Published in final edited form as:
Ann Glob Health. 2014 ; 80(2): 126–133. doi:10.1016/j.aogh.2014.04.014.

Closing the mental health gap in low-income settings by building research capacity: Perspectives from Mozambique

Annika C. Sweetland[1], **Maria A. Oquendo**[1], **Mohsin Sidat**[2], **Palmira F. Santos**[3], **Sten H. Vermund**[4], **Cristiane S. Duarte**[1], **Melissa Arbuckle**[1], and **Milton L. Wainberg**[1]

[1]Department of Psychiatry, Columbia University – New York State Psychiatric Institute

[2]Universidade Eduardo Mondlane

[3]Mozambique's Ministry of Health – Mental Health Department

[4]Vanderbilt Institute for Global Health and Department of Pediatrics, Vanderbilt University School of Medicine

Abstract

Neuropsychiatric disorders are the leading cause of disability worldwide, accounting for 22.7% of all years lived with disability (YLDs). Despite this global burden, fewer than 25% of affected individuals ever access mental health treatment; in low-income settings, access is much lower, though non-allopathic interventions through traditional healers are common in many venues. Three main barriers to reducing the gap between individuals who need and those who have access to mental health treatment include stigma and lack of awareness, limited material and human resources, and insufficient research capacity. We argue that investment in dissemination and implementation research is critical to face these barriers. Dissemination and implementation research can improve mental health care in low-income settings by facilitating the adaptation of effective treatment interventions to new settings, particularly when adapting specialist-led interventions developed in high-resource countries to settings with few, if any, mental health professionals. In Mozambique, the World Health Organization estimates only 0.04 psychiatrists per 100,000 population, representing 30 times less than the global median, and more than 150 times lower than the median in high income countries. Emerging evidence from other low-income settings suggests that lay providers can be trained to detect mental disorders and deliver basic psychotherapeutic and psychopharmacological interventions when supervised by an expert. Mozambique has both the political commitment and available resources for mental health, but inadequate research capacity and workforce limits the country's ability to assess local needs, adapt and test interventions, and identify implementation strategies that can be used to effectively bring evidence-based mental health interventions to scale within the public sector. Global training and research partnerships are critical to building capacity, promoting bilateral learning between and among low- and high-income settings, ultimately reducing the mental health treatment gap

worldwide. Through new research partnership between Universidade Eduardo Mondlane (Mozambique), Columbia University (USA), Vanderbilt University (USA), and Universidade Federal de São Paulo (Brazil), we are working towards a North-South and South-South collaboration to build research capacity in Mozambique and other Portuguese-speaking African countries.

INTRODUCTION

In the Global Burden of Diseases Study published in *The Lancet* in 2010, mental disorders accounted for 22.7% of all Years Living with Disability (YLD) globally; in aggregate, they were the leading cause of YLD [1]. Major depressive disorder (MDD) was the second specific contributor, after low back pain, causing 63 million YLD's. Dysthymia caused 11 million YLD's, and together with MDD, accounted for 9.6% of all YLD's [1]. Anxiety disorders, alcohol use disorders, schizophrenia and bipolar disorder also ranked among the most common causes of YLD [1].

Deleterious effects of mental disorders are magnified by their propensity to increase risk for communicable and non-communicable diseases, and both intentional and unintentional injury [2]. Individuals with mental disorders seldom seek help, and when they do, treatment adherence can be low, negatively impacting prognosis in disease control and prevention [3]. Conditions such as HIV disease, diabetes, heart disease, cancer, and debilitating rheumatic diseases increase risk for mental disorders, which, in turn, also negatively affect medical outcomes. Thus, there is an urgent need to develop and implement widely accessible evidence-based strategies to address these problems across diverse global and economic contexts.

The stigma associated with mental illness may, to a certain extent explain why, despite its burden, mental disorders are not in the forefront of the global health agenda. Stigma ultimately determines how societies and cultures deal with their recognition and treatment of mental disorders. In addition to harming the self-esteem of those with mental disorders, stigma is a key factor preventing them from seeking help [4]. To overcome such barriers, it is essential to engage mentally ill individuals, their families, and communities in the intervention dissemination and implementation process. Psychoeducation for affected individuals and their family, friends and co-workers, can help reduce stigma [5]. However, without advocacy, psychoeducation may not reduce stigma and increase engagement [6]. Unfortunately, politicians, the general public, relatives of individuals with mental disorders, and affected individuals themselves are not aware of how substantial and effective treatment can be within a modern medical milieu. Even health providers neglect available diagnostic and therapeutic approaches for mental illnesses, especially in low-income nations.

