Intention to Use a Drug Reminder App: A Case Study of Diabetics and High Blood Pressure Patients

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Abstract

This case study documents the research method used in the development of a drug reminder application for diabetics and high-blood-pressure patients. The app was developed as a mobile technology solution with the purpose of supporting health professionals in monitoring their patients and to encourage the patients to do self-monitoring. The study is aimed to ascertain the extent of patients' and health professionals' knowledge and understanding of, and intention to use the app. Beginning with a review of existing literature on the potential applications for the drug reminder app, this case study provides details of the research method and instrument development by discussing the research practicalities, the method in action, and practical lessons learned. Also highlighted is the identification of the users' features from testing of the prototype app made available to the users (diabetics and high-blood-pressure patients).

Learning Outcomes

By the end of this case study, students should be able to

- Identify the overall process of designing a research outline
- Identify the primary characteristics of quantitative research
- Understand how the convergence of health care and technology, through its focus on innovation and solutions, informs the research methodology and strategy used to study applications such as the drug reminder app
- Understand the link between quantitative research questions and data collection and how research questions are operationalized in educational practice
- Appreciate the potential value of applying prototype testing and survey research methodology to other apps and technologies

Project Overview and Context

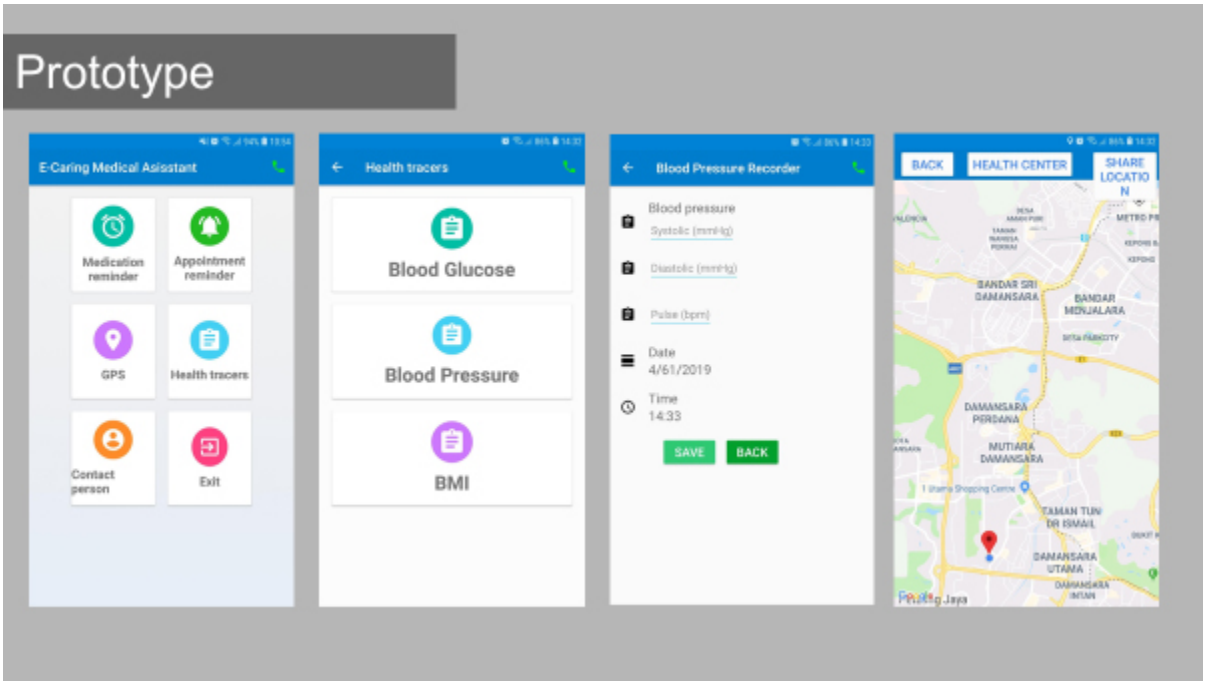
This research study came about when I was asked by a friend, who is a medical doctor, to develop a mobile technology application with the purpose of supporting health care professionals in monitoring the health status of patients with diabetes and patients with hypertension (high blood pressure), and to encourage those patients to participate in caring for their own health through self-monitoring. This app, with its drug reminder function, is called the iMedcare™. This is an all-in-one medical assistance application that enables patients to take an active role in managing their health as shown in Figure 1. To devise an effective technological solution or system, it was vital to gather the development requirements from health professionals. The drug reminder app (iMedcare™ Prototype) was developed so as to satisfy those requirements and then distributed for testing to selected diabetics and high-blood-pressure patients. Next, each participating patient was asked to complete a survey questionnaire that focused on the convenience, ease of use, and practical value of the app, and whether he or she intended to use the app in future. Subsequently, this information was used to

