

Mobile Apps in Psychiatry

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ABSTRACT

Technological advancement in the last 20 years has swept over psychiatry as multiple mHealth apps are available 24/7 on both Android and iOS-based smartphones. India is one of the leading countries in terms of smartphone ownership. Most of the apps are available for free or with minimal monetary subscription. The mHealth provides privacy and comfort to the user thus destigmatizing mental health and promoting help-seeking behavior as a part of modern lifestyle, thus demolishing previous conservative notions about psychiatry. Hurdles in the treatment of mental illness can be easily overcome by mHealth as it has 24-hour availability and provides anonymity therefore improving compliance. It also helps in accurately recording large data. However, limitations of mHealth apps primarily include that cognitively or functionally impaired patients may show diminished capacity to use technology and limited internet availability in certain geographical areas.

Keywords: Internet, Mobile app, Schizophrenia, Stigma, Technology.

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The World Health Organization defines mHealth as “medical treatment and health management through mobile devices.”¹ Technological advancement in the last 20 years has swept over psychiatry as multiple mHealth apps are available 24/7 on both Android and iOS-based smartphones that are advertised through social media.^{2,3}

Protocol studies for “Smokerface,” an app visualizing cosmetic appearance in chronic smoking, an app named SIMPLe used for self-monitoring and psychoeducation in bipolar patients, Sleepio, a tailored cognitive behavioral therapy (CBT) delivered in an app through animated virtual therapist for insomnia and the app EviBaS incorporating CBT, acceptance and commitment therapy (ACT) and metacognitive training (MCT) for psychosis have been proposed.⁴⁻⁷

SCHIZOPHRENIA AND PSYCHOSIS

Personalized real-time intervention for motivational enhancement acronym, “PRIME” provided sustained efforts in schizophrenia patients with an overall retention rate of 74% for the treatment. Furthermore, the retention rate postintervention was 88% which was evaluated 3 months after the trial.⁸ An app providing CBT for paranoia, SlowMo, showed small to moderate effectiveness.⁹ The app CrossCheck interpreted that closely monitored changes in the behavior of a person, particularly their travel pattern and contact with others could be useful in evaluating individuals with paranoia.¹⁰ ClinTouch resulted in high levels of adherence from schizophrenia patients with improvement on the positive and negative syndrome scale (PANSS) score with recent-onset psychosis over 12 weeks. It was also provided with built-in alerts for personalized early warning signs of relapse of psychosis, thus was well accepted by health professionals also.¹¹

DEPRESSIVE AND ANXIETY DISORDERS

Several CBT-based apps have been developed in the recent decade nevertheless holding questionable potency and proficiency. Among some is an app named “Mugimaru,” illustrating a boy and girl experiencing conflicts in their relationships and life, who are counseled by a cat named “Mugimaru.” It showed nonsustainable temporary improvement in depressive symptoms. However, the

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study provided an astonishing secondary finding of a reduction of suicidal ideations as well as self-harm in 73% of individuals who previously responded positively to such behavior.¹² “Feel Stress Free,” which is a self-administered CBT app, found reduced depressive symptoms at week 6 but only minimal decrement in symptoms of anxiety.¹³ However, a biofeedback intervention named BioBase paired with a wearable device called BioBeam was successful in reducing self-reported anxiety in students of a university in the UK with 2 weeks sustainability of results posttermination of the trial.¹⁴ Nevertheless, the Meru Health Program (MHP) in which therapist-guided intervention for depression was delivered, found neither statistically nor clinically significant difference in the reduction of symptoms of depression.¹⁵ Another app called, Mindfulness Training (MT), produced reliable changes of 64 and 54% at 1 and 2 months in anxiety symptoms. The app, MT, may promote decentering, defined as a “metacognitive capacity to observe items that arise in the mind as mere psychological events.” The study strengthened the notion of app-delivered MT significantly reducing anxiety by increasing psychological nonreactivity and reductions in worry, suggesting a specific targeting of reinforcement learning for further revised models of the apps.¹⁶

SUBSTANCE ABUSE DISORDERS

Stop-Tobac, inferred positively that smoking cessation, reduction, and relapse could be predicted through the frequency and duration of usage of this app.¹⁷ In another research conducted using the same

app, the experimental pool operated on the “full” version of stop-Tobac in comparison to the “dressed down” version in the control group. The study resulted in the deduction of precise predictors that could affect attempts made by an individual in cessation of smoking along with the relationships between predictors and outcomes based on the user level of engagement with the provided app.¹⁸ Smart-T2 was rated positively as a reliable method of quitting smoking and possibly aiding in preventing relapse.¹⁹ However, Craving to Quit, an MT app found negligible group differences among intervention and controls in abstinence from smoking at 6 months after the study period had ended. Nevertheless, MT to lessen the craving for smoking presented as preliminary evidence for long-term termination of smoking.³