Global Mental Health: Recent Initiatives and a Direction That Will Make a Difference

Within the last decade, the field of global mental health has been defined by a series of publications establishing the relevance of the field and providing guidelines for treatment of mental disorders in low-resource settings, as well as research priorities. In 2005, the World Health Organization (WHO) published a series of training manuals for psychiatric care of

individuals receiving antiretroviral therapy directed to non-specialist health care workers [7–9]. In 2007 *The Lancet* published a global mental health series summarizing issues requiring attention concluding there is “no health without mental health” [10]; a follow up series in 2011 provided additional documentation of the global mental health care crisis [11]. A Movement for Global Mental Health has emerged with a call for action emphasizing the need to scale up mental health services coverage, particularly in low- and middle-income countries (LMIC) [12]. In 2009, the WHO announced the Mental Health Global Action Programme (mhGAP) [13], its flagship effort in global mental health, which developed evidence-based guidelines for non-specialist health care workers to provide treatments for mental disorders in routine health care settings [14]. These guidelines are currently being pilot-tested and implemented in six LMIC [15]. *Public Library of Science (PLoS) Medicine* [16] published evidence-based intervention packages of care for neuropsychiatric disorders in LMIC for six priority conditions in 2009–2010: alcohol use disorders, attention-deficit hyperactivity disorder, dementia, depression, epilepsy and schizophrenia [13, 17–22].

In 2010, the National Institute of Mental Health (NIMH) Grand Challenges in Global Mental Health initiative polled a consortium of over 400 researchers, advocates, and clinicians from more than 60 countries to identify the most pressing research priorities. Mental health intervention development and implementation was identified as a critical focus for future work [23, 24]. Both of *The Lancet* Global Mental Health Series [10, 11, 25] emphasized the importance of prioritizing funding for research that develops and assesses mental health interventions to be delivered by trained non-specialists and ways in which such interventions can be scaled up within all routine-care settings.

Funding opportunities for global mental health have increased recently. Global health research is one of five principal priorities for the National Institute of Health (NIH) [26] and global mental health research is now an explicit priority for NIMH [27]. In March 2011, the Office for Research on Disparities and Global Mental Health of the NIMH convened a meeting with 62 key stakeholders from around the world to discuss strategies for developing and sustaining research capacity in global mental health [28]. Since then, the NIMH has funded collaborative research global mental health hubs housed in LMIC to increase the evidence base for global mental health interventions and build research capacity [29]. In addition, since 2010, Grand Challenges Canada has funded 15 global mental health projects in LMIC [30]. Despite this, mental health is still largely absent from the global health agenda as exemplified by the fact that it was not identified as one of the Millennium Development Goals.

Despite these key steps, more international collaborations and research projects in LMIC are needed. Of global mental health research initiatives recently launched, few are housed in low-income countries and none in the five Portuguese-speaking African countries (*Países Africanos de Língua Oficial Portuguesa* - PALOP: Mozambique, Angola, Cape Verde, Guinea-Bissau and São Tomé and Príncipe). These nations tend to be excluded from mental health initiatives in sub-Saharan Africa due to the language barrier. To address this need, several universities have come together, including the Universidade Eduardo Mondlane (Mozambique), Columbia University (USA), Vanderbilt University (USA), and Universidade Federal de São Paulo (Brazil) to build mental health research capacity through

a North-South and South-South collaborative partnership. By fostering access to mental health care to those most likely to be excluded - African Portuguese-speakers - focused, formal, structured and sustainable training in mental health implementation and services research in PALOP countries can contribute substantially to narrowing the global mental health gap. Multi/interdisciplinary collaborations that include partnering with governmental and community-based organizations [31] must be a bidirectional and long-term process with all parties committed to conducting research, adapting and validating materials, interpreting data, and disseminating sustainable evidence-based interventions [32, 33].

BARRIERS TO CLOSING THE GLOBAL MENTAL HEALTH GAP

The “mental health treatment gap” refers to the proportion of individuals with mental disorders in need of treatment, but who do not receive it. Globally, it is estimated that only 25% have access to treatment and in many low-income countries, it is less than 10% [34]. When treatment is provided in these settings, it is frequently below minimum acceptable standards and may lack respect for privacy and human rights, such as involuntary restraint and/or physical and psychological abuse [35]. Three of the main challenges to closing the treatment gap in low-income countries include: (1) stigma and lack of awareness; (2) limited human and material resources; and (3) insufficient dissemination and implementation research infrastructure to develop and test innovative strategies tailored to meet local population needs.

Stigma and Lack of Awareness

The considerable stigma around mental illness at the individual, societal, institutional, and policy levels may influence resource distribution. Mental illnesses are often seen as secondary to physical illnesses or poverty and are not prioritized within health systems [36]. In addition, many political leaders, policymakers, and even health care providers do not understand how much benefit can accrue to affected patients, using modern mental health interventions and medications.

Resources

Despite housing more than 80% of the world’s population, LMIC hold less than 20% of the MH resources [3]. In part due to stigma and low awareness, even when available, in many settings, the necessary financing, infrastructure and resources are not allocated to mental health services [37]. This disparity is even greater among the lowest income nations, such as Mozambique [38]. Mounting evidence from other low-income settings suggests that trained supervised lay personnel (e.g., teachers, community workers) can successfully recognize mental disorders [39] as well as effectively deliver psychopharmacological [40] and psychological treatments [41] for mental disorders for extended periods [13, 40–43]. One may also be able to engage traditional healers in symptom recognition, referral, and follow-up, as we are seeking to do with HIV care in rural Mozambique [44–46]. Task-sharing in Mozambique thus far has been limited to case detection and referral. Disparities in the distribution of research investments, workforce, and capacity further exacerbate this problem. “Brain-drain” is also a considerable challenge in low-resource settings; when

individuals gain technical expertise and knowledge, it becomes difficult to incentivize such skilled individuals to remain in underserved areas [47].

