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Design And Pilot Evaluation Of Rxsmart: A Pharmacist-Informed Digital Health Intervention For Community Pharmacy Practice

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Abstract

Background: The role of community pharmacists in delivering services to patients beyond the traditional dispensing functions is increasingly getting demand. Nevertheless, access to integrated digital tools is often limited to facilitate efficient medication management, clinical decision support and patient follow-up in community pharmacy practice. Objective: The purpose of this study was to discuss the experience of community pharmacists with the current digital health tools, unmet digital support needs, and develop a digital health intervention that would be informed by pharmacists (RxSmart). Pilot evaluation was done to measure perceived usability and acceptance of the developed application. Methods: A survey on 350 community pharmacists was carried out cross-sectionally to assess the use of digital tools, their practice challenges, and future expectations about the use of digital tools. The results of the survey were used to design and develop the RxSmart mobile application with the use of drug interaction screening, access to medication information, patient management, adherence reminders, and health monitoring dashboards. The application developed was then pilot tested on pharmacists to determine perceived usefulness and usability. To summarize survey, descriptive statistical analysis has been conducted. Results: The survey results showed that pharmacists often used disjointed digital resources to find information about the drugs and communicate with patients but were not using tools that were integrated to assist them in reviewing the prescriptions and following patients up. Most of the respondents had positive comments regarding the designed application with 69 % of them stating that the system would be able to help in the review of the prescriptions and 73 % stating that the system would help them gain better access to medication information. Moreover 66% felt that the application would be of use in improving the working process and 63% stated that it would be of use in the follow-up activities of the patients. Conclusion: The development of pharmacist-informed digital health interventions represents a promising approach to improving workflow efficiency and supporting patient-centered services in community pharmacy settings. The pilot evaluation of RxSmart demonstrates favorable acceptance among pharmacists and highlights the importance of user-driven digital health innovation.

Keywords

Digital health intervention; Community pharmacy; Mobile health; Clinical decision support; Pharmacist-centered design; Pilot evaluation

1. Introduction

The community pharmacies are one of the most accessible and commonly used elements of the healthcare systems all over the world, often acting as the initial opportunity to provide patients with medication-related guidance, treating minor conditions, and assisting with the management of chronic illnesses [1]. The strategic location of community pharmacists in the primary healthcare setting allows them to be very instrumental in the safety of medication, medication adherence, and preventive health services. The role of community pharmacists has shifted in the last 10 years beyond the conventional dispensing functions to clinically oriented patient-centered services including medication therapy administration, patient education, and monitoring of long-term illnesses [2].

Although the scope of practice keeps growing, community pharmacists are still struggling with significant operational and professional pressures. The overwhelming volume of patients, time pressures, disjointed access to clinical data, and growing administrative duties are potential constraints to providing in- depth interaction with patients and clinical decision-making [3]. These difficulties are also complicated in the environment with the little access to integrated health information systems or real-time clinical decision-support tools by pharmacists, which amplifies the likelihood of medication-related issues and workflow inefficiencies.

Mobile health (mHealth) apps and digital health interventions (DHIs) have become an interesting opportunity to assist healthcare professionals by increasing access of clinical data, improving documentation work and enabling interactions with patients [4]. There are indications of various healthcare facilities that digital tools may become part of better productivity, fewer mistakes, and care quality in the event that these tools are properly designed and executed [5]. In the pharmacy practice, digital platforms can help pharmacists in conducting prescription reviews, retrieving drug information, and interacting with patients, which can positively affect safer and more effective service provision [6].

Nonetheless, even with the increasing number of digital health solutions, the majority of the available applications suit mostly physicians or hospital settings. Utilization of digitally designed tools that best suit the interests of the community pharmacists has not yet been seriously adopted in the context of low- and middle-income locations and the independent pharmacy practice [7]. Available literature shows that perceived usefulness, ease of use, digital literacy, and compatibility with the established workflow patterns are the factors that determine the level of acceptance and sustained use of digital health technologies by pharmacists [8]. Failure to consider the latter could lead to poor levels of adoption despite the availability of technological solutions.

