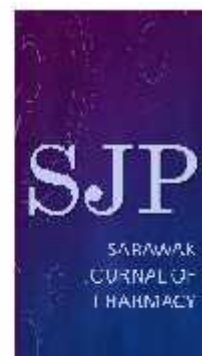




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Acceptance of pharmacy hospital information system

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ABSTRACT

Introduction: The Hospital Information System (HIS) specifically designed to enable the execution of patient-care-related hospital functions, such as patient management, hospital management and financial records. In Malaysia, the Pharmacy Hospital Information System (PHIS) currently implemented in government hospitals and clinics. Many researches employed to evaluate the acceptance of new technology has been based on the Technology Acceptance Model (TAM) by Davis which correlates perceived usefulness, ease of use, and acceptance of using information technology.

Methods: The survey deployed (N=64) to pharmacists and assistant pharmacists in Hospital Miri to investigate factors affecting acceptance of PHIS. The survey design was adopted from Davis' Technology Acceptance Model (TAM) with key variables of age, gender, job title and number of years working in a government hospital or clinic used to measure and evaluate the acceptance of PHIS.

Result: Fischer exact test's results from this survey showed a p-value higher than 0.005, demonstrating that the participants' demographic has no significant impact on the perceived ease of use, usefulness and acceptance of PHIS. Most respondents had a more positive answer for perceived usefulness, but scored mostly neutral for perceived ease of use, consistent to literature in stating that perceived usefulness plays a larger role in acceptance of information system as compared to perceived ease of use.

Conclusion: Generally user found that PHIS is useful in improving daily activities, however a user friendly interface is needed to assist user to navigate the application. Further research may be carried out in this area to have a more thorough knowledge of the factors that affect user acceptance of PHIS in Malaysia.

Keywords: PhIS, hospital management system, acceptance

INTRODUCTION

The healthcare industry is highly information abundant with large information requirement. The Health Information System is a relatively new technology which combines Information Systems, Computer Science and Healthcare and many hospitals, both in the government and private settings have considered various types of information technologies (IT) as possible solutions to provide fast and precise information (1).

The Hospital Information System (HIS) specifically designed to enable the execution of patient-care-related hospital functions, such as patient management, hospital management and financial records (2). In Malaysia, the Pharmacy Hospital Information System (PHIS) currently implemented in government hospitals and clinics.

The use of modern information technology has been proven to show many advantages such as reducing clinical errors, for example, medication or diagnostic errors, increases the efficiency in patient care by reducing waiting time for patients, provide updated patient information for the perusal of healthcare professionals thereby improving the overall management of healthcare (3). A study by Khan and Woosley also shows the technology use by healthcare professionals reduces patient treatment duration, decreased cost and accurate patient records that are transferable without the risk of errors, which leads to improved patient management (4).

Past research has indicated that healthcare professionals play an important role in adopting and evaluating HIS as this would determine the success of adopting such a system in the healthcare system (5). Many research done to evaluate the acceptance of new technology

based on the Technology Acceptance Model (TAM) which correlates perceived usefulness, ease of use, and acceptance of using information technology (6). TAM states that an individual's system usage determined by behavioural intention, which is, in turn, determined by two beliefs: perceived usefulness, the extent to which a person believes that using the system will improve his or her job performance, and perceived ease of use, the extent to which a person believes that using the system will be free of effort (7).

Technology behaviour in different fields may vary, and results of each study would also show some variation since the technology acceptance behaviour is influenced by many personal factors such as age, gender and socioeconomic status (8). Another factor that may influence acceptance of HIS is the insufficient depth of the design that hinder user acceptance and decrease satisfaction if interface is not user friendly, or consider to be an inconvenience (9). Employees, such as healthcare professionals would be more willing to make changes in their daily work pattern by adapting and integrating the HIS system if they can accept a new IT system (10). Likewise a system's success depends on user acceptance as the system would require to cater to the characteristics of the user such as amount of computer knowledge and the type of the task to be carried out by each of user (3).