Dissemination and Implementation Research Infrastructure

In addition to obvious limitations in the availability of trained personnel and financial resources, most low-income settings have poorly developed research infrastructures. Seventy-five percent of the world's researchers come from countries that host one-third of the world's population, and only a few study mental health in low-income countries [48]. Likewise, though 90% of the world's children live in LMIC, only 10% of the randomized controlled trials of mental health interventions for children have been conducted in those settings [48].

Dissemination and implementation research is the scientific study of disseminating and implementing evidence-based practices across diverse settings. Interventions cannot be simply imported from one setting to another; to be acceptable to the target population, interventions must be locally adapted for optimal effectiveness [32]. Input from key stakeholders including caregivers, providers, and local investigators is essential to ensure that the dissemination and implementation research incorporates relevant cultural, structural, and process factors [32, 49]. For example, we have had experience in translating, modifying, and validating two Western-developed scales (one for health literacy and numeracy and one for HIV knowledge) for Mozambique, learning much about the challenges of language and culture in such adaptations [50, 51]. Disconnects between intervention adaptation/development and practice can lead to delay or failure in dissemination and implementation efforts (e.g., lack of feasibility, cost, capacity to scale-up from a pilot initiative).

Evidence from resource-rich settings demonstrates the effectiveness of numerous prevention interventions [43] as well as of psychosocial and psychopharmacological treatments for a range of mental disorders [39]. However, such treatments are often designed to be conducted by specialists and thus will require considerable adaptation and resources to be of use in resource-limited settings [52]. To bridge the gap between clinical research and local practice, research must examine how prevention, assessment, and treatment interventions can be transmitted and translated for specific low-resource settings [53, 54]. Building mental health dissemination and implementation research infrastructure is an efficient strategy to foster the development of mental health systems tailored to local needs and resources available.

Global Research Partnerships

An important strategy for building research infrastructure in low-income settings is the establishment of global partnerships. In 2012, NIMH funded the first T32 Implementation Research Fellowship in Global Mental Health at Columbia University which aims to train US-based researchers to establish such partnerships with researchers in LMIC to facilitate the adaptation and implementation of evidence-based practices globally, thereby not only transporting knowledge from high-income countries (HIC) to LMIC, but facilitating bidirectional learning between LMIC, as well as bringing valuable learning back to HIC. Similarly, the Fogarty International Center's programs, some supported by the President's

Emergency Plan for AIDS Relief and by other NIH centers and institutes (such as NIMH), support training of global health researchers and locally relevant science and institutional capacity-building [55–60].

A CASE EXAMPLE: MOZAMBIQUE

WHAT ARE THE LOCAL BARRIERS?

Political Will—The reality in Mozambique reflects that of many low income settings; MDD is ranked second of all YLD causes and anxiety disorders, alcohol use disorders, schizophrenia, bipolar disorder, dysthymia and conduct disorder are also ranked high [1]. And still, though precise figures are unknown, the mental health treatment gap is believed to be sizable [52, 61]. Yet there is strong political will in the Mozambican Ministry of Health (Ministerio da Saúde [MISAU]) to develop, evaluate, and implement evidence-based mental health interventions that can be scaled up within its developing public health system.

In 2007, MISAU approved the country's first Mental Health Strategy and Action Plan and National Health Policy Mental Health Guidelines (2006–2015) recognizing a need for greater human resource capacity, implementation research, advanced training, enhanced service delivery, community engagement, and monitoring and evaluation [62]. The guidelines include: (1) developing a mental health component in primary care; (2) human resources; (3) involvement of families and patients; (4) advocacy and promotion; (5) human rights protection; (6) quality improvement, and (7) monitoring systems. The Mental Health Strategy and Action Plan also reaffirms the National Health Policy guidelines and includes the additional components of: (a) organization of services delivery; (b) community involvement; (c) tackling substance abuse, including alcohol and tobacco, violence, HIV/AIDS, epilepsy, schizophrenia and other chronic mental health disorders; (d) financing, and (e) research.

Leveraging local mental health resources—Mozambique's independence in 1975 led to economic destabilization and devastation severely exacerbated by the civil war (1977–1992) that is estimated to have destroyed half of Mozambique's public health sector infrastructure. There is a significant shortage of mental health professionals; a recent internal report by MISAU estimates that there are approximately 13 psychiatrists, 78 psychologists, 122 psychiatric technicians and 23 occupational therapists for 23.5 million people [63]. The ratio of psychiatrists to population in Mozambique is 30 times lower than the global median ratio and more than 150 times lower than the median ratio in HIC [64]. Likewise, in 2011, the 83 outpatient mental health facilities in Mozambique represented approximately one quarter of the ratio of facilities to population in HIC [64]. There were only two psychiatric hospitals in the entire country, and zero community residential facilities [64]. Iin 2010, Universidade Eduardo Mondlane created a Master's Program in Mental Health and Psychointervention, one of the first in any PALOP country to train mental health workforce. This Master's Program has enrolled 57 students from whom 30 have completed the academic part of training and currently preparing their dissertations. Additionally, the training of psychiatrists is implemented by the College of Psychiatry with the Mozambican Medical Council with a duration of four to five years and trainees are required to spend two years in Porto (Portugal) or other MISAU approved settings. Previously, individuals who

sought higher level mental health training needed to go abroad for the entire length of the training program.

