



Perceived helpfulness of service sectors used for mental and substance use disorders: Findings from the WHO World Mental Health Surveys

Harris, M. G., Kazdin, A. E., Munthali, R. J., Vigo, D. V., Hwang, I., Sampson, N. A., Al-Hamzawi, A., Alonso, J., Andrade, L. H., Borges, G., Bunting, B., Florescu, S., Gureje, O., Karam, E. G., Lee, S., Navarro-Mateu, F., Nishi, D., Rapsey, C., Scott, K. M., ... Kessler, R. C. (2022). Perceived helpfulness of service sectors used for mental and substance use disorders: Findings from the WHO World Mental Health Surveys. *International Journal of Mental Health Systems*, 16(1), 1-15. Article 6. Advance online publication. <https://doi.org/10.1186/s13033-022-00516-z>

[Link to publication record in Ulster University Research Portal](#)

Published in:
International Journal of Mental Health Systems

Publication Status:
Published online: 29/01/2022

DOI:
[10.1186/s13033-022-00516-z](https://doi.org/10.1186/s13033-022-00516-z)

Document Version
Publisher's PDF, also known as Version of record

General rights
Copyright for the publications made accessible via Ulster University's Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy
The Research Portal is Ulster University's institutional repository that provides access to Ulster's research outputs. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact pure-support@ulster.ac.uk.

RESEARCH

Open Access



Perceived helpfulness of service sectors used for mental and substance use disorders: Findings from the WHO World Mental Health Surveys

Meredith G. Harris^{1,2*}, Alan E. Kazdin³, Richard J. Munthali⁴, Daniel V. Vigo^{4,5}, Irving Hwang⁶, Nancy A. Sampson⁶, Ali Al-Hamzawi⁷, Jordi Alonso^{8,9,10}, Laura Helena Andrade¹¹, Guilherme Borges¹², Brendan Bunting¹³, Silvia Florescu¹⁴, Oye Gureje¹⁵, Elie G. Karam^{16,17,18}, Sing Lee^{19,20}, Fernando Navarro-Mateu^{21,22,23}, Daisuke Nishi²⁴, Charlene Rapsey²⁵, Kate M. Scott²⁵, Juan Carlos Stagnaro²⁶, Maria Carmen Viana²⁷, Bogdan Wojtyniak²⁸, Miguel Xavier²⁹ and Ronald C. Kessler⁶

Abstract

Background: Mental healthcare is delivered across service sectors that differ in level of specialization and intervention modalities typically offered. Little is known about the perceived helpfulness of the combinations of service sectors that patients use.

Methods: Respondents 18+ years with 12-month DSM-IV mental or substance use disorders who saw a provider for mental health problems in the year before interview were identified from WHO World Mental Health surveys in 17 countries. Based upon the types of providers seen, patients were grouped into nine mutually exclusive single-sector or multi-sector 'treatment profiles'. Perceived helpfulness was defined as the patient's maximum rating of being helped ('a lot', 'some', 'a little' or 'not at all') of any type of provider seen in the profile. Logistic regression analysis was used to examine the joint associations of sociodemographics, disorder types, and treatment profiles with being helped 'a lot'.

Results: Across all surveys combined, 29.4% (S.E. 0.6) of respondents with a 12-month disorder saw a provider in the past year (N = 3221). Of these patients, 58.2% (S.E. 1.0) reported being helped 'a lot'. Odds of being helped 'a lot' were significantly higher (odds ratios [ORs] = 1.50–1.89) among the 12.9% of patients who used specialized multi-sector profiles involving both psychiatrists and other mental health specialists, compared to other patients, despite their high comorbidities. Lower odds of being helped 'a lot' were found among patients who were seen only in the general medical, psychiatrist, or other mental health specialty sectors (ORs = 0.46–0.71). Female gender and older age were associated with increased odds of being helped 'a lot'. In models stratified by country income group, having 3 or more disorders (high-income countries only) and state-funded health insurance (low/middle-income countries only) were associated with increased odds of being helped 'a lot'.

*Correspondence: meredith.harris@uq.edu.au

¹ School of Public Health, The University of Queensland, Level 2, Public Health Building (887), 288 Herston Road, Herston, QLD 4006, Australia
Full list of author information is available at the end of the article



© The Author(s) 2022. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

Conclusions: Patients who received specialized, multi-sector care were more likely than other patients to report being helped ‘a lot’. This result is consistent with previous research suggesting that persistence in help-seeking is associated with receiving helpful treatment. Given the nonrandom sorting of patients by types of providers seen and persistence in help-seeking, we cannot discount that selection bias may play some role in this pattern.

Keywords: Mental health services, Health service use, Perceived helpfulness, Patient perspectives, Healthcare providers, Service sectors, Treatment profiles, Mental disorders, Substance use disorders

Introduction

Hundreds of millions of people experience mental and substance use disorders worldwide each year [1, 2]. Across countries where treatment rates have been measured, up to one-third of adults with these disorders see a provider for treatment in a year [3]. A plethora of treatment studies have shown various interventions and service models to be efficacious or effective for these disorders [4–7]. Although a great many evidence-based treatments have been documented to be associated with aggregate reductions in symptoms, these evaluations seldom ask patients whether they perceived their treatment to be helpful [6, 8, 9]. This is a meaningful omission because existing studies focus largely on outcomes that clinicians consider important in evaluating treatments, whereas the perceptions of patients might be different. The patient’s perspective is increasingly seen as an important independent perspective on treatment [10, 11].

In particular, the patient’s perception of treatment helpfulness is now recognized as a meaningful indicator of healthcare quality in its own right [12] and has been associated with desirable treatment process indicators including more frequent health care use [13], retention in treatment [14, 15] and longer duration of treatment [16]. Measures of perceived helpfulness can complement measures of symptom response and quality of life that are typically used in treatment trials, but which may not capture changes in functioning or other specific problems that prompted the patient to seek treatment in the first place [6, 17]. Moreover, routine reporting of patient perceptions such as perceived helpfulness may provide a credible source of information for potential help-seekers wanting to understand what to expect from treatment [8] and improve the public accountability of health services [18].

To date, perceived helpfulness has been evaluated primarily in small-scale studies of a single intervention or from one or a few clinics, services, or mental health professionals [9, 19]. Randomized controlled trials of treatment do well in isolating the impact of specific interventions. However, they do not reflect, nor are they intended to reflect, how patients negotiate and receive services. This is important because, in the real world,

mental health care is provided by a wide range of providers. These providers represent different service sectors that vary in their level of specialization and capacity to deliver the kinds of interventions appropriate for different types of disorders and levels of need [20, 21]. Moreover, these service sectors share patient care to greater or lesser extent [22]. Comparing perceived helpfulness across the specific combinations of service sectors that people actually use could help to identify systematic disparities in the quality of mental healthcare and inform ways to better triage and personalize treatment.

Epidemiologic surveys are well-suited to evaluating variations in perceived helpfulness in broadly defined populations but, to date, perceived helpfulness has been a relatively understudied topic [23]. In available studies, approximately half to two-thirds of patients said that the provider(s) they saw for mental health or substance use problems in the past year helped them ‘a lot’ or ‘extremely’ [24, 25]. A few studies have examined whether ratings of perceived helpfulness differ between patients seen in the general medical sector and those seen in the specialized mental health sector, the latter group usually combining psychiatrists with non-medical mental health professionals. Some analyses have shown similar levels of perceived helpfulness across these sectors, but without taking account the complexity of patients’ problems or possible overlap in providers [13, 14]. In contrast, other analyses have shown treatment in the specialized mental health sector to be perceived as more helpful than treatment only in the general medical sector, after controlling for severity and comorbidity [24, 26]. Although these findings are informative, they are based either on individual provider types or combinations of provider types that differ in the treatment modalities they can offer. Moreover, these two service sectors do not reflect the full spectrum of service sectors that people use; for example, many people consult human services providers, spiritual providers and healers [22, 27–29]. A study of the perceived helpfulness of more nuanced combinations of service sectors, hereafter referred to as treatment profiles, is needed [18].

In this study, we explored variations in perceived helpfulness of the treatment profiles used by patients with 12-month mental and substance use disorders

across 17 countries. Our aims were to: (1) describe the array of treatment profiles through which mental health care is delivered; (2) examine variations in perceived helpfulness across treatment profiles; (3) identify patient-level social and clinical characteristics associated with using each of these treatment profiles; and (4) examine the extent to which patient-level characteristics and treatment profiles are associated with perceived helpfulness.

Methods

Samples and procedures

The World Health Organization (WHO) World Mental Health (WMH) surveys are a coordinated set of epidemiological surveys that provide cross-national data on the prevalence, correlates and treatment of mental and substance use disorders [30, 31]. This reported uses data from WMH surveys in 17 countries, including 9 classified as high-income countries at the time of data collection (Argentina, New Zealand, Northern Ireland, Poland, Portugal, Saudi Arabia, Spain—Murcia, Japan, and United States) and 8 classified as low- or middle-income countries (Brazil—São Paulo, Bulgaria, Colombia—Medellin, Iraq, Mexico, People's Republic of China—Shenzen, Peru, and Romania). Nine surveys were nationally representative, and the remainder were representative of selected regions, metropolitan areas or urbanised areas (Table 1).

