria for major depressive episode (MDE) and not meeting lifetime DSM-IV/CIDI criteria for broadly-defined bipolar disorder (bipolar I-II or sub-threshold). As detailed elsewhere (21), our definition of sub-threshold bipolar disorder includes both hypomania without history of MDE and sub-threshold hypomania with history of MDE.

Treatment: Respondents were asked if they ever obtained professional treatment for “problems with their emotions, nerves or use of alcohol or drugs” and, if so, if they did so in the past 12 months. Those with 12-month treatment were asked if they saw a mental health specialty treatment provider (psychiatrist, psychologist, other mental health professional in any setting, social worker or counselor in a mental health specialty treatment setting, used a mental health hotline), general medical treatment provider (primary care doctor, other general medical doctor, any other health care profession seen in a general medical setting), or non-medical treatment provider (religious or spiritual advisor, social worker or counselor, any other type of healer) for a mental health problem. The treatment provider categories offered were the same across countries. A more detailed description of WMH 12-month treatment measures is presented elsewhere (22).

The analyses reported here focus on respondents who met DSM-IV criteria for MDD at some time in the 12 months before interview. The definition used of minimally adequate treatment was that of Wang et al (for full details see 22), using evidence-based guidelines (23-25) that consisted of receiving either pharmacotherapy (≥ 1 month of a medication, plus ≥ 4 visits to any type of medical doctor) or psychotherapy (≥ 8 visits with any professional including religious or spiritual advisor, social worker or counselor). The decision to have four or more physician visits for pharmacotherapy was based on the fact that for medication assessment, initiation, and monitoring, four or more visits are generally recommended during the acute and continuation phases of treatment. We required at least eight sessions for psychotherapy based on the fact

that clinical trials showing efficacy have generally included eight or more visits. Any respondent in continuing treatment was regarded as having met this definition.

Statistical analyses

Survey sampling weights were applied in all analyses so that respondents reflected nationally representative samples in terms of sociodemographic characteristics within each country. Standard errors were estimated using the Taylor series linearization method implemented in the SAS software survey procedures to adjust weighting and clustering (26). To test for differences between high income, upper-middle income, and lower-middle and low income country groups, in relation to the key variables of interest related to the aims of the paper, χ^2 tests were applied. Statistical significance was evaluated using two-sided 0.05-level tests.

Results

The characteristics of the study sites are shown in Table 1. The weighted average response rate across all countries was 71.2%. A total of 51, 547 respondents were assessed for 12-month MDD and treatment.

(Table 1 about here)

Prevalence rates. Across all countries, an average of 4.6% of respondents met 12-month criteria for DSM-IV/CIDI MDD (see Table 2). As in most community epidemiological surveys, MDD prevalence was higher in high income (5.2%), than upper-middle income (4.7%), or low/lower-middle income (3.2%) countries. Given what we know about sample bias, reporting bias, and CIDI validity, these are likely conservative estimates.

(Table 2 about here)

Recognition of need for treatment. An average of 56.7% respondents with 12-month MDD across surveys reported that they recognized that they needed treatment. It is noteworthy that this recognition is greater in high income (64.9%), than upper-middle income (52.2%) countries and is substantially lower in low/lower-middle income countries (34.6%). This means that only one out of every three people with depression in low/lower-middle income countries recognized a need for treatment.

Obtaining treatment once need is recognized. Among depressed people who recognised their need for treatment, most (71.1%) received at least one visit to some service provider for their

emotional problems (including visits to religious advisors or traditional healers). Again, there was a gradient, with the treatment proportions being much higher in high income (77.9%), than upper-middle (59.6%), or low/lower-middle income (52.6%) countries.

Treatment adequacy. Among patients who received treatment, 41.0% met criteria for minimally adequate treatment, again with a gradient by country income (44.2%, 36.7%, and 20.5%, respectively in high, upper-middle, and low/lower-middle income countries). Among people with MDD (i.e. those who did or did not receive treatment) only 16.5% received minimally adequate treatment (22.4%, 11.4%, and 3.7%, respectively, in high, upper-middle, and low/lower-middle income countries).