METHOD

The survey deployed to pharmacists and assistant pharmacists in Hospital Miri to investigate factors affecting acceptance of pharmacy hospital information system (PHIS). The survey design adopted from Davis' Technology Acceptance Model (TAM) (11). The key variables that were measured to evaluate the acceptance of PHIS were age, gender, job title and number of years working in a government hospital or clinic. We sent out 64 questionnaires,

with 100% response rate. We used Fischer exact test to explore association and descriptive statistics.

Approval from the director of Hospital Miri was obtained and the research was also registered under the National Medical Research Registry (NMRR) which is a requirement for studies conducted in Ministry of Health (MOH) facilities.

RESULTS

Table 1: Respondent Demographics (N=64)

Characteristics	Frequency	Percentage
Gender		
Male	11	17.2
Female	53	82.8
Job Title		
Pharmacists	48	75
Assistant Pharmacists	16	25
Age		
20-30	38	59.4
31-40	21	32.8
41-50	1	1.6
51-60	4	6.3
No. of Years Working in Government Hospital/Clinic		
0-10	54	84.4
11-20	5	7.8
21-30	3	4.7
31-40	2	3.1

Table 1. show the characteristic of the subjects. The subjects are largely women, pharmacist and working less than 10 years. Most of the respondents were below 40 years old.

We attempted to explore association between the perceived ease of use, usefulness and acceptance of PHIS with demographics however none show any significant association.

We explore PHIS perceived usefulness examined by the score given by the largest amount of respondents (in percentage) in each question. PHIS slightly likely enabled accomplishing tasks more quickly (51.6% respondents). PHIS slightly likely improved job performance (43.8%). PHIS slightly likely increased productivity (43.8%) and slightly likely enhanced effectiveness on the job (37.5%). PHIS slightly likely made it easier to do respondents' job (42.2%) and respondents find PHIS slightly likely useful in their job (45.3%).

Relating to the PHIS ease of use, learning to operate PHIS is slightly likely to be easy (37.5%). Respondents felt neutral towards their interaction with PHIS being clear and understandable (37.5%) and neutral towards flexibility of PHIS to interact with (34.4%). Respondents also felt neutral with the ease to become skilful at using PHIS (39.1%) and slightly likely to find using PHIS easy to use (32.8%) For perceived usefulness and perceived ease of use, most respondents had a more positive answer for perceived usefulness, but scored mostly neutral for perceived ease of use.

DISCUSSION

The participants in this survey generally had a positive attitude towards using PHIS. In terms of perceived usefulness, most respondents answered positively. In terms of perceived ease of use, most respondents answered neutrally. This result is consistent to many other researches in stating that perceived usefulness plays a larger role in acceptance of information system, or in this survey, specifically PHIS, compared to perceived ease of use (2,12).

The demographics of participants did not have a significant impact on the perceived usefulness and perceived ease of use of PHIS. This could be due to factors such as proper hands-on training before the system was fully implemented (13); resulting any age groups, gender, job titles and various numbers of years working responded that PHIS has a can give positive impact in the daily work management of the pharmacy.

This research does have several limitations such as that it only conducted among pharmacists and assistant pharmacists, and did not include other healthcare professionals, whom may have a different view of using PHIS. Another limitation is that the survey was conducted at only one location, with a small sample size. As this research utilizes the original TAM, other potential relationships such as the effect of subjective norm may have been omitted compared to using variations of TAM (14).

This research focused more on two aspects, perceived usefulness and perceived ease of use to evaluate user acceptance of PHIS. Further research may be carried out in this area to have a more thorough knowledge of the factors that affect user acceptance of PHIS in Malaysia. The point of time which the research conducted from PHIS implementation is a potential factor to be explored in future further research (15). Studies of TAM have demonstrated that over the life course of an IT, the relationships in the model may change in the way the ease of use may be critical at first and less important as time goes by (10). Another potential moderating factor to be explored in further research may be the voluntariness of PHIS use among users (16). In future further research, adding variables (such as variables related to compatibility between PHIS and clinical work processes) to testing PHIS acceptance (17) would enable to better understand other factors such as attitudes and enhance understanding of PHIS use and acceptance and ultimately improve overall healthcare management.

Conclusion

Generally user found that PHIS is useful in improving daily activities, however a user friendly interface is needed to assist user to navigate the application.

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