The most recent innovations in digital systems based on artificial intelligence and rule-based systems have further increased the possibilities to assist with medication safety and clinical decision-making in the healthcare sector [9]. However, not all of the available applications are customized to the special setting of community pharmacy practice, at which the interactions with patients are somewhat frequent, decisions need to be made in a time-sensitive manner, and flexibility of the workflow is crucial [10]. This gap makes it crucial to develop digital health interventions that are not only technologically strong but also based on the realities and expectations of community pharmacists.

The use of pilot and feasibility studies is generally accepted as an important process in designing and testing new digital health interventions before they can be applied on a large scale [11]. These types of studies enable the researcher to determine the usability, acceptance, and perceived value of the intended users, in addition to determining the possible technical, organizational, and workflow-related issues [12]. It is

especially significant to conduct pilot assessment of community pharmacists to provide the digital tools that are relevant, practical, and have the capacity to support the real-world practice.
The latest achievements in artificial intelligence and data-driven healthcare technologies have put new opportunities on the way of enhancing medication safety and optimizing therapeutic decision-making. Digital applications that bring together clinical decision support systems, drug databases and patient monitoring devices can help pharmacists recognize any possible drug interactions, enhance medication adherence and longitudinal monitoring of patients. Moreover, incorporation of pharmacoeconomic aspects into digital health systems could assist pharmacists to discover cost-efficient therapeutic options and assist in rational use of medicines, especially in the healthcare setting with limited resources. The design of these systems must be user-centered and based on practical workflow, information requirement and service workload of community pharmacists.

In this regard, the current research attempted to create a digital health intervention (DHI) mobile application based on the experience and anticipations of the community pharmacists in relation to the available digital health products. The first survey was performed to understand how the pharmacists are currently using digital applications, their perceived limitation, and unmet need. The results of this survey were used to design a practice-based digital health intervention, which was later pilot tested on a research population, professional colleagues, and community networks of pharmacists to assess perceived usefulness, usability, and acceptance. This needs-driven and iterative method will enable the study to report the preliminary findings on the possibility of adopting digital health tools in the community pharmacy practice and guide the future research and implementation plans.

The conceptual framework of the proposed digital health intervention in the community pharmacy practice is presented in Figure 1. Each of these functional units is represented as the part of the whole scheme of adding the mobile application to everyday pharmacy functioning, connecting the main functional aspects of the program such as reviewing the prescription and medication information, follow-up, and digital records with everyday professional activity of pharmacists. Other outcomes that the framework identifies include improved clinical decisions support, workflow, and pharmacist patient interaction.

Figure 1. Conceptual framework illustrating the role of the digital health intervention app in supporting community pharmacists' workflow and patient care activities.

2. Materials and Methods

2.1 Study Design

The study had a cross-sectional, exploratory study design, followed by pilot-testing of a recently developed digital health intervention mobile application, which is supposed to assist community pharmacists in their daily professional practice. The research was designed in such a way that it would firstly seek to capture the experiences that pharmacists had with the current digital health applications and then assess the perceived usefulness and acceptability of an intervention that has been designed. The pilot evaluation methodology was used to evaluate convenientness and acceptance among users before any significant implementation, which was in line with the methodological advice of preliminary digital health research in the early stages [13].

2.2 Digital Health Intervention Design and Development.

Digital health intervention is designed as a mobile-based application to address the issues that are most likely to arise within the community pharmacy practice which include workload associated with dispensing, lack of time to provide counseling to patients, and disconnected access to medication-related information [14]. The design process relied on findings of the first pharmacist survey such that the application tackled realistic needs that were identified by the end users.

It developed focusing on the usability, simplicity, and compatibility with the daily pharmacy operations. The application was made to act and not to supplant professional judgment but to assist the pharmacist in accessing the appropriate information to proceed with the practice with flexibility. The fundamental design principles were simplicity of navigation, low data entry load and significance to the day-to-day work of the profession.

2.3 Digital Health Intervention Functional Modules.

The designed digital health intervention (RxSmart) was developed in the form of a modular system that was to assist in the implementation of major processes in the community pharmacy practice. The application will combine various functional capabilities that will enhance medication safety, workflow efficiency, and patient engagement.