further develop the vital features in the prototype drug reminder app that meet the targeted patients' needs. The app was then tested among selected diabetics and hypertensive (high blood pressure) patients, who are the end-users, using the app on their mobile phones. In this case study, the focus is on the research methodology for investigating the patients' intention to use the drug reminder app.

The app's available features include the following:

- Multipurpose notifications to remind users of their medication schedule and doctor appointments.
- GPS tracking system to let users and family members know and share their current location in case of emergency.
- Healthcare services finder to find nearby clinics and hospitals
- Contact list to organize important contacts.
- Emergency calling capability to make an immediate call.
- Health tracer to record general health status and to track patient's health progress.

Figure 1. The iMedcare™ prototype.



The next section will discuss the research strategy by identifying the gap in the literature and the problems that form the research questions, objectives, research model, and hypothesis. The case study then continues with a description of the research design and data analysis.

Section Summary

- This section covered the background of the proposed mobile technology solution that integrates health care and technology in developing the drug reminder app.
- The focus of the study, the drug reminder app known as the iMedcare™ Prototype, was designed for

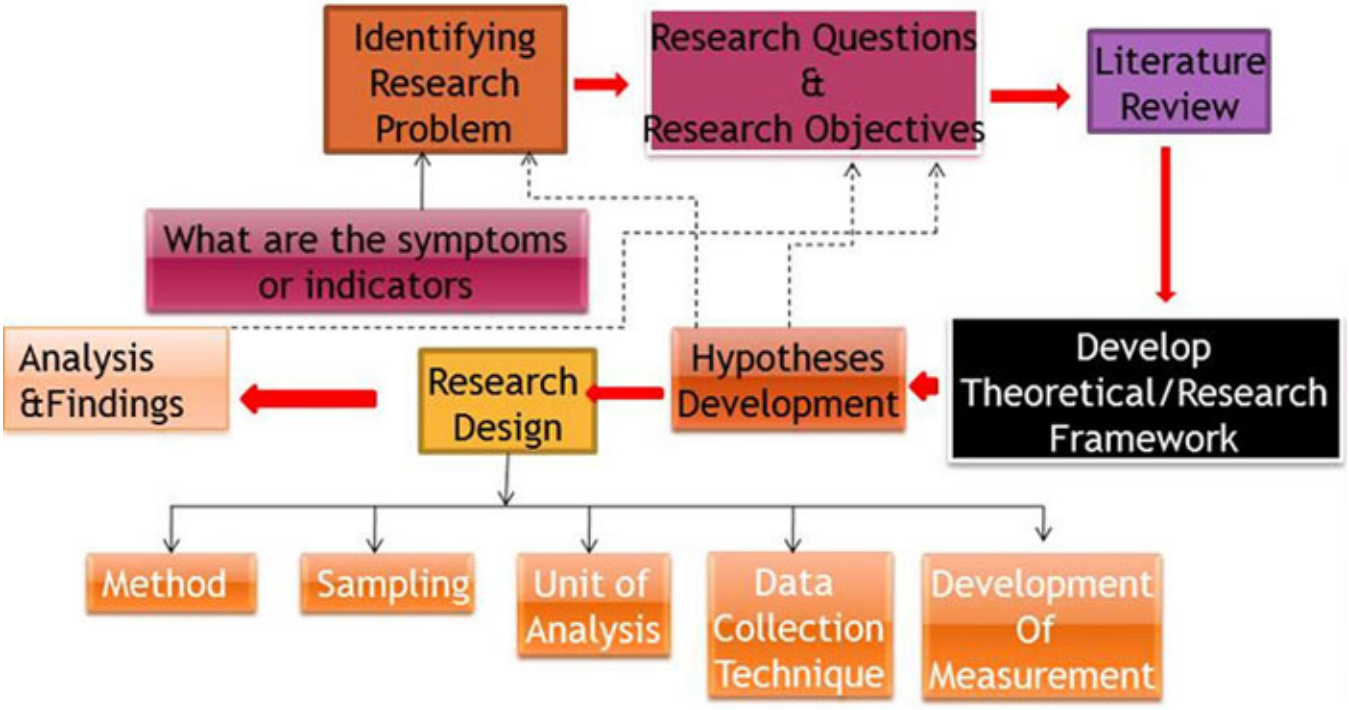
use by diabetics and high-blood-pressure patients.

