Users' perceptions of the "My Medicine" mobile app usability

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Abstract

Introduction: One of the causes of health problems is the use of drugs irrationally, which can result in therapy becoming less effective and inefficient. According to World Health Organization (WHO), more than 50% of the world's drugs are prescribed and used improperly. People still lack information about drugs, how to use drugs and how to get drugs. My Medicine is a drug data information system, how to use drugs, and map locations of pharmacies that sell drugs. This study aims to evaluate the user perception of the use of my medicine.

Materials and methods: The method in this study was a quantitative study with a cross-sectional approach. One hundred twenty respondents were included in this study involving communities in Pekalongan district by using univariate analysis.

Results: The result was 82% of the respondents explained that the performance or interface user of the My Medicine App was very good and the language was easy to understand, 82% of the respondents said that the information on the My Medicine App is needed daily, 84% of the respondents said that My Medicine App easy to access from the mobile phone, 80% of the respondents explained the data provided in the My Medicine App was accurate and as what they are expected.

Conclusion: The conclusion is My Medicine App has a very good performance, the language is easy to understand, the information is needed daily, the app is easy to access through a mobile phone. The data presented in the My Medicine Application is accurate, and by user expectations.

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Introduction

Medicine is one of the important elements in providing health services, ranging from efforts to improve health, prevention, diagnosis, treatment, and recovery should always be available when needed. Medications can affect health if they do not meet the requirements, are used inappropriately, or misused. One of the causes of health problems is the use of drugs irrationally, which can result in therapy becoming less effective and inefficient.[1] According to the WHO, more than 50% of the world's drugs are prescribed and used irrationally.[2] Irrational use of the drug can be in the form of excessive drug use, lack of drug use and improper drug use indications, dosages, ways and length of use, and others. On the other hand, the increasing intelligence of the public, the increasingly vigorous promotion or advertising of drugs through the mass media, and the high cost of health services, thus trigger self-medicating by the public.[3]

Self-medicating is the most effort made by the community to overcome complaints or symptoms of the disease, before seeking help from the nearest health care facility or health worker.[1] National Socioeconomic Survey data from year to year always show that more than 60% of people do self-medication (self-medicating). The results of basic health research in 2013 showed that 35.2% of Indonesians keep medicines in the household, either obtained from a doctor's prescription or purchased freely.[4] The data from the Ministry of Health proportion of people storing hard drugs without a prescription reached 81.9%, including antibiotics.[4]

Self-medicating by the community is often not only using over-the-counter and over-the-counter medications but also using hard drugs that should be prescribed by a doctor (ethical).[5] Improper self-medicating, which is not accompanied by adequate information, may result in the purpose of treatment not being achieved. For example, the use of antibiotics without a doctor's prescription can cause health problems such as bacterial resistance.[6] Correct self-medicating describes the level of knowledge of the importance of rational drug use, whereas the level of public knowledge is one of the indicators of the Public Health Development Index. In conducting self-verification correctly, the public needs clear, correct, and trustworthy information.[7] Therefore self-medicating should be done under the supervision and construction of pharmaceutical personnel.[8]

Information about the drug is widely obtained by the public from sources, but not necessarily all of them are true or neutral.[9] Therefore, it is necessary to empower the community so that the community can filter the correct information.[10] Information should be obtained from health workers and reliable sources of information.[11] In this modern era, each individual can access a wide variety of information needed online.[12] This is due to the sophistication of technology that gave birth to digital media. More than half (54.68%) of Indonesian residents are active internet users but internet use is mostly used for social media.[13]

The role of the My Medicine application will be useful for the community. The rapid development of android-based technology is in line with the increasing use of gadgets.[14] The reason people use android-based gadgets is to make it easier for users to access information. Researchers have created an app called My Medicine.[15] My medicine is an application for the public to be able to access information about health including information about the drug, indications of drugs, drugs that should be able to be purchased freely, drugs purchased with a doctor's prescription, and the location of the pharmacy that sells them.

Methods

This research is quantitative research with the design of cross-sectional research. Sampling techniques in this study use convenience sampling. The number of samples is calculated using G-Power Software Version 3.1.6 assuming test F, $\alpha = 0.05$, effect size $= 0.10$ (medium effect), power level $= 0.80$. So the total sample to be recruited is 120. The population in this study is all users of the commercial drug catalog information system "My Medicine" Based on Android in the Pekalongan district.