The prescription review module helps pharmacists assess the prescriptions when they are dispensing them by displaying drug monographs and possible interactions alerts. The drug interaction analysis module, assisted by updated medication databases on a regular basis, allows automatic screening of drug combinations and detects potential adverse interactions to improve patient safety.

A patient management module enables the pharmacists to record patient demographics, medication history and allergy in an organized manner. This feature enables continuity of care and facilitates safe dispensing choices. Moreover, the health monitoring dashboard will allow recording and visualizing the health indicators of patients like blood pressure or blood glucose levels, thus allowing pharmacists to track the trend of the disease and offer specific counseling.

Another supplementary module of the system is a medication reminder and follow-up module that is aimed at helping to adhere to the medication regimen by creating automated alerts, regarding medication refilling and subsequent consultation. There are also such functions as drug information search, documentation support, and online registering of pharmacist provided services.

The combination of these modules allows the application to be configured as a centralized digital support system of pharmacists and at the same time provide the possibility of interacting with patients and monitoring their health.

Figure 2 demonstrates the general working process of the digital health intervention mobile application and shows its arrangement of user interaction and switching between the main modules.

Figure 2. Functional workflow of the digital health intervention mobile application

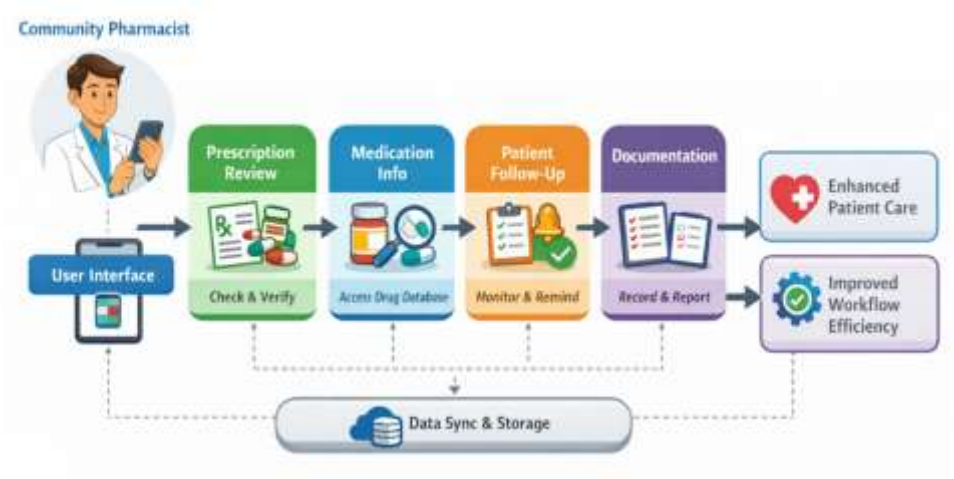


Figure 2 shows the interaction between community pharmacists and the application via a user interface to access supporting core functional modules that provide prescription review, medication information seeking, patient follow-up, and digital documentation.

Along with the abovementioned core modules, the application is also equipped with a number of sophisticated digital features, which are aimed at aiding the clinical decision-making process of the pharmacists. They are the use of AIs to screen drug interaction, access drug monographs by medication database, prescription scanning with optical character recognition (OCR) technology, and medicine price comparison service that enables the pharmacist to find therapeutic alternatives at an affordable cost. There is also the support of the adverse drug reactions (ADR) reporting by patients in the system. The application will help decrease the use of various sources of external information, increase the effectiveness of the workflow in the practice of community pharmacy by integrating these functions into one platform. Figure 3 shows the system architecture of the RxSmart digital health intervention, which represents how users, application modules and a underlying clinical database and decision-support engine communicate with each other.

Figure 3. System architecture of the RxSmart digital health intervention.

