MOBILE APPS FOR MENTAL HEALTH: BEST PRACTICES AND ETHICAL CONSIDERATIONS FOR GUIDELINE DEVELOPMENT

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Abstract

The following article outlines comprehensive guidelines and best practices for designing mobile applications that support mental health. The guidelines emphasize a user-centric approach, advocating for inclusive design that caters to individuals with diverse mental health challenges. The guidelines describe the necessary privacy and data security measures for safeguarding sensitive health information. Emotional design principles are explored to foster positive emotional engagement and prevent triggering negative emotions among users. User feedback and customization are encouraged to adapt the app to individual needs, enhancing personalization and efficacy. Ethical considerations are discussed throughout, ensuring the responsible creation of mental health apps that respect user autonomy and dignity. The presentation provides a multidisciplinary framework that combines psychological insight, ethical standards, and best user experience (UX) practices for mobile application development in mental health.

Keywords: Mental health, mobile apps, guidelines.

1. Introduction

The growing field of mobile mental health applications signifies a transformative evolution in the provision of mental healthcare services, presenting the potential to overcome conventional obstacles related to access and convenience (Torous et al., 2019). "An average of 2 million apps are available in the Apple and Android stores, and users average more than 80 apps on their phones" (Palmer et al., 2021, p. 137).

The increasing acceptance and utilization of mental health applications stem from a variety of factors, including the escalating prevalence of mental health disorders, a trend significantly amplified by global events such as the COVID-19 pandemic, which has precipitated widespread psychological distress and anxieties (Chandrashekar, 2018). Concurrently, the persistent inadequacies within traditional mental healthcare systems, characterized by long waiting lists, geographical limitations, and a scarcity of qualified professionals, have catalyzed the pursuit of alternative solutions (Powell et al., 2020). Furthermore, a growing inclination among individuals to proactively manage their own well-being and mental health has fueled the demand for self-directed tools and resources, which mobile applications are uniquely positioned to fulfill (Lecomte et al., 2020). The World Health Organization has underscored the critical importance of addressing mental health on a global scale, citing the alarming statistic that individuals with severe mental health conditions experience a significantly reduced life expectancy, which highlights the urgent need for effective and accessible interventions (Zhang et al., 2021). The pervasive nature of depression as a major contributor to disability worldwide further underscores the imperative for innovative approaches to mental healthcare delivery. Mobile applications, with their ubiquitous accessibility and potential for personalized support, have emerged as a promising avenue for bridging the gap between unmet needs and available resources, offering a scalable and cost-effective means of extending mental healthcare services to a broader population (Haque & Rubya, 2022).

In the development of guidelines for mobile mental health applications, a framework encompassing usability, effectiveness, privacy and ethics, and clinical usage is crucial to ensuring responsible and beneficial implementation.

The proposition of leveraging mobile applications to deliver mental health interventions holds substantial promise, yet different ethical considerations and practical challenges should also be considered and addressed to ensure responsible and effective implementation. The availability of smartphones has encouraged the expansion of mental health applications, providing users with tools for mood tracking, stress management, mindfulness exercises, and cognitive behavioral therapy techniques (Lim et al., 2022; Wang et al., 2018). Despite the growing popularity and widespread adoption of these applications, considerable uncertainty persists regarding their efficacy, safety, and ethical implications. It becomes important to address ethical obligations, especially with algorithms providing therapy to consumers in the absence of a therapist-patient relationship (Martinez-Martin & Kreitmair, 2018).

2. Proposed guideline framework

Consequently, the authors have developed the following guidelines based on the literature: Usability, Effectiveness, Privacy and Ethics and Clinical Usage to assess the feasibility and impact of mental health apps. The following table (Table 1) outlines how the guidelines may be used.

Table 1. The considerations of mobile mental health applications development.

Usability	Effectiveness	Privacy and Ethics	Clinical usage
How do you use the app? What features do you like? What makes it easy/challenging to use	Who says the app works? (ie developers) Are there research studies?	How is your data stored? Who has access to it? What personal data is required?	Who created the app? Was there a mental health professional or organization involved in the development?

The ethical dimensions of mobile mental health applications extend beyond data privacy to encompass issues of informed consent, transparency, and accountability, all of which are essential for fostering user trust and ensuring responsible innovation. It is important to be aware of ethical standards in the context of development, research, and integration, balancing benefits, cultural norms, and values (Wykes et al., 2019). Ethical considerations necessitate transparent communication regarding the application's functionalities, data usage policies, and potential risks and benefits, empowering users to make informed decisions about their participation (Fiske et al., 2019). Furthermore, clear mechanisms for addressing user concerns, resolving disputes, and ensuring accountability are crucial for maintaining ethical standards and fostering a culture of responsible development. In the context of clinical usage, guidelines should address the appropriate integration of mobile mental health applications into existing mental healthcare systems, delineating the roles and responsibilities of healthcare professionals in utilizing these tools to augment traditional therapy and support patient care. It is important to integrate digital tools within the context of a therapeutic relationship between a professional and a patient, but this raises ethical concerns about how mental health apps will impact the therapeutic relationship (Alfano et al., 2023). Careful consideration must be given to the potential impact of these applications on the therapeutic relationship, ensuring that they complement rather than replace human interaction and clinical judgment.