Interviews were administered face-to-face by trained, lay interviewers in respondents' homes. The interview schedule and training materials were developed in English and translated into other languages using a standardised translation protocol [32]. Interviewers completed a certification course before commencing fieldwork and standardised quality control tools were applied to monitor interviewer accuracy [33]. Informed consent was obtained prior to beginning the interview. Procedures for obtaining informed consent and protecting respondents were approved and monitored by Institutional Review Boards of the organizations coordinating the surveys in each country.

Interviews were administered in two parts to reduce respondent burden. Part I assessed core Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) disorders and was administered to all respondents. Part II assessed additional disorders and correlates and was administered to all respondents who met lifetime criteria for any Part I disorder and to a probability subsample of other Part I respondents. Part II data were weighted to adjust for differential probabilities of selection into Part II and deviations between the sample population demographic-geographic distributions [34].

Measures

Diagnoses

Twelve-month diagnoses were generated according to DSM-IV criteria using the WHO's Composite International Diagnostic Interview Version 3.0 (CIDI 3.0) [23], a fully structured lay-administered diagnostic interview. Diagnoses included in this report were mood disorders (major depressive disorder, bipolar disorder), anxiety disorders (panic disorder/agoraphobia, generalized anxiety disorder, social phobia, specific phobia, posttraumatic stress disorder), and substance use disorders (alcohol and illicit drug abuse with or without dependence). DSM-IV organic exclusion rules were applied. Clinical reappraisal studies have shown generally good concordance between diagnoses based on the CIDI 3.0 and blinded clinical reappraisal interviews [35, 36].

Service sectors and treatment profiles

All Part II respondents were asked if they had ever seen any type of provider for problems with emotions, nerves, mental health, or use of alcohol or drugs. If so, they were asked whether, in the 12 months before interview, they had seen providers in the following five service sectors: General medical, including a general practitioner/primary care doctor or other medical doctor; Psychiatrist; Other mental health specialty, including a psychologist, any other mental health professional in any setting, a social worker or counselor in a mental health specialized setting; Other health provider, including a social worker or counselor in a human services setting, or another non-medical health professional; and Spiritual/healer, including a spiritual advisor or healer. To aid recall, examples of these types of providers were presented in a respondent booklet; these examples varied somewhat across countries to reflect local circumstances. Use of other services such as self-help groups, internet self-help applications and hotlines was not included in the current report because questions about the helpfulness of these services were not asked in the survey.

Among respondents who had used these service sectors in the past year, we then defined their use of 9 mutually exclusive single-sector and multi-sector 12-month 'treatment profiles'. We started by calculating the probabilities of use of all possible combinations of sectors. We found that 91.8% (weighted) of respondents were seen in 9 treatment profiles. The remaining 8.2% (weighted) were seen in rare combinations (ranging from <0.1% to 1.6%) that always involved the Other health provider and/or Spiritual/healer sectors. These rare combinations were recoded into the 9 mutually exclusive profiles (see Additional file 1: Table A1 for details of how rare combinations were recoded). The 9 treatment profiles broadly

Table 1 World Mental Health sample characteristics by World Bank income categories^a

Country by income category	Survey ^b	Sample characteristics ^c	Field Dates	Age range	Sample Size Part II	Response rate (%) ^d	Response Any DSM-IV 12-month disorder among the Part II sample		12-month use of providers for mental health among those with any DSM-IV 12-month disorder	
							%	SE	%	SE
I. Low/middle-income countries										
Brazil—São Paulo	São Paulo Megacity	São Paulo metropolitan area	2005–8	18–93	2942	81.3	21.5	0.7	22.8	1.3
Bulgaria 2	NSHS—2	Nationally representative	2016–17	18–91	578	61.0	6.1	1.4	47.7	6.7
Colombia—Medellin	MMHHS	Medellin metropolitan area	2011–12	19–65	1673	97.2	15.2	1.2	15.8	2.0
Iraq	IMHS	Nationally representative	2006–7	18–96	4332	95.2	8.1	0.6	1.2	0.5
Mexico	M-NCS	All urban areas of the country (approximately 75% of the total national population)	2001–2	18–65	2362	76.6	11.0	0.8	17.1	1.9
Peru	EMSMP	Five urban areas of the country (approximately 38% of the total national population)	2004–5	18–65	1801	90.2	9.5	0.6	17.2	2.2
PRC—Shenzhen ^e	Shenzhen	Shenzhen metropolitan area. Included temporary residents as well as household residents	2005–7	18–88	2475	80.0	3.8	0.5	4.2	0.7
Romania	RMHS	Nationally representative	2005–6	18–96	2357	70.9	5.7	0.5	20.4	2.6
Total					18,520	81.9	10.4	0.3	16.8	0.7
II. High-income countries										
Argentina	AMHES	Eight largest urban areas of the country (approximately 50% of the total national population)	2015	18–98	2116	77.3	11.5	0.7	26.4	2.8
Japan	WMHJ 2002–2006	Eleven metropolitan areas	2002–6	20–98	1682	55.1	6.1	0.6	26.0	2.6
New Zealand ^f	NZMHS	Nationally representative	2004–5	18–98	7312	73.3	18.8	0.5	34.3	1.3
Northern Ireland	NISHS	Nationally representative	2005–8	18–97	1986	68.4	22.5	1.3	49.7	2.5
Poland	EZOP	Nationally representative	2010–11	18–65	4000	50.4	8.5	0.4	17.9	1.7
Portugal	NIMHS	Nationally representative	2008–9	18–81	2060	57.3	19.3	1.0	35.9	2.3
Saudi Arabia ^g	SNMHS	Nationally representative	2013–16	18–65	1793	61.0	11.4	1.1	15.6	2.8
Spain-Murcia	PEGASUS-Murcia	Murcia region. Regionally representative	2010–12	18–96	1459	67.4	12.7	0.9	40.9	3.0
United States	NCS-R	Nationally representative	2001–3	18–99	5692	70.9	22.3	0.8	38.3	1.1
Total					28,100	63.5	14.7	0.3	34.7	0.8
III. Pooled across all countries										
Between countries, χ^2_{16} (p-value)										
Low/middle-income countries vs. high-income countries, χ^2_1 (p-value)							1542.34 (<0.001)*	3177.29 (<0.001)*		
							1081.29 (<0.001)*	837.55 (<0.001)*		

Table 1 (continued)

DSM-IV Diagnostic and Statistical Manual of Mental Disorders 4th edition, PRC People's Republic of China

* Significant at .05 level, two-sided test

^a The World Bank (2012) Data. Accessed May 12, 2012 at: <https://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

^b NSHS (Bulgaria National Survey of Health and Stress); MMHHS (Medellin Mental Health Household Study); IMHS (Iraq Mental Health Survey); M-NCS (The Mexico National Comorbidity Survey); EMSMP (La Encuesta Mundial de Salud Mental en el Peru); RMHS (Romania Mental Health Survey); AMHES (Argentina Mental Health Epidemiologic Survey); WMHJ 2002–2006 (World Mental Health Japan Survey); NZMHS (New Zealand Mental Health Survey); NISHS (Northern Ireland Study of Health and Stress); EZOP (Epidemiology of Mental Disorders and Access to Care Survey); MMHS (Portugal National Mental Health Survey); SNMHS (Saudi National Mental Health Survey); PEGASUS-Murcia (Psychiatric Enquiry to General Population in Southeast Spain-Murcia); NCS-R (The US National Comorbidity Survey Replication)

^c Most 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 Poland and Spain-Murcia, respondents were selected from municipal, country resident or universal health-care registries, 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. 9 of the 17 surveys are based on nationally representative household samples

^d The 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 69.4%

^e For the purposes of cross-national comparisons we limit the sample to those 18 +

reflect the level of mental health specialization and key intervention modalities (pharmacotherapies and psychotherapies) that may be offered by the included providers. Specifically, the General medical with Psychiatrist, General medical with Other mental health specialty, General medical with Psychiatrist and Other mental health specialty, Psychiatrist-only and Psychiatrist with Other mental health specialty profiles could potentially deliver combined pharmacotherapies and psychotherapies; the General medical-only and General medical with Spiritual/healer profiles are more likely to involve pharmacotherapies; the Other mental health specialty-only profile could deliver psychotherapies; and the Spiritual/healer-only profile is likely to involve neither pharmacotherapy or psychotherapy [22].

Perceived helpfulness

Respondents who had seen a professional in the 12 months before interview were asked 'Did [the professional] help you a lot, some, a little, or not at all?' We dichotomised ratings of perceived helpfulness ('a lot' versus 'some', 'a little' or 'not at all') as we considered being helped 'a lot' as most congruent with patient-centered care [12]. If more than one type of provider was seen, we applied the maximum rating of helpfulness for any provider seen. This means that our measure of perceived helpfulness represents the cumulative probability of being helped 'a lot', even if that required contact with multiple providers. We considered this an appropriate approach because we were interested in the maximum results patients obtained from their contact with the mental health system. Some other studies have explored average helpfulness across providers or the helpfulness of the most frequently seen provider, however these approaches would potentially underestimate the probability of being helped 'a lot' by *any* provider seen [14, 25].