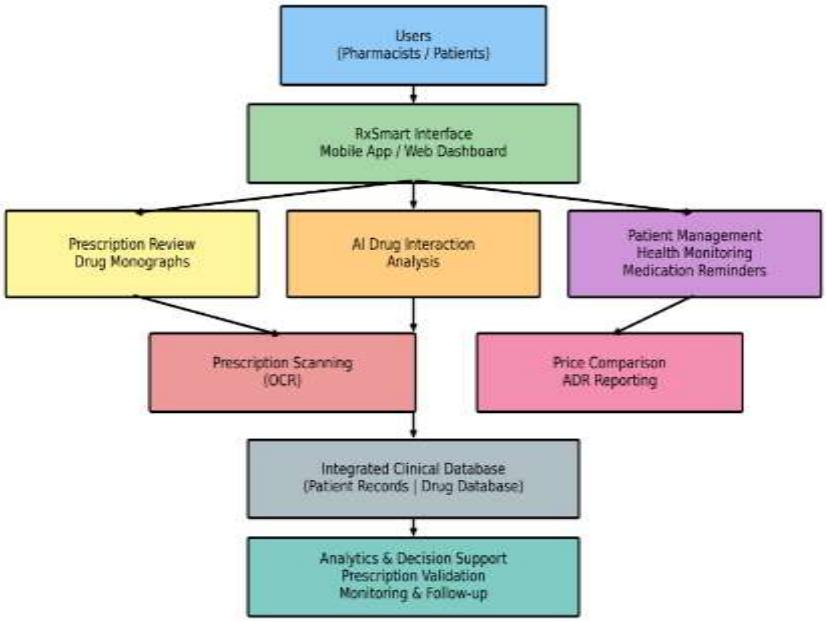


Figure 3 shows the general system architecture of RxSmart platform. The system is based on a layered architecture that includes user, application and data-processing layers. The system allows pharmacists and patients to communicate via mobile or web based interfaces which are used to access application services. The application layer incorporates various functional modules that support the practice of community pharmacy that include drug interaction screening through AI, prescription review, patient management, health monitoring dashboards, and medication reminders systems. Prescription scanning by optical character recognition (OCR), medicine price comparison, and adverse drug reaction (ADR) reporting are also other clinical support features that improve medication safety and workflow efficiency. Such modules are connected to centralized clinical database with patient records and drug information. An

analytics and decision-support engine operates on stored data to assist in the validation of a prescription, monitoring of the patient, and performing follow-up by the pharmacist.

2.4 Study Population and Setting

The participants that were used in the study included licensed community pharmacists who were involved in direct patient care. Pharmacists working in independent pharmacy, chain pharmacy, and retail community-based pharmacies were eligible. Pharmacists who solely worked in hospital, academic, or non-clinical settings were eliminated so as to make sure that the responses were in the real-life setting of community pharmacy practice [15].

The samples were a mix of diverse demographic and professional levels and had differences in age, gender, experience, and practice site. This heterogeneity allowed conducting a wide evaluation of the views that community pharmacists have on the use of digital interventions and their needs in practice. Table 1 summarizes the demographic factors of the community pharmacists involved.

Table 1. Demographic characteristics of participating community pharmacists (n = 350)

Characteristic	Category	Percentage (%) (n)
Gender	Male	40 (140)
	Female	60 (210)
Age group (years)	21–25	19.6 (69)
	26–30	33.9 (119)
	31–35	18.8 (66)
	36–40	12.5 (44)
	41–59	15.2 (53)
Years of professional experience	0–5 years	46.9 (164)
	5–10 years	33.6 (118)
	10–15 years	8 (28)
	>15 years	10.6 (37)
Pharmacy location	Urban	65 (226)
	Semi-urban	20 (68)
	Rural	15 (47)

2.5 Survey Tool Development

The survey tool will be developed based on the results of the analysis conducted in question.A questionnaire was designed to collect the experiences of community pharmacists with the current digital health applications, challenges they perceive with practice, and future expectations of digital health tools. A literature review provided insight into the development of the survey tool based on the extent of knowledge on digital health adoption, technology acceptance, and community pharmacy practice [16]. The questionnaire was also tailored in order to be clear, relevant and to be in accordance with the study objectives.