Limited dissemination and implementation research capacity—Given the active context of mental health policy and service enhancement in Mozambique, capacity building in mental health dissemination and implementation research is sorely needed to increase national momentum to scale up evidence-based practices within Mozambique and other PALOP countries, and generate the scientific resources to maintain it [65]. Task-sharing, stepped-care and community-based care models can be implemented alongside other strategies designed to increase the numbers of mental health workers, from assessment to actual treatment. However, all three require examination and testing [32, 39, 42, 66–69].

WHAT DO WE PROPOSE?

Our strategy to narrow the mental health treatment gap in Mozambique involves three interconnected research areas: needs assessment; local adaptation and testing of interventions; and dissemination and implementation research. Like much of the resource poor world, little is known about the mental health in PALOP countries. A review of MEDLINE and PubMed databases conducted in April 2013 using the search terms “[each PALOP country”] AND “mental”, “psych*” “depression” or “anxiety” revealed 85 articles, nearly half (n=41) of which were specific to Mozambique. The majority were qualitative (n=36) and most (n=28) focused on post-civil war challenges. Only ten reported prevalence rates, but these were limited to symptoms related to post-traumatic stress disorder, psychosis, mental retardation, suicide or substance use disorders; none described either the prevalence or treatment of common mental disorders such as anxiety and depression, which are a leading cause of disability worldwide. Finally, 20 studies described interventions, but none measured efficacy through a clinical trial [70, 71]. A services survey using the WHO Assessment Instrument for Mental Health Systems (WHO-AIMS) by Santos and colleagues further describes Mozambique’s pressing mental health needs [65].

Faculty from Columbia University conducting global dissemination and implementation research will help strengthen the capacity of our mental health collaborators from PALOP and other low-income settings to partner in prospective implementation studies. We will also leverage our strong partnership with Universidade Federal de São Paulo in Brazil. Our experienced mental health research collaborators in Brazil will contribute both know-how and scholarships for Mozambican trainees to attend research courses and, for interested trainees, make available the option of obtaining master’s degrees. Brazil has become an international research leader and is deeply committed to providing research resources to PALOP countries. By linking Universidade Eduardo Mondlane and Universidade Federal de São Paulo, we propose a practical South-South collaboration.

Next, we will capitalize on the extensive research infrastructure that Vanderbilt’s Institute for Global Health has developed with Universidade Eduardo Mondlane, including both urban and rural venues. The Universidade Eduardo Mondlane/Vanderbilt infrastructures will provide the necessary setting for mental health implementation pilots and trials, along with Fogarty-sponsored training initiatives (D43 grant). Finally, leveraging significant experience

and knowledge of Columbia University faculty, other investigators with expertise in sub-Saharan Africa, and our T32 Global Mental Health Implementation Research Post-Doctoral Fellowship focused on developing the next generation of US investigators to build rich global research partnerships, our team will ensure the dissemination and implementation of successful strategies in the PALOP countries and other resource-poor settings with similar needs. As our program develops, we will leverage interested faculty conducting global research as well as our global mental health and PALOP collaborators. We will also endeavor to partner with NIMH-funded Global Mental Health Collaborative Research Hubs.

GLOBAL MENTAL HEALTH: LESSONS TO BE LEARNED

Integrating mental health services within existing systems of care is the single action most likely to highly impact mental health in LMIC [72] like Mozambique and other PALOP countries. Integrating mental health care into existing care systems (e.g., primary care clinics, NGOs, schools) is a pragmatic approach that can maximize the efficiency of resource investments [13, 18, 22, 31, 73]. Understanding mental health systems development is needed to promote translation of research into policy and practice. Intersectoral and interdisciplinary participation in scaling up, including the role of service users, can help in this process. In Mozambique, the Mental Health Strategy and Action Plan, developed by the mental health division of the Ministry of Health (MISAU), led to the tactical development of an innovative task-shifting mental health professional category in Mozambique, *psychiatric technicians*, to serve as the point of entry into the mental health system. Ultimately, models of integrated care must be adopted in schools, community health settings/primary care, perinatal clinics, community health outreach services, churches, emergency rooms, police stations, and jails [72, 74]. There is evidence that cost-effective prevention and treatment intervention models among large vulnerable groups may decrease the burden on medical providers and improve adherence to medical care, school performance, job performance, and safe behavior in the community, while also decreasing mental disorders [25, 72]. Optimizing mental health services in LMIC will require legislation, policies and plans to deploy recommended strategies [75], ensure adequate infrastructure, deliver training, offer an ongoing supportive supervisory framework for newly trained nonspecialists, and provide referral pathways essential to preventing work overload [74, 76–81].