Predictors

Sociodemographic predictors were gender, age at interview (≤ 34 , 35–49, 50–64, ≥ 65 years), marital status (married/cohabiting, separated/widowed/divorced, never married), employment (working, student, homemaker, retired, other), type of health insurance (state-funded or subsidized, insurance through an employer or national social security, direct private/optional insurance, any other health insurance, no insurance coverage or unknown), family income and education (each coded low, low-average, high-average, high). To account for wide cross-national variations in family income and education, country-specific coding schema were used. In high-income countries, the high education category corresponded to a college degree, high-average to some post-secondary education without a college degree,

low-average to secondary school graduation, and low to less than secondary education. These four categories comprised roughly equal sized groups. Thresholds in other countries were applied to achieve the same split. For family income, we classified high income as greater than two times the within-country median per capita family income (i.e. income divided by number of family members), high-average income as 100–200% times the median, low-average as 50–100% of the median, and low income as less than 50% of the median. Clinical predictors were each of the eight 12-month diagnoses and a variable representing number of diagnoses (exactly 1, exactly 2, 3 or more). This allowed us to capture type and amount of mental or substance use disorder comorbidity, which is important because comorbidity may complicate diagnosis, complicate treatment, and intensify functional impairment [37], any of which may influence the outcome of treatment. Treatment-related predictors were the 9 treatment profiles.

Analysis methods

Cross-tabulations were used to examine treatment distributions and their associations with sociodemographics and disorder types as well as with the distributions of perceived helpfulness across treatment profiles. Logistic regression analysis was then used to examine the joint associations of sociodemographics, disorder types, and treatment profiles with a dichotomous patient report of being helped ‘a lot’. Logits were exponentiated and are reported as odds-ratios (ORs) with their 95% confidence intervals. The ORs associated with treatment profiles were centered to have a product of 0, allowing direct interpretation of each individual OR with the average in the total sample. That is, the odds of being helped ‘a lot’ for each treatment profile could then be compared to the weighted average of being helped ‘a lot’ for all treatment profiles combined. Interactions were estimated between sociodemographics and disorder types, sociodemographics and treatment profiles, and between disorder types and treatment profiles to determine whether joint associations were additive. Analyses were also replicated separately in high-income countries and low/middle-income countries. Statistical significance was consistently evaluated using 0.05 level two-sided design-based tests.

Results

Sample characteristics

Survey characteristics are shown in Table 1. The weighted average response rate across all surveys was 69.4%. The total sample comprised 46,620 respondents aged 18 years and over. Across all surveys combined, 13.9% of respondents met criteria for any of the 12-month disorders included in this study. This report focuses on the 29.4%

($N=3,221$) of respondents with a 12-month disorder who had seen a provider in the year before interview. The probability of seeing a provider was, on average, 2.1 times higher in high-income than in low/middle-income surveys (34.7% vs. 16.8%, $\chi^2_1 = 837.55$, $p < 0.001$).

Service sectors and treatment profiles

Table 2 shows the distribution of contact with providers grouped into service sectors and treatment profiles. Keeping in mind that patients may have had contact with more than one service sector, the majority had contact with the General medical sector (60.9%). Fewer had contact with the Other mental health specialty (37.0%) or Psychiatrist (29.7%) sectors and fewer yet with the Spiritual/healer sector (17.5%). Only a small percentage (2.2%) had contact with the Other health provider sector.

With respect to the more granular, mutually exclusive treatment profiles, the 3 most commonly used profiles were the single-sector General medical-only (35.2%), Other mental health specialty-only (13.8%) and Psychiatrist-only (11.6%) profiles. The remaining profiles were each used by 3.3%–10.3% of respondents. Notably, 12.9% of patients used a specialized multi-sector profile involving psychiatrists and other mental health specialists (5.9% without the General medical sector and 7.0% with the General medical sector).

Helpfulness of service sectors and treatment profiles

Table 2 also shows the distribution of ratings of helpfulness. Across all treatment profiles combined, 58.2% of patients said they were helped ‘a lot’ by the professionals they saw, 24.2% ‘some’, 10.9% ‘a little’ and 6.7% ‘not at all’. This pattern of decreasing proportions from greatest to least helpfulness was found within each profile, even though the exact proportions in each category varied across profiles ($\chi^2_{24} = 102.86$, $p < 0.001$). Differences across profiles also existed when response categories were collapsed in various ways. Notably, the proportion of patients reporting being helped ‘a lot’ differed across profiles ($\chi^2_8 = 78.97$, $p < 0.001$), and was lower in the three most commonly used profiles (General medical-only, Psychiatrist-only, Other mental health specialty-only; 48.8%–55.5%) than the other profiles (64.1%–82.7%). The distribution of helpfulness ratings did not vary significantly according to number of 12-month disorders ($\chi^2_6 = 8.04$, $p = 0.240$) (Additional file 1: Table A2).

Further, Table 2 shows the incremental effect of using each additional type of sector, over and above using a single sector only. For example, 48.8% of patients who used the General-medical only profile said they were helped ‘a lot’. The percentage was higher among those who used the 2-sector General medical with Psychiatrist (64.1%),

and General medical with Other mental health specialty (67.6%) profiles, and the 3-sector General medical sector with both Psychiatrist and Other mental health specialty profile (75.0%). However, the highest percentage was among those who used the 2-sector General medical with Spiritual/healer (82.7%) profile. These patterns indicate that significant numbers of people said the additional sector(s) helped ‘a lot’ over and above the first sector, but that the exact percentage depended on the specific combination of sectors used, not just the number of sectors used.

Correlates of treatment profiles

All patient sociodemographic characteristics differed significantly across treatment profiles, with the exception of education (Additional file 1: Table A3). Mental disorder prevalence also differed significantly across treatment profiles. Both sets of patterns are complex, but one especially noteworthy pattern was that patients with more complex comorbidities were more likely than others to have used the multi-sector General medical with Psychiatrist and Other mental health specialty profile ($\chi^2_2=42.49$, $p<0.001$), the General medical with Psychiatrist profile ($\chi^2_2=11.40$, $p=0.003$) and the General medical with Other mental health specialty profile ($\chi^2_2=13.51$, $p<0.001$), whereas patients with single disorders were more likely than others to have used the single-sector General medical only ($\chi^2_2=19.81$, $p<0.001$) and the Other mental health specialty-only ($\chi^2_2=20.92$, $p<0.001$) profiles.

Predictors of being helped ‘a lot’

The logistic regression model predicting the perception of being helped ‘a lot’ found that gender ($\chi^2_1=5.40$, $p=0.020$) and age at interview ($\chi^2_2=17.34$, $p=0.001$) were the only significant sociodemographic correlates, with males significantly less likely than females to report that they were helped ‘a lot’ and a nonmonotonic association of age with being helped ‘a lot’ (older patients aged 65 years and over more likely than patients younger than 50 years) (Table 3). None of the mental disorders considered was a significant correlate of being helped ‘a lot’ ($\chi^2_1=0.04$ – 3.66 , $p=0.845$ – 0.056). However, the disorder variables were significant as a set ($\chi^2_8=18.53$, $p=0.018$). It is important to remember, in interpreting this pattern, that all patients had at least one disorder and could have multiple disorders. This means that individual ORs represent incremental associations of each disorder with perceived helpfulness. These ORs were for the most part negative, which means that comorbidities were for the most part associated with reduced relative-odds of perceived helpfulness, although none of these

was individually significant. We also initially included a term for 3 or more disorders, but it was not significant and therefore not included in the final model.

Treatment profile, in comparison, was a significant correlate ($\chi^2_7=97.76$, $p<0.001$). Specifically, the odds of being helped ‘a lot’ were significantly *lower* than average for the three most common profiles—General medical-only ($\chi^2_1=75.98$, $p<0.001$), Other mental health specialty-only ($\chi^2_1=10.75$, $p=0.001$) and Psychiatrist-only ($\chi^2_1=7.28$, $p=0.007$)—and significantly *higher* than average for the Psychiatrist with Other mental health specialty ($\chi^2_1=4.98$, $p=0.026$) and General medical with Psychiatrist and Other mental health specialty ($\chi^2_1=14.87$, $p<0.001$) profiles. It should be noted that the final model included only 8 of the 9 treatment profiles, as the General medical with Spiritual/healer profile was excluded because it comprised a relatively small number of patients and made the model unstable.

No significant interactions were found between sociodemographics and types of disorder, sociodemographics and treatment profiles, or types of disorders and treatment profiles with perceived helpfulness (see Additional file 1: Table A4 for details of the model-building process). We also examined the model separately for high-income countries (Additional file 1: Table A5) and low/middle-income countries (Additional file 1: Table A6), but results were very similar to those in the combined sample. A notable difference, though, was that in high-income countries, patients with 3 or more disorders had significantly higher relative-odds than others of being helped ‘a lot’ (OR=1.62, 95% CI 1.03–2.55; $\chi^2_1=4.33$, $p=0.037$). Another was that, in low/middle-income countries, type of insurance was a significant correlate ($\chi^2_4=10.84$, $p=0.028$). Patients with state-funded insurance had more than twice the odds of being helped ‘a lot’, compared to those with no or unknown insurance (OR=2.62, 95% CI 1.07–6.42).

