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Revitalizing Medication Experience: A Design Thinking Proposition for Optimizing QR Code Usage

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Abstract

The effective management of medications is integral to healthcare, ensuring patient safety and therapeutic efficacy. One crucial element in this process is the integration of Quick Response (QR) codes on medicine strips, providing users with convenient access to essential information, particularly the expiry date. However, recent studies and observations suggest a pervasive issue regarding the significant number of individuals engaging in unintentionally tearing the portion containing the QR code. Subsequently, these torn QR codes are often discarded, leaving users with no means to access crucial information regarding the medicine's expiration date. This research investigates the prevalent issue of improper utilization of QR codes on medicine strips and focuses on user consumption behaviours. The data was collected through an online questionnaire from 105 participants aged 18 - 60. Most of the participants recognized the QR code, but a large number never scanned it.A high number was reported not being careful while opening the medicine. The findings indicate a significant gap in knowledge and utilization of QR codes by the participants.The study uses a design thinking approach to propose a paradigm shift in terms of advocating for QR codes to transcend their conventional role QR codes need to further evolve into dynamic tools that offer users a wealth of information that resonates with empathetically understanding the users and their needs in the first place.

Background

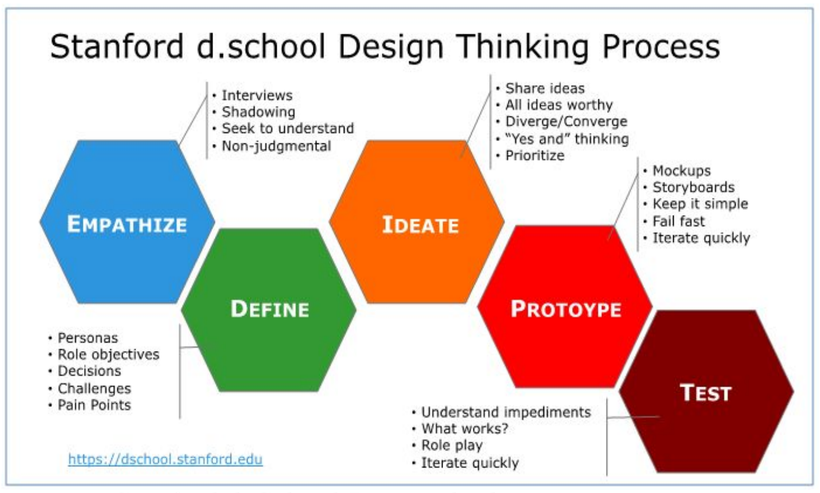
In the digital age, QR codes have become ubiquitous, and their integration on medicine strips presents a valuable opportunity to enhance medication management. Understanding user behavior and addressing challenges in effectively utilizing QR codes in this context is crucial for realizing their full potential.Awareness of QR codes on medicines empowers users to access vital information, including dosage instructions, active ingredients, potential side effects, and storage recommendations. This knowledge promotes better medication adherence, as users can understand how to use the medication correctly and be aware of any potential issues. QR codes also serve as a tool for safety precautions, informing users about warnings, potential interactions, and quality assurance.

Furthermore, the convenience of digital record-keeping and the link to patient information leaflets (PILs) enhance the user experience and contribute to improved health literacy. The integration of QR codes aligns with regulatory compliance standards, ensuring that users have access to standardized and accurate details about their medications, facilitating more effective communication with healthcare providers.Beyond medication management, the awareness and utilization of QR codes on medicines contribute to the broader goal of promoting technological literacy in healthcare. As users become familiar with these digital tools, they can extend their digital health capabilities, empowering themselves to navigate various aspects of healthcare technology.To address the pervasive problem of inadequate QR code utilization, a design thinking approach is essential. This approach focuses on understanding user behavior and uncovering the nuanced dynamics between user behavior and QR code utilization in the context of medication management. By transforming QR codes into comprehensive tools, they can be enriched with a spectrum of information, including medication schedule reminders, real-time alerts, and user-doctor connectivity.

In conclusion, the integration of QR codes on medicine strips presents a significant opportunity to empower users, enhance medication management, and improve health outcomes. By addressing the challenges associated with user behavior and leveraging the capabilities of QR codes, healthcare stakeholders can create a more informed, engaged, and technologically literate patient population, ultimately leading to safer and more effective medication use.

