Estimation of service coverage for severe mental disorders: Summary of the methodology

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Background

Mental disorders contribute to 7% of the global burden of diseases and have significant impacts on health and major social, human rights and economic consequences in all countries of the world (Vos et al., 2017; Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015). In addition to causing a large proportion of morbidity, severe mental disorders (SMDs) - i.e. moderate to severe depression, bipolar disorder, and schizophrenia and other psychotic disorders – are linked with comorbid health conditions and increased mortality. People with SMDs have a 2-3 times higher average mortality compared to the general population, reflecting a 10-20 year reduction in life expectancy (Druss, Zhao, Von Esenwein, Morrato, & Marcus, 2011; Hjorthøj, Stürup, McGrath, & Nordentoft, 2017; Liu et al., 2017). The majority of deaths amongst people with SMDs are attributable to co-morbid physical health conditions, both non-communicable (NCDs) and communicable (Liu et al. 2017). Health systems therefore need to respond urgently to this global public health issue.

Evaluations of the limited data that exist suggest that mental disorders are under-treated globally, disproportionately so in low- and middle-income countries (LMICs) (Demyttenaere et al., 2004; Saxena, Thornicroft, Knapp, & Whiteford, 2007; Shidhaye, Lund, & Chisholm, 2015). Reliable mental health information for scaling up and monitoring mental health services is needed for service planning, improving transparency, resource allocation and improving service provision.

The Sustainable Development Goals make specific reference to universal health care of mental health under target 3.4 *(By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being*).

In 2013, the World Health Assembly implemented the WHO's Comprehensive Mental Health Action Plan 2013-2020[1], which articulated pragmatic guidelines for the delivery of services, especially in LMICs (World Health Organization, 2013). The action plan includes the target *'service coverage for severe mental disorders will have increased by 20% [by the year 2020]*' and the accompanying indicator *'the proportion of persons with a SMD (psychosis, bipolar affective disorder, moderate-severe depression) who are using services'*. The Seventy-second World Health Assembly (2019) extended the period of the action plan to 2030 in order to ensure their alignment with the 2030 Agenda for Sustainable Development.

This document provides the methodology for estimation of service coverage for severe mental disorders. The metadata for the indicator is provided below in Table 1. The methodology for the estimation of cases of severe mental disorders is based on the using data collected through WHO's Mental Health Atlas (https://www.who.int/mental_health/evidence/atlas/mental_health_atlas_2017/en/). The Atlas provides a tool for monitoring Member State mental health systems and is the most comprehensive source of information relating to mental health on a global scale (*Mental Health Atlas 2014*, 2014; *Mental Health Atlas 2017*, 2018). The Atlas includes data for service utilization of severe mental disorders in specialist mental health services. Data on service utilization from earlier years between

[1] https://apps.who.int/iris/bitstream/handle/10665/89966/9789241506021_eng.pdf;jsessionid=EF513014F3C1F763FD5E8202A7B592FD?sequence=1

2003-2010 is also available from WHO AIMS reports which includes data from 80 countries (https://www.who.int/mental_health/evidence/WHO-AIMS/en/).

Table 1: Service utilization indicator metadata:

Indicator	Proportion of persons with severe mental condition who are using services
Definition	Severe mental disorder: psychosis; bipolar affective disorder; moderate-severe depression
Method of estimation	$\text{Service coverage} = \frac{\text{Number of people in receipt of services}}{\text{Number of people with severe mental disorders}} \times 100\%$
Numerator	Cases of severe mental disorders in receipt of services in a given year
Denominator	Total cases of severe mental disorder in the sampled population in a given year
Preferred data sources	Facility surveys; Routine information systems; Population-based household surveys; Modelling of prevalence using GBD data (for denominator)
Other possible data sources	Administrative data
Disaggregation	By disorder
Expected frequency of data collection	Every 3-5 years. For example, the Mental Health Atlas collects data every 3 years on the proportion of people with mental disorders served by mental health systems.
Limitations	Current metrics only relate to specialist mental health services.
Data type	Percentage
Related links	http://www.who.int/mental_health/publications/action_plan/en/ http://www.who.int/mental_health/evidence/atlas/mental_health_atlas_2017/en/

Methodology to estimate service coverage for severe mental disorders

Service coverage for SMD is defined as the proportion of people with a disorder contacting a mental health service (service utilisation) among those estimated to have the disorder (prevalence) over one year.