Discussion

Key findings

We know of no previous study that has examined the perceived helpfulness of the service sectors seen by patients with mental and substance use disorders in as much detail, nor across such broad geographical scope, as we did here. We found that, across 17 countries combined, 58.2% of patients with 12-month mental and substance use disorders said that they were helped ‘a lot’ by the treatment profiles they used in the year prior to interview. Our key finding was that the odds of being helped ‘a lot’ were significantly higher (odds ratios [ORs]=1.50–1.89) among the 12.9% of patients who used specialized multi-sector profiles involving both psychiatrists and other mental health specialists (with or without the

Table 2 Distributions of treatment and distributions of perceived helpfulness across service sectors and treatment profiles, among respondents with 12-month DSM-IV disorders who reported 12-month use of providers for mental health (N = 3221)

	Distribution of treatment		Perceived helpfulness (maximum) ^a								Test for Equal Proportions			
	n	%	'A lot'		'Some'		'A little'		'Not at all'		χ ²	df	p-value	
			%	SE	%	SE	%	SE	%	SE				
I. Service sectors^b														
General medical	1920	60.9	0.9	58.1	1.3	24.7	1.2	10.8	0.1	6.5	0.7	765.98*	3	<0.001
Psychiatrist	968	29.7	0.9	62.6	1.6	22.8	1.5	9.0	1.1	5.7	0.9	466.30*	3	<0.001
Other mental health specialty	1187	37.0	1.0	64.7	1.6	22.5	1.4	8.3	1.0	4.6	0.6	646.17*	3	<0.001
Other health provider	72	2.2	0.3	70.2	5.7	22.1	5.3	5.5	1.3	2.4	2.4	23.89*	3	<0.001
Spiritual/healer	566	17.5	0.9	77.3	2.3	16.6	2.1	4.6	0.9	1.5	0.5	553.61*	3	<0.001
II. Treatment profiles^c														
General medical-only	1111	35.2	1.1	48.8	1.7	27.3	1.5	14.7	1.4	9.3	1.1	249.46*	3	<0.001
Psychiatrist-only	386	11.6	0.7	51.3	3.0	24.6	2.5	13.7	1.9	10.4	2.0	91.84*	3	<0.001
Other mental health specialty-only	458	13.8	0.7	55.5	2.5	24.3	2.2	11.4	1.6	8.9	1.5	145.42*	3	<0.001
Spiritual/healer-only	265	7.8	0.6	66.7	3.6	22.6	3.5	7.9	1.6	2.8	0.9	150.98*	3	<0.001
General medical with Psychiatrist	170	5.1	0.4	64.1	4.3	24.6	3.8	6.7	1.8	4.6	1.8	89.08*	3	<0.001
General medical with Other mental health specialty	317	10.3	0.6	67.6	3.0	22.5	2.9	7.6	1.8	2.3	0.8	192.13*	3	<0.001
General medical with Spiritual/healer	102	3.3	0.4	82.7	4.2	12.6	3.0	3.4	3.0	1.3	1.3	112.91*	3	<0.001
Psychiatrist with Other mental health specialty	192	5.9	0.5	68.6	4.0	20.3	3.3	9.4	2.8	1.7	0.4	123.55*	3	<0.001
General medical with Psychiatrist and Other mental health specialty	220	7.0	0.6	75.0	2.9	20.6	2.6	2.5	1.1	1.9	1.0	192.13*	3	<0.001
III. Total (all profiles combined)	3221	100.0	-	58.2	1.0	24.2	0.9	10.9	0.7	6.7	0.5	1257.42*	3	<0.001
Perceived helpfulness (4 categories) across all profiles														
Helped 'a lot' vs. 'some'/'a little'/'not at all' across all profiles												102.86*	24	<0.001
Helped 'a lot'/'some' vs. 'a little'/'not at all' across all profiles												78.97*	8	<0.001
Helped 'a lot'/'some'/'a little'/'not at all' across all profiles												68.90*	8	<0.001
Helped 'a lot'/'some'/'a little' vs. 'not at all' across all profiles												36.98*	8	<0.001

* Significant at .05 level, two-sided test

^a The maximum rating of how much the patient said they were helped by any type of provider seen

^b Service sectors: General medical (general practitioner/primary care doctor or other medical doctor); Psychiatrist; Other mental health specialty (psychologist, any other mental health professional in any setting, a social worker or counselor in a mental health specialized setting); Other health provider (social worker or counselor in a human services setting, or a non-medical health professional); and Spiritual/healer (spiritual advisor or healer)

^c Treatment profiles represent the 9 most commonly used combinations of service sectors. These 9 profiles accounted for 91.8% of respondents; rare combinations of individual sectors were recoded into one of the 9 profiles (see Additional file 1: Table A1)

general medical sector) than other patients, despite their high comorbidities. The lowest odds of being helped 'a lot' were found among patients who were seen only in the general medical, psychiatrist, or other mental health specialty sectors (ORs=0.46–0.71). A few sociodemographic factors also influenced perceived helpfulness: female gender and older age were associated with increased odds of being helped 'a lot'.

Our measure of perceived helpfulness represents the cumulative probability of being helped 'a lot', across all providers seen in the past year. This means that patients who received multi-sector care were more likely to have seen a greater number of providers than those who received single-sector care, and therefore to have had more opportunity to find a provider who helped them 'a lot'. In this way, the current results are consistent with our earlier work on lifetime treatment, in which we found that patients who persisted in help-seeking efforts after earlier unhelpful treatments were significantly more likely than others eventually to obtain perceived helpful treatment [38–41]. Moreover, the most important predictors of between-patient differences in ever obtaining helpful treatment were the predictors of persistence in help-seeking after initial failures rather than predictors of any specific treatment encounter being helpful [38–41].

A further convergence of findings with our previous work on lifetime treatment [38–41] is that patients who received more specialized treatment tended to be the most likely to persist with help-seeking until they received treatment they perceived as helpful. We might have expected to find that the most specialized treatment profiles involving psychiatrists and other mental health professionals were used by patients with relatively more complex presentations that are more difficult to treat and who, therefore, may be *less* likely to be evaluated as helpful [24]. Indeed, we did find proportionally higher use of the multi-sector specialized profiles by patients with higher levels of comorbidity but, in the aggregate, the patients using these profiles were *more* likely to say they were helped 'a lot'. This finding potentially extends prior associations between perceived helpfulness and specialized mental health sector use, by suggesting that this association is greater when treatment involves the specific combination of psychiatrists and non-medical mental health professionals [24, 26, 39]. This may be because these profiles are capable of delivering potentially effective treatments involving medication and psychological therapy, as needed. It could also reflect the provision of social interventions (including support with vocational, financial, social and housing needs) which are more likely to be needed by people with more complex presentations who, in this study, made up a relatively larger percentage of those who used the most specialized treatment

profiles. Although the WMH surveys do not measure the content of interventions received in visits with specific health providers, this explanation is broadly consistent with evidence that improvements in functioning and social activities are indicators by which many service users judge their treatment to be effective [17]. Although we cannot know for certain that patients who used these multi-sector specialized profiles saw the different providers as part of shared care or multi-disciplinary care arrangements (as opposed to independent episodes of care), this finding might also suggest that collaborative or multidisciplinary treatment models which have been shown effective for people with severe and complex needs [42–45] are also viewed positively by patients.

Consistent with one previous study [46], perceived helpfulness was also high among patients seen in the two treatment profiles involving the Spiritual/healer sector. However, after adjusting for type of disorder, comorbidity and demographic factors in the multivariable regression model, the odds of being helped 'a lot' were no higher among those seen in the Spiritual/healer-only sector compared to the average across all treatment profiles. We were unable to include the General medical with Spiritual/healer profile in the regression model, due to the small number in this group.

Conversely, in the current study, the odds of being helped 'a lot' were halved among patients who were seen only in the general medical sector. This finding is consistent with previous reports of lower perceived helpfulness [24, 26] and greater likelihood of drop out from care [47] among patients seen in this treatment profile. This is of concern, given that the general medical only profile was used by more than one-third (35.4%) of patients in the current study (including 32.2% of those with 2 disorders and 27.3% of those with 3 or more disorders), and has been associated elsewhere with lower effective treatment coverage compared to the specialized mental health sector [26, 48–53]. Elsewhere, inadequate time for evaluation and treatment, lack of training, lack of specialized referral options, and preference for medication over psychotherapy among general practitioners have been identified as possible factors contributing to lower effective treatment coverage in the general medical sector [26, 54–56]. It was beyond the scope of this study to examine the correspondence between perceived helpfulness and effective treatment coverage, but this is an area for future focus.

