Femtech Data Privacy: A Preliminary Analysis of Mobile App Interfaces

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Abstract

Femtech encompasses an expanding range of digital tools and services, such as mobile apps, wearables, and internet-connected devices, developed to assist women in monitoring their personal, reproductive, and sexual well-being. With the trust of millions of users for monitoring menstrual cycles, identifying ovulation windows, and managing pregnancies, these applications gather significant volumes of highly personal information. In the United States, the regulation of femtech, including data collection, storage, and disclosure practices, remains largely unestablished, placing users in a position of relying on the policies and assurances offered by femtech providers to safeguard their privacy. In this poster, we apply the walkthrough method to popular femtech app interfaces available on the Apple App Store and the Google Play Store to analyze how femtech platforms present issues of data privacy and security to their users. Our findings highlight potential approaches for femtech platforms to mitigate user privacy and security concerns by implementing privacy-by-design principles and making modifications to their privacy policies.

1 Introduction

The term "Femtech" pertains to a wide range of diagnostic tools, products, services, wearables, and software that utilize technology to effectively tackle women's health issues including menstrual health, reproductive health, sexual health, and menopause [11]. The global femtech market size was valued at $5.1 billion in 2021 and is expected to expand at a Compound Annual Growth Rate of 11.1% from 2022 to 2023 [1]. Femtech companies give women a chance to control their health data. However, the use of digital tools like self-tracking apps and IoT devices, which gather sensitive private information, can also create risks and potential harm. For instance, these technologies could track abortion or infertility, compromising user privacy and well-being [3]. When examining privacy and data security within FemTech, the far-reaching consequences for our perception of personal and intimate data become evident. Mobile apps, particularly those in the field of femtech, have experienced remarkable growth, but this has also given rise to significant privacy concerns. Almost every femtech developer collects and utilizes extremely personal and sensitive data that goes beyond what users might anticipate based on the app's intended features [5].

Gaining insights into the user interface of femtech apps is crucial when addressing privacy concerns, requiring new approaches for projects of this nature. The walkthrough method is a way of engaging directly with an app's interface to examine its technological mechanisms and embedded cultural references to understand how it guides users and shapes their experiences [6]. App interfaces provide opportunities to examine the factors that influence user behaviors. Inquiries into interfaces can tell us not only about the apps but also about the expectations that those interfaces have for users [4].

Our research offers an initial analysis of the user interface and onboarding processes of femtech apps. Aiming to comprehend the technological mechanisms, and privacy policies that influence the user experience, and paying more attention to the reasons for collecting user data in apps. Our project is guided by the following research questions:

RQ1: How are issues of data privacy and security communicated to users within femtech apps websites and app store listings?

RQ2: How do femtech apps address issues of privacy and security within their onboarding process for new users?

RQ3: How is the data collection presented to the user and what

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are the ways in which its collection is framed?

This research constitutes a significant component of a comprehensive study focused on the femtech ecosystem, aiming to evaluate various data privacy practices, threats, and user experiences. The findings from this study will provide valuable guidance for the femtech community, informing recommendations for adopting privacy-by-design principles and implementing additional measures to safeguard user privacy.

2 Related Work

The walkthrough method enables the researcher to navigate through the interface, providing a comprehensive understanding of its various aspects. This method grants the researcher significant flexibility, allowing them to explore every aspect of the media interface and reflect on the user experience within each area [9]. Studies using the walkthrough method have been done using the popular social payment app, Venmo to identify how transaction feeds of mobile payments support social practices, communication, and commerce with mobile devices and wireless networks [2]. Similar studies have been conducted within the realm of health communication to ascertain how the platform molds its own structure and characteristics [8]. In previous research, a Guided Group Walkthrough approach was employed to evaluate existing social VR platforms. This involved a guide leading participants through a series of abstract social tasks that are commonly encountered across the platforms, enabling them to gain insights into the user experience [7]. The walkthrough method was also utilized to gather data and evaluate both explicit factors, such as app interface elements, as well as implicit factors, such as embedded cultural features that pertain to the utilization of apps by individuals in rural settings. This approach allowed for a comprehensive analysis and critique of these factors [10].

3 Methodology

To identify the interface of the apps from a user perspective and discern the themes and topics within the privacy policies, we will use a mixed-method approach. To compile a comprehensive list of femtech apps, we will conduct a keyword search on the Apple App Store and the Google Play Store using relevant search terms such as "femtech," "menstrual cycle calendar," "menstrual tracking," "women's sexual health," "fertility," and "ovulation tracker." The initial inclusion criteria for apps will require an English language interface and a minimum of 1000 downloads. Subsequently, we will create a simulated user profile for each of the apps that fulfill the defined search criteria. This process entails entering user information and exploring all app functions for thorough analysis. Registration and entry procedures will be documented using screenshots and metadata to identify common themes and similarities among the selected apps. Furthermore, privacy policies will be extracted from the registration pages to assess any privacy or security issues. Finally, everyday app usage will be captured through screenshots.

4 Potential Results

Data collection is currently in progress and is expected to be finalized by the end of summer 2023. Thematic analysis will be conducted to uncover similarities among the apps. A comprehensive qualitative analysis of the app interfaces will be presented, utilizing the collected screenshots and data obtained from the methodology. Additionally, an analysis of the privacy policies for each app will be performed to unveil any concealed aspects related to data collection practices. Ultimately, our findings aim to shed light on the wide-ranging utilization of femtech apps and provide recommendations for the femtech industry to address users' privacy and security concerns effectively.

5 Future Work

In the future, we will further analyze the femtech app interface by using a guided walkthrough method. By involving participants in this study, we can reduce any biases from researchers and gain more insights into how users respond to interfaces. We can observe whether users notice privacy policies, how they react to them, and whether the app meets their expectations. This will help us understand the users' viewpoint and improve our ability to provide privacy and design recommendations.

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