Methodology

This study employed a design thinking-based methodology to investigate the intricacies of user awareness and consumption behaviors concerning QR codes on medicine packaging. The design thinking approach was chosen as it prioritizes empathy and user-centricity, vital in addressing the nuanced challenges surrounding the underutilization of QR codes in the medication management context.The research began with an online survey that utilized a questionnaire consisting of both open-ended and closed-ended questions. These questions were designed to gather data on the participants' awareness of QR codes on medicine strips, the challenges they face in the storage and usage of medicines, and their overall consumption behaviors.The survey questions were structured to align with the empathy stage of the design thinking process, which emphasizes understanding the user's perspective, emotions, and experiences.



Stanford d. School Design thinking process

This stage is crucial in uncovering the root causes of the problem and identifying opportunities for improvement.The survey respondents were asked about their medicine purchase preferences, with a focus on understanding their inclination towards generic or brand-name medications. The mode of procurement, whether from brick-and-mortar pharmacies or online sources, was also explored to gain insights into user behavior.Additionally, the survey delved into participants' vigilance in ensuring the availability of medicines at home, their storage practices, and the attention paid to expiry dates. These questions were aimed at identifying potential gaps or pain points in the users' medication management routines.

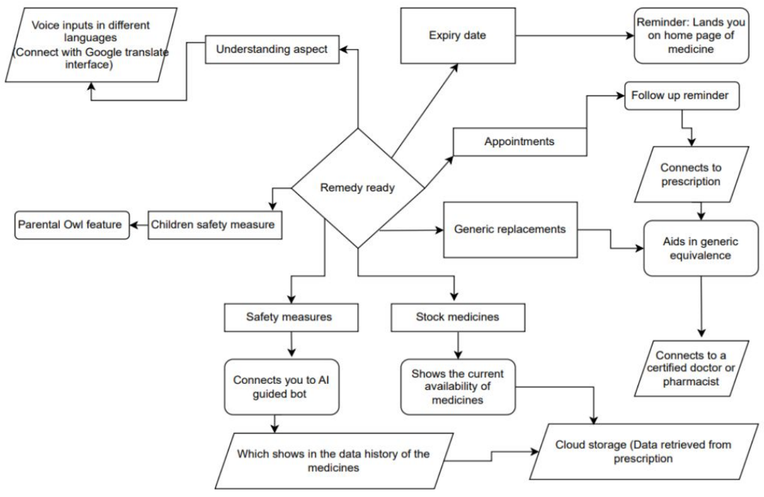
Regarding QR codes, the survey assessed the participants' ability to recognize QR codes, their frequency of scanning, and their awareness of the informational content within the QR codes. The preservation of the QR code section on medicine strips and its impact on expiry date recall were also investigated.The survey also explored prescription adherence, examining the extent to which participants cross-checked their medicine stock against the prescribed regimen, to uncover potential discrepancies in medication usage.The data collected through the online survey was then analyzed to gain a profound understanding of user awareness and consumption patterns related to medications, laying the groundwork for the subsequent stages of the design thinking process.

Results and Discussion

The findings of this study provide valuable insights into user awareness and consumption patterns regarding QR codes on medicine packaging. The survey results highlight both encouraging and concerning trends.The data reveals that while 40% of respondents favor generic medications, the majority (60%) continue to prioritize branded products. This preference may stem from factors like perceived quality or lack of awareness about generic equivalence. Addressing this bias through educational campaigns could drive a shift towards more cost-effective options.Regarding procurement, 94% of participants acquire medicines from brick-and-mortar pharmacies, indicating a potential opportunity to explore the benefits of e-commerce platforms, especially for individuals with mobility limitations.The study uncovered concerning trends in storage practices, with 58% of respondents not labeling their stored medications, leading to confusion and expiry date awareness issues. Emphasizing proper storage and labeling techniques could help address this gap.

The most intriguing findings relate to QR code utilization. While 76% could recognize QR codes, 72% had never scanned one, and 62% were unaware of the information they contain. Furthermore, 66% neglected to preserve the QR section, compromising its utility. These insights underscore the need for interventions to raise awareness and enhance the user experience.The study also highlighted the significant impact of expiry date awareness and the importance of tools that facilitate prescription validation and adherence monitoring. Overall, the findings can inform the development of targeted solutions to address the identified challenges and promote safer medication practices.

Conclusions



In conclusion, this research has provided valuable insights into the current landscape of user awareness regarding QR codes on medicine packaging. The findings indicate a significant gap in knowledge and utilization, with a substantial portion of the participants either unaware or not actively engaging with QR codes. The outcomes suggest that leveraging technology could play a pivotal role in enhancing user engagement with QR codes on medicine strips, thereby optimizing medication management and fostering a more informed and connected healthcare experience.The paper introduces a promising prototype, envisioning an innovative solution.. Further exploration and development of such solutions hold promise in addressing the identified challenges and improving overall patient outcomes in the realm of medication adherence and awareness.

Acknowledgments

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