The questionnaire was divided into various parts that dealt with demographic information, existing practice trends in pharmacy, perceived operational and clinical obstacles, digital preparedness, and digital health intervention perceptions. The response options were gathered in both categorical response options and Likert-scale items to enable collection of both descriptive and perceptual data. The questionnaire organization helped conduct systematic evaluation of the needs and preferences of pharmacists regarding the digital health support.

The questionnaire was reviewed by pharmacy practice and digital health experts to improve its level of content validity. This review process allowed feedback which was necessary to refine the wording in the items and also to make them relevant to community pharmacy settings and reduce ambiguity. Table 2 shows an overview of the survey areas and the variables that are to be measured.

Table 2. Overview of survey domains and measured variables

Survey domain	**Measured variables**
Demographic profile	Age, gender, years of experience, pharmacy location
Current pharmacy practice	Prescription handling, patient counseling
Practice-related challenges	Workload, time constraints, documentation burden
Digital readiness	Previous use of digital tools, comfort with technology
Perception of DHI application	Perceived usefulness, ease of use, workflow compatibility
Acceptance of digital features	Prescription support, drug information, patient follow-up
Training and support needs	Preferred training mode, technical support expectations
Adoption intention	Willingness to use the app, future implementation interest

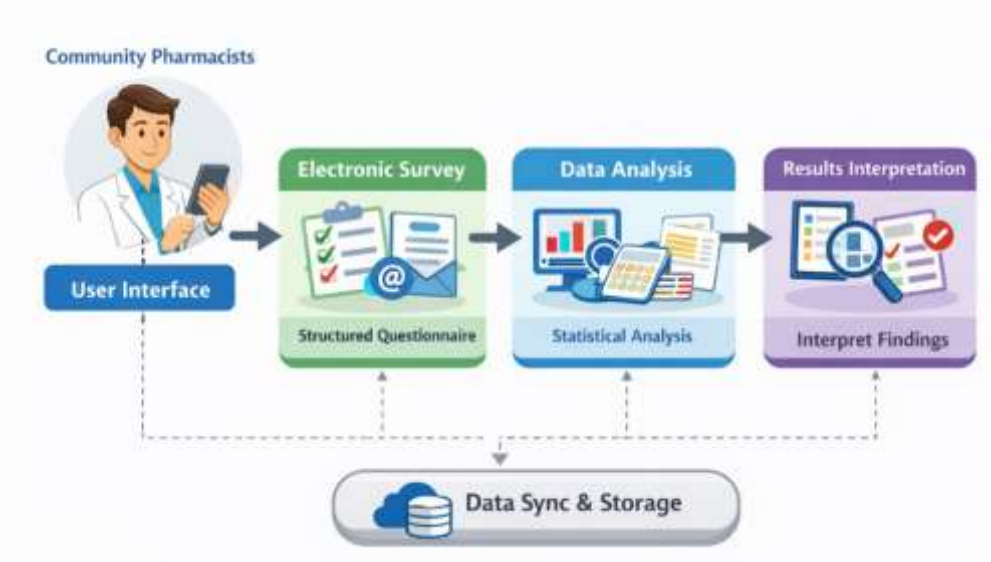
2.6 Data Collection Procedure

The collection of the data proceeded during a specific period with the help of an electronic survey platform. The community pharmacists received the survey link via professional network, direct referral by colleagues and direct communication channels. The respondents were volunteered and all of them gave electronic informed consent before starting with the survey.

In order to preserve privacy of the participants, no personally identifiable data was taken, and answers were made anonymously. The participants were told about the study intention and the voluntary approach of the

research. The research followed the standardized methods of ethics in survey-based research in health care such as confidentiality, informed consent, and the responsible handling of data [17].
The general scheme of the survey administration, response collection and data analysis is shown in Figure 4, which represents the consecutive orders of actions involved since recruitment of participants to statistical analysis of the answers.

