Commentary: An integrated blueprint for digital mental health services amidst COVID-19

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Abstract

In-person traditional approaches to mental health care services are facing difficulties amidst the COVID-19 crisis. Recent social distancing has revamped the attention on non-traditional mental health care delivery to overcome the difficult access to services and fill the void. Tele-health has been established for several decades but has only been able to fill a small gap in services. Mental health mobile and tele-digital health complements are well poised to respond to the upsurge of COVID-19 cases. Screening and tracking with real-time automation and machine learning are useful for both assisting psychological first aid resources and targeting interventions. Of concern is the rigorous evaluation of these new opportunities in terms of quality of interventions, effectiveness and confidentiality. Service delivery could be broadened to include trained unlicensed professionals whom may help health care services in delivering evidence?based strategies. Digital mental health services emerged during the pandemic as complementary ways of assisting community members to adjust to stress and transitioning to new ways of living and working. As part of a hybrid model of care, technologies (mobile and online platforms) require consolidated and consistent guidelines as well as consensus, expert, and position statements on the automation and machine learning screening and tracking of mental health in general populations as well as consideration and initiatives for vulnerable and underserved subpopulations.

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Commentary: An integrated blueprint for digital mental health services amidst COVID-19

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Abstract: In-person traditional approaches to mental health care services are facing difficulties amidst the COVID-19 crisis. Recent social distancing has revamped the attention on non-traditional mental health care delivery to overcome the difficult access to services and fill the void. Tele-health has been established for several decades but has only been able to fill a small gap in services. Mental health mobile and tele-digital health complements are well poised to respond to the upsurge of COVID-19 cases. Screening and tracking with real-time automation and machine learning are useful for both assisting psychological first aid resources and targeting interventions. Of concern is the rigorous evaluation of these new opportunities in terms of quality of interventions, effectiveness and confidentiality. Service delivery could be broadened to include trained unlicensed professionals whom may help health care services in delivering evidence-based strategies. Digital mental health services emerged during the pandemic as complementary ways of assisting community members to adjust to stress and transitioning to new ways of living and working. As part of a hybrid model of care, technologies (mobile and online platforms) require consolidated and consistent guidelines as well as consensus, expert, and position statements on the screening and tracking of mental health (with real-time automation and machine learning) in general populations as well as consideration and initiatives for underserved and vulnerable subpopulations.

Keywords: digital mental health, mental wellbeing online assessments, machine learning, automation, COVID-19, wellbeing services.

Introduction

It has been proposed to use digital health technology to strengthen health systems [1]. Coupled with high quality mental health research, digital innovations can aim at resolving “the potential crisis in the provision of health services to helping preserve and reconstruct a post-pandemic society” [2]. Digital mental health delivered online and through smartphone technologies can be useful for targeted psychological interventions in communities affected by COVID-19 [3]. These provisions may fill the critical gap that practitioners are facing because of higher demand for mental health care services and the limitations of face-to-face consultations [4,5]. In this regard, the COVID-19 crisis would accelerate the use of mobile and tele-digital health or at least would challenge the usual standard of care [6].

Mental wellbeing online assessments and automated analysis via machine learning

Data collection and analysis are required to be large-scale and high quality because of mental health needs under the current pandemic. An example of an innovative, tailored, and practical technology applied in research methods is the machine learning (ML) induction of models. This technology was applied in a study

[7] to predict probability of Post-Traumatic Stress Disorder (PTSD) symptoms in patients one month after trauma using self-reported symptoms from data collected via smartphones. The results suggest that simple smartphone-based patient surveys, coupled with automated analysis using ML-trained models, can identify those at risk for developing PTSD symptoms, and thus target them for early intervention.

It has long been acknowledged by mental health practitioners that there is a need to activate all possible opportunities to offer help, also in the form of tele-assistance, to patients [8]. At-home, mental health treatments are mostly limited to tele-health, where providers remotely communicate with patients over the phone or using video [9]. Tele-mental health services are perfectly suited to pandemic situations, with people being given access to mental health assistance without increasing the risk of contracting infections [10]. In times of pandemic, the mental health of people needs to be supported in any possible way [11]. The call for innovative and expansive solutions and broad-scale collaboration in mental health prevention and intervention delivery includes support for technology [12]. Screening and tracking for stress and adjustment issues in general populations via simple online/smartphone-compatible surveys, coupled with automated real-time analysis using ML-trained models are a way forward for faster and better mental health care.