The information is showcased in a comprehensive framework for guideline development and includes tenets of usability, effectiveness, privacy, ethics, and clinical integration to ensure that these applications are not only user-friendly and engaging, but also evidence-based, secure, and aligned with established clinical practices. Usability is paramount, encompassing the intuitiveness, accessibility, and overall user experience of the application, as cumbersome or confusing interfaces can deter engagement and hinder therapeutic outcomes. Effectiveness must be rigorously evaluated through empirical studies, demonstrating the application's ability to elicit meaningful improvements in mental health outcomes, such as reducing symptoms of anxiety, depression, or stress. The cornerstone of ethical mobile mental health application development lies in the rigorous protection of user data and privacy, a multifaceted concern that spans data collection, storage, and transmission practices (Wies et al., 2021).

Figure 1. Framework for evaluating the feasibility and impact of mobile mental health applications across four key domains: usability, effectiveness, privacy and ethics, and clinical usage.
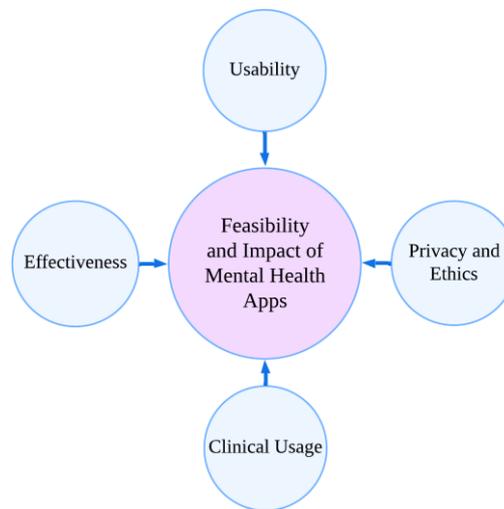

Figure 1 shows how the different domains interact with one another in a visual format.

The rising popularity of mobile mental health applications has spurred debate on the balance between data privacy and service personalization, especially when algorithms offer therapy without a therapist-patient relationship (Zhang et al., 2021). Such advancements necessitate careful consideration of ethical guidelines, encompassing clinical integration strategies, comprehensive training protocols for healthcare professionals, and proactive measures for mitigating potential harm, including robust data ethics frameworks (Fiske et al., 2019).

Stakeholders, including software developers, healthcare providers, and consumers, need to collaborate in setting standards and practices that address ethical challenges (Martinez-Martin & Kreitmair, 2018). The utilization of digital platforms for mental health intervention necessitates a comprehensive examination of ethical considerations to ensure the responsible and effective deployment of these technologies. A proactive approach to addressing these ethical challenges is essential to harness the full potential of digital mental health interventions while safeguarding the well-being of individuals and communities (Burr & Morley, 2020).

3. Next phases

Following the development of the proposed framework, our next phases include practical application development and real-world testing, these steps are:

Step 1: Mobile App Development. In this first step, we will design and develop a prototype mental health mobile application guided by the proposed framework of the four key domains: Usability, Effectiveness, Privacy & Ethics, and Clinical Usage

Step 2: Clinical Testing and Feedback Collection. In this step, we will apply this app in real healthcare settings, such as mental health clinics, other health care agents, or students who study mental health. We will collect both qualitative and quantitative data for assessing the effectiveness, strength, weakness, and feedback of using the app in supporting mental health. The data collected will be used to conduct further research to suggest improvement and revision of the framework.

Step 3: Framework Revision. Based on the data collected from the previous step of data collection. A further study will be conducted to figure out the best areas for improvement in both the app and the framework. With the practical approach, the research result will be used to revise the framework and the app. The revised framework should have the feature of clarity, applicability and impact for addressing or preventing mental health issues.

Step 4: Integration into Teaching. As a long-term goal, the result of this study, the revised framework will be integrated in the mobile app development course curriculum as a guidance of design specially for mental health and wellbeing. With the integration of this guidance into mobile app development curriculum, students will have the awareness of mental health issues, and will learn how to use technology to support mental health wellbeing in the future. In addition, students can have the opportunity to conduct hands-on experiences in designing and developing mobile apps to promote mental health. This experiential learning approach will provide students opportunity in learning ethical design, usability testing, and clinical considerations in app development.

4. Conclusions

The availability and accessibility of mobile apps have increased, particularly in the field of mental health and especially since the COVID-19 pandemic. The authors of this article highlight the development of specific guidelines and subsequent framework for evaluating the feasibility and impact of mobile mental health applications across four key domains: usability, effectiveness, privacy and ethics, and clinical usage. To further develop and test this framework, the authors also articulate their plans for further practical development and real-world testing with integration of feedback. However, at this time, the framework provides a foundation to assess mobile mental health apps and their utility, usability, and privacy along with their overall standards for appropriate usage.

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