GRAMMARLY THREE

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GRAMMARLY THREE

Digital psychiatry in low-and-middle-income countries: new developments and the way forward

Digital psychiatry: seven decades of progress

The remote provision of mental health services using digital technology, or digital psychiatry has been evolving constantly since its inception in the late 1950s [1, 2]. Advances in technology over this period have driven this evolution and have influenced the nomenclature, types, and ever-expanding uses of digital psychiatric services.

Digital psychiatry subsumes several terms used to describe the remote delivery of mental healthcare. It includes telepsychiatry, which refers to videoconferencing-based, live, synchronous, and interactive communication between providers and users, and asynchronous modes of storing and forwarding data [3]. The primary purpose of telepsychiatry is to deliver specialist psychiatric care to remote and underserved areas. Tele-mental health expands the scope of digital services to include a wide range of clinical and non-clinical mental health services delivered by specialist and non-specialist professionals [4]. Electronic health (eHealth or e-mental health) includes all digital technologies to support healthcare delivery and health-related activities [5]. Mobile health (mHealth) is a subset of eHealth that uses mobile and wireless devices to deliver healthcare services [5]. The fundamental elements of digital psychiatry, the provision of mental health services from a distance using some form of digital technology to improve mental health, have remained the same despite the use of different terms over the years [4, 5-7].

Currently, digital psychiatry encompasses a range of older (telephones and computers), current (internet and mobile technologies), and emerging technologies (virtual reality, social media, wearables, and advanced computing). Technological advances have also expanded the uses of digital psychiatric services from improving access to specialist care to supporting primary-care teams and undertaking public health activities [6-10]. New forms of service delivery such as low-intensity interventions [11], hybrid or blended care [12, 13], and stepped care [12] have also been introduced.

The rapidly increasing global access to digital technologies has led to a proliferation of digital mental health services worldwide. Sixty-eight percent of the world's population were unique mobile subscribers and 97% were covered by mobile networks in 2023 [14-16]. About 85% of the world's population owned smartphones. Internet access stood at 67% and 60% of the people were using social media [14-16]. The global surveys of digital health carried out by the World Health Organization (WHO) since 2005 have noted a steady growth in the different types of digital services [4, 17-19]. For example, telepsychiatric services increased from 24% to 34% of all the member states from 2009-2016. The 2016 report found a global increase in the number of mHealth and internet-based programmes, emerging data on the health uses of social media and advanced computing, increased adoption of national telemedicine policies, and efforts to evaluate digital health services in many countries.
Finally, in the last seven decades, digital psychiatry has shown great potential in improving access, empowering users, and providing high-quality care at a reasonable cost in different settings for different patient populations [2, 3, 17, 19]. Compelling evidence suggests that digital psychiatric interventions are

comparable to conventional in-person treatments on a range of outcomes including diagnostic and neuropsychological assessments, feasibility and acceptability of treatment, treatment efficacy, improving quality of life and socio-occupational functioning, and promoting treatment alliances, and treatment engagement [6, 20-23]. Internet and videoconferencing-based interventions constitute the bulk of the evidence [21-23] and have replaced phone and computer-delivered interventions [21, 24]. The evidence base for mHealth interventions is growing, but convincing evidence for their efficacy is still lacking [25]. Research on social media, virtual reality, and big data analytics is scarce [9, 19]. The current consensus appears to be that despite the favourable evidence, firm conclusions about the efficacy of digital psychiatric interventions will require more research. The small number of high-quality and large-scale trials and a great degree of variability in the results from different trials contribute to this uncertainty. Moreover, there are significant gaps in the literature on digital psychiatric services regarding the range of disorders evaluated, utility in different patient populations, unequivocal evidence of cost-effectiveness, and the scarcity of large-scale implementation trials [8, 9, 21-23]. Last but not least, most of the evidence on digital psychiatry comes from high-income countries (HICs), and there is a considerable gap between the evidence base for the efficacy of digital psychiatric interventions in HICs and low- and middle-income countries (LMICs) [26].

The state of mental health in LMICs and the role of digital psychiatric services

Currently, over 85% of the people in the world live in LMICs [27]. Apart from poverty, these countries face other challenges such as overpopulation, demographic instability and migrations, poor social and living conditions, environmental degradation and climate change, political instability or armed conflicts, growing unemployment, illiteracy, crime, under-nutrition, and hunger. These adversities contribute to the enormous burden of physical and mental disorders in LMICs, which is made worse by the limited access to treatment [28].

