Modelling Target Workforce Estimates For Community-Based Mental Health Services In Lebanon

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Abstract

Background: Mental health services in Lebanon are weakly integrated in the health system due to a huge political unrest, cultural and societal stigma, and more importantly, due to the inappropriate planning of human resources. A shift of the mental health services in Lebanon from hospital-based care into community-based care and efficient planning of human resources became a priority given the increasing burden of mental health disorders as a consequence of socio-political and economic crises: the bordering Syrian war, the massive influx of refugees, the huge inflation rate and above all the Beirut explosion.

Methods: The WHO-ATLAS was conducted in 2019 as well as the WHO-AIMS in 2015 to map mental health services in Lebanon. Data from those two reports was plugged into the service needs calculator; an economic tool including epidemiology of eight priority mental health packages and target population, outpatient service use/needs and inpatient service use/needs. Total full-time equivalents (FTE) were calculated for psychiatrists, nurses and psychosocial care providers. All formulas were extracted from the WHO “Planning and Budgeting to deliver mental health services” module of the Mental Health Policy and Service Guidance Package.

Results: For an effective community-based mental health system in Lebanon, there is additional need for 182 (+16%) psychiatrists, 762 (+68%) nurses and 184 (+16%) psychosocial care providers; a total increase of 1,128 mental health workforce.

Conclusions: A proper workforce skill mix for an optimal utilization of the existing staff is recommended. New models will need to account for task shifting to attempt to close the gap between what is needed and what is available.

Background

Mental health and substance use disorders are of paramount public health concerns, as measured by prevalence, disability, burden of disease, and mortality. In the last decade, the World Health Organization (WHO) reported at least 10% of the world population experiencing mental health disorders (1, 2). The growing need for reliable data has been critical for the planning of mental health and substance use response, more so, in low-middle income countries (LMIC) with weak health systems infrastructures. Workforce is a key component of health system performance and reliable data is problematic in that area. Many countries and particularly LMIC suffer from measurements related to workforce capacity, which can tremendously support planning efforts and informing related policies. Globally, workforce for mental health is in shortage, even greater in the Eastern Mediterranean Region (3-5).

Lebanon is a middle-income country of the Eastern Mediterranean Region, where the private sector has been flourishing and expanding at the expense of the public sector. Over the past decade, the Ministry of Public Health (MOPH) progressively regained its presence in the health system with focus on the Primary Health Care (PHC) expansion (6). Although mental health services were readily available in the private sector, they remained poorly integrated in the delivery of health services in the public sector, not only due

to social stigma and centralization of services but also due to a workforce gap. However, there is limited evidence that addresses this gap.

According to latest evidence by Karam, El Chammay (7), around 4.6% of the adult Lebanese population experienced a severe mental disorder during their lifetime (including depression and anxiety). In addition, around 25.8% met the criteria for at least one of the mental disorders and 10.5% experienced more than one disorder at some point in their lives (8). At the level of primary health care, demand for mental health care services has been increasing but provision of these services has been suboptimal (9). The WHO – ATLAS report conducted in 2019 and the WHO-AIMS conducted in 2015 in Lebanon describe the scarce interaction between specialized mental health and primary care as highlighted by a lack of referral system between levels of care and the insufficient training of primary health workers on mental health (10, 11).

In view of the present political instabilities, the overflow of refugees in the country, and the huge economic crisis, a quantitative assessment of the mental health workforce in Lebanon is urgently needed to provide decision-makers with the appropriate mental health human resources recruitment and retention policies and planning (12, 13). The National Mental Health Programme at the MOPH launched in 2015 the National Mental Health Strategy for Lebanon (2015-2020) and is now in the process of updating it to be in compliance with the comprehensive mental health action plan (2013-2030) endorsed by the Seventy-fourth World Health Assembly (14). Domain 2 of this strategy addresses reorientation of mental health services with the focus on integration of mental health care into primary health care and building a referral system between all levels of care. This calculation has not been carried out in the country and is well needed to inform planning and evidence-based decision-making in the re-orientation of services towards community-based mental health services particularly that the ministry of public health is in the process of launching the Universal Health Coverage Packages funded by the World Bank (15). A couple of studies by the WHO team have proposed a thorough model to assess the needs of the specified country in current workforce requirements and set target numbers in terms of human resources to meet those needs (16, 17). The current analysis is based on this model.