Prominent reduction of cigarettes per smoking day was achieved with Brief Alcohol and Smoking Intervention for College Students Mobile, an app acronym, BASICS-Mobile. However, it gave pessimistic results in reducing alcohol consumption. Furthermore, the app could not deliver any predictors for the above two investigatory habits for further advancements.²⁰ An app called “Drinks:Ration” used by war veterans was competent in reducing alcohol consumption by –28.2% in the intervention group in comparison to the control group showing only –10.5% reduction at day 84 of the intervention period. Nevertheless, participant recruitment was disappointing as 93.5% either did not respond or declined the invitation to participate in the study, and the chronic desired result was lower than anticipated as assessed during follow-up on day 168.²¹ TeleCoach, a skill training app weighted in a sample of university students with excessive alcohol consumption, supervised a decline in the quantity of drinking in first follow up and in the frequency of drinking at all follow-ups.²²

POSTTRAUMATIC STRESS DISORDER

Four distinct studies of the posttraumatic stress disorder (PTSD) Coach app catering to the reduction of PTSD symptoms cumulatively concluded that the mobile version is more plausible than the Online version and a shorter 4–8 weeks’ duration, of course, had less attrition rate.²³ Furthermore, there was high acute usage post-trauma with low longitudinal engagement with no reported harmful effects as proposed in previous literature.²⁴ However, in another study, the bisected sum of subjects presented themselves with minimum singular negative effects related to app use with moderate satisfaction and unresolved somatic symptoms.²⁵ The “PTSD Coach” app is not trauma-based but the only available researched option for PTSD thus to expand on this, an alternative called Renew, which is an exposure-based self-management app that included a peer support component showed promising outcomes in a study conducted with war veterans.²⁶ It is to conclude in view of PTSD Coach, that some moderately effective intervention is better than no intervention.²⁷

MISCELLANEOUS

Advancements in technology have attempted to make life comfortable with the aim of the sustainable physical and mental wellbeing of the human race. Reminders regarding follow-up appointments and medication schedules through an app called “Reminder,” accounted for higher (76.8%) outpatient attendance and medication adherence in comparison to the control group (56.4%).²⁷ The iCON app provided a workable model for reporting of clinical status of children with ADHD by improving

the implementation of pharmacotherapy along with a default reminder at 7 a.m. every morning.²⁸ WeClick was an effective attempt through the app in normalizing the help-seeking behavior among adolescents for mental health-related issues; however, the result declined by 4 weeks posttest.²⁹ Cognitive Applications for Life Management (CALM), an app used for insomnia, in one study improved sleep quality and reductions in fatigue with average usage of app 14.98 minutes/day and in another study, it assisted in emotional regulation with improved anger control and maladaptive interpersonal behavior among Veterans simultaneously bringing an unanticipated reduction in PTSD symptoms.^{2,30} Workplace mindfulness intervention by an app named Headspace showed global improvement sustained post 2 months of intervention period with mild-to-moderate outcomes in desired behavioral domains.³¹ FoodT, which is a food-specific inhibitory control training app for binge eating disorder (BED) and bulimia nervosa (BN) worked on a go/no-go archetype and was highly accepted by the participants who not only elaborated on their challenges but also provided useful insights in the betterment of the app.³²

Limitations of mHealth apps primarily include that the cognitive or functionally impaired patients may show diminished capacity to use technology, the presence of bug/virus may cause the app to crash, there may be loss of data owing to any hazardous event like fire accident and limited internet availability in certain geographical areas causing buffering of the app.^{5,6,33} The question of the significance of timing and sequence of modules in the app is yet to be explored.²⁰

The strength of mHealth is the common use of mobile phones makes such types of interventions both accessible and scalable.¹⁴ Most of the apps are available for free or with minimal monetary subscription. The mHealth provides privacy and comfort to the user thus destigmatizing mental health and promoting help-seeking behavior as a part of modern lifestyle, thus demolishing previous conservative notions about psychiatry. Through the app, individuals with similar illnesses can connect, share, and provide support to one another.

In conclusion, a few of the barriers faced in practicing current face-to-face psychiatric interventions are the incompatible routine of patients with their scheduled follow-up for treatment, stigma related to group therapy, unavailability of resources in rural areas, expensive health care, social stigma and limited awareness and knowledge about mental illnesses.⁵ These hurdles in the treatment of mental illness can be easily overcome by mHealth as it has 24-hour availability and provides anonymity therefore improving compliance. It helps in accurately recording large data.²⁰ There is minimal hesitation in interaction with a device as the user is not preoccupied with thoughts of being embarrassed.⁵ Thus, mHealth can be fashionably integrated with already practiced evidence-based therapeutic psychiatric models with community-level dissemination even though establishing their efficacy is yet a fully unearthed process with lumber pace research conducted to date with advance challenges such as ethnic diversification, customization, and scientific validity yet to be brought to light.^{3,14}

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