

THE LATIN AMERICAN TREATMENT AND INNOVATION NETWORK IN MENTAL HEALTH (LATIN-MH): RATIONALE AND SCOPE

*RED LATINOAMERICANA DE TRATAMIENTO E INNOVACIÓN EN SALUD MENTAL (LATIN-MH): JUSTIFICACIÓN
Y ALCANCE*

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Abstract

Over the past 60 years Latin American countries have been experiencing noticeable demographic and socio-economic changes, with marked impact on the population health in the region. There is growing recognition of the co-morbidity among mental and physical health problems impacting heavily on health care systems. These challenges open many opportunities for transformational change in the expanding field of global mental health. Given the growing evidence for the wide applicability and efficacy of specific components included in mental health treatment packages, research should focus more on improving the organization and efficiency with which we deliver these specific treatment components already proven to be efficacious. The Latin American Treatment and Innovation Network in Mental Health (LATIN-MH) is a research and training Hub based in Sao Paulo, Brazil, and Lima, Peru. It aims to address the co-morbidity between physical and mental chronic diseases, exploring the opportunity to use technology to support the treatment of these conditions. LATIN-MH strives to move beyond specific single-disease approaches and research silos, whilst maximizing the opportunities to work collaboratively with various groups in the Latin American region, thus contributing to fostering research and building capacity in mental health research.

Key Words: Mental Health, Chronic Disease, mHealth, Capacity Building (MeSH)

Key concepts:

Chronic diseases have now become the major determinants of the disease burden in Latin America, whereas psychiatric disorders accounted for almost one-third of years lived with disability worldwide in 2005.

LATIN-MH is a research and training hub that aims to address the co-morbidity between physical and mental chronic diseases using technology to support their treatments.

LATIN-MH strives to move beyond specific single-disease approaches and research siloes, whilst maximizing the opportunities to work collaboratively with various groups in the Latin American region, thus contributing to foster research and build capacity in mental health research.

LATIN-MH is built on three driving principles: (i) building capacities to ensure sustainability and autonomy of mental

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Competing interests

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health services, (ii) developing strategic interdisciplinary partnerships, and (iii) integrating mental health treatment into primary care and community health systems.

Resumen

Los países latinoamericanos han experimentado un cambio demográfico y socioeconómico notable en los últimos 60 años, los mismos que han tenido un efecto en la salud de las poblaciones de la región. Existe un creciente reconocimiento de la comorbilidad entre los problemas de salud físicos y mentales, que son los que más impactan a los sistemas de salud. Estos desafíos abren las posibilidades de lograr un cambio transformacional en el campo de salud mental global. Dada la amplia evidencia para la aplicabilidad y eficacia de los componentes específicos incluidos en los paquetes de tratamiento de salud mental, la investigación debe enfocarse más en mejorar la organización y eficacia con la cual proveemos estos componentes específicos que han demostrado ser eficaces. El Latin American Treatment and Innovation Network in Mental Health (LATIN-MH) es un nodo de investigación y entrenamiento basado en Sao Paulo, Brasil y Lima, Perú. Su meta es atacar la comorbilidad entre salud física y mental, explorando la oportunidad de usar tecnología para apoyar el tratamiento de estas condiciones. LATIN-MH busca ir más allá de estrategias de enfermedades únicas y silos de investigación, mientras se maximiza las oportunidades de trabajar en colaboración con varios grupos de la región latinoamericana para fomentar la investigación y crear capacidades en salud mental.

Palabras Clave: Salud Mental, Enfermedad Crónica, Creación de Capacidad (DeCS)

Conceptos clave:

Las enfermedades crónicas se han convertido la mayor determinante de la carga de enfermedades en América Latina, mientras que los desórdenes psiquiátricos representan casi un tercio de los años vividos con discapacidades en el 2005.

LATIN-MH es un nodo de investigación y entrenamiento que busca atacar las comorbilidades entre salud física y mental y usar tecnología para apoyar sus tratamientos.