Consequently, LMICs have to contend with more than their fair share of the mental health problems that exist globally [28-32]. Estimates show that more than 75% to 80% of the mentally ill in the world live in LMICs. At the same time, these countries have limited capacity to cope with this burden because of a lack of mental healthcare professionals, facilities, services, and funding. Moreover, these scarce resources are distributed unevenly and are least accessible to the poor and marginalized people from remote and rural areas. The situation is made worse by the lack of awareness and culturally-derived negative perceptions about mental illnesses, stigmatization of the mentally ill, and discrimination against them. All these factors culminate in a large gap between those who require mental health treatment and those who can get access to adequate treatment [30, 32-34]. Estimates suggest that only about 5%-15% of the people in need of treatment can receive it. The lack of adequate treatment leads to further distress and disability for the mentally ill, greater social and economic burden for their families, increased healthcare costs, and increased burden on society because of loss of productivity. Several measures have been suggested to deal with this treatment gap [26, 29, 30, 32, 35]. They include prioritizing mental healthcare, increasing governmental involvement and funding, integrating mental health services with general medical services in primary-care settings, developing community-based facilities for mental healthcare, and training non-specialist workers to provide care. However, these measures have proved insufficient in reducing the mental health burden because of many barriers that have prevented their large-scale implementation. Digital psychiatric services can overcome some of these barriers and effectively augment traditional mental health services. Therefore, using digital tools to improve access, reduce stigma, provide mental health care, and train, support, and supervise non-specialist workers has been recommended as a key strategy to bridge the treatment gap in LMICs [19, 29, 30, 35].

The current status of digital psychiatric services in LMICs

Digital psychiatric services offer LMICs a unique opportunity to expand their mental health services and meet the demand for mental health treatment in these countries [36-40]. Digital psychiatry provides patients from remote, rural, and underserved areas access to high-quality, evidence-based treatment available in specialist centres. Digital psychiatric services have the added advantage of overcoming the barriers of distance, costs, treatment delays, stigma, and non-adherence.

The focus of digital psychiatry in HICs has been to shift care from hospitals to the community and patients' homes [17]. In contrast, the task of digital psychiatric services in the LMICs has traditionally been to link patients in underserved areas to healthcare providers at more centrally located sites. Although digital psychiatry has successfully fulfilled this role, LMICs have generally lagged behind HICs in the delivery of digital services because of several factors impeding their progress. The major hurdles have been the costs of digital services and the lack of funding, poorly developed technological infrastructure and lack of technological progress, scarcity of trained workers, and insufficient data on the efficacy of digital psychiatric interventions. Nevertheless, there have been encouraging developments in the last decade or so. The most striking development has been the rapid expansion of the information and communication sectors, which has increased the availability of many more digital devices. Mobile phone ownership has grown the fastest. About 90% of the people in the LMICs have a mobile phone, which is similar to the rates of ownership in HICs. Smartphones make up more than 60% of these phones. However, only about 29% -60% have access to the internet, which is much lower than the internet penetration in HICs [10, 15, 27, 41]. The WHO surveys have also shown that the number of digital psychiatric programmes, particularly internet and mobile-based services has increased [17-19]. Governments have shown greater commitment and many more countries have national policies and guidelines. The use of emerging technologies for mental healthcare such as social media and advanced computing is also on the rise. The evidence for the efficacy of digital psychiatric interventions in LMIC settings has grown [37, 38, 40]. Moreover, innovations such as the digitalization of task-shifting are being used [9, 26, 36]. Finally, digital psychiatric interventions, particularly videoconferencing-based telepsychiatry were widely used during the coronavirus disease 2019, which has led to a revival of interest in this mode of service delivery [42].

Recent developments in digital psychiatric services in LMICs

The efficacy of digital psychiatric interventions in LMICs: A relatively recent development in the field of digital psychiatry has been the increase in research on the efficacy of digital psychiatric interventions conducted in LMICs. A literature search with the Reference Citation Analysis tool revealed 13 systematic reviews including two meta-analyses published since 2015. These reviews have shown that research on these interventions has increased over the last 5-10 years [38, 40, 43-45]. Most of this research has been conducted in South America and Asia. Studies from Africa and the Middle East are relatively scarce. China, Brazil, and India are the countries with the highest number of studies [37, 44, 46-48]. Although videoconferencing-based telepsychiatry, telephone, and computer-delivered treatments are still used [38, 44, 45, 47, 48], there has been a clear shift to mobile and internet-delivered digital interventions [37, 40, 43, 44, 46]. Common mental disorders such as depression and anxiety are the most frequently studied conditions [37, 38, 40, 43, 46]. These disorders are also commonly examined in HICs reflecting their high prevalence and burden [21-23, 40]. A systematic review also found support for internet-based interventions in preventing depression [49]. Other conditions examined included substance use disorders. [37, 40, 43, 47, 48]. A recent systematic review [44] that focused exclusively on digital interventions in substance use disorders, identified 39 studies most of which were randomized-controlled trials (RCTs). Fewer studies have focused on psychotic disorders. A narrative review of patients with psychosis identified seven studies, three of which were from China [50]. A systematic review from China, which included 39 studies also found that studies of psychotic disorders were more common than those of depression, anxiety, and substance use disorders [45]. The authors attributed this to the increased emphasis on managing severe mental illnesses in the Chinese healthcare system. There were very few studies of other disorders such as post-traumatic stress disorder, dementia, intellectual disability, and self-harm [38, 40, 43, 45, 48]. Expectedly, the most common outcome examined was the feasibility and acceptability of delivering digital interventions, which was satisfactory in almost all the studies [37, 38, 40, 48, 49]. These studies included patients with depression [37, 38, 40, 48, 49], anxiety [45, 47, 48], substance use [37, 40, 44, 47, 48], psychosis [37, 40, 45, 50], and other disorders. The feasibility and acceptability of digital interventions were found in studies from South American countries [47, 51], China [45], and India [52]. Digital interventions were safe with minimal adverse effects [43, 45, 46]. Many studies reported high levels of patient and clinician satisfaction [38, 40, 51, 52]. Treatment efficacy was the other commonly studied outcome, and the majority of studies reported that digital interventions were efficacious in reducing symptoms of all psychiatric disorders [37, 38, 40, 44, 48]. Two meta-analyses reported effect sizes of 0.60 for all disorders, 0.61 for depressive, and 0.73 for anxiety symptoms for digital interventions compared to waiting list controls, usual treatment, or other active treatments [43, 46]. The number needed to treat was three [43]. The effect sizes were larger in comparisons of digital interventions with minimal or no treatment [43]. The effect sizes were greater among adults than children, patients who were moderately ill, and those receiving internet or mobile-based psychological interventions [46]. Thus, digital interventions were modestly effective in reducing symptoms, a result that was no different from the meta-analytic studies from HICs. Several reviews also reported improvement in treatment engagement and treatment adherence with digital interventions [37, 40, 44, 47, 50]. Some of the reviews found that digital interventions improved functioning and the quality of life [37, 40, 45, 51]. The evidence for other outcomes such as the accuracy of diagnostic assessments, preventing relapse or enhancing recovery, improving coping, and reducing the risk of self-harm was limited [37, 38, 40]. In contrast to these positive outcomes, certain studies reported that digital interventions did not reduce symptoms or increase patients' acceptability [37, 40, 51, 53]. Moreover, all reviews concluded that despite the relatively high proportion of RCTs, the methodological quality of the evidence was inadequate to determine whether digital psychiatric interventions were efficacious in the setting of LMICs. Methodological shortcomings included the small number of studies, small sample sizes, the predominant focus on adult patients, methodological variability and heterogeneity across studies, relative lack of high-quality studies, the possibility of selection or publication bias, the short-term nature of studies, the poor attention to cultural considerations, and the lack of data on the cost-effectiveness of digital interventions [37, 40, 44, 45, 48].

Choosing the most appropriate form of digital psychiatric services for LMICs: The choice of the most effective form of digital psychiatric service based on the current evidence from LMICs is difficult. Older technologies such as telephone and computer-based services are widely used [39], and the evidence indicates that these forms of service delivery are effective in LMIC settings [37; 43-45; 48]. Videoconferencing-based telepsychiatry is another frequently used and effective form of service delivery in LMICs [37; 38; 47]. Although it is the oldest form of digital psychiatric services, the availability of inexpensive equipment and free internet-based platforms have ensured its continued use. Synchronous videoconferencing can improve access to specialist care, but its public health utility is limited because it cannot compensate for the workforce shortage in LMICs [37]. Asynchronous telepsychiatry can be a more efficient and cost-effective alternative, but the evidence for its efficacy in LMICs is scarce [17; 19; 37; 39]. Internet and mobile-based psychiatric services can extend the reach of digital psychiatric services in LMICs more efficiently. More than half of the digital intervention studies from LMICs involve internet or mobile services [40; 43; 45-47]. Thus, there is considerable evidence for their efficacy and effectiveness. These interventions can potentially reduce treatment costs and the reliance on specialist care while expanding the capacity of the mental health workforce to deliver treatment [36; 47]. Internet-based programmes depend on reliable network connectivity and high levels of digital skills among users [26; 37; 49]. The disparities in internet access, inadequate network connectivity, and poor digital literacy among users in LMICs can limit the effectiveness of internet-based services. Mobile technologies are less reliant on the internet because of the options of voice calls, text messaging, and other offline uses [54-56]. The rapidly increasing mobile ownership and the use of mHealth interventions for psychiatric disorders suggest that mobile-based services will probably become the digital psychiatric service of choice in LMICs. Emerging technologies such as social media, virtual reality, and advanced computing could be the other options for the future but there is limited data on their use and effectiveness at present [9; 40; 45; 48].

The increasing use of mobile technologies for psychiatric disorders in LMICs: The rising ownership of mobile phones and expanding cellular networks have driven the growing use of mobile technologies to deliver mental health services in LMICs. Reviews of mobile mental health from LMICs have shown that mHealth technologies are primarily used for public health activities and supporting mental healthcare delivery by primary-care workers [44, 45, 54-56]. Public health functions include data collection, disease surveillance and prevention, health monitoring, health awareness and promotion, and use in disaster situations. Mobile mental health services include detection and diagnosis, treatment, psychosocial interventions, symptom monitoring, information and support, facilitating treatment adherence, and emergency psychiatric care. Mobile technologies are used to train, supervise, monitor, and support primary-care workers in delivering mental healthcare. Mobile phones can improve access to mental health services, reduce stigma through educational campaigns, and augment other digital psychiatric interventions. Such functions are not unique to mHealth technologies but their advantage derives from their ubiquity, mobility, and novelty of certain features such as text messages or applications (apps) [54]. Although voice calls remain popular, text messages, apps, and web-based interventions are the most common mental health uses of mobile phones in LMICs [44, 55]. Studies from HICs have shown that mobile phones, smartphones, and apps-based interventions are feasible, acceptable, and modestly effective in reducing symptoms in different psychiatric disorders [25, 57-60]. In contrast, studies from LMICs have usually examined the feasibility, acceptability, and occasionally the affordability of mHealth interventions. While these outcomes are positive, the evidence for the efficacy of mHealth interventions is limited, inconsistent, and methodologically inadequate [44, 45, 54, 55, 61] However, studies of all but a few medical disorders from LMICs reveal a similar lack of evidence for the efficacy of mobile-based interventions [55, 62, 63]. Moreover, the evidence for the efficacy of mHealth interventions for psychiatric disorders is lacking even in HICs [25].

The role of digital psychiatric interventions in task-shifting in LMICs: One of the innovative uses of digital psychiatry, particularly in LMICs has been the use of digital technologies to optimize task-shifting [63]. Task-shifting or task-sharing refers to the utilization of non-specialist health professionals such as doctors, community health workers, lay health workers, midwives, or nurses for delivering mental healthcare services in primary-care or community settings [9, 26]. LMICs are unable to ensure optimal delivery of mental healthcare services because they lack adequate numbers of trained professionals, infrastructure, funding, and appropriate policies [64]. Moreover, workforce shortages are one of the main contributors to the treatment gap in LMICs [26]. By delegating clinical responsibilities to non-specialist workers, task-shifting ensures the optimum use of limited human resources. Task-shifting improves the efficiency of the mental healthcare system and the effectiveness of interventions delivered by non-specialist workers. The essential purpose of task-shifting is the delivery of evidence-based, low-intensity psychological treatments by trained non-specialist professionals. Low-intensity psychological treatments are simpler interventions that are easily taught and require less frequent contact with patients [36]. Another essential requirement for task-shifting and increasing the capacity of the non-specialist workforce is the integration of mental health services with mainstream health services at the primary-care level [26, 64]. The principal components of task shifting involve training workers to deliver care, supporting these workers while they provide care, monitoring and supervising their performance, ensuring proper communication between providers and the workers, and implementing measures to improve motivation and retention of the workers. Mobile or internet-based services can aid all these components of task-shifting equally or even more efficiently than conventional mental health services [65-69]. There is convincing evidence to support the effectiveness of task-shifting and the delivery of evidence-based psychosocial interventions by non-specialist professionals as a part of traditional mental health services [70-73]. Reviews of digital psychiatric interventions from LMICs have also found that mobile or internet-based technologies are equally useful in supporting task-shifting and the delivery of low-intensity psychological interventions by non-specialist workers [6, 9, 26, 36, 40]. In the meta-analysis by Fu et al. [43], the efficacy of low-intensity digital psychosocial interventions was greater than similar interventions delivered by non-specialist workers in person. More recently, there have been several RCTs from LMICs showing that mobile-delivered psychosocial interventions are effective in reducing symptoms, promoting remission, improving adherence and functioning, and saving costs in common mental disorders and schizophrenia [74-77]. Other RCTs have shown that mobile technologies are effective in training non-specialist workers to ensure optimal use of the task-shifting approach [78-80]. The details of these RCTs are included in the accompanying table. Despite this impressive evidence, the use of digital technologies to support task-shifting for mental health uses has many shortcomings. These include methodological inadequacies of the evidence, conflicting data on cost-effectiveness, and the lack of large-scale trials on implementing these technologies [9, 26, 39, 54, 55]. However, the digitalization of task-shifting appears to be a promising approach for reducing the mental health treatment gap in LMICs, and future research that focuses on cost-effectiveness and implementation will further enhance the role of digital technologies in task-shifting in these countries.

Table here

Digital psychiatry in LMICs during and after the coronavirus disease 2019: The coronavirus disease 2019 pandemic significantly impacted worldwide digital psychiatric services. There was a rise in mental health problems and psychiatric disorders worldwide [81, 82], although there are conflicting reports about the increased prevalence of psychological symptoms in the general population [83]. Nevertheless, the pandemic severely disrupted conventional mental health services and affected the continuity of psychiatric care [82]. The impact was greater in LMICs than in HICs because of the pre-existing deficiencies in their mental healthcare systems [64, 82]. The global response to disruption in mental health services was to switch to digital psychiatric services [82, 84-86]. According to a WHO survey, around 70% of the countries adopted some form of digital intervention, either telephone support or videoconferencing during the pandemic to replace in-person consultations [87]. Half of the countries achieved the transition to digital care by the first year of the pandemic [86]. The increased global uptake of digital psychiatric services followed the relaxation of regulations and the adoption of policies promoting digital interventions in these countries. [82, 84-86]. Most countries set up helplines to provide information about infection control and psychosocial support for the general population, patients with psychiatric disorders, and frontline health workers [64; 82; 87]. A common approach used in LMICs was training healthcare workers in psychosocial skills. Several organizations and countries developed guidelines for the use of digital psychiatric treatments. Digital interventions for task-shifting or digital delivery of low-intensity psychosocial treatments were adopted only by a few countries. Digital interventions used during the pandemic were effective and appeared to improve treatment adherence [84]. The change to digital modes of mental healthcare was feasible and acceptable to most patients, families, and mental health professionals [84; 85]. However, there were significant differences between HICs and LMICs in the adoption of digital services. While more than 80% of the HICs digitalized their mental health services by 2020, less than 50% had shifted to digital psychiatric services [42; 87; 88]. The contribution of middle-income countries to the global digitalization of mental health services was minimal, while there was hardly any data from low-income countries [85; 86; 88]. Most of the studies from middle-income countries were from China or India. These were usually descriptive reports of the development of guidelines, virtualization of psychiatric outpatient services, implementation of online interventions, and uncontrolled studies of digital interventions for different psychiatric disorders [88-92]. Lastly, it is uncertain whether the renewed interest in digital psychiatry has persisted after the pandemic. There are conflicting reports about the increased acceptance and use of digital services globally or in HICs [93-95], but there is practically no data from the LMICs.

Other developments: One of the uses of digital psychiatric interventions is to reduce the stigma associated with mental illness and its treatment [9, 37, 53]. Some studies have found that internet or mobile interventions effectively reduce stigma among patients from LMICs [36, 44, 54, 56]. A recent review has cited examples of digital health programmes such as mass media campaigns, mHealth-based community interventions, and online interventions that can reduce stigma through education and contact with those suffering from mental illness [96]. Finally, social media, virtual reality, and emerging technologies such as big data analytics and machine learning are also being explored for their potential usefulness in managing mental health problems in LMICs [9, 19, 45].

Challenges facing digital psychiatric services in LMICs

Despite the promising developments in digital psychiatry in LMICs, there are many barriers to its adoption in these countries. The WHO surveys and other reviews have shown that the principal barriers impeding the progress of digital health across the world are the costs and funding of programmes, technological and infrastructural deficiencies, unawareness, lack of technical expertise, concerns about privacy, confidentiality, and adequate treatment alliances, cultural impediments, lack of regulatory policies and guidelines, competing health-system priorities, and the lack of demand for digital health services [17-19, 97, 98]. The major hurdles in HICs include legal issues concerning privacy, confidentiality, and safety, lack of priority for digital services, and the lack of demand for them. In contrast, the chief concerns in LMICs relate to the costs of services, under-developed infrastructure, lack of awareness about digital services, lack of technical expertise and trained professionals, cultural barriers, and negative attitudes among providers [17, 18, 99-101]. The costs related to digital health programmes include the initial costs of infrastructure, training providers, and operational and maintenance costs [99, 101]. These are higher in LMICs and there are fewer opportunities to recover these costs because insufficient funding prevents the large-scale and sustained implementation of digital services [68, 99]. Policymakers are also unlikely to invest in these programmes because of inconsistent data on cost-effectiveness [17]. Lastly, the costs of the device or service might be too high for many users [44]. The main technological and infrastructural obstacles include poor network connectivity, lack of internet access, and lack of basic infrastructure such as electricity supply [26, 47, 99-101] These barriers are more likely to affect the internet than mobile-based services and could be a factor in the preference for mHealth interventions in LMICs [37, 68, 99]. The lack of trained personnel arises from the perennial shortage of healthcare workers in LMICs, unawareness and unfamiliarity with technology, negative attitudes, and resistance to change among providers [9, 17, 68, 100, 101]. Cultural hindrances include language barriers [6, 95. 102], cultural beliefs and attitudes among patients and families [39, 54, 100], the impact of culture on treatment relationships [54], and the cultural appropriateness of digital interventions [44, 99]. Finally, the rapid advances in technology and its increasing reach have highlighted the significant disparities in access to and use of digital devices. This digital divide exists between countries, regions, and people [103]. In general, digital access is poorer in LMICs compared to HICs, but there is also great variability between the LMICs [17-19]. In LMICs, rural and remote regions are underserved compared to the urban areas [37, 44, 68, 101, 103]. However, inequitable access most commonly affects the users of technology, where the digital divide reflects the existing social inequities [104, 105]. Consequently, women, the elderly, persons with low literacy, and the socioeconomically deprived, ethnic, and marginal populations have the least access [9, 43, 104-106] and limited digital literacy [6, 44, 50, 54, 100]. The greatest paradox of digital psychiatry is that those with the greatest need and those most likely to benefit from such services are least likely to have access to them.

Conclusions: The way forward for digital psychiatric services in LMICs

This summary suggests that there is reason for optimism about the progress made in digital psychiatric services in LMICs over the last decade. Nevertheless, further efforts are needed to improve the organization and implementation of these services in LMICs [17, 54, 65, 107, 108]. Several factors influence the success or failure of digital services including users' needs, implementation readiness, and stakeholder involvement. Determining the needs of the patients, families, and the wider community and the socio-economic and cultural factors that shape these needs is essential in planning digital services for the targeted population [65, 106]. Digital psychiatric services should be in keeping with the prevalent infrastructural, technological, and human resources. The needs of the users and the availability of resources have a role in the design and content of digital psychiatric interventions. A participatory approach soliciting the users' views improves the acceptability and usefulness of the interventions [9, 37, 50]. Digital interventions should have proven efficacy in LMIC settings before implementation. Thus, there is a need for methodologically adequate and more nuanced research on clinically meaningful outcomes in different patient populations and the cost-effectiveness of interventions [9, 26, 37, 40, 43]. A central consideration for such research should be the ability to implement digital interventions on a larger scale. Consequently, factors other than the efficacy of digital services such as operational capacity, funding, and the ability to integrate with mainstream psychiatric services have to be evaluated [45, 93, 107]. Collaboration between different stakeholders including the government, non-governmental organizations, private enterprises, providers, and users is essential for implementing and sustaining digital psychiatric services [17, 107, 108]. Regulation of digital services is necessary to maintain their standards of care. Regular monitoring, evaluation, and timely upgrades are also essential to maintain the quality of the services [17, 93]. Apart from commercial considerations, focusing on the social benefits of digital services and innovative approaches to reduce the digital divide deserve equal consideration [9, 17, 37]. Lastly, while the wider and efficient deployment of digital psychiatric services is necessary, digitalization cannot be the sole option for reducing the mental health treatment gap in LMICs [17, 99]. Rather, digital and traditional psychiatric services, general health services, and social welfare services all have to act in concert by enabling and facilitating each other.