Research Strategy

> The importance of the methodology is that it provides a sense of vision, where it is that the analysts want to go with the research. The techniques and procedures (method), on the other hand, furnish the means for bringing that vision into reality. Just as painters need both techniques and visions to bring their novel images to life on canvas, analysts need techniques to help them see beyond the ordinary and to arrive at new understandings of social life. (Strauss & Corbin, 1998, p. 8)

A research strategy is vital to any study to identify hypotheses and significance of research development (Bryman and Bell, 2007; Marczyk, DeMatteo & Festinger, 2005; Miller, 1983). Based on the scientific or positivistic paradigm, the quantitative research method is used in this study to explain these relationships, test the theory, describe the pattern, and measure the consumers' intention to use the drug reminder app (Cooper & Schindler, 2008). The research strategy uses the deductive process, going from generalizations (theory) leading to prediction (hypotheses), explanation, and understanding the patients' intention to use the drug reminder app (Lai, 2014, 2018). The research strategy process used in this study is shown in Figure 2.

Figure 2. Research strategy process.



The hypotheses were generated after a thorough investigation of the literature and the background information search, and once the research problems had been identified. The next stage, the research design, covered the research design method, sampling, unit of analysis, data collection technique, and development of measurement. Then, the questionnaire design, pilot test, and data collection methods employed were

determined. Subsequently, the pilot test data were validated through reliability and validity test.

Research Problems, Objectives, and Questions

To avoid problems with lack of convenience, user-friendliness, and ease of use, the importance of input from health care and behavior change professionals and patients in the design of medical technologies and solutions has been widely noted (e.g., Calabretta, 2002; Carayon et al., 2010; Cerrato & Halamka, 2019). In this case study, the successful implementation of a mobile device designed to monitor patients with diabetes and high blood pressure and remind them to take their prescribed medications called for the study of those patients' intention to use the device, which in turn required the researchers to determine the factors associated with the usage of the device.

As in any research project, the purpose of the study was to examine and attain answers to the proposed research questions guided through a research plan. Therefore, the research questions for this research are as follows:

- RQ 1. What is the relationship between the factors (convenience and design) and perceived usefulness?
- RQ 2. What is the relationship between the factors (convenience and design) and perceived ease of use?
- RQ 3. What is the relationship between perceived usefulness and patients' intention to use?
- RQ 4. What is the relationship between consumers' perceived ease of use and perceived usefulness?
- RQ 5. What is the relationship between perceived ease of use and patients' intention to use?