In a collaborative stepped-care approach [20, 40, 42, 83–86], individual needs are matched to the appropriate level of care, and more intensive interventions only used if required [86–87]. As a first step, the service user is provided with a self-help intervention (e.g., visual literacy manualized versions of evidence-based treatments such as cognitive behavioral therapy in settings like Mozambique with high illiteracy rates). More intensive intervention can be offered in the form of guided self-help, which combines the self-help manual with a limited number of brief “therapy” sessions administered by health care workers (e.g. psychiatric technicians in Mozambique). Further intensive interventions can then be offered at the outpatient, day patient, and inpatient levels progressively, as needed, based on the availability of trained staff and tiers of supervision. Deinstitutionalization and provision of acute and continuing care [22], can be feasibly achieved through community-based models of care (e.g., case management, critical time intervention, assertive community treatment)

[85, 88–90], that provide a framework for psychopharmacological/psychological treatments with improved treatment adherence.

Investment in dissemination and implementation research to ensure the development and adoption of best practices in LMIC has the opportunity to make a monumental difference in the lives of a large proportion of the population. Once effective and efficient methods, structures, and strategies are identified to diagnose and treat mental disorders, research capacity is essential to further refine and locally adapt them. Interventions deemed efficacious in clinical or community-based trials are not easily transmitted to the field and little is known about developing effective approaches to overcome barriers to their adoption. Programs such as ours could serve as models. Once developed, these frameworks must be tested such that evidence-based practices can be disseminated more widely into public health and clinical practice settings. Dissemination and implementation research accomplishes this mandate by assessing how interventions are developed, packaged, transmitted, and interpreted among various stakeholder groups. Monitoring and evaluating long-term outcomes of mental health programs using multiple methods, including web-based platforms, are essential to address adoption, sustainability, and long-term cost-effectiveness. North-South and South-South partnerships in mental health research, training, and service have enormous promise for capacity-building in mental health for Mozambique and the other PALOP nations.

Acknowledgments

Supported in part by T32 MH096724 and D43 TW001035.

References

1. Vos T, et al. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012; 380(9859):2163–96. [PubMed: 23245607]
2. Office of the Surgeon General (US), Center for Mental Health Services (US), National Institute of Mental Health (US). Mental Health: Culture, Race, and Ethnicity: A Supplement to Mental Health: A Report of the Surgeon General. Substance Abuse and Mental Health Services Administration (US); Rockville (MD): 2001.
3. Saxena S, et al. Resources for mental health: scarcity, inequity, and inefficiency. Lancet. 2007; 370:878– 889. [PubMed: 17804062]
4. Link BG, et al. Stigma as a Barrier to Recovery: The Consequences of Stigma for the Self-Esteem of People With Mental Illnesses. Psychiatr Serv. 2001; 52(12):1621–1626. [PubMed: 11726753]
5. Dietrich S, et al. Depression in the workplace: a systematic review of evidence-based prevention strategies. International Archives of Occupational and Environmental Health. 2011:1–11. [PubMed: 21461766]
6. Saraceno B, et al. Barriers to improvement of mental health services in low-income and middle-income countries. The Lancet. 2007; 370(9593):1164–1174.
7. Cournos, F.; Wainberg, M.; Horwath, E. Psychiatric Care in Anti-retroviral (ARV) Therapy (for Second Level Care), Fieldtest Version. World Health Organization; 2005. Available from: http://whqlibdoc.who.int/publications/2005/9241593083_eng.pdf
8. Sweetland, A., et al. Mental Health and HIV/AIDS. Johannesburg: World Health Organization; 2005. Psychosocial support groups in anti-retroviral therapy programs.
9. Lazarus, R.; Saloner, K. Mental Health and HIV/AIDS. Johannesburg: World Health Organization; 2005. Basic counselling guidelines for anti-retroviral (ARV) therapy programmes.

