Evaluation of Acceptance of Non-Communicable Disease Information System Applications Based on User Experience

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A B S T R A C T

The mortality rate due to non-communicable diseases (PTM) in Indonesia is higher than the global death rate. The non-communicable disease information system (SI-PTM) was created to assist programmers in facilitating their work. This study aims to evaluate the acceptance of the information system needed to determine the user's desire to use the SI-PTM. This research is an observational study. Respondents in this study were Semarang City Health Center officers who were appointed as operators of the non-communicable disease information system (SI-PTM). Data were collected using a questionnaire containing the technology acceptance model (TAM) indicators. This analysis aims to describe user acceptance of SI-PTM as well as maturity level using TAM indicators, namely perceptions of usefulness, perceived convenience, attitudes, and intentions to use information systems. In conclusion, the majority of respondents stated that non-communicable disease information systems provide benefits in facilitating reporting and monitoring of non-communicable disease cases in the city of Semarang.

1. Introduction

Non-communicable diseases (PTM) have become a global concern, especially in low and middle-income countries, because they tend to last a long time and are a major cause of morbidity and mortality in the world.[1,2] NCDs cause 71 percent of deaths globally or as many as 41 million deaths annually, 77 percent of which come from low and middle-income countries.[3] Based on the monitoring results of the World Health Organization (WHO), in 2022, the percentage of deaths caused by NCDs in Indonesia will be higher than the global figure of 76 percent or 1.386 million deaths.[4]

In line with the results of the Basic Health Research (Riskesdas), the number of NCDs in Central Java and Semarang City has also increased. The incidence of hypertension increased from 1,393,751 in 2018 to 3,329,052 in 2021, while the incidence of cancer and diabetes mellitus decreased.[5] The incidence of PTM also experienced a significant increase in the city of Semarang. The highest was hypertension, with 37,673

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cases in 2014, to 161,283 in 2018.[6]

The risk factors that cause PTM are genetic factors (family disease history, genetic disorders, epigenetic changes, mutations). Genetics), environmental factors (air pollution, weather changes, UV rays), socio-demographic factors (age, gender, race, ethnicity, education, income), behavioral factors (alcohol consumption, smoking, physical activity, food consumption, dental care), and metabolic factors (hypertension, dyslipidemia, diabetes mellitus, viruses, obesity, stress).[7,8] One of the strategies implemented by the government in order to improve the ability to manage health data and information is to use a health surveillance system.[9] The government has made various efforts to control PTM cases, including Posbindu PTM. The use of information systems is very much needed for surveillance officers and the Health Office to be able to track and monitor PTM cases.

Currently, officers are still using manual reporting using excel to report PTM cases in their area. In order to facilitate user performance in inputting, reporting, and monitoring PTM cases, a Non-Communicable Disease Information System (SI-PTM) was created. This study aims to analyze the acceptance of the information system needed to determine the user's desire to use the SI-PTM.

2. Methods

This research is an observational study. Respondents in this study were Semarang City Health Center officers who were appointed as operators of the non-communicable disease information system (SI-PTM). Data were collected using a questionnaire containing the technology acceptance model (TAM) indicators. This analysis aims to describe the programmer's acceptance of SI-PTM and the maturity level using TAM indicators, namely perceptions of usefulness, perceived convenience, attitudes, and intentions to use information systems. This study has been approved by the ethical committee of Health Polytechnic-Indonesian Ministry of Health, Semarang (numbered 0478/EA/KEPK/2022).

3. Results and Discussion

Of 37 respondents, the average respondent in this study was 31.57 years old, with an age range of 23-47 years. Most of the SI-PTM users at the Semarang City Health Center were female, as many as 31 people (83.78%). The SI-PTM programmers at the Semarang City Health Center have the latest Diploma III education for as many as 27 people. This difference in education level does not affect the performance of officers. Officers familiar with information systems and technology will find it easier to learn new information systems.[10]

Perceived usefulness of SI-PTM

Overall, the majority of respondents felt that SI-PTM would be useful in helping them complete their work faster, with an average value of 1.994, the maturity level of perceived usefulness of SI-PTM of 3.32 was at level 3, namely defined process (Table 1). At this stage, the system provider has provided guidelines or manuals for the use of information systems but still requires further socialization related to the use of information systems by users.[11] This research is in line with other studies that the ease of use of an information system will affect the benefits of the information system, and the benefits will affect a person's intention or desire to run the system.[12] An information system is very useful in the patient's medical record, it is easy to use, and the data that is recorded is complete as needed.

Table 1. The user experience of non-communicable disease information system applications

No	Indicator	Mean	SD	Maturity level
	Perception of Benefit			
1	Complete tasks faster	1.92	0.493	Level 3
2	Improve performance	2	0.333	Level 3
3	Monitor patient condition	2.05	0.229	Level 3
4	Avoid duplication data	2.03	0.372	Level 3
5	Completion of tasks	1.97	0.440	Level 3
	Perception of Ease			
1	Learning does not take much time	1.78	0.479	Level 3
2	Applications are clearer and understandable	2	0.236	Level 3
3	Easier to find data	2	0.236	Level 3
4	Facilitate monitoring of patient data	2	0.236	Level 3
5	The operation does not require much effort	1.81	0.397	Level 3
	Attitude			
1	Using the SI-PTM APPLICATION is a good idea	2.05	0.329	Level 3
2	Using the SI-PTM APPLICATION is more comfortable	1.95	0.229	Level 3
3	I like to use the SI-PTM	1.84	0.374	Level 3
4	Using the SI-PTM is more interesting	1.97	0.372	Level 3
	Intention			
1	I intend to use the SI-PTM application to support my task	1.89	0.315	Level 3
2	I am willing to use the SI-PTM application to simplify my task	1.92	0.363	Level 3
3	I intend to use the SI-PTM application because it is more useful	1.92	0.277	Level 3
4	I intend to use the SI-PTM application because its features are complete	1.89	0.315	Level 3

Perception of the ease of SI-PTM

The majority of officers consider the SI-PTM easy to operate, with the maturity level being at level 3. The obstacles experienced by officers during the trial were technical problems. Namely, the operating system did not support the information system. The short time during the trial will affect the officer's perception of the ease and acceptance of the application.[13]

Attitudes towards the use of SI-PTM

Most officers like and are interested in using SI-PTM with a maturity level of level 3. This is because SI-PTM provides many benefits to officers. The system is easy to learn and makes it easier for officers to control and report PTM cases. This is in accordance with other studies which state that the perception of the usefulness of the system and the perception of the ease of use of the system will affect their attitude towards the system. The majority of the programmers consider the SI-PTM useful and makes their daily work easier, so they like to use this SI-PTM.

Intention to use SI-PTM

Most officers agree that SI-PTM is more useful and has more complete features with a maturity level of level 3. The existing system and used by officers are good, but the current system cannot monitor the patient's condition because, in SI-PTM application of physical activity data, namely sports, is entered into the system so that it is complete in monitoring patient activities which is one of the factors causing the PTM. There are some officers who disagree that the SI-PTM is more useful and has more complete features. Officers considered the current system to be sufficient for them to report PTM cases, and they objected to the new system.[14]

4. Conclusion

The majority of programmers agree that SI-PTM can provide benefits for them in simplifying their task of reporting and monitoring cases of non-communicable diseases.

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