Literature Review, Research Framework/Model and Hypothesis

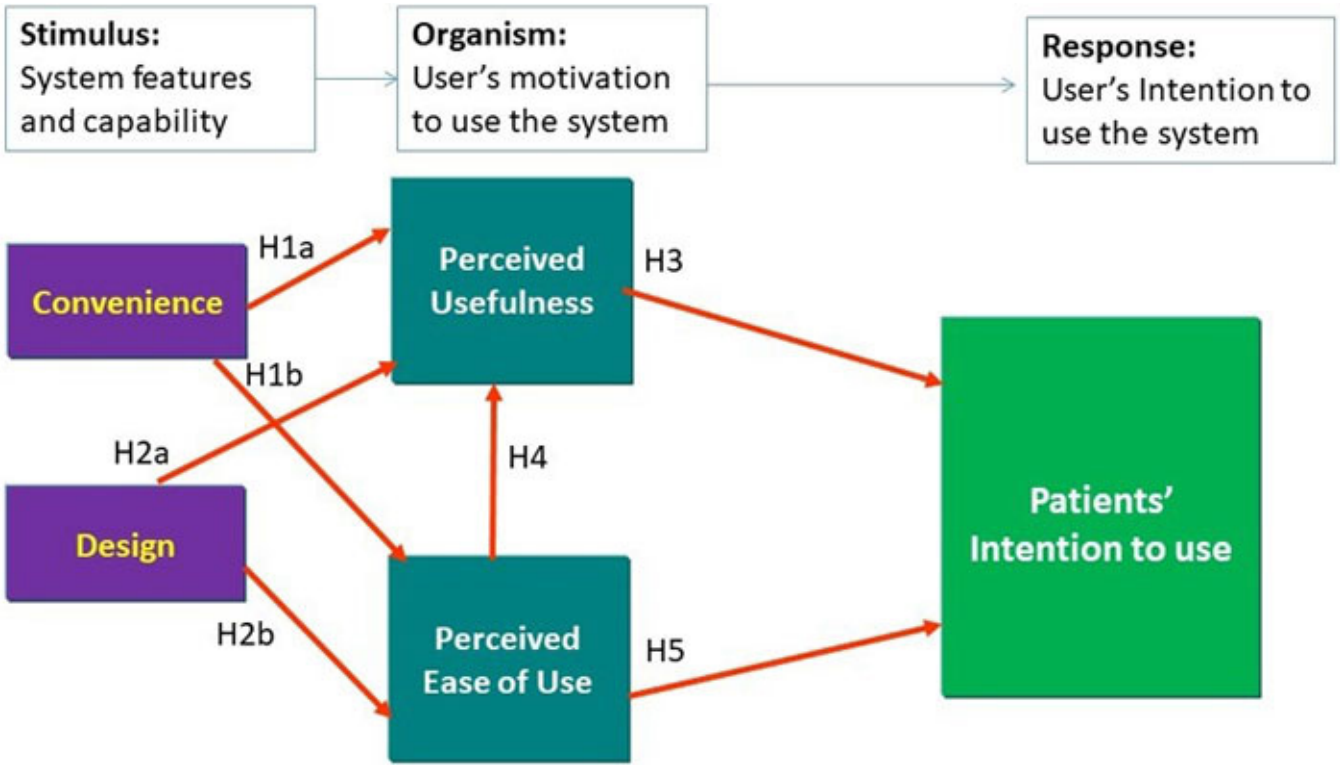
Many problems of efficiency and convenience found in organizations can often be attributed to design flaws in existing systems, leading to high operation costs due to an increase in maintenance and operation costs of databases (Ghorab, 1995; Lai & Scheele, 2018). In fact, there is an increasing interest in health care systems technologies and solutions due to problems with standalone apps, such as inconvenience, inefficiency, lack of user-friendlinesss, and limited use value. Therefore, the present mobile users' engagement app research seeks to provide measurable results in terms of patients' adherence to the medication regimen for their respective health conditions, along with information that is valuable for analysis by doctors, nurses, pharmacists, and researchers.

The Technology Acceptance Model (TAM) developed by Davis (1989) is the most widely used framework in predicting information technology adoption (Venkatesh & Davis, 2000). Lee and Jun (2007) argued that TAM should be able to analyze factors affecting adoption intentions beyond perceptions of convenience and usefulness, although TAM has received much support (Lai & Zainal, 2015; Yang, 2005). TAM focuses on the effects on adoption intentions of perceptions of the technology's usefulness and convenience (Lai,

2014, 2018; Luarn and Lin, 2005) and useful in determining the technology adoption of a drug reminder app. This research aims to examine the relationships between the convenience factor, usefulness, ease of use, and patients' intention to use the drug reminder app. The theoretical framework is built upon previous research findings and theoretical achievements. Therefore, based on the extension and adaptation from the TAM and the Stimulus Research Model (Lai, 2014, 2017, 2018, 2019), this study used the underlying factors shown in Figure 1 to determine patients' intention to use the drug reminder app. Convenience is the stimulus that represents the system and the feature and experience, while the usefulness and ease of use are the associations that represent the motivation that will determine patients' intention to use. For the purpose of this study as shown in Figure 3, the following hypotheses were posited:

- H1a: Convenience is positively associated with perceived usefulness.
- H1b: Convenience is positively associated with perceived ease of use.
- H2a: Design is positively associated with perceived usefulness.
- H2b: Design is positively associated with perceived ease of use.
- H3: Perceived ease of use is positively associated with perceived usefulness.
- H4: Perceived usefulness is positively associated with patients' intention to use
- H5: Perceived ease of use is positively associated with patients' intention to use

Figure 3: Patients' stimulus research model.