10. Movement-for-Global-Mental-Health. Lancet Series on Global Mental Health. 2007. Available from: http://www.globalmentalhealth.org/articles.php?id=16&menu_id=0
11. http://www.thelancet.com/series/global-mental-health-2011.
12. Dodor EA, Kelly SJ. Manifestations of tuberculosis stigma within the healthcare system: the case of Sekondi-Takoradi Metropolitan district in Ghana. Health Policy. 2010; 98(2–3):195–202. [PubMed: 20637520]
13. Patel V, Thornicroft G. Packages of care for mental, neurological, and substance use disorders in low- and middle-income countries: PLoS Medicine Series. PLoS Med. 2009; 6(10):e1000160. [PubMed: 19806180]
14. WHO. Mental Health Gap Action Programme (mhGAP). World Health Organization; 2010. mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings.
15. World-Health-Organization. [Accessed 21 January 2011] WHO simplifies treatment of mental and neurological disorders. 2010. Available from: http://www.who.int/mediacentre/news/releases/2010/mental_health_20101007/en/index.html
16. Macq J, et al. An exploration of the social stigma of tuberculosis in five “municipios” of Nicaragua to reflect on local interventions. Health Policy. 2005; 74(2):205–217. [PubMed: 16153480]
17. Benegal V, Chand P, Obot I. Packages of Care for Alcohol Use Disorders in Low- And Middle-Income Countries. PLoS Med. 2009; 6:e1000170. [PubMed: 19859536]
18. Flisher A, et al. Packages of Care for Attention-Deficit Hyperactivity Disorder in Low- and Middle-Income Countries. PLoS Med. 2010; 7:e1000235. [PubMed: 20186271]
19. Prince M, et al. Packages of Care for Dementia in Low- and Middle-Income Countries. PLoS Med. 2009; 6:e1000176. [PubMed: 19888456]
20. Patel V, et al. Packages of Care for Depression in Low- and Middle-Income Countries. PLoS Med. 2009; 6:e1000159. [PubMed: 19806179]
21. Mbuba C, Newton C. Packages of Care for Epilepsy in Low- and Middle-Income Countries. PLoS Med. 2009; 6:e1000162. [PubMed: 19823570]
22. Mari J, et al. Packages of Care for Schizophrenia in Low- and Middle-Income Countries. PLoS Med. 2009; 6:e1000165. [PubMed: 19841735]
23. Grand-Challenges-in-GMH. May 25. 2011 Available from: http://grandchallengesgmh.nimh.nih.gov/scientific-advisory-board.shtml
24. Collins PY, et al. Grand challenges in global mental health. Nature. 2011; 475(7354):27–30. [PubMed: 21734685]
25. Tol WA, et al. Mental health and psychosocial support in humanitarian settings: linking practice and research. Lancet. 2011; 378(9802):1581–91. [PubMed: 22008428]
26. Fogarty International Center. Global Health Matters. 2009. Available from: http://www.fic.nih.gov/news/publications/global_health_matters/2009/0809_collins.htm
27. Insel, T. Disorders Without Borders. National Institute of Mental Health; 2010.
28. NIMH-ORDGMH. Office for Research on Disparities and Global Mental Health (ORDGMH) of the NIMH: March 24, 2011 – March 25, 2011 Meeting; Available from: http://www.nimh.nih.gov/research-funding/scientific-meetings/2011/building-research-capacity-and-collaboration-in-global-mental-health.shtml
29. RFA-MH-11-070: Collaborative Hubs for International Research on Mental Health (U19). 2010. Available from: http://grants.nih.gov/grants/guide/rfa-files/RFA-MH-11-070.html
30. http://www.grandchallenges.ca/globalmentalhealth-grantees-EN/.
31. CD, Flisher AJ, Lund C, Patel V, Saxena S, Thornicroft G, Tomlinson M. Lancet Global Mental Health Group. Scale up services for mental disorders: a call for action. Lancet. 2007; 370(9594): 1241–52. [PubMed: 17804059]
32. Wainberg ML, et al. A model for adapting evidence-based behavioral interventions to a new culture: HIV prevention for psychiatric patients in Rio de Janeiro, Brazil. AIDS Behav. 2007; 11(6):872–83. [PubMed: 17216334]

33. Wainberg ML, et al. Targeted Ethnography as a Critical Step to Inform Cultural Adaptations of HIV Prevention Interventions for Adults with Severe Mental Illness. Social Science and Medicine. 2007; 65:296–308. [PubMed: 17475382]
34. Demyttenaere K, et al. Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. JAMA. 2004; 291(21):2581–90. [PubMed: 15173149]
35. Kleinman A. Global mental health: a failure of humanity. Lancet. 2009; 374(9690):603–4. [PubMed: 19708102]
36. Ager A. Psychosocial needs in complex emergencies. Lancet. 2002; 360(Suppl):s43–4. [PubMed: 12504500]
37. Corrigan PW, et al. Stigmatizing attitudes about mental illness and allocation of resources to mental health services. Community Ment Health J. 2004; 40(4):297–307. [PubMed: 15453083]
38. Santos, P. Revista Psique: Maputo. 2012. Evaluation of Mozambique's Mental Health System; p. 2
39. Verdeli HCK, Onyango G, Lewandowski E, Speelman L, Betancourt TS, Neugebauer R, Stein TR, Bolton P. Group Interpersonal Psychotherapy for depressed youth in IDP camps in Northern Uganda: adaptation and training. Child Adolesc Psychiatr Clin N Am. 2008; 17(3):605–624. [PubMed: 18558315]
40. Rojas G, Fritsch R, Solis J, Castillo M, Guajardo V, Lewis G, Peters T, Araya R. Treating postnatal depression among low-income mothers in primary care in Santiago, Chile: a randomised controlled trial. Lancet. 2007; 370(9599):1629–37. [PubMed: 17993363]
41. Bass J, Neugebauer R, Clougherty KF, Verdeli H, Wickramaratne P, Ndogoni L, Speelman L, Weissman M, Bolton P. Group interpersonal psychotherapy for depression in rural Uganda: 6-month outcomes: randomised controlled trial. British Journal of Psychiatry. 2006; 188:567–573. [PubMed: 16738348]
42. Araya R, Rojas G, Fritsch R, Gaete J, Rojas M, Simon G, Peters T. Treating depression in primary care among low-income women in Santiago, Chile: A randomised controlled trial. Lancet. 2003; 361:995–1000. [PubMed: 12660056]
43. Patel V, Araya R, Chatterjee S, Chisholm D, Cohen A, De Silva M, Hosman C, McGuire H, van Ommeren M. Treating and preventing mental disorders in low and middle income countries-is there evidence to scale up? Lancet. 2007; 370:991–1005. [PubMed: 17804058]
44. Audet CM, et al. HIV/AIDS-related attitudes and practices among traditional healers in Zambezia Province, Mozambique. J Altern Complement Med. 2012; 18(12):1133–41. [PubMed: 23171035]
45. Audet CM, et al. Traditional healers in rural Mozambique: Qualitative survey of HIV/AIDS-related attitudes and practices. Journal of Social Aspects of HIV/AIDS. (in press).
46. Audet CM, et al. Educational intervention increased referrals to allopathic care by traditional healers in three high HIV-prevalence rural districts in Mozambique. PLoS Med. (in press).
47. Tankwanchi AS, Özden C, Vermund SH. Physician emigration from sub-Saharan Africa to the United States: Analysis of the 2011 AMA physician masterfile. PLoS Med. (in press).
48. Collins PY, et al. Grand challenges in global mental health: integration in research, policy, and practice. PLoS Med. 2013; 10(4):e1001434. [PubMed: 23637578]
49. Corrigan PW, Shapiro JR. Measuring the impact of programs that challenge the public stigma of mental illness. Clinical Psychology Review. 2010; 30(8):907–922. [PubMed: 20674114]
50. Ciampa PJ, et al. The association among literacy, numeracy, HIV knowledge and health-seeking behavior: a population-based survey of women in rural Mozambique. PLoS One. 2012; 7(6):e39391. [PubMed: 22745747]
51. Ciampa PJ, et al. Comprehensive knowledge of HIV among women in rural Mozambique: development and validation of the HIV knowledge 27 scale. PLoS One. 2012; 7(10):e48676. [PubMed: 23119087]
52. Patel VCP, Copeland J, Kakuma R, Katontoka S, Lamichhane J, Naik S, Skeen S. The movement for global mental health. Br J Psychiatry. 2011; 198:88–90. [PubMed: 21282777]
53. Saxena S, Thornicroft G, Knapp M, Whiteford H. Resources for mental health: scarcity, inequity, and inefficiency. Lancet. 2007; 370:878–889. [PubMed: 17804062]
54. Global-Mental-Health-Group. Scale up services for mental disorders: a call for action. The Lancet. 2007; 370(9594):1241–1252.

55. Heimburger DC, et al. Recruiting trainees for a global health research workforce: the National Institutes of Health Fogarty International Clinical Research Scholars Program selection process. Am J Trop Med Hyg. 2013; 89(2):281–7. [PubMed: 23798584]
56. Kupfer L, et al. Roundtable. Strategies to discourage brain drain. Bull World Health Organ. 2004; 82(8):616–9. discussion 619–23. [PubMed: 15375452]
57. Mullan F, et al. The Medical Education Partnership Initiative: PEPFAR's effort to boost health worker education to strengthen health systems. Health Aff (Millwood). 2012; 31(7):1561–72. [PubMed: 22778346]
58. Eichbaum Q, et al. "Global networks, alliances and consortia" in global health education-the case for south-to-south partnerships. J Acquir Immune Defic Syndr. 2012; 61(3):263–4. [PubMed: 22878420]
59. Heimburger DC, et al. Nurturing the global workforce in clinical research: the National Institutes of Health Fogarty International Clinical Scholars and Fellows Program. Am J Trop Med Hyg. 2011; 85(6):971–8. [PubMed: 22144429]
60. Vermund SH, et al. Training programmes in global health. BMJ. 2010; 341:c6860. [PubMed: 21131339]
61. Wang PS, et al. Use of mental health surveys for anxiety, mood, and substance disorders in 17 countries in the WHO world mental health surveys. Lancet. 2007; 370:841–850. [PubMed: 17826169]
62. Soares, I., et al. MISAU. Mental health action plan 2006–2015. MISAU; 2007.
63. MISAU. Relatorio Anual de Actividades de 2012: Maputo. 2013.
64. WHO. Mental Health ATLAS 2011. World Health Organization; Geneva, Switzerland: 2011.
65. Santos P. Who-AIMS Mozambique: Evaluation of Mental Health Services, #2. Psyique - Mozambican Journal of Psychiatry and Mental Health. 2011; 2(October):7–14.
66. Araya RAR, Minoletti A. Chile: an ongoing mental health revolution. Lancet. 2009; 374(9690): 597–598. [PubMed: 19699997]
67. Chatterjee S, Chowdhary N, Pednekar S, Cohen A, Andrew G, Araya R, Simon G, King M, Kirkwood B, Weiss H, Verdeli H, Clougherty K, Telles S, Patel V. Integrating evidence-based treatments for common mental disorders in routine primary care: feasibility, and acceptability of the MANAS intervention in Goa, India. World Psychiatry. 2008; 7(1):39–46. [PubMed: 18458786]
68. Patel VWH, Chowdhary N, Naik S, Pednekar S, Chatterjee S, De Silva MJ, Bhat B, Araya R, King M, Simon G, Verdeli H, Kirkwood BR. Effectiveness of an intervention led by lay health counsellors for depressive and anxiety disorders in primary care in Goa, India (MANAS): a cluster randomised controlled trial. Lancet. 2010; 376(9758):2086–95. [PubMed: 21159375]
69. Verdeli H. Towards building feasible, efficacious, and sustainable treatments for depression in developing countries. Depression and Anxiety. 2008; 25:899–902. [PubMed: 19006233]
70. Granja AC, Zacarias E, Bergstrom S. Violent deaths: the hidden face of maternal mortality. BJOG: an international journal of obstetrics and gynaecology. 2002; 109(1):5–8. [PubMed: 11843374]
71. Wainberg, ML.; Sweetland, A.; Lyons, D.; Santos, P.; Oquendo, MA.; Vermund, S.; Sidat, M. PALOP countries mental health research: A research gap. Manuscript in preparation
72. Kakuma R, et al. Human resources for mental health care: current situation and strategies for action. Lancet. 2011; 378(9803):1654–63. [PubMed: 22008420]
73. Mari JJ, et al. The 5/95 gap in the indexation of psychiatric journals of low- and middle-income countries. Acta Psychiatrica Scandinavica. 2010; 121(2):152–156. [PubMed: 19764927]
74. Bhana A, Petersen I, Baillie KL, Flisher AJ. The Mhapp Research Programme, Consortium. Implementing the World Health Report 2001 recommendations for integrating mental health into primary health care: a situation analysis of three African countries: Ghana, South Africa and Uganda. Int Rev Psychiatry. 2010; 22(6):599–610. [PubMed: 21226648]
75. Chavez, M.; Hill, L.; Mays, RA. D.W.a Oquendo. Mar. 2011
76. Thornicroft G, Alem A, Antunes Dos Santos R, Barley E, Drake RE, et al. WPA guidance on steps, obstacles and mistakes to avoid in the implementation of community mental health care. World Psychiatry. 2010; 9(2):67–77. [PubMed: 20671888]

77. Thara R, Padmavati R. Lessons learned in developing community mental healthcare in South Asia. World Psychiatry. in press.

78. Patel V, Maj M, Flisher AJ, Silva DE, Koschorke MJ, Prince M. Reducing the treatment gap for mental disorders: a WPA survey. World Psychiatry. 2010; 9(3):169–176. [PubMed: 20975864]

79. Hanlon C, Wondimagegn D, Alem A. Lessons learned in developing community mental health care in Africa. World Psychiatry. 2010; 9(3):185–9. [PubMed: 20975867]

80. Razzouk D, Gregorio G, Antunes Dos Santos R, De Jesus MJ. Lessons learned in developing community mental healthcare in Latin America and Caribbean countries. World Psychiatry. in press.

81. Ito H, Setoya Y, Suzuki Y. Lessons learned in developing community mental healthcare in East and South East Asia. World Psychiatry. in press.

82. Kieling C, et al. Child and adolescent mental health worldwide: evidence for action. Lancet. 2011; 378(9801):1515–25. [PubMed: 22008427]

83. Patel V, Araya R, Chatterjee S, Chisholm D, Cohen A, De Silva M, Hosman C, McGuire H, Rojas G, van Ommeren M. The effectiveness and cost-effectiveness of drug and psychological interventions for many mental disorders. Lancet. 2007; 370:44–58.

84. Araya R, Flynn T, Rojas G, Fritsch R, Simon G. Cost-effectiveness of a primary care treatment program for depression in low-income women in Santiago, Chile. Am J Psychiatry. 2006; 163(8): 1379–87. [PubMed: 16877650]

85. Dieterich M, et al. Intensive case management for severe mental illness. Cochrane Database of Systematic Reviews. 201010.1002/14651858.CD007906.pub2

86. Katon W, et al. Stepped collaborative care for primary care patients with persistent symptoms of depression: a randomized trial. Arch Gen Psychiatry. 1999; 56(12):1109–15. [PubMed: 10591288]

87. Zatzick D, et al. Enhancing the population impact of collaborative care interventions: mixed method development and implementation of stepped care targeting posttraumatic stress disorder and related comorbidities after acute trauma. Gen Hosp Psychiatry. 2011; 33(2):123–34. [PubMed: 21596205]

88. Weissman, MM. Commentary on Psychotherapy for Depression in Adults: A Review of Recent Developments in Depressive Disorders. Herrman, H., editor. Wiley-Blackwell; UK: 2008.

89. Herman D, et al. Critical Time Intervention: An Empirically Supported Model for Preventing Homelessness in High Risk Groups. The Journal of Primary Prevention. 2007; 28(3):295–312. [PubMed: 17541827]

90. Susser E, et al. Preventing recurrent homelessness among mentally ill men: a “critical time” intervention after discharge from a shelter. Am J Public Health. 1997; 87(2):256–262. [PubMed: 9103106]