LATIN-MH busca ir más allá de estrategias para enfermedades únicas y silos de investigación, mientras se maximiza las oportunidades de trabajar en colaboración con varios grupos de la región latinoamericana para fomentar la investigación y crear capacidades en salud mental.

LATIN-MH está construido en tres principios fundamentales: (i) crear capacidades para asegurar la autonomía y sostenibilidad de los servicios de salud mental, (ii) desarrollar asociaciones interdisciplinarias estratégicas, e (iii) integrar el tratamiento de salud mental al sistema de atención primaria y los sistemas de salud comunitaria.

Introduction

The US National Institute of Mental Health (NIMH), together with other major institutions and collaborators, has led the charge towards addressing the Grand Challenges in Mental Health around the world^{1, 2}. NIMH is currently supporting five Collaborative Hubs for International Research in Mental Health. Two Hubs concentrate activities in the Latin American region: Regional Network for Mental Health Research in Latin America (RedeAmerica)³, and Latin American Treatment and Innovation Network in Mental Health (LATIN-MH)⁴.

The purpose of this commentary is to present current ongoing opportunities in the field of global mental health and to introduce LATIN-MH to the wider

Latin American audience. LATIN-MH is a research and training Hub based in Sao Paulo, Brazil, and Lima, Peru. LATIN-MH aims to address the comorbidity between physical and mental chronic diseases, exploring the opportunity to use technology to support the treatment of these conditions. In this review we start by addressing some pressing issues related to global mental health, ranging from disease burden, effectiveness and health services research, as well strategies required to match needs with available resources such as task shifting and advancing technology. We then continue presenting some specific features of LATIN-MH, including its activities and driving principles.

Opportunities for Global Mental Health

Over the past 60 years Latin American countries have been experiencing noticeable demographic and socioeconomic changes, with marked impact on the population health in the region⁵. These socio-demographic changes include massive rural/urban migration, decreasing fertility rates and higher life expectancy, leading to the growth of an increasingly older population mostly located in the periphery of the largest cities^{6, 7}. Together with these socio-demographic changes, lifestyles have also changed. We have witnessed a nutritional transition, where under-nutrition as a public health problem has been replaced by rising rates of obesity⁸. There has been an increase in other unhealthy behaviors, which are regarded as risk factors for the most burdensome chronic diseases, such as physical inactivity and smoking^{9, 10}. The importance of depression has also been recognized as a major problem, both as a single condition and more often as part of a complex clinical picture, in which multiple conditions and risk factors are combined¹¹. We are faced with an unprecedented challenge of individuals living longer but with an increased probability of living with chronic co-morbid conditions that are taxing individually and within society as a whole.

In this new scenario, chronic diseases have now become the major determinants of the disease burden in Latin America^{9, 10}. The growing relevance of chronic diseases for global health has been recognized in recent years and led to a recent declaration by the UN General Assembly¹², where member states agreed that chronic diseases are a major public health priority and pledged to endorse a series of measures to reduce the burden of cardiovascular diseases, cancer, diabetes and chronic respiratory diseases. Unfortunately, mental disorders were left out of the declaration, despite epidemiologic research clearly establishing the significant public health importance of mental disorders in low- and middle-income countries (LMIC) and the chronic nature of many of these disorders¹³⁻¹⁵. More importantly, there is growing recognition of the comorbidity among mental and physical health problems impacting heavily on health care systems.

Mental health, physical chronic diseases and its comorbidities

In terms of burden, psychiatric disorders accounted for almost one-third of years lived with disability worldwide in 2005¹⁶. Contrary to the stereotype, mental disorders accounted for nearly as great a proportion of the disability burden in LMIC as in

high-income countries. In Latin America, psychiatric conditions represented 8.8% of the overall global burden of disease (using the disability-adjusted life year, DALYs) in 1990; a proportion that grew to 22.2% by 2002¹⁷. Depressive disorders are the leading cause of DALYs among women in the region, while they come fourth after violence, alcohol use disorders, and non-intentional lesions among men¹⁸. Most recent estimates from year 2010 also identified depressive disorders as a leading cause of disease burden worldwide¹⁹. This finding also signals that population growth and ageing means more of the population are living to the age where depressive disorders are prevalent, hence a higher disease burden.