Figure 4. Survey data collection and analysis workflow



2.7 Sample Size Consideration
The sample of the study was 350 community pharmacists engaged in the survey on a voluntary basis. The size of the sample was deemed sufficient to conduct an exploratory study that would help determine the trends in the use of digital health and how people feel about a newly developed digital health intervention. In the context of healthcare, similar sample sizes have been used in previous digital health feasibility studies whose main goal was to determine usability, acceptance, and implementation feasibility and not hypothesis testing or outcome evaluation.
Prior pilot and feasibility studies have reported similar methods in testing the digital health tools in pharmacy and the broader healthcare setting, with acceptance and usability being the major concern, but no hypothesis testing or outcome effectiveness [18].

2.8 Statistical Analysis
The information on surveys was exported into statistical software to be analyzed. The descriptive statistical tools were used to indicate the characteristics of the participants and the results of the survey, as well as calculating frequencies, percentages, means, and standard deviations where it was necessary. These analyses helped to give the picture of the experience of pharmacists, their perception of digital health interventions, and their acceptance.
Inferential analyses were applied where appropriate to investigate the relationships among the chosen characteristics of the participants and the (perception) of the developed digital health intervention. The statistical significance was determined by a p-value of below 0.05. The methodological direction of the

analytical procedure employed constituted methodological direction to pilot and feasibility studies and adequate interpretation of the exploratory results [19].

2.9 Ethical Considerations

The research implied an anonymous survey of the community pharmacists and recorded no personally identifiable or sensitive data. It was done on a voluntary basis, and informed consent was received through electronic means before any participant filled in the questionnaire. The respondents were sensitized of the study objective and their right to withdraw. Since the research only gathered anonymized perceptions as far as professional practice was concerned and it did not imply any patient data or clinical intervention, no formal institutional ethical approval was needed based on the relevant institutional research standards.

3. Results

3.1 Demographic Characteristics of the Participants.

Community pharmacists with varied demographic and professional backgrounds were contacted and gave their responses. The respondents were diverse regarding gender, age category, years of professional experience, and location of the pharmacy. Most of the respondents fell in the early-mid career bracket with both urban and non-urban pharmacy setting being represented. Table 1 summarizes the distribution of all the demographic characteristics in percentage of each variable.

One hundred and fifty-six out of the 350 taking part pharmacists were female and 40 were male. The most prevalent age was 2630 years (33.9%), which was then 2125 years (19.6%). Almost half of the participants (46.9%) had fewer than five years of professional experience, which means that the early-career pharmacist representation was high. In terms of practice setting, most of the respondents (65) were in urban pharmacies, 20 percent were in semi-urban settings, and 15 percent were in rural settings.

3.2 Digital Health Application and its current utilization in community practice of pharmacy.

The respondents indicated that they frequently use digital tools in their practice, and these tools were used to perform simple activities including communication, look-up of medication information, and administration. Nevertheless, more sophisticated digital tools that aid in clinical decision-making, systematic review of prescriptions or follow-up with patients were less often reported. A number of the respondents reported that they used various disintegrated digital resources to satisfy their practice needs.

3.3 Perceived Problems in the current digital health solutions.

Although digital tools are available, the participants found that there were a number of limitations with the currently used applications. Some of the most frequent challenges were reported to be integration into pharmacy workflow, the absence of community pharmacy practice, and clinical decision-making support. Another reason mentioned as hindrance to proper utilization of digital health applications in everyday practice was time constraints and augmented documentation load.

3.4 Future Digital Health Interventions Expectations and Preferences.

Regarding anticipations of the digital health tools in the future, pharmacists stated a strong interest in applications that will be able to assist in evaluating the prescription, accessing information related to medications promptly, and allowing a patient to follow up. Usability, characteristics that allow effective documentation and organization of workflow were also often mentioned as desirable. The results were used in the design priorities of the developed digital health intervention.

3.5 Attitudes towards the Developed Digital Health Intervention.

After showing the respondents the developed digital health intervention, they were requested to assess its potential application in facilitating normal community pharmaceutical operations. On the whole,

respondents had positive ratings on the application, especially on prescription evaluation and access to medication information.