This study aims at generating country-specific estimates of mental health workforce required to adequately cater for those in need of mental health care in Lebanon and to inform decision-making and planning.

Objectives

- To set target estimates for mental health workforce to address the burden of mental health disorders in Lebanon; and
- To make explicit the assumptions on which planning for mental health services is based.

Methodology

The model consists of seven steps: (1) estimating the current mental health workforce; (2) estimating the need for mental health services for the eight disorders; (3) estimating the prevalence of the eight priority disorders; (4) setting treatment coverage targets for each of the eight disorders; (5) setting service delivery model for each of the eight disorders; (6) estimating the full-time equivalent staff (FTE) for each profession and for each treatment setting based on targets set in steps 4 and 5; and (7) computing the difference between workforce needed to reach target coverage and current workforce.

We have focused on eight priority disorders based on the WHO - mental health Gap Action Programme (mhGAP) priority mental, neurological, and substance use disorders, namely depression, psychosis, epilepsy, dementia, drug use and alcohol use disorders, developmental and behavioural disorders, and suicide (18). These conditions were selected because they cause impairment in children and adults, impose significant disability, morbidity and mortality, largely contribute to the global burden of disease, and can be associated with violations of human rights. For each of the selected disorders, epidemiological data used was based on the regional prevalence, the Global Burden of Disease (GBD) study (19), in addition to the data on health services generated by the WHO-Atlas and the WHO Assessment Instrument for Mental health Systems (WHO- AIMS).

1. Current mental health workforce

The WHO-AIMS and the WHO-Atlas provide a comprehensive summary of the country's mental health system. These two assessment tools contain indicators that cover domains such as policy and legislative framework; mental health services; mental health in primary care; human resources; public education; and monitoring and research. An initial assessment for Lebanon was done back in 2015 and another one in 2019 (11, 20). The workforce data was retrieved from the human resources domain, specifically from the indicator on "number of staff working in or for mental health facilities or private practice". The reported numbers of the different professionals were grouped into three categories: psychiatrists, nurses and psychosocial care providers. Nurses included general nursing staff providing mental health services and psychiatric nurses; psychosocial workers included psychologists, social workers and occupational therapists. The rationale behind grouping the professionals in these categories is related to the formal pre-service training received and the fact that they often carry out the same range of tasks.

2. Needs-based mental health workforce

Population-based estimates of the prevalence of the priority disorders outlined in the mhGAP were calculated. Health-care service delivery models were applied and the staffing ratios (both adapted from (17)) were multiplied to the expected volume of inpatient and outpatient services in order to yield target amounts of psychiatrists, nurses, and psychosocial support providers. All health professionals outside mental health (i.e. paediatricians) as well as those in "mixed practice" (i.e. neurologists) were excluded.

3. Prevalence of priority disorders

Like the majority of low and middle-income countries (LMICs), Lebanon does not routinely conduct population-based surveys. The latest prevalence study was done by Karam et al. and dates back to 2003 (8). Therefore sub-regional prevalence estimates generated by the 2010 GBD study were included (19).

4. Treatment coverage targets

Three factors were taken into consideration when determining target treatment coverage percentage for each priority disorder; (1) the severity of the disorder; (2) the ability to detect cases in the population; and (3) the probability that identified cases will seek care (table 1).

5. Service delivery models

An exhaustive service delivery model was applied on each of the eight priority disorders selected for this exercise. Details of the modelling are explained in a separate article (17). The development of these models was based on the results of the WHO sub-regional cost-effectiveness studies (21-23) and on the international needs assessments research in developing countries (17, 24). Calculation of health service needs was done separately for each disorder before adding the values to obtain an aggregate estimate. In keeping with the WHO model (25), inpatient services were divided into acute beds; community residential long stay beds and mental hospitals long stay beds whereas for outpatient services they were divided into day care, hospital outpatient and primary health care (11).

Treatment models were built based on the percentage of cases that need care in each service setting; the average annual number of health care visits per person; and whether the patient required a hospital bed. Data for this section was retrieved from several sources at the premises of the MOPH as well as from the WHO-Atlas and the WHO-AIMS reports. The assumptions of this model were that most of the cases receive treatment at the primary health care level and more complex or severe cases are referred to a specialist – the principal of a community-based model mental health service (26-28). Therefore all three categories of professionals are expected to deliver most of the services in the “outpatient and day care” setting in low-middle income countries (LMICs) (13). Data from the inpatient and outpatient services was collected.

6. Mental health workforce staffing

The total number of full-time equivalent (FTE) staff was derived for both inpatient and outpatient settings, with FTE described as the number of working hours corresponding to one full-time employee during a fixed year.

By applying the WHO workforce capacity estimates, we were able to calculate the workforce requirements for outpatient services for each of the three categories of professions. The estimation is based on the assumption that staff work for 225 days per year and provide an average of 11 consultations per day.

For inpatient FTE, we used the estimated bed-days as an indicator. The staff:bed ratio was multiplied by the targeted number of inpatient beds for disorders that require inpatient stay to get the FTE for

inpatients. The underlying assumption was 85% capacity operation of hospitals (general hospitals providing psychiatric services as well as psychiatric hospitals).

7. Workforce shortage or surplus

A sum of the needs-based inpatient and outpatient full-time equivalent staff was generated to reach a single targeted total. This total was then subtracted from the current staffing levels given in WHO-Atlas report. This difference reflects the magnitude of the mental health workforce shortage (if negative) and surplus (if positive).

Results

Following the WHO-Atlas and the WHO-AIMS methodologies, the following numbers were obtained. The total number of mental health workers in public mental health facilities, non-governmental organizations (NGOs), and private practice is 15.27 per 100,000 population. An estimate of 1.26 psychiatrists, 3.26 nurses, 3.42 psychologists, 1.38 social workers, and 1.06 occupational therapists, working in mental health per 100,000 population was found (figure 1).

In Lebanon, 42 mental health outpatient facilities (both private and NGO supported) provide services for approximately 75 patients per 100,000 population. There are 28.52 beds per 100,000 population in four mental hospitals. An estimate of 47.41 patients per 100,000 population get services from the four mental hospitals. The occupancy rate is 97%. Eight community-based psychiatric inpatient units are available. They operate with a capacity of 1.5 beds per 100,000 population.

Additionally, there are 0.40 psychiatrists per bed in community-based psychiatric inpatient units, in comparison with 0.01 psychiatrists per bed in mental hospitals. Moreover, there are 0.55 nurses per bed in community-based psychiatric inpatient units, compared to 0.13 per bed in mental hospitals. Psychologists, social workers, and occupational therapists, add up altogether to 0.72 per bed in community-based psychiatric inpatient units whereas to 0.01 per bed in mental hospitals. Finally, for the other health or mental health workers, there are 1.35 per bed in community-based psychiatric inpatient units and practically none in mental hospitals (figure 2). The number of mental health care workers in the different service settings is provided in table 2.

After inputting all required numbers in the service needs calculator of the mhGAP costing tool, it rendered what is needed for an effective community-based mental health program. Numbers showed that there would be an additional need for 182 (+16%) psychiatrists, 762 (+68%) nurses and 184 (+16%) psychosocial care providers; a total increase of 1,128 mental health workforce. Table 3 provides a summary of the target estimates for the three categorized professions. The difference in all three is negative, which clearly illustrates a workforce shortage in all of the above professions. There is a larger shortage in mental health nurses as compared to an almost equal shortage of psychiatrists and psychosocial care providers.

Discussion

This is the first evaluation of the mental health staffing in Lebanon, which was based on the current workforce estimates. The results are comparable to the results of other LMICs where mental health services are weakly incorporated into a community-based model and downsizing of psychiatric hospitals is still problematic (13, 29). Using the same model and approach, in Morocco, a middle-income country from the Eastern Mediterranean region, approximately the same target number of psychiatrists would be needed, 181 psychiatrists, whereas the number of nurses and psychosocial care providers needed is greater than in Lebanon, 4359 and 2610 respectively. In Jordan and Egypt, there is an adequate number of psychiatrists but a shortage in nurses and psychosocial care providers (13, 29, 30). The needed number of psychosocial care providers in Lebanon is similar to the number needed in middle-income countries of Europe or America (23). This might be related to the fact that, in Lebanon, there is an inverted trend of human resources, as there are more specialized professionals than professionals for the general medical issues (31).

While 1 out of 10 persons with mental health disorders in need of treatment reach any type of service, the supply of human resources able to meet those needs remains problematic (20). For more than 3 years, the Ministry of Public Health priority has been to integrate mental health into primary healthcare and to develop community-based multidisciplinary mental health teams, scaling up care for mental health disorders. With the advent of the Syrian crisis, the displacement to Lebanon of more than a million Syrians, and the excruciating economic burden, public healthcare systems became overstretched, thus requiring more urgent work on scaling up care for mental health disorders. This study contributes in filling the research gap in Lebanon by providing healthcare planners with transparent quantitative estimates to orient the “scale up” of human resources needed to meet the mental healthcare needs of the populations residing in Lebanon where mental health needs are regarded as a luxury and not merely a critical health priority (27).

Additionally, in a December 2020 assessment, the World Bank warned that brain drain was becoming an “increasingly desperate option” in Lebanon, as the economic crisis ranks in possibly the top three most severe crises in the world since the mid-19th century (32). This massive migration of mental health professionals to developed countries perpetuates a maldistribution of financial and health resources away from the Lebanese population already suffering from poor public health and weak delivery infrastructures. This brain drain continues unabated and there is no serious attempt to address it from the Lebanese government. Subsequently, in order to tackle this issue, an elaborate and clear strategy is needed to enforce structural adjustments in the public health sector and the financial system at a governmental level (33).

This theoretical model would need to be coupled with costing methodologies to inform policy makers and to provide a comprehensive and practical implementation tool to support the shift towards community-based mental health services.

However, caution should be exercised when interpreting the recommendations of this model. The nature of the service is highly dependent on the quality of service delivery. The credibility and possible implementation of these recommendations must be informed by consultation with service providers, service users, and professional bodies as suggested by previous studies (26). Although findings have shown a shortage of human resources in addressing the budding mental health needs in community-oriented services, however, the current Lebanese workforce is considered in surplus of specialized personnel. The problem is the concentration of these professionals in specialized rather in community care and their centralization in the capital and their shortage in remote and rural areas.

Therefore, various strategies may be optimal to an efficient utilization of the current workforce through an appropriate workforce skill mix (34). These would appeal to the shared competencies, to the substitution between health professions and to the multitude of tasks performed by a specific category of health providers. Furthermore, rationally redistributing tasks among teams, known as task shifting, might compensate for the shortages among mental health professionals while incentivizing professionals to work in peripheries to ensure decentralization.

In addition, providing an estimate of the target mental health workforce needs for the three professional categories has to be accompanied by proper training to address the deficit in mental health service access (35). Well-coordinated management mechanisms and incentives remain essential for the success of these strategies (36).

In brief, the study supports redirecting the current mental health resources from hospital- to community-based care followed by a thrust for greater equity in the distribution of resources and the accessibility of services. The model used provides a potentially valuable planning and management tool, both for calculating resource needs and for lobbying for better service provision through a conceptualization of the service needs of patients. The thorough methodology leads to evidence-based results that would inform the implementation of a national policy for mental health human resources. This would result, on the long-term, in an increased community access to mental health services and hence, improve the harmful consequences of mental disorders.

Limitations

The prevalence data that was used in the calculations to estimate the service coverage in Lebanon is based on a regional estimate because national data is outdated and hence the estimated target numbers may slightly differ.

Furthermore, the eight mhGAP priority disorders identified by the WHO were focused on, whereas other disorders, comprising about 25% of the burden of mental, neurological and substance use disorders, such as personality disorders, were excluded. Thus, an under-estimation of mental health workforce is conceivable. Sensitivity analyses were performed separately, in the WHO model, to account for the variability in the estimates as they are approximations rather than definite numbers.

Although studies have eluded, in broad terms, to the increased risk of developing mental health disorders due to poverty and to the greater risk of sliding into poverty among people living with mental disorders (4, 37), quantification of the impact of poverty, deprivation and social isolation on the mental health of the population was not possible. Without taking these factors into account, the modelling stipulates an under-estimation of expected mental health service needs.

Conclusion

At a minimum, the model allows for a more rational approach to decision-making and makes the assumptions on which services are planned more explicit. Recommendations for further research comprise: 1. reporting and analyzing intra-governorate data; 2. developing costing methodologies relative to the model; 3. including population-based factors in the analysis such as migration, poverty, deprivation and social isolation.

Mental health workforce is one component in shifting towards community-based services. Other components that the MOPH is working on are reforming the law, developing accreditation criteria for different levels of care as well as establishing care pathways to ensure continuum of care.

Abbreviations

WHO-AIMS: WHO Assessment Instrument for Mental Health Systems, FTE: Full Time Equivalent, mhGAP: mental health Gap Action Programme, GBD: Global Burden of Disease, LMIC: Low- and Middle-Income Country, MOPH: Ministry of Public Health, NGO: Non-Governmental Organization, PHC: Primary Health Care, WHO: World Health Organization

Declarations

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Ethics approval and consent to participate

Because this is a study of the mental health workforce in Lebanon research ethics was not applicable. The instruments are routinely used by the MOPH, namely the WHO-Atlas and WHO-AIMS to assess its mental health system and its related components.

Consent for publication

Not Applicable.

Availability of data and materials

The datasets for this study are available. Requests to access the datasets should be directed to national

mental health programme at this email address perrine.posbic@nmhp-lb.com.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Kheir and Bteich conceptualized the research focus and question, Kheir and Zoghbi transcribed and analyzed the data under the supervision of El Chammay and Rady. The manuscript was written by Kheir, Zoghbi and Bteich. El Chammay and Rady served as major contributors in supervising, editing the manuscript and relating the study's findings to the literature. All authors read and approved the final manuscript.

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Tables

Table 1: Treatment coverage targets

Mental Disorder	% Cases needing care	Target coverage
Schizophrenia	100%	80%
Bipolar	100%	80%
Depression	100%	50%
Suicide / self-harm	100%	50%
Epilepsy	100%	80%
Dementia	50%	50%
Alcohol Use Disorder	50%	25%
Opioid Use Disorder	100%	50%
Other Drug Use Disorders	100%	50%
Childhood intellectual Disabilities	100%	50%
Childhood Conduct/Behavioral Disorders	50%	50%
Childhood Emotional Disorders	50%	50%

Table 2: Number and percent of current mental health workforce who deliver services for severe mental disorders in Lebanon (2019)

Facility		Psychiatrists		Nurses		Psychosocial care providers		Total	
		#	%	#	%	#	%	#	%
Outpatient	Day care	3	23%	1	8%	9	69%	13	100%
	Hospital outpatient	27	25%	22	20%	59	55%	108	100%
	Primary health care	2	7%	12	43%	14	50%	28	100%
Inpatient	Mental hospital (Long Stay)	11	5%	195	91%	9	4%	215	100%
	Community residential (Long Stay) ☒	2	13%	11	69%	3	19%	16	100%
	General hospital Inpatient unit	34	24%	47	33%	61	43%	142	100%

Table 3: Target estimates for mental health workforce by professions in a community-based model in Lebanon

	<i>Current Workers per 100,000 population (2014)</i>	<i>Target Workers per 100,000 population</i>	<i>Difference</i>	<i>Suggested increase</i>
Psychiatrists	1.26	4.5	-3.23	182
Nurses	3.26	16.8	-13.50	762
Psychosocial care providers	5.9	9.2	-3.26	184
Total	10.42	30.4	-19.99	1128

Figures

Figure 1

Mental Health workforce in Lebanon in 2019 (rate per 100,000 population)

Figure 2

Staff working in Mental Health facilities in Lebanon in 2019