The inclusion criteria in the study were those who were 18 years of age and older and owned a smartphone. The exclusion criteria in the study were one with cognitive impairment. This research was conducted in Pekalongan district, namely in Wonokerto, Siwalan, Wiradesa, Tirto, Buaran, Sragi, Bojong, Kedungwuni, Karangdadap, Wonopringgo, Kesesi, Kajen, Karanganyar, Doro, Talun, Kandangserang, Lebakbarang, Paninggaran, and Petungkriono and the data collection of research was conducted on March 15–October 1, 2019.

The researcher socialized the My Medicine application in a meeting and asked respondents to download the My Medicine application and use the My Medicine application continuously for 1 week. The respondent was invited back and asked to fill out the UAT (User Acceptance Test) questionnaire.[15]

Data collection techniques were carried out with two questionnaires, namely UAT (User Acceptance Test) for experts and UAT for the user. The validity and reliability of the questionnaire have been tested by Arifin and Irnawati.[16] UAT was asked to the experts, namely two doctors and one pharmacist. Ethicals was approved by the ethics commission of Sultan Agung Islamic University in Semarang, Indonesia with letter no. 321/A.1/FIKSA/VII/2019.

Result and discussion

The characteristics of respondents Wonokerto, Siwalan, Wiradesa, Tirto, Buaran, Sragi, Bojong, Kedungwuni, Karangdadap, Wonopringgo, Kesesi, Kajen, Karanganyar, Doro, Talun, Kandangserang, Lebakbarang, Paninggaran, and Petungkriono District, Indonesia showed in the table below.

Table 1 shows the characteristics of research respondents based on My Medicine users, the highest are from Tirto, Buaran, Kedungwuni, Kesesi, Kajen, Karanganyar, Lebakbarang Districts, each of which is 7 (5.8%) respondents, and the lowest is from Sragi and Wonopringgo Districts. that is each 5 (4.3%) respondents.

Table 2 above shows the appearance of the drug names listed in the My Medicine application, which is very compatible (100%) with the MSI (Medicine Specialist Information) book. Information about drug class descriptions displayed by the My Medicine application is (82%) with the MSI book. Information about indications, contraindications, and composition of drugs in the My Medicine application is in accordance (100%) with the MSI book. Information about drug doses listed in the My Medicine application is by (80%) with the MSI book. Information about stunting in the My Medicine application is in accordance (100%) with medical theory.

In the modern era, many mobile apps were developed due to tackle medication nonadherence.[17,18] My Medicine is an Android-based application/software program that makes it easy for people to remote villages (as long as there is internet access) in finding information about drugs and the location of pharmacies that sell these drugs. The My Medicine application can be accessed through all types of android-based mobile phones. The My Medicine application provides information quickly and accurately containing drug information such as drug name, drug class, drug logo, drug category, drug manufacturer, attention, drug content, dosage, side effects, indications, contraindications, and drug packaging. The public also gets information about the name of the milk, the indication of the milk, the dose of milk, and the composition of the milk. The public can also find out quickly and accurately the location of pharmacies that sell drugs and shops that sell milk and know the pharmacy routes and maps to the location of the pharmacy or shop. The public can also connect directly to the pharmacy's phone number with one push.[15]

Table 3 above shows that the display or user interface of the My Medicine application is very good (82%). The use of language in the My Medicine application is easy to understand, both in commands and information (82%). My Medicine application can provide information about drugs and locations. Pharmacies are needed daily (82%). The output of the My Medicine application is as expected (80%). The My Medicine application is easily accessible from tablets/mobile phones (84%).

The display is closely related to the eye or vision so the display must be good or eye-catching so as not to cause saturation. The appearance of the My Medicine application website is easy to use and lightweight so that it does not burden the performance of a computer or mobile phone or tablet. The appearance of the My Medicine application is very flexible so it can be installed on various types of computers or mobile phones or tablets.[19] The My Medicine application is easy to use too because it uses Indonesian. Language is often used as a communication tool to adjust situations or conditions so that it can be conveyed and understood by the interlocutor, both from the barrel of language and the words used must be adapted to the interlocutor so that it is easy to understand.[20]

Users of this application consist of people in Pekalongan Regency. For the community, it is often difficult to get information about drugs and the location of pharmacies where to buy the needed drugs. In some cases, people even use drugs with the red logo without a prescription from a doctor. The high number of improper use of antibiotics (antibiotic abuse) so that around 10 million people died due to antibiotic resistance until 2018. So the My Medicine application is needed by the community with "one-click" to get fast and accurate information related to drugs and locations. Purchase of drugs in Pekalongan Regency to accelerate the early treatment of diseases at home, including life-threatening diseases. So that people can use this My Medicine application.[4]

Table 1. Distribution of characteristics of respondent (*n* = 120).