Research Design

This research was targeted only at the diabetics and high-blood-pressure patients in Klang Valley, Malaysia,

due to constraints of time and resources in the 1-month time period allotted for the pilot test. Probability sampling is a technique in which samples from a larger population are chosen using a method based on the theory of probability. To choose the appropriate probability sampling technique, the researcher first needs to know whether the target population is known or unknown. If it is known, then the researcher will look at the probability sampling techniques available. In this case, we did not have the requisite number of diabetics and high blood pressure patients in Klang Valley, Malaysia. Therefore, the non-probability sampling technique was chosen. The non-probability sampling technique for which the target patients were selected comprised diabetics and high blood pressure patients who have used the healthcare app for the past 1 year is known as the *purposeful non-probability sampling method.* Thus, the target sample in this study includes only patients with diabetes and high blood pressure who have used the health care system technology for the past 1 year.

Survey research is defined as "the collection of information from a sample of individuals through their responses to questions" (Check & Schutt, 2012, p. 160). In this research strategy study, the survey research allows for a variety of methods to recruit patients, collect data, and apply various methods of instrumentation. The advantages of using survey research include being able to produce data based on real-world usage or application (empirical data), as with the research we are conducting. According to Kelly et al. (2003), the breadth of patients' coverage is more likely than some other approaches to obtain data based on a representative sample. Therefore, this can be generalizable to a population. Survey research also has its disadvantages, which include lack of details in data collection or depth on the subject being examined. Nevertheless, survey research is inexpensive, easy to control, and can assist data collection with its standardization. Thus, survey research was chosen as a method for this study, with the same app prototype testing, and with questionnaires given to all respondents.

Sample Size

Research Tool: The Pilot Study of Patients (n = 30)

The standard pilot sample size required was 30, according to Whitehead et al. (2016) and Machin et al. (2018). The 30 (30_ pilot research patients) in this study were from the Klang Valley City Center in Malaysia only. They were the main target users. The participants were given the mobile technology solution focused on the drug reminder app to test for 15 min before answering the survey questionnaires. A few of them who were well versed with the mobile phone apps were given the Application Protocol Kit (APK; the package file format used by the software operating system for distribution and installation of mobile apps and middleware) to download to their phones to test and answer the questionnaires online through the Google form. Therefore, the research tools used here were the survey questionnaires for the pilot sample size.

Unit of Analysis

Neuman (2006) noted that the type of unit the researcher used to measure the variables was indicated as a unit of analysis. As noted earlier, the variables used in this research are convenience, design, perceived ease of use, perceived usefulness, and patients' intention to use the drug reminder app known as iMedcare™.

Hence, the unit of analysis chosen for this study is the patients who have used the app at least once during the previous 12 months. This criterion is selected to identify the current users of the app as respondents. Furthermore, this group will be the potential early adopter group of the drug reminder app.

Data Collection

The data collection process is using a structured questionnaire survey method to support prototype testing during small group sessions, individual guidance, and delivery through the mobile phone APK for patients to test the app and answer the questionnaires. The questionnaires used in this survey research are in a standardized format, clear, and well presented. In this study, the questionnaires include demographic questions in addition to valid and reliable research instruments (Costanzo Erin et al., 2012; Dillman et al., 2014). Based on the recommendations of Sekaran and Bougie (2013), the wording of the questions and the appearance of the questionnaires were designed so that the appropriate words would be easily understood by the patients in this study. The questionnaires in this study are delivered in an electronic format via WhatsApp with the link to Google Form or an internet-based program.

Measurement of Variables

Cox (1980) recommended that the scale of five points should be used. Therefore, in this research the 5-point Likert-type scale of measuring the patients' intention to use the drug reminder app), ranging from "very likely" to "very unlikely," were used. When responding to the survey items, participants are asked to specify their levels of agreement to a subject given. The 5-point scale is selected to encourage respondents to make positive or negative choices (Cooper et al., 2008) to produce more emphatic information, avoiding what Oppenheim (1992) described as a lukewarm response. A summary of the measurement used in this research is shown in Table 1.

Table 1. Measurements used in this research.

Factor	Source	Items	Scale	Cronbach's A
Design	Adapted from Szymanski & Hise (2000); Lin & Hsieh (2006); Lai & Zainal (2015)	6	1–5	.69–.89
Convenience	Adapted from Meuter et al. (2000), Szymanski & Hise (2000) and Lai (2014, 2018a, 2018b, 2018c, 2018d)	6	1–5	.69–.94
Perceived clinical usefulness	Adapted from Davis (1989); Maran et al. (2011); Lai & Zainal (2014, 2015)	8	1–5	.73–.95
Perceived ease of use	Adapted from Davis (1989); Maran et al. (2011); Lai & Zainal (2014, 2015)	8	1–5	.73–.91

Factor	Source	Items	Scale	Cronbach's A
Patients' intention to use	Adapted from Davis (1989); Lai & Zainal (2014, 2015); Lai (2014, 2016a, 2016b, 2018a, 2018b, 2018c, 2018d)	4	1–5	.80–.96

Data Analysis

The measurement procedures and related operational definitions used to define the research methodology are directly dependent on the accuracy and quality of the data collected from the research. Marczyk et al. (2005) noted that reliability and validity are the most common and important psychometric concepts related to assessment-instrument selection and other measurement strategies.