The data source for **service utilisation** data is from the Mental Health Atlas 2017 cross-sectional surveys, specifically data from specialist (inpatient and outpatient) mental health facilities (not primary healthcare) for non-affective psychosis, bipolar affective disorder and depression.

Expected prevalent cases of individual disorders were estimated, using the disorder-specific prevalence rate and total population.

$$Expected\ cases = \frac{prevalence\ rate}{total\ population}$$

If a country did not report its population size or its population size was dramatically different compared to UN population estimates, UN estimates were used. We used disorder-specific prevalence rates (point prevalence for major depressive disorder and schizophrenia, and 12-month prevalence for bipolar disorder) as estimated by from GBD 2016 (Vos et al., 2017).

Reliability of country data were checked at this stage – data were considered potentially reliable if the number of admissions or visits per individual case was equal to or greater than 1. Unreliable data

was excluded. To prevent double-counting of individuals who had used both inpatient and outpatient facilities, total service coverage rates were adjusted to appropriately reflect the total number of unique cases of individuals utilising mental health facilities. To determine if data related to cases rather than visits, maximum and minimum estimates of service coverage per income group were generated, based on the published literature. For example, for psychosis, the lower limit was based on World Mental Health Survey (WMHS) data showing 12-month service use split by severity of mental disorder, of which the lower confidence interval for the severe category was chosen for one representative country per income group (Wang et al., 2007). No upper threshold was set for psychosis. Similar methodology was used to set thresholds for depression and bipolar disorder. Service coverage estimates were excluded if they fell outside of these thresholds.

Based on this methodology, following initial exclusions, the sample comprised of 70 countries reporting on non-affective psychosis, 64 countries reporting on bipolar disorder, and 66 countries reporting on depression, out of a total of 177 countries. After thresholds were applied, the final numbers were 37, 40 and 43 countries respectively, reporting seemingly reliable treatment coverage estimates from the Atlas 2017 data. This represents all 6 WHO regions (except for bipolar which is missing data from SEAR) and all 4 World Bank income regions.

Psychosis can be used as a tracer indicator for severe mental disorders given the limitations in data quality for depression and bipolar disorder. For non-affective psychosis, 4 low- and 12 lower-middle-income countries were found to have reported reliable and valid service utilisation data; providing a mean service coverage of 15% (95%CI -7-36) and 21% (95%CI 9-32), respectively. There were 11 upper middle-income countries with a mean service coverage of 27% (95%CI 17-40). Only high-income countries reported a mean service coverage above 50% (95%CI 39-65).

European regions and the Asia-Pacific High-income region (one country only) also reported service coverage above 50%. Eastern Europe reported the highest service coverage at 60%, although this was also only one country. The mean service coverage across all countries was 30% (95%CI 21-36).

Table 2: Estimates of service coverage for non-affective psychosis using Atlas 2017 Grouping	**n**	**Median**	**IQR**	**Mean**	**95% CI**
Income					
Low income	4	12%	5–22%	15%	-7–36%
Lower middle-income	12	15%	9–24%	21%	9–32%
Upper middle-income	11	21%	14–27%	27%	17–40%
High income	10	58%	41–62%	52%	39–65%
WHO region					
AFR	5	6%	4–18%	12%	-3–28%
AMR	10	18%	10–35%	23%	12–35%
EMR	4	15%	11–17%	14%	1–26%
EUR	11	57%	36–62%	50%	37–63%
SEAR	1	41%	–	41%	–
WPR	6	18%	16–49%	31%	3–64%
Overall (for non-affective psychosis)	37	21%	14–49%	30%	21–36%
Overall (for all SMDs)	43	11%	6–23%	16%	12–21%

Expert consultation is planned in October 2018 to review the methodology for service coverage estimations and to plan data collection from other countries.

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