Most of the pharmacists felt that the application would assist in reviewing prescription during the dispensing process (69%), and access to reliable information about medication (73%). Moreover, two-thirds of the interviewees suggested that the system has the potential to lead to the optimization of workflows by integrating several digital capabilities in one platform. The pharmacist follow-up functionality was also rated well, where 63-percent of the pharmacists reported that it might help them to check on patient adherence and follow-up measures of the medication.

These results indicate that pharmacists acknowledge the possible usefulness of digital health solutions based on the integration of digital health tools to provide support in the daily activity of professionals and improve the process of delivering patient-based care in the community pharmacy practice.

The response rates on major functional aspects of the application are summarized in Table 3, which provides percentage-based responses referring to the degree of agreement with statements on perceived usefulness and intentions to implement the intervention in everyday practice.

Table 3. Community pharmacists' perceptions and acceptance of the digital health intervention (percentage distribution, n = 350)

Survey item	Agree / Strongly agree (%) (n)	Neutral (%) (n)	Disagree / Strongly disagree (%) (n)
The DHI app can support prescription review	69 (242)	19 (67)	12 (42)
The app improves access to medication information	73 (256)	17 (60)	10 (35)
The app may enhance workflow efficiency	66 (231)	23 (81)	11 (39)
The app supports patient follow-up activities	63 (221)	25 (88)	12 (42)
Willingness to use the app in routine practice	67 (235)	19 (67)	14 (49)

Overall, these findings ,suggest that the acceptance of pharmacists is high and that the perceived usefulness of the combination of digital support tools to enhance the performance and safety of the community pharmacy practice is significant.

3.6 Survey Data Collection and Analysis Workflow

The general workflow of the survey distribution, reaction gathering and data examination is described in Figure 4. The workflow assists in emphasizing the steps of the process of collecting feedback on the community pharmacists and evaluating the response in order to use it in the development of the application and pilot evaluation results.

4. Discussion

This paper explored the creation of a digital health intervention mobile application based on the experiences of community pharmacists with already existing digital tools and its initial acceptance using pilot testing. The results indicate that the pharmacists tended to be positive about the developed intervention especially regarding prescription review support, access to medication-related information, and support of the regular working process. The observations will be consistent with an increasing body of evidence that suggests that properly designed digital health tools may contribute to efficiency and help healthcare professionals in their clinical practice [20].

Clinical decision support is essential in the community pharmacy practice as it is strongly accepted by features to the prescription review and access to medication information. The pharmacists even work in hasty settings where timeliness of information concerning drugs is crucial. The use of digital tools which can decrease the cognitive load of manual information retrieval can be used to make dispensing practices safer and more professionally confident [21,22]. The results support the importance of digital interventions that are more practical and relevant to the everyday pharmacy routine. Specifically, it has been demonstrated that mobile-based decision-support systems can enhance the medication safety by allowing quick access to evidence-based drug information at the point of care [23].

Online preparedness turned out to be a correlate of the willingness to accept the developed intervention, which is also supported by the previous literature that proved that perceptions of usefulness, usability, and compatibility with workflow condition the adoption of mobile health technologies by healthcare professionals to a substantial extent [24]. This highlights the significance of user-friendly design and humanistic development systems to implement digital tools in community pharmacy systems.

The positive attitudes to patient follow up and documentation attributes indicate the growing awareness of the importance of community pharmacists in continuity of care. It has been demonstrated that digital health interventions can be used to communicate between pharmacists and their patient, help them conduct monitoring activities, and improve medication adherence when properly incorporated into practice [25-27]. However, the difference in acceptance by features in this study indicates that digital tools cannot be introduced without considering the existing workflow since it may result in unforeseen spikes in workload or documentation.

Digital health interventions in the community pharmacy practice have become progressively popular as healthcare systems start to focus more on patient-centered care and medication safety. Community pharmacists are one of the most available healthcare workers and often deal with clients who have chronic illnesses. The digital tools combining medication databases, decision-support algorithms, and patient-monitoring functionalities can thus show a considerable improvement in the quality of pharmaceutical care as well as decrease the cognitive load of the manual information retrieval. Such interventions can help to make dispensing a safer practice and the overall patient engagement better because of centralized access to clinical information and workflow assistance.