No.	User's residence	Frequency	%
1.	Wonokerto	6	5
2.	Siwalan	6	5
3.	Wiradesa	6	5
4.	Tirto	7	5.8
5.	Buaran	7	5.8
6.	Sragi	5	4.3
7.	Bojong	6	5
8.	Kedungwuni	7	5.8
9.	Karangdadap	6	5
10.	Wonopringgo	5	4.3
11.	Kesesi	7	5.8
12.	Kajen	7	5.8
13.	Karanganyar	7	5.8
14.	Doro	6	5
15.	Talun	7	5.8
16.	Kandangserang	6	5
17.	Lebakbarang	7	5.8
18.	Paninggaran	6	5
19.	Petungkriono	6	5
	Total	120	100

Table 2. The results of the my medicine application user acceptance test from the expert.

No.	User acceptance test	%	Result
1.	The display of the drug name listed on the My Medicine application is in accordance with the MSI (Medicine Specialist Information) book	100	Very suitable
2.	The information about the description of the drug class displayed by the My Medicine application is in accordance with the MSI book	82	Very suitable
3.	Information about indications, contraindications, and composition of drugs in the My Medicine application is in accordance with the MSI book	100	Very suitable
4.	Information about drug doses listed in the My Medicine application is in accordance with the MSI book	80	Very suitable
5.	The My Medicine application is easily accessible from mobile phones/tablets, information about stunting in the My Medicine application is in accordance with medical theory	100	Very suitable
	Mean	92.4	Very suitable

Table 3. Results of the user acceptance test for my medicine application users (*n* = 120).

No.	User acceptance test	%	Result
1.	The appearance of the My Medicine application is good	82	Very suitable
2.	The use of language in the My Medicine Application is easy to understand	82	Very suitable
3.	The information provided by the My Medicine App is needed daily	82	Very suitable
4.	The data presented in the My Medicine Application is accurate, and in line with expectations	80	Very suitable
5.	My Medicine application is easily accessible from mobile/tablet	84	Very suitable
	Mean	82	Very suitable

The My Medicine application also provides features for stunting so that pregnant women can prevent stunting by using the stunting menu in the My Medicine application.[21] Handphones/tablets have been able to change the dependence on desktop computers, not only in terms of technology but also in terms of high mobility that can attract the interest of users. Text messaging and mobile phone applications are perceived as helpful tools for medication adherence, especially for elders and pregnant women.[22,23] In terms of the dimensions of the device, of course, people will prefer a handphone that is only a handful of hands rather than having to carry a heavy computer or laptop. To perform a task or activity is more profitable than a computer. In terms of mobility and the daily needs of users, of course, mobile phones are easier to use and very user-friendly in the eyes of the user. So that the public can get information about drug information, the location of pharmacies that sell drugs and shops that sell milk, and know the pharmacy routes and maps to the location of the pharmacy or shop whenever and wherever they are by using a handphone/tablet.[24]

Conclusion

The average score for the five questions is 82 (very suitable) which means that the My Medicine application is "very suitable" to be applied to people in Pekalongan Regency and its surroundings. The public can also connect directly to the pharmacy's phone number with one push. The public is also expected to be wiser in using any health information system, including the My Medicine application.

Ethics approval and consent to participate

This research work was approved by the ethics commission of Sultan Agung Islamic University in Semarang, Indonesia with letter no. 321/A.1/FIKSA/VII/2019.

Informed consent

The manuscript does not contain any person's data in any form.

Significance for public health

My Medicine Application is one of the innovations in the Public Health area because this Application can protect and improve the health of people and their communities. When people or communities complain of pain, they can open My Medicine Application at any time and wherever they are and enter a felt complaint, such as headaches, coughing, fever, vomiting, and

others. Furthermore, My Medicine Application will provide information about the appropriate drug to handle the complaint (including indications, contraindications, side effects, and others). My Medicine Application will also provide information on a place to buy the drug, and a map to the pharmacy, information about the nearest hospital that can be visited if complaints are not handled. My Medicine Application is concerned with protecting the health of entire populations.

Availability of data and materials

All data generated or analyzed during this study are included in this published article.

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