The results for differences between high income, upper-middle income, and lower-middle and low income country groups showed that all countries within an income group were significantly different from other country groups at the $p < 0.001$ level for all of the 5 treatment related variables shown in Table 2 namely: 12 month prevalence of MDD; perceived need for treatment; any treatment received in 12 months; and the two measures of minimally adequate treatment.

Discussion

These results show that several different classes of barriers exist to people with MDD receiving minimally adequate treatment and that the combined effect of these barriers is that only a small minority of people with MDD receive minimally adequate treatment.

Several limitations of this study need to be kept in mind in interpreting these results. The response rates in the WMH surveys varied widely and included some response rates which fell below levels usually considered acceptable. We attempted to control for differential response through post-stratification adjustments, but it remains possible that survey response was related to the presence and severity of mental disorders or treatment in ways that were not corrected.

A second potential limitation is that the reliability and validity of diagnoses made with the WMH CIDI may vary across countries. Although acceptable concordance has been observed between diagnoses made with the CIDI compared to blinded clinical re-interviews, such studies have been conducted exclusively in Western countries. It remains possible that the accuracy of CIDI diagnoses could be worse in other countries. One distinct possibility is that there may be a lower relevance of CIDI symptom descriptions in non-Western cultures or greater reluctance to disclose or endorse having emotional problems. For example, some people with a major depressive episode might not have experienced this as primarily emotional, and may rather have understood

this as disordered sleep or as somatic distress.

Third, without corroborating data on service use we cannot determine the accuracy of self-reported treatment use or how this validity may differ across specific sectors or clinical, socio-demographic, and cultural groups. WMH surveys attempted to minimize such inaccuracies by using commitment probes (i.e., questions measuring a subject's commitment to the survey) and excluding respondents who failed to endorse that they would think carefully and answer honestly. Nevertheless, potentially biased recall of service use remains possible and may have led to underestimation of unmet need for treatment. Finally in spite of the unprecedented scope and size of the WHO WMH survey initiative, some analyses involved small numbers of respondents, leading to imprecision of some estimates.

Fourth, there were diminishing response rates within countries as income increases. As many of the results are discussed in terms of income categories, this is a potential confounding factor for the findings. It is possible that the differences across income categories are actually a reflection of greater selection bias in high-income countries, with participants with greater service use potentially being more likely to respond to the survey.

Fifth, some of these surveys were conducted over a decade ago, and it is possible that treatment rates in these countries may have changed substantially since. We consider this unlikely however, since periodic data on service provision collected for WHO ATLAS and AIMS purposes shows relatively few such changes over the recent decade

Within these constraints, the results support previous reports in identifying a large 'treatment gap' for people with MDD (28, 29). Notably the overall prevalence rates of MDD are somewhat greater in high than in middle or low incomes countries, yet all the service utilisation rates are far worse in the low income settings, namely the perceived need for treatment among people with MDD, and the proportions of people with MDD who receive any, or any minimally adequate treatment.

The issue of perceived need for treatment is especially intriguing, as the results show that in overall terms even if acceptable treatment were available to people with MDD, only about a half (56.7%) felt that they had a need for treatment, and that this proportion fell to about one third (34.6%) in lower in low/lower-middle income countries. Previous research shows that this

recognition is related to the persistence and severity of depression and is higher among women, the young, and people with higher education (27). This strongly suggests that efforts to decrease the treatment gap for depression need to address *both* scaling up the supply of services *and* supporting people with depression and their family members to recognise that they have the condition and that it is treatable.

Calls for scaling up mental health care to date have insufficiently emphasised the quality of services (30). Although the criteria used in this study to assess the minimal adequacy of treatment were ad hoc and may need to be refined in future, the results indicate clearly that there are grounds to consider much treatment currently provided to people with MDD ('contact coverage') as falling short of the criteria for evidence-based treatment ('effectiveness coverage') (31). One consequence of failing to attend to the quality of care may be that this may contribute to low rates of help-seeking if local services for people with mental illness have a poor reputation, while another consequence is likely to be high rates of treatment dropout before treatment is completed (32). Quality improvement initiatives, such as the widespread adoption of the evidence-based WHO mhGAP Intervention Guide, are needed to deal with these problems (7, 33, 34).