Altogether, the results of this pilot research help to give some initial evidence of the possibility and appropriateness of the needs-based digital health intervention in pharmacy practice at the community level. The results are encouraging and must be viewed with reservations because the study was exploratory. Even so, the study provides useful information on how the feedback of pharmacists can be used to create viable digital solutions and how the integration of digital health tools into the community pharmacy setting can be made more effective [28]. Emerging as key to the achievement of reproducibility, scalability, and meaningful comparison of digital health interventions is a transparent reporting and systematic evaluation [29].

The emergence of digital health applications with pharmacist-informed features is a significant move towards enhancing the concept of community pharmacies in the wider health care networks. Community pharmacists have a tendency of becoming very convenient healthcare providers especially when it comes to primary healthcare where physicians might not be readily available. Digital tools that can facilitate clinical decision-making, medication monitoring, and patient follow-up can thus play a role in not only

improving the workflow of clinical pharmacy, but also improving the overall health outcomes of the population due to the ability to provide better medication management and monitoring of chronic diseases. The fact that the developed digital intervention is positively accepted might be an indicator of growing digital preparedness of community pharmacists and increased use of digital information resources in their everyday practice. Past researchers have found out that integrated digital systems may be very beneficial in enhancing medication safety by facilitating real-time drug interactions screening and decision support in the evaluation of prescriptions. Moreover, digital health solutions that include patient tracking and subsequent capabilities could enable better medication adherence and chronic disease management, especially in the community-based care context. The combination of several clinical support tools in one digital space, just as was adopted in the current study, can thus be a viable approach towards solving the digital resource fragmentation that is currently common among pharmacists.

5. Limitations and Future Scope.

5.1 Limitations

There are a number of weaknesses in this study which must be noted. To begin with, exploratory and pilot design restrict the possibility of extrapolating the results to the wider community of pharmacists in the community. Second, the study has used self-administered questionnaires in data collection and the responses were based on perceptions of the respondents and could be affected by response and social desirability bias. Third, the study was cross-sectional, which did not allow evaluating the changes in perceptions over time or the adoption of the developed digital health intervention in the long term and its continued use. Also, the research concentrated on the perceived usefulness and acceptance not on objective clinical effectiveness or practical use. Moreover, the research did not compare the objective clinical or real-world utilization metrics of the application, which must be determined in the future implementation studies.

5.2 Future Scope

The future studies need to seek to cover larger and more heterogeneous samples of community pharmacists in various geographic locations and practice environments in order to improve generalizability. The longitudinal and interventional study designs can allow assessing the effect of digital health interventions on clinical decision-making, workflow efficiency, medication safety, and patient outcomes. Usage indicators like frequency and hours used on the app would be included in the incorporation to give better information regarding the trends of adoption and its longevity. Additional development of functionality of the applications, as indicated by the users, as well as organized training and support services, can contribute to the long term acceptance. The possibility to integrate with the current health information systems can also be an exciting path of further development and testing.

6. Conclusion

The current research provides evidence of the possibility of creating a pharmacist-based digital health intervention to facilitate the practice of community pharmacy. The results of the survey revealed that there are glaring deficiencies in the existing digital solutions on the use of unintegrated clinical decision support, prescription review support, and patient follow-up features. These lessons informed the creation of RxSmart mobile app that was later tested by pilot testing.

The findings show that the community pharmacists tend to value the application as a tool to facilitate a review of the prescriptions, access to medication information, and to streamline the working process. The system developed contains a combination of various digital support functions within one platform, thus, overcoming a number of practical issues in community pharmacy settings.

Despite the fact that the given study may be regarded as an exploration analysis, the results are informative on the design and acceptance of pharmacist-centered digital health tools. The findings indicate that the adoption of digital support tools into the community pharmacy practice can transform the workflow, the

effectiveness of clinical decision-making, and the relationships between pharmacists and patients. Subsequent studies need to be conducted on large-scale implementation studies to determine the long-term effectiveness of such systems on medication safety, clinical outcomes, and the provision of healthcare services.

Data Availability Statement

The data generated and analysed in the present study can be provided by the respective author on a reasonable request.

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