With respect to sociodemographics, the positive association between older age and perceived helpfulness is consistent with other evidence that patients' appraisals of mental health care and satisfaction with life in general improve with age [46, 57–61]. The negative association between male gender and perceived helpfulness has been

Table 3 Logistic regression results showing joint associations of sociodemographics, disorder types, and treatment profiles with perceived helpfulness (being helped 'a lot'), among respondents with 12-month DSM-IV disorders who reported 12-month use of providers for mental health (N = 3119)^a

	Perceived helpfulness (being helped 'a lot') ^b					
	OR	95% CI		X ²	df	p-value
Gender (ref: Female)	Reference			5.40*	1	0.020
Male	0.76	0.60	0.96			
Age at interview (years) (ref: ≥ 65)	Reference			17.34*	3	0.001
≤ 34 years	0.61	0.36	1.02			
35–49	0.77	0.49	1.21			
50–64	1.13	0.74	1.73			
Marital status (ref: Married/cohabitating)	Reference			0.54	2	0.764
Separated/widowed/divorced	0.94	0.76	1.17			
Never married	1.04	0.81	1.34			
Family income ^c (ref: High)	Reference			1.54	3	0.672
Low	0.87	0.66	1.14			
Low-average	0.89	0.70	1.13			
High-average	0.87	0.67	1.13			
Education ^d (ref: High)	Reference			1.55	3	0.671
Low	1.04	0.77	1.40			
Low-average	0.98	0.75	1.29			
High-average	0.89	0.70	1.12			
Employment (ref: Working)	Reference			6.70	4	0.153
Homemaker	0.85	0.63	1.15			
Retired	1.07	0.72	1.60			
Student	0.79	0.50	1.24			
Other	0.73	0.56	0.95			
Insurance (ref: None or unknown)	Reference			6.38	4	0.172
State funded coverage or subsidized insurance	1.33	0.93	1.92			
Insurance through employment or national social security	1.49	0.98	2.27			
Direct private/optional insurance	0.85	0.44	1.67			
Other	1.32	0.90	1.93			
12-month DSM-IV disorders						
Major depressive disorder (ref: No)	0.82	0.67	1.01	3.66	1	0.056
Bipolar disorder (ref: No)	0.73	0.52	1.02	3.41	1	0.065
Generalized anxiety disorder (ref: No)	0.82	0.63	1.08	2.00	1	0.157
Panic disorder/Agoraphobia (ref: No)	0.90	0.72	1.12	0.94	1	0.332
Posttraumatic stress disorder (ref: No)	0.98	0.77	1.24	0.04	1	0.845
Specific phobia (ref: No)	1.21	0.98	1.49	3.07	1	0.080
Social phobia (ref: No)	0.84	0.69	1.02	3.10	1	0.078
Substance use disorder (ref: No)	0.97	0.71	1.31	0.05	1	0.823
Treatment profiles						
General medical-only	0.46	0.38	0.54	75.98*	1	<0.001
Psychiatrist-only	0.70	0.54	0.91	7.28*	1	0.007
Other mental health specialty-only	0.71	0.58	0.87	10.75*	1	0.001
Spiritual/healer-only	1.18	0.87	1.59	1.16	1	0.282
General medical with Psychiatrist	1.13	0.80	1.61	0.47	1	0.493
General medical with Other mental health specialty	1.18	0.92	1.51	1.63	1	0.201
Psychiatrist with Other mental health specialty	1.50	1.05	2.14	4.98*	1	0.026
General medical with Psychiatrist and Other mental health specialty	1.89	1.37	2.61	14.87*	1	<0.001

Table 3 (continued)

	Perceived helpfulness (being helped 'a lot') ^b				
	OR	95% CI	X ²	df	p-value
Pooled X ² tests					
Mental disorders, X ² ₈ (p-value)	18.53*	(0.018)			
Treatment profiles, X ² ₇ (p-value)	97.76*	(< 0.001)			
Disorders and profiles, X ² ₁₅ (p-value)	102.27*	(< 0.001)			

* Significant at .05 level, two-sided test

Results shown are from the final model (see Additional file 1: Table A4 for details of the model-building process). Final model included survey dummy variables. The ORs associated with treatment profiles were centered to have a product of 0, allowing direct interpretation of each individual OR with the average in the total sample

^a The General medical with Spiritual/healer treatment profile (n = 102) was dropped in the final model since it comprised a relatively small number of patients and made the modelling unstable, hence the sample size for the model is 3119

^b Patient report of being helped 'a lot' by any type of provider seen

^c High income was defined as greater than two times the within-country median per capita family income (i.e. income divided by number of family members), high-average income as 100–200% times the median, low-average as 50–100% of the median, and low income as less than 50% of the median

^d In high-income countries, the high education category corresponded to a college degree, high-average to some post-secondary education without a college degree, low-average to secondary school graduation, and low to less than secondary education. These four categories comprised roughly equal sized groups. Thresholds in other countries were applied to achieve the same split

reported in other samples limited to patients with diagnosed disorders [26], but not in samples of service users that include patients with and without 12-month disorders [14, 24, 61, 62]. Given that a significant proportion of people who use mental health services do not have a 12-month disorder but have other possible indicators of need (e.g., subthreshold problems, recent stressors or suicidality) [63], it could be that patterns of perceived helpfulness are different in the latter group.

In models stratified by country income group, having 3 or more disorders (high-income countries only) and state-funded health insurance (low/middle-income countries only) were associated with increased odds of being helped 'a lot'. It may be that in high-income countries there are more enabling factors (e.g., supply of mental health specialists) that allow patients with more complex problems to persist with help-seeking until a helpful provider is found. In low/middle-income countries, arrangements established under state-funded or subsidized insurance (where available) may offer a more effective pathway to helpful providers than other forms of insurance.

Limitations

The study has several limitations worth noting. First, the data were cross-sectional. Hence, we could not establish the timeline in relation to the receipt of specific services, various providers, and perceived helpfulness. For example, respondents were asked about the helpfulness of each type of provider seen in the past year, and from that we calculated the probability of being helped 'a lot' by any of the providers seen. We assumed that the multi-sector specialized profiles were more helpful because patients

eventually received treatment from mental health specialists. However, the temporal ordering of the pathway through different providers could not be assessed in this study.

Second, we grouped patients according to the types of providers seen as well as their persistence in help-seeking across providers from different service sectors. Patients could not be randomly assigned to these conditions. Consequently, it is possible that various selection biases could play a role in the observed patterns. Indeed, we know from other research that a range of patient factors (e.g., self-selection), provider factors (e.g., referral bias) and system factors (e.g., provider supply, gatekeeper arrangements, and reimbursement policies) may determine where patients are treated and the extent to which they are able to persist in help-seeking [64, 65].

Finally, our measure of perceived helpfulness was based on a single question and we do not know how respondents interpreted being 'helped' or being helped 'a lot', nor how this global measure might align with more nuanced measures of the helpfulness of specific treatment components and foci. Moreover, current psychopathology or residual symptoms may influence respondents' assessments regarding previous treatments. However, prior research has reported acceptable psychometric properties for single-global questions measuring mental and physical health [66–68] and our assessment procedures followed those of other studies with similar foci.

Conclusions

Findings from this large, population sample are encouraging in that, among the 29.4% of people with a 12-month mental or substance use disorder who saw a provider in

the past year, 58.2% said they were helped a lot. An additional 35.1% said they were helped 'some' or 'a little', and only 6.7% were helped 'not at all'. Patients who received specialized, multi-sector care were more likely to report that they were helped 'a lot'. This result is consistent with previous research suggesting that persistence in help-seeking is associated with increased helpfulness of treatment. This analysis addresses a gap in knowledge about the patient's perspective on the quality of mental health care as experienced in the real world.

Abbreviations

CIDI 3.0: Composite International Diagnostic Interview Version 3.0; DSM-IV: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition; OR: Odds ratio; SE: Standard error; WHO: World Health Organization; WMH: World Mental Health.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s13033-022-00516-z>.

Additional file 1: Table A1. Coding of service sector combinations into 9 mutually exclusive treatment profiles, among respondents with 12-month DSM-IV disorders who reported 12-month use of providers for mental health (N=3221). **Table A2.** Associations of disorder types with perceived helpfulness, among respondents with 12-month DSM-IV disorders who reported 12-month use of providers for mental health (N=3221). **Table A3.** Associations of sociodemographics and disorder types with use of mutually exclusive treatment profiles, among respondents with 12-month DSM-IV disorders who reported 12-month use of providers for mental health. **Table A4.** Development of logistic regression models showing joint associations of sociodemographics, disorder types, and treatment profiles with perceived helpfulness (being helped 'a lot'), among respondents with 12-month DSM-IV disorders who reported 12-month use of providers for mental health, all countries combined (N=3119). **Table A5.** Development of logistic regression models showing joint associations of sociodemographics, disorder types, and treatment profiles with perceived helpfulness (being helped 'a lot'), among respondents with 12-month DSM-IV disorders who reported 12-month use of providers for mental health, high-income countries (N=2546). **Table A6.** Development of logistic regression models showing joint associations of sociodemographics, disorder types, and treatment profiles with perceived helpfulness (being helped 'a lot'), among respondents with 12-month DSM-IV disorders who reported 12-month use of providers for mental health, low/middle-income countries (N=573).

Acknowledgements

The WHO World Mental Health Survey collaborators are Sergio Aguilar-Gaxiola, MD, PhD; Ali Al-Hamzawi, MD; Mohammed Salih Al-Kaisy, MD; Jordi Alonso, MD, PhD; Yasmin A. Altwajiri, PhD; Laura Helena Andrade, MD, PhD; Lukoye Atwoli, MD, PhD; Corina Benjet, PhD; Guilherme Borges, ScD; Evelyn J. Bromet, PhD; Ronny Bruffaerts, PhD; Brendan Bunting, PhD; Jose Miguel Caldas-de-Almeida, MD, PhD; Graça Cardoso, MD, PhD; Somnath Chatterji, MD; Alfredo H. Cia, MD; Louisa Degenhardt, PhD; Koen Demeyttenaere, MD, PhD; Silvia Florescu, MD, PhD; Giovanni de Girolamo, MD; Oye Gureje, MD, DSc, FRCPsych; Josep Maria Haro, MD, PhD; Meredith G. Harris, PhD; Hristo Hinkov, MD, PhD; Chi-yi Hu, MD, PhD; Peter de Jonge, PhD; Aimee Nasser Karam, PhD; Elie G. Karam, MD; Georges Karam, MD; Norito Kawakami, MD, DMSc; Ronald C. Kessler, PhD; Andrzej Kiejna, MD, PhD; Viviane Kovess-Masfety, MD, PhD; Sing Lee, MBBS; Jean-Pierre Lepine, MD; John J. McGrath, MD, PhD; Maria Elena Medina-Mora, PhD; Zeina Mneimneh, PhD; Jacek Moskalewicz, PhD; Fernando Navarro-Mateu, MD, PhD; Marina Piazza, MPH, ScD; Jose Posada-Villa, MD; Kate M. Scott, PhD; Tim Slade, PhD; Juan Carlos Stagnaro, MD, PhD; Dan J. Stein,

FRPC, PhD; Margreet ten Have, PhD; Yolanda Torres, MPH, Dra.HC; Maria Carmen Viana, MD, PhD; Daniel V. Vigo, MD, DrPH; Harvey Whiteford, MBBS, PhD; David R. Williams, MPH, PhD; Bogdan Wojtyniak, ScD.

