

2.1. Mobile Apps for Medication Management

Objective:

The study aimed to comprehensively review mobile designed to assist patients in understanding and managing their medications. Pharmacotherapy remains essential in medical intervention, but patients often struggle with adherence due to routine integration, understanding effects, and outcome monitoring. Mobile apps offer a convenient platform for delivering personalized support tools, addressing these challenges.

The objective was to provide an overview of available apps, focusing on understanding and managing medications rather than just adherence.

Materials and methods:

A search of iOS Apple App Store and Android Google Play Store using medication management-related terms yielded 328 apps.

Most apps were developed by the software industry, with only a minority involving healthcare professionals or academia. there were only fewer apps targeting mental health, though they offered comprehensive features and educational content.

Results:

Common features included medication reminders, symptom tracking, and data sharing with family or healthcare providers. The study also highlighted innovative features and suggested improvements for future app development to enhance patient engagement and effectiveness.

Conclusion:

In summary, the findings contribute to the understanding of mobile health solutions for medication management. By providing insights into existing apps, the research informs efforts to improve patient engagement and long-term health outcomes through mobile technology.

References:

- Katarina Tabi, Abnashi Singh Randhawa, Fiona Choi, Maren Schnieder, Department of Psychiatry, University of British Columbia, Vancouver, BC, Canada. PMCID: PMC6786858

2.2. Mobile Health Apps to Facilitate Self-Care

Objective:

Consumers are living longer, creating more pressure on the health system and increasing their requirement for self-care of chronic conditions. Despite rapidly-increasing numbers of mobile health applications (for consumers' self-care, there is a paucity of research into consumer engagement with electronic self-monitoring. This paper presents a qualitative exploration of how health consumers use apps for health monitoring, their perceived benefits from use of health apps, and suggestions for improvement of health apps.

Materials and methods:

'Health app' was defined as any commercially-available health or fitness app with capacity for self-monitoring. English-speaking consumers aged 18 years and older using any health app for self-monitoring were recruited for interview from the metropolitan area of Perth, Australia. The

semi-structured interview guide comprised questions based on the Technology Acceptance Model, Health Information Technology Acceptance Model, and the Mobile Application Rating Scale, and is the only study to do so. These models also facilitated deductive thematic analysis of interview transcripts. Implicit and explicit responses not aligned to these models were analysed inductively.

Results:

Twenty-two consumers (15 female, seven male) participated, 13 of whom were aged 26–35 years. Eighteen participants reported on apps used on iPhones. Apps were used to monitor diabetes, asthma, depression, celiac disease, blood pressure, chronic migraine, pain management, menstrual cycle irregularity, and fitness. Most were used approximately weekly for several minutes per session, and prior to meeting initial milestones, with significantly decreased usage thereafter. Deductive and inductive thematic analysis reduced the data to four dominant themes: engagement in use of the app; technical functionality of the app; ease of use and design features; and management of consumers' data.

Conclusions:

The semi-structured interviews provided insight into usage, benefits and challenges of health monitoring using apps. Understanding the range of consumer experiences and expectations can inform design of health apps to encourage persistence in self-monitoring.

References:

- Kevin Anderson, Oksana Burford, Lynne Emmerton, School of Pharmacy, Curtin University, Perth, Western Australia, Australia. PMID: PMC4876999

2.3. Concerns with Remote Patient Monitoring Security

Objective:

Remote patient monitoring (RPM) systems in healthcare offer unprecedented connectivity, allowing patients to monitor their health vitals remotely and in real-time. However, this convenience also raises security concerns that must be addressed to safeguard patient well-being and data privacy.

Security Incidents and Concerns:

In August 2021, the Memorial Health System experienced a crippling ransomware attack, compromising patient medical records and disrupting operations across its network of clinics and hospitals. Such incidents underscore the critical importance of addressing security vulnerabilities in RPM systems.

Key Security Aspects:

1. **Data Privacy and Confidentiality:** Protecting the privacy of patient data is crucial to prevent breaches, identity theft, and compromised trust. Stringent measures must secure the transmission and storage of sensitive information.
2. **Data Integrity and Authenticity:** Ensuring the accuracy and reliability of patient data is essential to avoid erroneous diagnoses and treatments. Measures should be in place to prevent data tampering.
3. **Mitigating Unauthorized Access:** Robust authentication protocols and encryption mechanisms are necessary to prevent unauthorized access and manipulation of medical devices or treatment plans.

4. **Device Security:** RPM medical devices are vulnerable to cyberattacks that can compromise functionality and patient safety. Manufacturers must prioritize security features such as regular updates and intrusion detection systems.

Comprehensive Security Measures:

Implementing a comprehensive approach to RPM security involves technological advancements, stringent policies, and heightened awareness. By addressing these concerns, healthcare providers can harness the benefits of RPM while safeguarding patient safety and data integrity.

References:

- Nizan Friedman, Enova

3. Similar Apps

SafeTrek

SafeTrek is a personal safety app that enables citizens to be proactive in their safety by bridging the gap between doing nothing and calling 911 in an unsafe situation. By holding down the SafeTrek safe button, a user is able to passively connect to police. If nothing unexpected happens, a user simply inputs their unique 4-digit pin to cancel an alert from being sent (to police). If a situation takes a turn for the worse, a user simply releases the safe button without typing in their pin number and is connected to police.

Keep Alive

Keep Alive is an Android app designed to send custom SMS messages to selected contacts if the user's device remains inactive for a specified period. It operates on the user's device without relying on cloud services. The app monitors device activity, prompts users with an 'Are you there?' notification, and triggers alerts if not acknowledged. Users can set up emergency contacts to receive SMS alerts, and optionally include location information. Keep Alive also offers the option to place a phone call to a designated number with speakerphone enabled when an alert is triggered. It requires permissions for usage stats, alarm scheduling, SMS sending, and notifications display. It is available on Google Play and F-Droid.

MyBuddyGuard

MyBuddyGuard is an innovative emergency response app designed to enhance personal safety. With features like real-time location sharing, distress alerts, and a panic button, it empowers users to quickly and efficiently reach out for help in critical situations. The app also provides a virtual companion feature for added security during walks or commutes. Through its user-friendly interface and seamless integration with emergency services, MyBuddyGuard aims to make emergency response more accessible and efficient for individuals, contributing to a safer community overall.