Providing treatment at the scale required to treat all people with MDD is an imperative, not only for decreasing disability and death by suicide, but also from a moral and human rights perspective (35). These WMH survey findings make it clear that success in attacking the problem of unmet need for treatment of people with MDD will require addressing issues at several levels: low rates of recognition of their problem by people with depression, low rates of consultation by people who do recognise that they have such a mental illness, barriers to access treatment (36), and poor treatment adequacy. Each of these problems requires a distinct intervention, or set of interventions, and all of these interventions are necessary to improve the quality and quality of treatment for people with depression, including e-health and m-health treatment options which may be relevant in LMICs. None of these alone will suffice.

The Comprehensive Mental Health Action Plan 2013-2020 (37) adopted by the World Health Assembly provides the political commitment for these actions, though the human and financial resources deployed within most low and middle income countries are still too low to achieve improvement in the provision of treatment for MDD and other mental disorders. In the recently adopted United Nations Sustainable Development Goals, mental health was for the first time explicitly recognised within the concept of Universal Health Coverage (38, 39). It is clear that providing effective services for people with depression, integrated into general health services, is

a vital element of basic health care provisions (40). As we now have evidence for effective and feasible interventions suitable for low, middle and high income countries (7), we call upon national and international organisations to make firm and time-bound commitments to make adequate resources available for scaling up the provision of mental health services so that ‘no one is left behind’ (38).

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Statement of conflicts of interest

In the past 3 years, Dr. Kessler received support for his epidemiological studies from Sanofi Aventis, was a consultant for Johnson & Johnson Wellness and Prevention, and served on an advisory board for the Johnson & Johnson Services Inc. Lake Nona Life Project. Kessler is a co-owner of DataStat, Inc., a market research firm that carries out healthcare research.

The other authors declare that they have no conflicts of interest.

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Table 1. WMH sample characteristics by World Bank income categories^a

Country by income category	Survey ^b	Sample characteristics ^c	Field dates	Age range	Sample size		Response rate ^d
					Part 1	Part 2	
I. Low and lower middle income countries							
Colombia	NSMH	All urban areas of the country (approximately 73% of the total national population)	2003	18-65	4,426	2,381	87.7
Iraq	IMHS	Nationally representative.	2006-7	18-96	4,332	4,332	95.2
Nigeria	NSMHW	21 of the 36 states in the country, representing 57% of the national population. The surveys were conducted in Yoruba, Igbo, Hausa and Efik languages.	2002-3	18-100	6,752	2,143	79.3
PRC ^e - Beijing/Shanghai	B-WMH/S-WMH	Beijing and Shanghai metropolitan areas.	2002-3	18-70	5,201	1,628	74.7
Peru	EMSMP	Nationally representative.	2004-5	18-65	3,930	1,801	90.2
TOTAL					(24,641)	(12,285)	83.7
II. Upper-middle income countries							
Brazil - São Paulo	São Paulo Megacity	São Paulo metropolitan area.	2005-7	18-93	5,037	2,942	81.3
Bulgaria	NSHS	Nationally representative.	2003-7	18-98	5,318	2,233	72.0
Colombia – Medellín ^f	MMHHS	Medellin metropolitan area	2011-12	19-65	3,261	1,673	97.2
Lebanon	LEBANON	Nationally representative.	2002-3	18-94	2,857	1,031	70.0
Mexico	M-NCS	All urban areas of the country (approximately 75% of the total national population).	2001-2	18-65	5,782	2,362	76.6
Romania	RMHS	Nationally representative.	2005-6	18-96	2,357	2,357	70.9
TOTAL					(24,612)	(12,598)	77.2
III. High-income countries							
Argentina	AMHES	Nationally representative.	2015	18-98	3,927	2,116	77.3
Belgium	ESEMeD	Nationally representative. The sample was selected from a national register of Belgium residents	2001-2	18-95	2,419	1,043	50.6
France	ESEMeD	Nationally representative. The sample was selected from a national list of households with listed telephone numbers.	2001-2	18-97	2,894	1,436	45.9
Germany	ESEMeD	Nationally representative.	2002-3	19-95	3,555	1,323	57.8
Israel	NHS	Nationally representative.	2002-4	21-98	4,859	4,859	72.6
Italy	ESEMeD	Nationally representative. The sample was selected from municipality resident registries.	2001-2	18-100	4,712	1,779	71.3
Japan	WMHJ 2002-2006	Eleven metropolitan areas.	2002-6	20-98	4,129	1,682	55.1
Netherlands	ESEMeD	Nationally representative. The sample was selected from municipal postal registries.	2002-3	18-95	2,372	1,094	56.4
Portugal	NMHS	Nationally representative.	2008-9	18-81	3,849	2,060	57.3