Authors' contributions

MGH, AEK, DVV and RCK conceived the study, provided overall guidance and prepared the first draft. NAS supervised data analyses, reviewed results and reviewed and contributed to the report. RJM and IH conducted data analyses. All other authors provided data, reviewed results and/or reviewed and contributed to the report.

Funding

The World Health Organization World Mental Health (WMH) Survey Initiative is supported by the United States National Institute of Mental Health (NIMH; R01 MH070884), the John D. and Catherine T. MacArthur Foundation, the Pfizer Foundation, the United States Public Health Service (R13-MH066849, R01-MH069864, and R01 DA016558), the Fogarty International Center (FIRCA R03-TW006481), the Pan American Health Organization, Eli Lilly and Company, Ortho-McNeil Pharmaceutical Inc., GlaxoSmithKline, and Bristol-Myers Squibb. We thank the staff of the WMH Data Collection and Data Analysis Coordination Centres for assistance with instrumentation, fieldwork, and consultation on data analysis.

The Argentina survey – Estudio Argentino de Epidemiología en Salud Mental (EASM) – was supported by a grant from the Argentinian Ministry of Health (Ministerio de Salud de la Nación) – (Grant Number 2002-17270/13-5). The São Paulo Megacity Mental Health Survey is supported by the State of São Paulo Research Foundation (FAPESP) Thematic Project Grant 03/00204–3. The Bulgarian Epidemiological Study of common mental disorders—EPIBUL 2, is supported by the Ministry of Health and European Economic Area Grants. The Mental Health Study Medellín – Colombia was carried out and supported jointly by the Center for Excellence on Research in Mental Health (CES University) and the Secretary of Health of Medellín. Implementation of the Iraq Mental Health Survey (IMHS) and data entry were carried out by the staff of the Iraqi MOH and MOP with direct support from the Iraqi IMHS team with funding from both the Japanese and European Funds through United Nations Development Group Iraq Trust Fund (UNDG ITF). The World Mental Health Japan (WMHJ) Survey is supported by the Grant for Research on Psychiatric and Neurological Diseases and Mental Health (H13-SHOGAI-023, H14-TOKU-BETSU-026, H16-KOKORO-013, H25-SEISHIN-IPPAN-006) from the Japan Ministry of Health, Labour and Welfare. The Mexican National Comorbidity Survey (MNCS) is supported by The National Institute of Psychiatry Ramon de la Fuente (INPRFMDIES 4280) and by the National Council on Science and Technology (CONACyT-G30544- H), with supplemental support from the Pan American Health Organization (PAHO). Te Rau Hinengaro: The New Zealand Mental Health Survey (NZMHS) is supported by the New Zealand Ministry of Health, Alcohol Advisory Council, and the Health Research Council. The Northern Ireland Study of Mental Health was funded by the Health & Social Care Research & Development Division of the Public Health Agency. The Peruvian World Mental Health Study was funded by the National Institute of Health of the Ministry of Health of Peru. The Polish project Epidemiology of Mental Health and Access to Care – EZOP Project (PL 0256) was carried out by the Institute of Psychiatry and Neurology in Warsaw in consortium with Department of Psychiatry—Medical University in Wrocław and National Institute of Public Health-National Institute of Hygiene in Warsaw and in partnership with Psykiatrist Institut Vinderen – Universitet, Oslo. The project was funded by the European Economic Area Financial Mechanism and the Norwegian Financial Mechanism. EZOP project was co-financed by the Polish Ministry of Health. The Portuguese Mental Health Study was carried out by the Department of Mental Health, Faculty of Medical Sciences, NOVA University of Lisbon, with collaboration of the Portuguese Catholic University, and was funded by Champalimaud Foundation, Gulbenkian Foundation, Foundation for Science and Technology (FCT) and Ministry of Health. The Romania WMH study projects "Policies in Mental Health Area" and "National Study regarding Mental Health and Services Use" were carried out by National School of Public Health & Health Services Management (former National Institute for Research & Development in Health), with technical support of Metro Media Transilvania, the National Institute of Statistics-National Centre for Training in Statistics, SC Cheyenne Services SRL, Statistics Netherlands and were funded by Ministry of Public Health (former Ministry of Health) with supplemental support of Eli Lilly Romania SRL. The Saudi National Mental Health Survey (SNMHS) is conducted by the King Salman Center for Disability Research. It is funded by Saudi Basic

Industries Corporation (SABIC), King Abdulaziz City for Science and Technology (KACST), Ministry of Health (Saudi Arabia), and King Saud University. Funding in-kind was provided by King Faisal Specialist Hospital and Research Center, and the Ministry of Economy and Planning, General Authority for Statistics. The Shenzhen Mental Health Survey is supported by the Shenzhen Bureau of Health and the Shenzhen Bureau of Science, Technology, and Information. The Psychiatric Enquiry to General Population in Southeast Spain – Murcia (PEGASUS-Murcia) Project has been financed by the Regional Health Authorities of Murcia (Servicio Murciano de Salud and Consejería de Sanidad y Política Social) and Fundación para la Formación e Investigación Sanitarias (FFIS) of Murcia. The US National Comorbidity Survey Replication (NCS-R) is supported by the National Institute of Mental Health (NIMH; U01-MH60220) with supplemental support from the National Institute of Drug Abuse (NIDA), the Substance Abuse and Mental Health Services Administration (SAMHSA), the Robert Wood Johnson Foundation (RWJF; Grant 044,708), and the John W. Alden Trust.

None of the funders had any role in the design, analysis, interpretation of results, or preparation of this paper. The views and opinions expressed in this report are those of the authors and should not be construed to represent the views of the World Health Organization, other sponsoring organizations, agencies, or governments.

A complete list of all within-country and cross-national WMH publications can be found at <http://www.hcp.med.harvard.edu/wmh/>.

Availability of data and materials

Access to the cross-national World Mental Health (WMH) data is governed by the organizations funding and responsible for survey data collection in each country. These organizations made data available to the WMH consortium through restricted data sharing agreements that do not allow us to release the data to third parties. The exception is that the U.S. data are available for secondary analysis via the Inter-University Consortium for Political and Social Research (ICPSR), <http://www.icpsr.umich.edu/icpsrweb/ICPSR/series/00527>.

Declarations

Ethics approval and consent to participate

At all survey sites, the local ethics or institutional review committee reviewed and approved the protocol to ensure protection of human subjects, in line with appropriate international and local guidelines. Details of the ethics committees for the WMH surveys can be viewed at this link: http://www.hcp.med.harvard.edu/wmh/ftpd/WMH_Ethics_approval.pdf.

Consent for publication

Not applicable.

Competing interests

MGH reports personal fees from RAND Corporation outside the submitted work. FNM reports non-financial support from Otsuka outside the submitted work. In the past 3 years, RCK was a consultant for Datastat, Inc., Holmusk, RallyPoint Networks, Inc., and Sage Therapeutics. He has stock options in Mirah, PYM, and Roga Sciences. All other authors report no competing interests.

Author details

¹School of Public Health, The University of Queensland, Level 2, Public Health Building (887), 288 Herston Road, Herston, QLD 4006, Australia. ²Queensland Centre for Mental Health Research, The Park Centre for Mental Health, Wolston Park Rd, Wacol, QLD 4076, Australia. ³Department of Psychology, Yale University, 2 Hillhouse Avenue- 208205, New Haven, CT 06520, USA. ⁴Department of Psychiatry, University of British Columbia, UBC Hospital—Detwiller Pavilion, UBC Vancouver Campus, Room 2813, 2255 Wesbrook Mall, Vancouver, BC V6T 2A1, Canada. ⁵Department of Global Health and Social Medicine, Harvard Medical School, 641 Huntington Avenue, Boston, MA 02115, USA. ⁶Department of Health Care Policy, Harvard Medical School, 180 Longwood Avenue, Boston, MA 02115, USA. ⁷College of Medicine, Al-Qadisiya University, Al-Diwaniyah, P.O.Box 88, Al-Qadisiyah, Iraq. ⁸IMIM-Hospital del Mar Medical Research Institute, PRBB Building, Doctor Aiguader, 88, 08003 Barcelona, Spain. ⁹CIBER en Epidemiología Y Salud Pública (CIBERESP), Av. Monforte de Lemos, 3-5, Pabellón 11, Planta 0, 28029 Madrid, Spain. ¹⁰Pompeu Fabra University (UPF), Plaça de la Mercè, 10-12, 08002 Barcelona, Spain. ¹¹University of São Paulo Medical School, Núcleo de Epidemiologia Psiquiátrica - LIM 23, Rua