The empirical data are being analyzed using SPSS version 22 to obtain common descriptive statistics such as frequency and percentage to describe the demographic characteristics of the respondents. Cronbach's alpha was used to ensure that the variables in each construct are internally consistent. Factor analyses are being employed to validate the dimensions of independent variables and dependent variables. As usual, frequencies, percentages, maximum, minimum, means, standard deviations, and intercorrelations of the variables are also calculated.

Reliability

According to Yin (2002), reliability is the degree to which measures are considered free from random error. Reliability is concerned with the consistency or stability of the score obtained from a measure or assessment technique over time and across settings or conditions (Anastasi & Urbina, 1997; White & Saltz, 1957). Therefore, regarding the reliability concept for this research, and knowing the acceptance and generalization of Cronbach's coefficient alpha (α), this research seeks to address internal consistency by asking different related questions on the subject of every single dimension. Every effort should be made to ensure that data are collected, recorded, compiled, and analyzed accurately. In this case study, the researcher used Cronbach's alpha value to assess the reliability of the questionnaire. The rule of assessment according to George and Mallery (2003) is shown in Table 2.

Table 2. Cronbach's alpha rules.

Cronbach's alpha	Rules
Cronbach's alpha ≤ .5	Unacceptable
.5 < Cronbach's alpha ≤ .6	Poor
.6 < Cronbach's alpha ≤ .7	Questionable

Cronbach's alpha	Rules
.7 < Cronbach's alpha ≤ .8	Acceptable
.8 < Cronbach's alpha ≤ .9	Good
Cronbach's alpha > .9	Excellent

Source: George and Mallery (2003).

Validity

Validity indicates whether the measures used are accurate constructions describing the event. Churchill (1979) recommended establishing content validity in the early stages of research. Accordingly, the scale items for each construction were screened by experts in the design and analysis of the statistical surveys to examine the study instruments. In this study, construction validity and statistical validity are used as well. Statistical validity addresses the question of whether the statistical conclusions drawn from the results of a study are reasonable (Graziano & Raulin, 2004). Construction validity (Hair et al., 2008) was performed after the content validity to determine the extent to which the operational construction of each actually measured what it was supposed to measure.

Pilot Study

A pilot study is done to determine the reliability and validity before the final questionnaires are distributed. Participation by the respondents was purely voluntary. The 30 sets of questionnaires designed for the pilot study were distributed to patients that met the requirements. Respondents' feedback on the questionnaires was straightforward and relevant.

The pilot study provided good feedback with high overall Cronbach's alpha, as shown in Table 3.

Table 3. Pilot study, Cronbach's alpha.

Dimension	Items	Scale	Cronbach's α
Consumers' intention to use	4	1–5	.88
Perceived usefulness	8	1–5	.91
Perceived ease of use	8	1–5	.90
Design	6	1–5	.89

Dimension	Items	Scale	Cronbach's α
Convenience	6	1–5	.88

Research Strategy Conclusion

The research strategy starts by identifying the gap in the literature and the problems that form the research questions, objectives, research model, and hypothesis. The next stage is the research design, covering the research design method, sampling, unit of analysis, data collection technique, and development of measurement. Then, the initial questionnaire is developed with a revision in the questionnaire design section before the pilot study is performed. Here, a survey of 30 was conducted during the pilot study to check the reliability and validity analysis before the final questionnaires were distributed for the main study. The main study will not be discussed here.

Section Summary

- The research strategy starts by identifying a gap in the literature and the problems that form the research questions, objectives, research model, and hypothesis.
- The next stage is the research design, which includes the research design method, sampling, unit of analysis, data collection technique, and development of measurement.
- A survey of 30 patients was done during the pilot study to check the reliability and validity analysis before the final questionnaire was distributed for the main study.

Research Practicalities

The research follows the requirement of the Malaysia Personal Data Protection Act 2010 by making the respondents aware of this legislation; respondents must agree to allow the researchers to conduct survey research according to the provisions of the law. This follows the standard practice for conducting medical and social research in Malaysia. In addition, this research follows the standard research ethical principles for research, which include voluntariness, informed consent, confidentiality, and review and approval by ethics committee before the study can be conducted.

Healthcare professionals were involved in this research. It is the duty of health care professionals who participate in medical research to protect the life, health, dignity, integrity, right to self-determination, privacy, and confidentiality of personal information of research subjects. The design and performance of this research study were clearly described in a research protocol. The protocol contains a statement of the ethical considerations involved and should indicate how the principles in this declaration have been addressed. The protocol includes information regarding funding, sponsors, institutional affiliations, and other potential conflicts of interest, incentives for subjects, and provisions for treating and/or compensating subjects who are harmed as a consequence of participation in the research study. The protocol describes arrangements for post-study

access by study subjects to interventions identified as beneficial in the study or access to other appropriate care or benefits. The research protocol was submitted for consideration, comment, guidance, and approval to a research ethics committee before the study began. Every precaution was taken to protect the privacy of research subjects and the confidentiality of their personal information and to minimize the impact of the study on their physical, mental, and social integrity. Patients' participation by competent individuals as subjects in this research must be voluntary. Although it may be appropriate to consult family members or community leaders, no competent individual may be enrolled in a research study unless he or she freely agrees.

The practicability of prototype testing is available for patients of the health care professionals in the city center (Klang Valley) of Malaysia. This is because most people in the city center have mobile phones that can download the health care technology reminder app we developed, meet the requirements to be part of the survey respondents, and are able to answer the questionnaires. This study was supported by the academic research community, the doctors, the nurses, the pharmacies, and the patients who volunteer to be part of this research.

Section Summary

- Standard practice for conducting medical and social research in Malaysia was followed, in keeping with the provisions of the Malaysia Personal Data Protection Act of 2010.
- Design and performance of this study were described in a research protocol approved by an ethics committee before work began.
- Patients of healthcare professionals in the Klang Valley of Malaysia are well suited for prototype testing because most have mobile phones with the capacity to download the app and meet survey respondent requirements.

Method in Action

The methods used in this research were based on the quantitative approach, due to limited resources and the purpose of ensuring the acceptance of the app based on ease of use and clinical usefulness. The quantitative approach provides a standardized format that is easy for research assistants to follow and able to collect the data in 1 month's time. Given a greater availability of time and resources, a more detailed qualitative approach will be added so as to allow in-depth and open-ended questions to be asked and full responses can be gathered. To get good generalizability of results, standard survey questionnaires were given out to diabetics and high blood pressure patients respondents who meet the selected criteria during the quantitative research methodology approach. Although most previous medical research has focused on Type 1 or Type 2 diabetic patients and patients with high blood pressure to determine whether they belong to the mild, medium, or very high category, this research was not designed to make that determination. As for the drug reminder app, all the categories of patients need to take the medicines of different dosages as the system will be able to cater to that. Therefore, there is no need to segregate them.

Recruitment Method and Challenges

The recruitment method was supported by the health care professionals (e.g., doctors or nurses or pharmacists) who provided their diabetes patients and high blood pressure patients for the prototype testing survey after we talked to them. The doctors, nurses, and pharmacists from the Klang Valley Hospitals' primary care and clinics who have regular diabetics and high blood pressure patients (i.e., those who visit the clinics at least quarterly) are the ones who help to recruit the participants so we can conduct the pilot test. The patients who meet the selected criteria will be asked to sign the consent form. Then, the patients will be asked to download the app and test the app with the support from IT personnel or the health professionals. Thirty respondents were recruited to give us the feedback, and the time taken was 1 month. For a few of them who were familiar with the mobile phones and not able to come to the location to test the app, the APK of the app was delivered to them and they responded to the questionnaires online. To meet the challenges of getting the participants to respond, we managed to provide support in different modes for data collection. The information communication technology (ICT) world has provided the platform to make our data collection easier. After we provided the drug reminder app, we used WhatsApp, WeChat, or Skype video call to guide patients on how to test the app and then provided the link to answer the questionnaires. Follow-up by phone call was sometimes required as well to ensure receipt of participants' responses.

Language Barriers

Malaysia is a multi-ethnic and multilingual country, and approximately 20% of the survey was conducted in native languages other than English. Many participants whose first language is Bahasa Malaysia or Chinese could still participate in the survey in English, provided that they were bilingual. For those who are not well versed in English, materials in these languages are being provided during the testing of the app. Accordingly, the survey has been translated into three different languages (English, Bahasa Malaysia, and Chinese) to facilitate participation by those patients who need them. This is quite common when conducting a survey in Malaysia.

Section Summary

- For practical reasons, the methodology used in this study was quantitative. A more detailed qualitative approach will be added later, to allow in-depth and open-ended questions to be asked so as to obtain fuller responses from patients.
- Recruitment was conducted among Klang Valley physicians' regular patients with diabetes and high blood pressure. To meet the challenges of getting the participants to respond, we provided support in different modes for data collection.
- Accommodations were made to facilitate participation by speakers of Bahasa Malaysia and Chinese as well by as those who are fluent in English.

Practical Lessons Learned

Data collection posed a bit of a challenge. The ideal situation is to have 3 groups of 10 participants for us to brief and show them how to use the app, and then they can respond to the survey questionnaires. However, it is not easy to get everyone together at the same time and we needed to organize presentations even for smaller groups of 3–4 people as well as for individuals. Support from the health care professionals who are seeing the patients themselves has made it easier for us to collect the data. A few patients are IT savvy, and we can directly deliver the APK app to them to test and answer the questionnaires online.

As the questionnaires are the instrument for testing the app, the data collected follow the correct, standard format. Readers can apply a research method similarly structured to the one used here for similar types of research in the domain of health care systems technology, and solutions.

The pilot research analysis results provide us with information for decision making as to whether (a) to continue to develop the health care technology solution further as well as continue with further research using a bigger sample size or (b) to conclude it owing to a lack of demand in the marketplace. Since the analysis to date has been positive, this research should continue, using a bigger sample size, to develop the hypothesis for future analysis. Researchers should always be open to listening to respondents to get in-depth feedback that can be useful for further development of technological solutions as well as further research. In this case, research also opens new areas for technology solution development, based on new sets of information such as, for example, family monitoring access as additional requirements.

Section Summary

- Data collection posed certain challenges, which were met with active support from healthcare professionals.
- Analysis of data so far suggests that further development of the reminder app should continue, and that further research with a larger sample size be conducted for further analysis.

Conclusion

Building on my background in social science academic research and the ICT development industry, this study has opened up and allowed me to explore areas in the medical field to provide health care system technology and solutions that will benefit both health care professionals and patients. The study has followed the research strategy process, as shown in Figure 2, that is easy to understand and apply using the survey research method. Survey research is a useful and appropriate approach that has clear benefits in helping to describe the proposed health care solution and to determine patients' intentions to use the proposed application.

Despite the challenges of data collection, the research went on smoothly and the targeted respondents provided in-depth insights with valuable information for our further research and development of the proposed

drug reminder application. The pilot survey research method has provided valuable data for understanding the patients' intention to use the application on the basis of its ease of use and health care professionals' intention to use the application on the basis of its clinical usefulness. Further research can be conducted with the enhancement of the app and questionnaires for the sample survey research. Focus group research to gather qualitative information to understand the patients' further requirements of the drug reminder app can also be arranged as further study. This can include users' experience, mostly the drug reminder app's look and feel (e.g., the color, the use of increased text size for greater legibility for older participants and those with diminished visual ability).

This study provides ideas for addressing increasing requests for, and development of, health care system technology and solutions for health professionals and patients (e.g., Price Water Cooper [PWC], 2013, 2014 for the growth of mobile health solutions globally). There is a need for a more structured research methodology to support this growing industry. This research project illustrates the practical approach to testing a prototype app and collecting essential data at the same time, a method that holds promise for future app testing and research. In conclusion, this case study has aimed to offer practical guidelines for future researchers, students, and others to conceptualize, operationalize, and analyze underlying research methodology to assist in the development of their research efforts in health care system technology and solutions.

Classroom Discussion Questions

Classroom Discussion Questions

1. What were the steps of the research strategy used in designing this study?
2. What are the advantages of using the survey research method in testing an application for patient use? Are there any disadvantages? If so, what are they?
3. What can researchers do to increase participation in health care system technology and solutions studies?
4. What else could the research team do to shorten the data collection timeframe?
5. What are the practical approach of this research leading to the deployment of the HealthCare system, technology, and solutions?

Declaration of Conflicting Interests

The Author declares that there is no conflict of interest.

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