Spain	ESEMeD	Nationally representative.	2001-2	18-98	5,473	2,121	78.6
Spain – Murcia	PEGASUS-Murcia	Murcia region.	2010-12	18-96	2,621	1,459	67.4
United States	NCS-R	Nationally representative.	2002-3	18-99	9,282	5,692	70.9
TOTAL					(50,092)	(26,664)	64.2
IV. TOTAL					(99,345)	(51,547)	71.3

^aThe World Bank (2012) Data. Accessed May 12, 2012 at: <http://data.worldbank.org/country>. Some of the WMH countries have moved into new income categories since the surveys were conducted. The income groupings above reflect the status of each country at the time of data collection. The current income category of each country is available at the preceding URL.

^bNSMH (The Colombian National Study of Mental Health); IMHS (Iraq Mental Health Survey); NSMHW (The Nigerian Survey of Mental Health and Wellbeing); B-WMH (The Beijing World Mental Health Survey); S-WMH (The Shanghai World Mental Health Survey); EMSMP (La Encuesta Mundial de Salud Mental en el Peru); NSHS (Bulgaria National Survey of Health and Stress); MMHHS (Medellin Mental Health Household Study); LEBANON (Lebanese Evaluation of the Burden of Ailments and Needs of the Nation); M-NCS (The Mexico National Comorbidity Survey); RMHS (Romania Mental Health Survey); AMHES (Argentina Mental Health Epidemiologic Survey); ESEMeD (The European Study Of The Epidemiology Of Mental Disorders); NHS (Israel National Health Survey); WMHJ2002-2006 (World Mental Health Japan Survey); NMHS (Portugal National Mental Health Survey); PEGASUS-Murcia (Psychiatric Enquiry to General Population in Southeast Spain-Murcia); NCS-R (The US National Comorbidity Survey Replication).

^cMost WMH surveys are based on stratified multistage clustered area probability household samples in which samples of areas equivalent to counties or municipalities in the US were selected in the first stage followed by one or more subsequent stages of geographic sampling (e.g., towns within counties, blocks within towns, households within blocks) to arrive at a sample of households, in each of which a listing of household members was created and one or two people were selected from this listing to be interviewed. No substitution was allowed when the originally sampled household resident could not be interviewed. These household samples were selected from Census area data in all countries other than France (where telephone directories were used to select households) and the Netherlands (where postal registries were used to select households). Several WMH surveys (Belgium, Germany, Italy) used municipal resident registries to select respondents without listing households. The Japanese sample is the only totally un-clustered sample, with households randomly selected in each of the 11 metropolitan areas and one random respondent selected in each sample household. 15 of the 23 surveys are based on nationally representative household samples

^dThe response rate is calculated as the ratio of the number of households in which an interview was completed to the number of households originally sampled, excluding from the denominator households known not to be eligible either because of being vacant at the time of initial contact or because the residents were unable to speak the designated languages of the survey. The weighted average response rate is 71.2%.

^ePeople's Republic of China

^fColombia moved from the "lower and lower-middle income" to the "upper-middle income" category between 2003 (when the Colombian National Study of Mental Health was conducted) and 2010 (when the Medellin Mental Health Household Study was conducted), hence Colombia's appearance in both income categories. For more information, please see footnote a.

Table 2. 12 month prevalence of MDD, perceived need for treatment, receipt of any treatment, and receipt of minimally adequate treatment						
	12 month diagnosis of MDD	Perceived need for treatment (of A)	Any 12-Month Treatment (of B)	Minimally adequate treatment (of C)	Minimally adequate treatment (of A)	
	A	B	C	D	E	(n)
	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	
I. High Income						
Belgium	5.2 (0.7)	64.7 (7.4)	81.7 (4.8)	55.7 (8.9)	29.5 (6.0)	105
France	5.6 (0.7)	59.3 (4.5)	79.5 (3.8)	48.7 (7.4)	23.0 (4.9)	158
Germany	3.1 (0.3)	60.6 (7.4)	78.5 (3.9)	66.3 (4.0)	31.6 (4.2)	109
Israel	5.9 (0.4)	54.0 (3.0)	72.5 (3.5)	40.3 (4.3)	15.8 (2.2)	280
Italy	2.9 (0.2)	52.3 (5.0)	73.5 (4.6)	43.4 (5.5)	16.7 (3.7)	119
Japan	2.4 (0.3)	50.4 (7.7)	80.1 (1.9)	54.9 (2.8)	22.2 (5.0)	81
Murcia, Spain	6.9 (0.5)	72.6 (4.8)	89.0 (3.5)	29.2 (5.3)	18.8 (3.5)	154
Netherland	4.9 (0.7)	61.0 (7.1)	82.0 (5.2)	66.2 (6.9)	33.1 (5.1)	125
Portugal	7.0 (0.5)	65.4 (2.6)	88.3 (1.6)	32.5 (4.1)	18.8 (2.7)	290
Spain	3.8 (0.3)	74.2 (3.4)	79.5 (4.2)	46.0 (5.1)	27.2 (3.2)	231
US	6.7 (0.3)	74.0 (1.5)	77.4 (2.6)	46.4 (3.1)	26.6 (1.9)	646
Argentina	3.7 (0.5)	66.4 (4.7)	55.3 (4.1)	48.9 (3.3)	17.9 (2.7)	170
Total	5.2 (0.1)	64.9 (1.1)	77.9 (1.2)	44.2 (1.6)	22.4 (1.0)	2468
II. Upper-middle income						
São Paulo, Brazil	10.1 (0.7)	56.1 (3.4)	63.8 (2.7)	41.7 (5.4)	14.9 (2.0)	489

Bulgaria	3.0 (0.3)	50.7 (4.0)	63.3 (3.8)	21.0 (6.3)	6.7 (2.3)	145
Lebanon	4.9 (0.7)	41.0 (3.3)	56.8 (6.9)	30.3 (6.2)	7.0 (1.7)	126
Medellin, Colombia	3.8 (0.4)	51.7 (4.9)	53.5 (7.7)	32.4 (7.3) 20.1 (5.1)	9.0 (2.7)	151
Mexico	3.7 (0.3)	58.3 (3.5)	43.4 (4.5)	25.4 (2.9)	6.4 (1.5)	231
Romania	1.5 (0.3)	23.8 (7.3)	90.3 (3.5)	63.0 (14.6)	13.5 (7.5)	40
Total	4.7 (0.2)	52.2 (1.9)	59.6 (1.9)	36.7 (3.5)	11.4 (1.2)	1182
III. Lower-middle income						
Colombia	5.3 (0.4)	49.2 (4.7)	41.3 (6.1)	24.6 (9.4)	5.0 (2.4)	241
Iraq	3.9 (0.4)	17.0 (3.9)	69.7 (2.0)	20.7 (0.7)	2.5 (2.4)	182
Nigeria	1.1 (0.2)	22.3 (3.0)	86.0 (6.3)	0.0(.)	0.0(.)	72
Peru	2.7 (0.3)	60.3 (6.1)	50.6 (5.7)	2.8 (2.9)	0.9 (0.9)	99
Beijing/Shanghai, PRC	2.0 (0.4)	39.3 (8.8)	60.3 (12.7)	.(.)	.(.)	87
Total	3.2 (0.2)	34.6 (2.5)	52.6 (3.4)	20.5 (3.4)	3.7 (1.6)	681
IV. Total						
Total	4.6 (0.1)	56.7 (1.0)	71.1 (1.0)	41.0 (1.4)	16.5 (0.7)	4331

Key:

- A. People with 12-month MDD
- B. Percentage of those people in A who had a 'perceived need'
- C. Percent of those in B with a 'perceived need' who received any treatment over 12 months
- D. Percentage of those treated in C who received minimally adequate treatment
- E. Percentage of those in A with 12-month MDD who received minimally adequate treatment