Dr. Ovidio Pires de Campos, 785, São Paulo CEP 05403-010, Brazil. ¹²National Institute of Psychiatry Ramón de La Fuente Muñiz, Calzada México-Xochimilco, 101, Colonia San Lorenzo Huipulco, DF 14370 México City, Mexico. ¹³School of Psychology, Ulster University, Colleage Avenue, Londonderry BT48 7JL, UK. ¹⁴National School of Public Health, Management and Development, 31 Vaselor Str, 21253 Bucharest, Romania. ¹⁵Department of Psychiatry, University of Ibadan, University College Hospital, Ibadan 51116, PMB, Nigeria. ¹⁶Institute for Development, Research, Advocacy and Applied Care (IDRAAC), Achrafieh, St. George Hospital Street, Beirut, Lebanon. ¹⁷Department of Psychiatry and Clinical Psychology, St George Hospital University Medical Center, Ashrafieh, Beirut 166378, Lebanon. ¹⁸Faculty of Medicine, Balamand University, Rond Point Saloumeh, Sin el Fil, Beirut, Lebanon. ¹⁹Department of Psychiatry, Chinese University of Hong Kong, Tai Po, Hong Kong. ²⁰G/F Multicentre, Tai Po Hospital, 9 Chuen On Road, Tai Po, Hong Kong. ²¹Unidad de Docencia, Investigación Y Formación en Salud Mental, Servicio Murciano de Salud, Murcia Health Service, C/ Lorca, nº 58. -El Palmar, 30120 Murcia, Spain. ²²Instituto Murciano de Investigación Biosanitaria Virgen de La Arrixaca, El Palmar, 30120 Murcia, Spain. ²³Centro de Investigación Biomédica en ERed en Epidemiología Y Salud Pública, El Palmar, 30120 Murcia, Spain. ²⁴Department of Mental Health, Graduate School of Medicine, The University of Tokyo, 7-3-1, Hongo, Bunkyo-ku, Tokyo 113-0033, Japan. ²⁵Department of Psychological Medicine, University of Otago, PO Box 56, Dunedin 9054, New Zealand. ²⁶Departamento de Psiquiatría Y Salud Mental, Facultad de Medicina, Universidad de Buenos Aires, 2155, C1121ABG CABA Paraguay, Argentina. ²⁷Department of Social Medicine, Postgraduate Program in Public Health, Federal University of Espírito Santo, Rua Dr. Eurico de Aguiar, 888/705, Vitória, Espírito Santo—ES 29052-600, Brazil. ²⁸National Institute of Public Health, National Research Institute, 24 Chocimska St., 00-791 Warsaw, Poland. ²⁹Lisbon Institute of Global Mental Health and Chronic Diseases Research Center (CEDOC), Universidade Nova de Lisboa, Campo dos Mártires da Pátria, 130, 1169-056 Lisbon, Portugal.

Received: 30 September 2021 Accepted: 12 January 2022

Published online: 29 January 2022

References

- Ritchie H, Roser M. Mental Health. In: Our world in data. Oxford Martin Programme on Global Development, University of Oxford. 2018. <https://ourworldindata.org/mental-health>. Accessed 12 May 2021.
- Bloom DE, Caferio ET, Jané-Llopis E, Abrahams-Gessel S, Bloom LR, Fathima S, et al. The global economic burden of noncommunicable diseases. Geneva: World Economic Forum; 2011.
- Evans-Lacko S, Aguilar-Gaxiola S, Al-Hamzawi A, Alonso J, Benjet C, Bruffaerts R, et al. Socio-economic variations in the mental health treatment gap for people with anxiety, mood, and substance use disorders: results from the WHO World Mental Health (WMH) surveys. *Psychol Med*. 2018;48:1560–71.
- Nathan PE, Gorman JM Eds. A guide to treatments that work (4th edn). Oxford University Press; 2015.
- Dua T, Barbui C, Clark N, Fleischmann A, Poznyak V, van Ommeren M, et al. Evidence-based guidelines for mental, neurological, and substance use disorders in low- and middle-income countries: summary of WHO recommendations. *PloS Med*. 2011;8:e1001122.
- Cuijpers P. Targets and outcomes of psychotherapies for mental disorders: an overview. *World Psychiatry*. 2019;18:276–85.
- U.S. Department of Health and Human Services (HHS) Office of the Surgeon General. Facing addiction in America: The surgeon general's report on alcohol, drugs, and health. Washington, DC: HHS; 2016.
- Cuijpers P. The patient perspective in research on major depression. *BMC Psychiatry*. 2011;11:89.
- Davis EL, Kelly PJ, Deane FP, Baker AL, Buckingham M, Degan T, et al. The relationship between patient-centered care and outcomes in specialist drug and alcohol treatment: a systematic literature review. *Subst Abuse*. 2020;41:216–31.
- Mercieca-Bebber R, King M, Calvert M, Stockler M, Friedlander M. The importance of patient-reported outcomes in clinical trials and strategies for future optimization. *Patient Relat Outcome Meas*. 2018;9:353–67.
- Deshpande P, Rajan S, Sudeepthi B, Abdul NC. Patient-reported outcomes: a new era in clinical research. *Perspect Clin Res*. 2011;2:137–44.