COVID-19 mental health crisis a booster for digital interventions

Reliable, valid and replicable mental health screening and tracking tools via ML have the potential to be the light bulb moment, able to provide an integrated blueprint for the COVID-19 mental health response. The possibility of an integrated offering requires a strategy that brings together different expertise areas (i.e. psychology, psychiatry, emergency and general health care, human welfare, and digital innovation). There is a range of ground-breaking developments happening, with automation taking hold rapidly and consensus to broaden horizons beyond tele-health to deliver digital assets [5,13,14]. Willingness to learn, capacity to adapt to changes, collaboration and well-connected management can help to resolve the organisational problems that still hamper the large-scale development and implementation of new technologies. The tragic impact of the consequences of the COVID-19 pandemic may act as a booster for a rapid growth of activities related to digital interventions.

However, the adoption of digital interventions was recommended well before the onset of the pandemic and suggested as a complement, alongside traditional treatments, rather than their replacement [15]. An important caveat is the possible lack of access for vulnerable people needing health care [1]. The consequences of COVID-19 have emphasised the urgent need of counteracting the psychological impact of the pandemic by facilitating access to psychiatric diagnosis and treatment [16] whilst acknowledging social distancing.

Mental health services could be broadened by training unlicensed professionals such as those who work in academia as researchers or in other areas of psychology, psychiatry or mental health that don’t require direct clinical contact with patients. Self-help interventions can be delivered through a variety of media; these have proven effective for a range of mental health problems [17] and could be further explored for whether adjustment to a remote care set-up is linked to a (more) fertile mindset to solve issues.

Evaluation of digital interventions required for quality assurance

Quality assurance remains problematic for online psychological services in low and middle-income countries [18] and vulnerable populations [14]. There are no current systems known to be in place in the evaluation of digital mental health innovations with respect to underserved populations. International standards on quality of services are essential, as are accessibility, sustainability, equity and ethics [4,19]. Rigorous evaluations are needed to answer questions related to utility, effectiveness, confidentiality, and quality of interventions [20,21].

Conclusion

The global potential of digital mental health in improving the accessibility and quality of mental health service provision was boosted during the COVID-19 pandemic. A recent paper [14] focused on the requirements for increased efforts around safety, evidence, engagement, outcomes and implementation to increase the scalability and access to quality digital mental health care and proposed funding, research, policy changes, training, and equity as investments that will yield ongoing returns. A responding comment [4] emphasised the need for ongoing evaluation to national evidence standards, digital training for mental health professionals and assessment of how digital health innovations can be safely and sustainably embedded in care pathways with reference to the non-adoption, abandonment, scale-up, spread, and sustainability (NASSS) framework [22].

In adopting, scaling up, spreading and sustaining digital mental health innovations amidst COVID-19 and long-term, it is recommended to coordinate organisational and system framework assessments with evidence-based, online/smart-phone compatible screening and tracking tools deployed with real-time automation by ML-trained models. The results are recommended to be presented upon sustainable, connected and geocoded digital platforms which may be supported by unlicensed professionals in order to expand and maintain patient engagement and increase options for prevention and intervention. A patient is thereby presented with recommendations for mental health care services including options for self-care and practitioner-led care with focus on value and capabilities. Suitably-qualified content on mental health is recommended to be disseminated and accessed via digital workspaces that provide dashboards to build efficiency, consistency and transparency from a single, global location.

Scalable screening and tracking tools are recommended to be implemented in a hybrid model of care combining face-to-face, tele-health and digital-health approaches. Machine-readable paper copies or non-smartphone text messaging could be adapted as solutions where there is a lack of access to the technological resources required for engagement in digital mental health services. An added value of digital mental health is that it may be designed to automate thematic and metadata review, traceability for quality assurance and assignment of responsibility for identified cases of mental ill-health. In order for a consistent and consolidated knowledge management strategy for integrated services, it is recommended to consider existing telepsychiatry guidelines (including other relevant digital technologies) [23]. Consensus, expert, and position statements are

required from psychiatrists, psychologists and academic researchers on the individual, cultural, and environmental factors that affect the well-being of the patient with suggestions for brief, valid screening and tracking surveys for the prevention and treatment of mental health symptoms and disorders. It is recommended that a general population version is adapted from with specifications for vulnerable subpopulations such as children, college students, domestic violence victims, frontline heath care workers, low socio-economic groups, athletes, those with mental health disorders and the elderly.

Conflicts of interest: none

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