As for mental disorders, in general, it has been estimated that approximately 20% of adults in LMIC experience a mental health or substance use disorder each year¹⁴. A review of relevant epidemiological studies in Latin America in the last 20 years show that the mean 12-month prevalence of major depression was 4.9% and 11% after including dysthymia and anxiety disorders¹⁸. In São Paulo, Brazil, the World Health Survey²⁰ found that 18.8% of the adult population sampled reported having received a diagnosis of depression in the last 12 months, the highest among 10 developed and eight developing countries participating in this study. Other community surveys have found that 5-10% of adults meet criteria for ICD-10 depression in Brazil^{21, 22}.

Studies using broader criteria for common mental disorders (including mixed depressive and anxiety states) report that approximately 30% of Brazilian adults experience such disorders at any given time²³⁻²⁵. Similar prevalence rates have been estimated in Peru¹⁰ and in Lima, with almost 7% of the population suffering from depressive symptoms of clinical significance²⁶. The great majority of individuals with mental disorders do not receive any treatment. For example, the World Mental Health surveys found that the proportion of people with a severe mental health condition who reported receiving any treatment in the 12 months prior were typically 10-25% in LMIC, compared to 50% or more in higher-income countries^{14, 27, 28}.

In addition, mental disorders amplify the morbidity and disability associated with other health conditions²⁰. For example, depression is strongly associated with diabetes and heart disease, non-adherence to medical treatments, and progression of disability across a range of chronic conditions²⁹. Depression is also associated with smoking³⁰ and

alcohol³¹⁻³³. A consistent association between mental disorders and poverty suggests that common mental disorders may also be a significant barrier to economic development³⁴.

Effectiveness and health services research

Growing evidence supports the efficacy of core treatments for common mental disorders across a wide range of cultures, language, and economic development²⁹. Randomized trials conducted in LMIC consistently support the efficacy of numerous specific treatments tested in higher income countries including: pharmacotherapy and brief psychotherapies to reduce depressive symptoms, pharmacotherapy to reduce psychotic symptoms, family interventions to reduce risk of relapse in schizophrenia, and brief motivational interventions to reduce alcohol use²⁹. Even though we do not have strong evidence for all specific therapies for all common mental disorders across all cultures or ethnic groups, we have yet to find a specific treatment (pharmacotherapy or psychotherapy) proven conclusively effective in higher-income countries that has been clearly proven ineffective in LMIC. Given this growing evidence for the wide applicability and efficacy of specific components included in mental health treatment packages, our research should focus more on improving the organization and efficiency with which we deliver these specific treatment components already proven to be efficacious. Another important aspect to consider is the need to think from the start about how any of the tested interventions will be disseminated in a larger scale. A problem worth considering is that people do not necessarily present with single problems in primary care, but more often present with multiple chronic health problems. Unfortunately most intervention studies focus mostly on single disease management. There is a need to think of how to integrate the management of multiple chronic diseases, including mental health, across all health services and some examples are ongoing in the region³⁵.

Strategies should match resources with needs

Most traditional health care delivery models developed in higher income countries are clearly not adequate to deliver these efficacious treatment components in LMIC. Specialized human resources, such as psychiatrists, are distinctly hard to find in most LMIC, especially in the public sector. The mental health workforce in LMIC is only a small fraction of those available in high-income countries³⁶. The serious lack of available mental health specialists in LMIC is unlikely to be overcome rapidly. Even if

resources for training were available, there would be an inevitable time gap while these workers are being trained.

Financial resources for mental health care in LMIC have also been historically low. While psychiatric disorders account for a large proportion of the disability burden in LMIC, mental health care accounts for a relatively small proportion of health expenditures—typically 2.5% in Latin America—compared to 7% or more in higher-income countries³⁶. Given these severe resource limitations, it is not surprising that the gap between the need for and receipt of mental health services, also known as unmet needs, is especially large in LMIC.

The limited mental health resources available in LMIC are often not optimally distributed either. Funds and trained personnel are typically allocated to tertiary health care services such as psychiatric hospitals³⁶. The gaps in the distribution of resources between countries are also seen within countries where poor people, often with more needs for health care services, receive the least health care³⁷. Nevertheless, we believe that any short- and medium-term efforts to develop, evaluate, and disseminate effective mental health interventions in LMIC must adapt to these severe workforce, resource limitations, and inequities.

Despite the human resource and health system constraints, the increasing availability and decreasing costs of new communication technologies open up new opportunities. Today there are more mobile phones than fixed lines in most Latin American countries, covering almost their entire population. Although smartphones and fast broadband connections are not yet quite widely available in Latin America, it is possible to predict they will be in the near future. There is an unprecedented opportunity to access huge populations, including those in rural areas or more socially disadvantaged. The availability of numerous new channels for delivering mental health services—telephone, email, text messaging, video chat, discussion boards—allow some aspects of mental health interventions to be delivered across long distances at much lower cost. In keeping with these opportunities, there has been a huge increase in so-called e-health and m-health interventions, involving Internet and phone communication for mental health problems³⁸⁻⁴¹ and similar interventions to change unhealthy behaviors or lifestyles⁴²⁻⁴⁴.

Some of these challenges bring opportunities that can be embraced through shifting tasks at two lev-

els: first, at the healthcare provider level, usually referred as task shifting or task sharing, and second, shifting some management tasks to the patients themselves by maximizing the opportunities of today's technology. These two potential strategies are not mutually exclusive, and a degree of overlapping is expected, and both jointly advocate towards the use of existing resources in the most efficient manner. To complement this, task shifting must take full advantage of the ongoing technological revolution.

Task shifting at the healthcare provider level

Recent research suggests that task shifting or task sharing (i.e. re-distribution of clinical roles within health systems and health care teams) is an effective and efficient strategy for expanding the reach of effective mental health treatment in settings with lack of specialized human resources⁴⁵⁻⁴⁷. Much of this research has been conducted in child survival, maternal health and HIV programs, with Peru becoming one of the leading countries in Latin America^{48, 49}. The management of chronic diseases in many LMIC and elsewhere has also followed a similar approach⁵⁰⁻⁵⁴. Mental health has much to learn from other disciplines. Task shifting can also involve re-organization of care at multiple levels. Examples include: shifting of care normally provided in specialty settings to primary care settings, shifting of care normally provided by physicians or psychologists to mid-level providers or paraprofessionals, shifting of services normally provided by the health care system to family members or the users themselves, and shifting of care normally provided in face-to-face encounters to remote communication devices.

Examples of task shifting approaches in the treatment of depression in LMIC have included: delivery of cognitive-behavioral therapy for perinatal depression by community health workers⁵⁵, a psycho-educational group program for depression delivered by nurses in primary care⁵⁶, a medication monitoring and psycho-educational group program for postpartum depression delivered by primary care health workers⁵⁷, brief individual or group psycho-educational interventions for depression delivered by lay health workers or trained lay people⁵⁸⁻⁶⁰. Several members of our group were involved in some of these pioneering experiences in mental health. When compared with usual care for depression, these programs have produced clinical benefits at least as large as those seen with collaborative care programs for depression in higher-income countries. These programs explicitly re-allocate clinical

tasks from scarce personnel, such as psychiatrists or doctors, to personnel more widely available in some resource-poor settings. The use of existing health infrastructure and non-medical and non-specialist personnel makes such programs dramatically less expensive than traditional models of mental health care. With regard to adaptability, these task-shifting programs are typically designed to coordinate with parallel efforts in prevention and chronic disease management. For example, one of the early task-shifting programs in Chile⁵⁷ drew heavily on experience with existing programs to monitor and improve adherence to diabetes and tuberculosis treatment, and the use of midwives in pregnancy control programs⁵⁷.

Although task shifting seems intuitively a reasonable approach to expanding services to reduce the treatment gap, many questions still remain about how to introduce and improve sustainability of task shifting in different resource-poor settings. As we use task shifting to de-construct complex treatment processes into components, we encounter a series of opportunities for innovation – and a series of challenges and important research questions: What are the essential “active ingredients” of this clinical service? Who is the best person to deliver this service? Is human interaction essential for its success in every case? Can it be delivered using technological devices? In cases where human interaction is not available, is an automated technological intervention with modest efficacy preferable than providing nothing? What levels of support and supervision are required and how can these be provided? How can we best ensure the quality of the care provided by health workers undertaking task shifting? How effective are these workers delivering these shifted tasks? How do task-shifting programs for depression integrate with programs for other health conditions? Shifting tasks to technologies has a great potential to reduce costs, making treatment delivery viable in resource-restricted environments, and extensible to less geographically accessible populations.

Task shifting towards patient's self management: Beyond consumable interventions

The mental health field needs also to consider developing self-help automated interventions with the potential to reach people without access to health care providers^{38, 40, 61}. One of the limiting factors in increasing access to health care is the almost total reliance on consumable interventions. Consumable interventions include medications, e.g. a nicotine

patch can only be used once and must then be discarded, and live interventions, e.g. the time involved in administering an intervention can benefit only a limited number of consumers. Self-help automated interventions, be it through apps including automated text-messaging interventions or Web-based, can be used again and again without losing their therapeutic strength. Once found efficacious, they can be shared worldwide, without taking anything away from the location where they were developed. Hence, moving towards fully automated evidence-based interventions could serve individuals with no access to any health care provider.

Creating generalizable knowledge

Developing, implementing, testing, and disseminating effective mental health programs in resource-poor settings requires a sound understanding of the comparative effectiveness of various interventions and programs. The feasibility, acceptability, and effectiveness of mental health treatments and treatment programs may be influenced by variation in language and culture of patients and providers, availability and roles of health care personnel, or financial and material resources. Useful research must yield generalizable knowledge regarding the adaptation, effectiveness, and dissemination of mental health interventions. Because a single approach will not fit all circumstances, well-conceived research can dramatically accelerate the process of tailoring and adapting programs to diverse circumstances. We have been involved in this process of adapting successful interventions from one resource-poor setting to be used in others for almost a decade^{56, 57, 60}. We describe below a phased approach to developing and disseminating this generalizable knowledge. Moreover knowledge generated by other medical disciplines attempting to reduce treatment gaps and improving the cost-effectiveness of other interventions can be useful. For instance most medical programs aiming to improve adherence with their interventions and the strategies have much in common. Therefore our strategic partnership with other medical researchers can lead to cross-fertilization of ideas.

The potential of LATIN-MH in the Latin American region

Clayton Christensen popularized the term “disruptive innovation” to describe new products or programs that transform and eventually replace traditional ones. Christensen describes the “innovators dilemma”, the natural tendency of existing processes and structures to resist and delay transforma-

tional change⁶². In describing barriers to innovation in health care, Christensen cites several examples of effective and efficient task shifting innovations that have met resistance from traditional provider groups⁶². These objections in high-income countries are typically framed in terms of quality or safety, even when evidence clearly supports the safety and quality of alternative service delivery models. In contrast, resource limitations in LMIC create strong pressure for innovation in mental health care. Patients and providers with no access to mental health services have few incentives to retain the status quo. Christensen points out that transformational change often begins with those excluded from or poorly served by existing models of care⁶². Innovative models of care developed in resource-poor settings have the potential to transform and improve care in more advantaged settings.

The diversity of health systems and health professional roles in LMIC create a tremendous opportunity for developing and evaluating innovations in mental health care delivery. The range of professional and paraprofessional personnel available in primary health care and community health settings in LMIC will allow systematic evaluation of how feasibility and effectiveness of task shifting interventions differ according to different health systems. Furthermore the lack of resources has forced many LMIC to look for alternatives, maximizing the contribution that empowered individuals can offer. Furthermore communication technologies are expanding at an incredibly rapid pace. These technologies offer the opportunity to augment specialized human resources, wherever these exist, and to provide interventions where these human resources do not exist.

Based on these considerations, support for mental health services research in LMIC should not be viewed as a unidirectional activity. Instead, a coordinated program of research on task sharing in mental health care has the potential to inform the next generation of mental health service delivery models across all levels of economic development. There has been a historical trend for knowledge to travel from the North to the South. This trend may change when South-South research partnerships, together with their North-based collaborators, generate appropriate information to solve some of their own problems.

LATIN-MH aims to serve as a starting point towards a research partnership with leading centers in the field of chronic disease in Latin America. There are

incredible opportunities in terms of developing integrated management programs, including diseases as well as behavioral risk, while approaching the individual as a whole rather than as somebody suffering from the sum of single diseases or problems. LATIN-MH areas of research focuses initially on people with diabetes and/or hypertension, a group with high co-morbidity and where an effective treatment of depression could also yield benefits in terms of the medical management of their physical chronic conditions. We are deliberately 'crossing the borders of mental health,' forging a strategic alliance with our colleagues working in the chronic disease field, a needed step which places us in the direction towards transformational change.

What will LATIN-MH do?

LATIN-MH is comprised of two major components, research and capacity building. Our research component focuses on assessing the effectiveness of a mobile phone intervention assisted by an auxiliary nurse for the treatment of depression among individuals with physical chronic diseases (diabetes and/or hypertension), identified in general medical settings in Brazil and Peru. As noted above, one of the major barriers to the treatment of mental disorders is the sheer lack of trained specialized human resources. This intervention will address this problem by shifting tasks to an automated mobile phone intervention supported by auxiliary nurses, thereby taking advantage of the huge penetration of mobile phones in the region. These projects will provide the grounds for hands-on mentoring and training for junior investigators, who are expected to form part of the new cohort of researchers. Additionally, the intervention platform for the delivery of the intervention is being developed in a way that can be repurposed, allowing for functionalities to adapt to different targets. More specialized interactions may require greater levels of programming, yet the infrastructure will remain available to be adapted.

LATIN-MH provides a strong and comprehensive research capacity building program in mental health, targeted to a multi-disciplinary audience of future researchers, who will form part of the critical mass needed to expand the basis for action, and which will build upon the extensive experience in training of the participating institutions. This long-term vision of sustainability and continued research efforts beyond the support provided by the initial grant is at the backbone of LATIN-MH.

Driving principles

Three major driving principles for LATIN-MH are:

a) to build capacity with a focus on strengthening within-region efforts so that sustainability and autonomy can be rapidly achieved. We expect that the traditional unidirectional model of North-South collaboration may be transformed into a bi-directional in which the North may contribute but also learn from the research evidence generated in the Southern countries, b) to go beyond the traditional boundaries of mental health and develop strategic partnerships with other disciplines and health-research groups, and c) to fully integrate effective mental health treatment into existing primary care and community health systems.

Conclusions

A positive landscape for global mental health initiatives exists with challenges and opportunities. Increasing research capacity to inform better strategies to reduce the mental illness treatment gap in resource-poor settings is needed. LATIN-MH's research projects aim to directly test more efficient and effective programs in order to treat common mental health problems through the innovative use of communication technologies in resource-poor settings. The capacity building initiative prioritizes training in research methodologies that can generate sound evidence on the best strategies to reduce this gap. Moreover, the research projects also allow 'hands-on' training for researchers, in line with our choice of strengthening South-South collaboration together with the input of North-based collaborators. LATIN-MH will strive to move beyond specific single-disease approaches and research silos, whilst maximizing the opportunities to work collaboratively with various groups in the Latin American region, thus contributing to fostering research and building capacity in mental health research.

Author contributions

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