12. Berwick DM. What 'patient-centered' should mean: confessions of an extremist. *Health Aff (Millwood)*. 2009;28:w555–65.
13. Colman E, Missinne S, Bracke P. The role of perceived helpfulness in predicting subjective unmet need and the frequency of health care use. *Arch Psychiatr Nurs*. 2014;28:43–9.
14. Lippens T, Mackenzie CS. Treatment satisfaction, perceived treatment effectiveness, and dropout among older users of mental health services. *J Clin Psychol*. 2011;67:1197–209.
15. Siqueland L, Crits-Christoph P, Barber JP, Gibbons MBC, Gallop R, Griffin M, et al. What aspects of treatment matter to the patient in the treatment of cocaine dependence? *J Subst Abuse Treat*. 2004;27:169–78.
16. Raney VK, Magaletta P, Hubbert TA. Perception of helpfulness among participants in a prison-based residential substance abuse treatment program. *J Offender Rehabil*. 2005;42:25–34.
17. Rosenblat J, Simon G, Sachs G, Deetz I, Doederlein D, DePeralta D, et al. Treatment effectiveness and tolerability outcomes that are most important to individuals with bipolar and unipolar depression. *J Affect Disord*. 2019;243:116–20.
18. Black N. Patient reported outcome measures could help transform healthcare. *BMJ*. 2013;346:f167.
19. Hill C, Chui H, Baumann E. Revisiting and reenvisioning the outcome problem in psychotherapy: an argument to include individualized and qualitative measurement. *Psychotherapy*. 2013;50:68–76.
20. Vigo D, Haro JM, Hwang I, Aguilar-Gaxiola S, Alonso J, Borges G, et al. Toward measuring effective treatment coverage: critical bottlenecks in quality- and user-adjusted coverage for major depressive disorder. *Psychol Med*. 2020. <https://doi.org/10.1017/S0033291720003797>.
21. Issakidis C, Andrews G. Who treats whom? An application of the Pathways to Care model in Australia. *Aust NZ J Psychiatry*. 2006;40:74–86.
22. Wang PS, Demler O, Olfson M, Pincus HA, Wells KB, Kessler RC. Changing profiles of service sectors used for mental health care in the United States. *Am J Psychiatry*. 2006;163:1187–98.
23. Kessler RC, Üstün TB. The World Mental Health (WMH) survey initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *Int J Methods Psychiatr Res*. 2004;13:93–121.
24. Wang J, Patten SB. Perceived effectiveness of mental health care provided by primary-care physicians and mental health specialists. *Psychosomatics*. 2007;48:123–7.
25. Jackson JS, Neighbors HW, Torres M, Martin LA, Williams DR, Basler R. Use of mental health services and subjective satisfaction with treatment among Black Caribbean immigrants: results from the National Survey of American Life. *Am J Public Health*. 2007;97:60–7.
26. Kuramoto-Crawford SJ, Han B, Jacobus-Kantor L, Mojtabei R. Differences in patients' perceived helpfulness of depression treatment provided by general medical providers and specialty mental health providers. *Gen Hosp Psychiatry*. 2015;37:340–6.
27. Borges G, Aguilar-Gaxiola S, Andrade L, Benjet C, Cia A, Kessler R, et al. Twelve-month mental health service use in six countries of the Americas: a regional report from the World Mental Health Surveys. *Epidemiol Psychiatr Sci*. 2019;27:e53.
28. Al-Habeeb A, Altwajiri Y, Al-Subaie A, Bilal L, Almeharish A, Sampson N, et al. Twelve-month treatment of mental disorders in the Saudi National Mental Health Survey. *Int J Methods Psychiatr Res*. 2020;29:e1832.
29. Karam E, Karam G, Farhat C, Itani L, Fayyad J, Karam A, et al. Determinants of treatment of mental disorders in Lebanon: barriers to treatment and changing patterns of service use. *Epidemiol Psychiatr Sci*. 2019;28:655–61.
30. Kessler RC, Aguilar-Gaxiola S, Alonso J, Chatterji S, Lee S, Ormel J, et al. The global burden of mental disorders: an update from the WHO World Mental Health (WMH) surveys. *Epidemiol Psychiatr Soc*. 2009;18:23–33.
31. Harvard Medical School: the world mental health survey initiative. <https://www.hcp.med.harvard.edu/wmh/>. Accessed 12 May 2021.
32. Harkness J, Pennell B, Villar A, Gebler N, Aguilar-Gaxiola S, Bilgen I. Translation procedures and translation assessment in the World Mental Health Survey Initiative. In: Kessler RC, Üstün TB, editors. *The WHO World Mental Health Surveys: global perspectives on the epidemiology of mental disorders*. New York, NY: Cambridge University Press; 2008. p. 91–113.
33. Pennell BE, Mneimneh Z, Bowers A, Chardoul S, Wells JE, Viana MC, et al. Implementation of the World Mental Health Surveys. In: Kessler R, Üstün T, editors, et al., *The WHO World Mental Health Surveys: global perspectives on the epidemiology of mental disorders*. Cambridge: Cambridge University Press; 2008. p. 35–57.
34. Heeringa SG, Wells JE, Hubbard F, Mneimneh Z, Chiu WT, Sampson N, et al. Sample designs and sampling procedures. In: Kessler RC, Üstün TB, editors, et al., *The WHO World Mental Health Surveys: global perspectives on the epidemiology of mental disorders*. New York, NY: Cambridge University Press; 2008. p. 14–32.
35. Haro JM, Arbabzadeh-Bouchez S, Brugha TS, De Girolamo G, Guyer ME, Jin R, et al. Concordance of the composite international diagnostic interview version 3.0 (CIDI 3.0) with standardized clinical assessments in the WHO World Mental Health surveys. *Int J Methods Psychiatr Res*. 2006;15:167–80.
36. First MB, Spitzer RL, Gibbon M, Williams JBW. Structured clinical interview for DSM-IV axis I disorders, research version, non-patient edition (SCID-I/NP) New York, NY: Biometrics Research, New York State Psychiatric Institute; 2002.
37. Kessler RC. Comorbidity. In: Smelser NJ, Baltes PB, editors. *International encyclopedia of the social & behavioral sciences*. Oxford: Pergamon; 2001.
38. Nierenberg AA, Harris MG, Kazdin AE, Puac-Polanco V, Sampson N, Vigo DV et al. Perceived helpfulness of bipolar disorder treatment: Findings from the World Health Organization World Mental Health Surveys. *Bipolar Disord*. 2021;1–19.
39. Harris M, Kazdin AE, Chiu WT, Sampson NA, Aguilar-Gaxiola S, Al-Hamzawi A, et al. Findings from World Mental Health Surveys of the perceived helpfulness of treatment for patients with major depressive disorder. *JAMA Psychiatr*. 2020;77:830–41.
40. Stein DJ, Harris MG, Vigo DV, Chiu WT, Sampson N, Alonso J, et al. Perceived helpfulness of treatment for posttraumatic stress disorder: findings from the World Mental Health Surveys. *Depress Anxiety*. 2020;37:972–94.
41. de Vries YA, Harris MG, Vigo D, Chiu WT, Sampson NA, Al-Hamzawi A, et al. Perceived helpfulness of treatment for specific phobia: findings from the World Mental Health Surveys. *J Affect Disord*. 2021;288:199–209.
42. Dham P, Colman S, Saperson K, McAiney C, Lourenco L, Kates N, et al. Collaborative care for psychiatric disorders in older adults: a systematic review. *Can J Psychiatry*. 2017;62:761–71.
43. Muntingh A, Van der Feltz-Cornelis C, Van Marwijk H, Spinhoven P, Balkom A. Collaborative care for anxiety disorders in primary care: a systematic review and meta-analysis. *BMC Fam Pract*. 2016;17:1–15.
44. Jeffries V, Slaunwhite A, Wallace N, Menear M, Arndt J, Dotchin J et al. Collaborative care for mental health and substance use issues in primary health care: overview of reviews and narrative summaries. Ontario, Canada: Mental Health Commission of Canada; 2013. <https://www.mentalhealthcommission.ca/English/media/3194>. Accessed 13 June 2021.
45. Kakuma R, Hamilton B, Brophy L, Minas H, Harvey C. Models of Care for people with severe and enduring mental illness: an Evidence Check rapid review brokered by the Sax Institute for the NSW Ministry of Health. Sydney: Sax Institute; 2017. <https://www.saxinstitute.org.au/publications/evidence-check-library/models-of-care-for-people-with-severe-and-enduring-mental-illness/>. Accessed 13 June 2021.
46. Ford KL, Bryant AN, Kim G. Age differences in satisfaction with and perceived benefit from mental health services: results from the collaborative psychiatric epidemiology surveys. *Int J Geriatr Psychiatry*. 2013;28:831–40.
47. Fernández D, Vigo D, Sampson NA, Hwang I, Aguilar-Gaxiola S, Al-Hamzawi AO, et al. Patterns of care and dropout rates from outpatient mental healthcare in low-, middle- and high-income countries from the World Health Organization's World Mental Health Survey Initiative. *Psychol Med*. 2021;51:2104–16.
48. Harris MG, Hobbs MJ, Burgess PM, Pirkis JE, Diminic S, Siskind DJ, et al. Frequency and quality of mental health treatment for affective and anxiety disorders among Australian adults. *Med J Aust*. 2015;202:185–9.
49. Duhoux A, Fournier L, Nguyen C, Roberge P, Beveridge R. Guideline concordance of treatment for depressive disorders in Canada. *Soc Psychiatry Psychiatr Epidemiol*. 2009;44:385–92.
50. Kessler RC, Berglund P, Demler O, Jin R, Koretz D, Merikangas KR, et al. The epidemiology of major depressive disorder: results from the National Comorbidity Survey Replication (NCS-R). *JAMA*. 2003;289:3095–105.
51. Roberge P, Fournier L, Duhoux A, Nguyen CT, Smolders M. Mental health service use and treatment adequacy for anxiety disorders in Canada. *Soc Psychiatry Psychiatr Epidemiol*. 2011;46:321–30.

52. Briffault X, Morvan Y, Rouillon F, Dardennes R, Lamboy B. Factors associated with treatment adequacy of major depressive episodes in France. *Encephale*. 2010;365:D59–72.
53. Bruffaerts R, Bonnewyn A, Demyttenaere K. Mental health in Belgium: current situation and future perspectives. In: Kessler R, Ustün B, editors. *The WHO World Mental Health Surveys: global perspectives on the epidemiology of mental disorders*. New York: Cambridge University Press; 2008.
54. Olfson M, Kroenke K, Wang S, Blanco C. Trends in office-based mental health care provided by psychiatrists and primary care physicians. *J Clin Psychiatry*. 2014;75:247–53.
55. Wainberg ML, Scorza P, Shultz JM, Helpman L, Mootz JJ, Johnson KA, et al. Challenges and opportunities in global mental health: a research-to-practice perspective. *Curr Psychiatry Rep*. 2017;19:28.
56. Elgie R. A patient and primary care perspective: a patient's perspective on the treatment of depression. *J Clin Psychiatry*. 2006;67(Suppl 6):38–40.
57. Priebe S, Miglietta E. Assessment and determinants of patient satisfaction with mental health care. *World Psychiatry*. 2019;18:30–1.
58. Ortiz G. Examining patients' perceptions of care to identify opportunities for quality improvement in psychiatric inpatient hospitals. *Patient*. 2014;7:301–12.
59. Stamboglis N, Jacobs R. Factors associated with patient satisfaction of community mental health services: a multilevel approach. *Community Ment Health J*. 2020;56:50–64.
60. Karlin B, Duffy M, Gleaves D. Patterns and predictors of mental health service use and mental illness among older and younger adults in the United States. *Psychol Serv*. 2008;5:275–94.
61. Alang SM, McAlpine DD. Pathways to mental health services and perceptions about the effectiveness of treatment. *Soc Ment Health*. 2019;9:388–407.
62. Lorenzo-Blanco EI, Delva J. Examining lifetime episodes of sadness, help seeking, and perceived treatment helpfulness among US Latino/as. *Community Ment Health J*. 2012;48:611–26.
63. Bruffaerts R, Posada-Villa J, Al-Hamzawi AO, Gureje O, Huang Y, Hu C, et al. Proportion of patients without mental disorders being treated in mental health services worldwide. *Br J Psychiatry*. 2015;206:101–9.
64. Buchan HA, Duggan A, Hargreaves J, Scott IA, Slawomirski L. Health care variation: time to act. *Med J Aust*. 2016;205:S30–3.
65. Dezzetter A, Briffault X, Alonso J, Angermeyer M, Bruffaerts R, de Girolamo G, et al. Factors associated with use of psychiatrists and nonpsychiatrist providers by ESEMeD respondents in six European countries. *Psychiatr Serv*. 2011;62:143–51.
66. Snyder E, Cai B, DeMuro C, Morrison MF, Ball W. A new single-item sleep quality scale: results of psychometric evaluation in patients with chronic primary insomnia and depression. *J Clin Sleep Med*. 2018;14:1849–57.
67. Turon H, Carey M, Boyes A, Hobden B, Dilworth S, Sanson-Fisher R. Agreement between a single-item measure of anxiety and depression and the Hospital Anxiety and Depression Scale: a cross-sectional study. *PLoS ONE*. 2019;14:e0210111.
68. Macias C, Gold PB, Ongur D, Cohen BM, Panch T. Are single-item global ratings useful for assessing health status? *J Clin Psychol Med Settings*. 2015;22:251–64.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions

