Acceptance Analysis of the Electronic Kohort Information System for Maternal and Child Health Using the Technology Acceptance Model at the Bima City Health Center

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Abstract

The Maternal and Child Health Program (MCH) in Indonesia is faced with a diversity of achievements between regions caused by disparities in the capacity of the health system and exacerbated by the Covid-19 pandemic which has caused a decrease in service activities and reporting quality so that digitalization of services is needed. This type of research is qualitative research with a phenomenological study design using thematic analysis with the help of the Nvivo 12 application. Primary data collection was carried out by observation and in-depth interviews with research informants by purposive sampling. To increase the credibility of the data use source triangulation. The research informants consisted of the head of the family health service section, the head of the health center, and the midwife as an e-kohort user. Thirteen informants (11 women and 2 men) participated in the study. Most informants can use the core functions of the e-kohort app's navigation menu. The study proposes that perceived perceptions of ease of use may not be in line with perceived expediency to explain variations in the successful acceptance of MCH e-kohort applications. The study also found that there were differences in outcomes between user perceptions at the operational level and policymakers at the managerial level. In general, the analysis collected several types of obstacles and potential problems that negatively affect the usability of e-kohort applications: not being able to make the work of midwives easier and faster, ineffective, and not so much increased performance productivity. With regard to ease of use, users feel that the e-kohort can be easily learned and used. E-kohort is considered to have value as a system that makes the work of midwives more difficult and hinders work, but the

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appearance, elements, features, and design are considered quite easy to use. In addition, users also highlighted the need to consider how the system can be implemented to minimize impact and optimize usability

Keywords: Admissions, Health Information Systems, Electronic Kohort. Maternal and Child Health, Technology Acceptance Model

Introduction

Maternal and Child Health (MCH) is one of the fundamental health service programs in Indonesia and is a world priority. This is the initial stage of the treatment series in which the mother, baby, and children are inseparable in care needs. Unfortunately, there are differences in MCH results between regions caused by the uneven capacity of the health services system such as human resources, facilities, infrastructure, tools, and financing. In addition, the COVID-19 pandemic has also caused a decrease in reporting on maternal and child health services (Smeru 2020) monthly routine reports are also underutilized for decision-making. The low use of such data is indicated due to problems in data accessibility (Zainal et al. 2013).

Several factors cause the high rate of maternal mortality cases, namely not utilizing existing information media facilities (Rachmawati et al. 2017), delays in making decisions to be referred (Rachmawati et al. 2017) and lack of data collection of pregnant women. One of the important components to reducing the causes of the high maternal mortality rate (MMR) is the accessibility of accurate, precise, and up-to-date information (Wicahyono et al. 2019).

The use of information technology in the health sector can support the accessibility of precise and accurate data and information (Yani 2018). Boring and less effective manual recording should be transformed into technology-based recording that can further improve access to data and information (Lazuardi et al. 2021). This is in accordance with the National Medium-Term Development Plan (RPJMN) 2020-2024, which is to improve health services towards universal health coverage supported using technology or digital transformation, one of which is the use of information technology for services and reporting in the MCH program. However, there are still some health service problems, namely access to health data, data consistency, data standardization, and data recording (Kemenkes RI 2021a).

The main benefits of using technology-based information systems are economic advantages and benefits of information system management, as well as making better planning (Sadoughi & Erfannia 2017; Payne et al. 2019) can help stakeholders to make the right choices in decision-making (Yusuf et al. 2018; Davlyatov et al. 2019). Electronic health record data can extract much more useful information from data sources that are currently under-analyzed from the community level and reduce errors and can work on clinical cycles and patient outcomes (Küllmar & Zarbock 2018; Rush et al. 2019)

However, recently the acceptance of the use of information innovations or new technologies has become something very interesting to research (Kabbiri et al. 2018). Use is the main key in estimating the achievement of a system. User acceptance is also the most powerful factor in the implementation and use of information systems because regardless of how modern the system is, it will not be done correctly without user support (Sharifian et al. 2014).

The data shows a downward trend in the MMR indicator (per 100,000 live births), with a decrease of -1.80 percent per year from 390 in 1991 to 230 in 2020. Despite the decline, MMR has not reached the 2015 MDG target of 102, nor has it reached the 2030 SDG target of less than 70 per 100,000 live births. In addition, the AKB indicator also shows a downward trend from 68 in 1991 to 24 in 2017, down by -3.93 percent per year. AKB, like AKI, has not yet reached the 2015 MDGs target of 23 or the 2030 SDGs target of 12 (Kemenkes RI 2020). In Bima City alone, the number of MMR reported in 2019 was 183 per 100,000 live births. In the midst of the COVID-19 pandemic situation, maternal and infant mortality rates have soared. The maternal mortality rate increased by 300 cases from 2019 to around

4,400 deaths in 2020 while infant deaths in 2019 around 26,000 cases increased by almost 40 percent to 44,000 cases in 2020 (Arlinta 2021).

From September 2019 to January 2020 the e-kohort application has been tried in 15 districts/cities selected as pilot project locations in Indonesia and NTB itself represented by Central Lombok Regency. Based on the results of an implementation survey conducted at the end of December 2020, the e-kohort application is considered very helpful for health workers and in 2021 it began to be applied throughout Indonesia (Sijariemas Teknologi Inovasi 2021). In September 2021, puskesmas in Bima City started implementing it. In the initial research, information was obtained that some users felt depressed and burdened by the existence of the MCH e-kohort application, so this study was the initial stage of evaluating the acceptance of information systems.

Several theories can be adopted to analyze this phenomenon. However, TAM gained significant popularity and is considered a "key model" (Marangunić & Granić 2015), or "gold standard" (Holden & Karsh 2010), being able to explain the determinants of acceptance (Ammenwerth 2019), being a measurement tool rapidly, while assessing the needs of different user groups (Ammenwerth 2019; Shachak et al. 2015). (Holden and Karsh 2010)TAM can also provide the best commitment in anticipating and describing user recognition (Utomo et al. 2018), can find components that directly affect user behavior (Kinanti & Pertiwi 2019; Shachak et al. 2019), can understand and study the factors that influence the acceptance of the use of computer-based technological innovations (Joo et al. 2018; Kinanti & Pertiwi 2019), (Joo et al. 2018)even being an important model in understanding the indicators of human behavior towards the possible acceptance or rejection of technology (Marangunić & Granić 2015).

This study tried to identify trends in the acceptance of technology-based information systems (e-kohorts) by users using the TAM method. From the review of the results of previous studies, it was found that inconsistencies or differences in the research results in the two main constructs of TAM, namely the perception of usefulness and the perception of ease of use so researchers feel that this still needs to be studied again such as Nugroho et al. (2021) and Mikarsih et al. (2020) saying that both do not affect implementation, but other opinions such as Rumana et al. (2020) and Mulyono et al. (2020) said that each of the two constructs has an implementation.

The Technology Acceptance Model (TAM) method was used in this study because it was in line with the purpose of the study, namely, to identify the acceptance of the MCH e-kohort application information system using two main constructs in TAM theory and become a model that is able to answer questions in this study. TAM can also provide the best commitment in anticipating and describing user recognition of technological innovations in an organization.

Literature Review

Maternal and Child Health Kohort (MCH)

MCH e-kohort is a web and mobile-based application that could record maternal, infant, and child health services that produce cohorts for maternal, infant, and child health checks (MCH). The KIA e-Kohort is a digitization of the MCH services cohort. This structure is an electronic MCH cohort that remembers information for health services for pregnant women, maternity mothers, post-pregnancy mothers, toddlers (babies), newborns, and babies or children under 5 years old (Kemenkes RI 2021b).

The MCH cohort is an important data set because it contains total important information data, records of assessment results, and health services provided from the stage of pregnancy until the child arrives at the age of 5 years (Sijariemas Teknologi Inovasi 2021). The MCH e-kohort application is also a digitization of the cohort of maternal and child health services, which includes data on health services for pregnant women, maternity mothers, postpartum mothers, neonates (newborns), infants, and toddlers (under the age of 5 years). This MCH cohort is important data because it contains complete information about basic data, recorded examination results, and health services provided from the gestation phase of the mother to the toddler age of 5 years (Kemenkes RI 2021b). The use of e-kohort

is also expected that the data search process can be carried out faster, health workers will get notifications or notifications when pregnant women, babies, and toddlers have a risk of danger so that they can immediately follow up and with a dashboard can help health workers to monitor MCH service indicators (Laksmi 2021).

E-kohort can function in timely monitoring, namely with multilevel monitoring (starting with the determination carried out by the puskesmas, then it can be seen by the district/city health office as well as the provincial health office and the Directorate of Family Health of the Ministry of Health of the Republic of Indonesia so that they provide mutual feedback), Remote or remote monitoring to minimize visit activities, and the method of filling in the e-kohort can compare indicators over time. This digital-based group has been registered and its servers are in the data and information center of the Indonesian Ministry of Health (Laksmi 2021).

Technology Acceptance Model (TAM)

This theory was first put forward by Fred D. Davis in 1986 for a doctoral proposal as shown in Figure 1. An adaptation of the Theory of Reasonable Action (TRA), TAM is specifically designed to model user acceptance of information systems or technologies (Davis 1986). Subsequently, it was used and developed by several researchers, for example, Adam et al 1992 (Adams et al. 1992), Szajna Bernadette 1994 (Szajna 1994), Magid Igbaria 1994 (Igbaria 1994), and Viswanath Venkatesh and Fred D. Davis 2000 (Venkatesh & Davis 2000). (Venkatesh and Davis 2000)
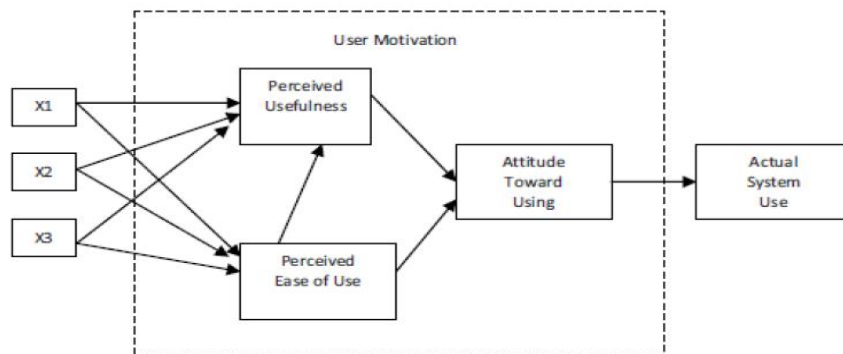

Figure 1. Original Technology Acceptance Model (Davis 1986)

The essential TAM model includes and tests two specific beliefs, namely perceived usefulness (PU) and perceived ease of use (PEOU) as shown in Figure 2. PU refers to the subjective possibility of a potential user that the use of a particular system will enhance his or her actions (Davis et al. 1989), whereas PEOU is defined as the extent to which a potential user expects the target of the system to be easy. Both TAM constructions determine the attitude toward using technology. It is this attitude towards use that later becomes the determinant of the behavioral intention to use, which can be interpreted as the acceptance of technology (Holden & Karsh 2010).
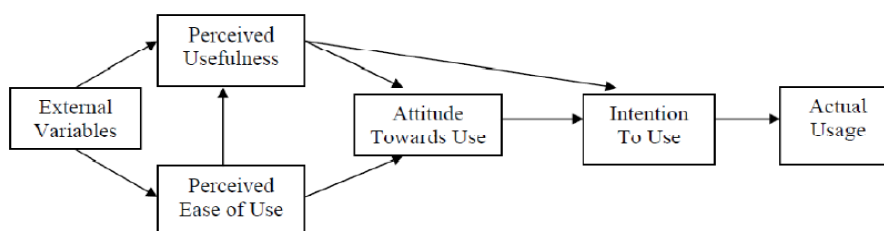

Figure 2. First Modified version of TAM (Davis et al. 1989)

The final form of the technology acceptance model was formed by Venkatesh and Davis (1996) as shown in Figure 3, after the main findings of perceived usefulness and perceived ease of use had a direct

influence on behavioral intentions, thus eliminating the need for an attitude construction (Venkatesh & Davis 1996).
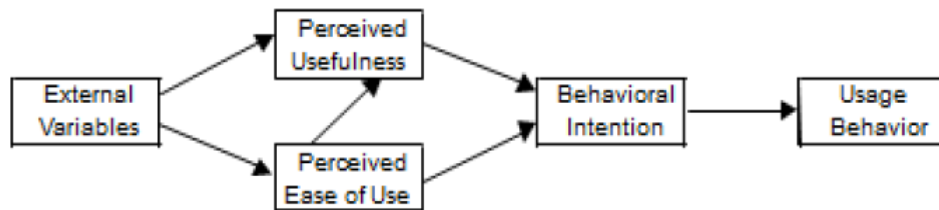

Figure 3. The final version of TAM (Venkatesh & Davis 1996)

Methodology

Type, Design, Time, and Place of Research

This research is qualitative research with a phenomenological study design. The research was conducted at the Health Office and its work area, namely all Puskesmas in Bima City, West Nusa Tenggara Province, in 2022.

The type of qualitative research chosen in this study, in addition to finding *research gaps* in previous research, namely all previous research in the study source in this study uses quantitative, also to answer research objectives that identify and explore the perception of usefulness and perception of ease of use by rebuilding a concept or meaning in depth. This research emphasizes qualitative research because it has at least several reasons, namely dynamic, research that favors the truth of the context in the field, involves a process of reflection and emotion to build new logic and arguments about facts in the field, and is subjective.

To answer research questions, this study only uses primary data sources. Primary sources are information that is directly provided by informants to researchers (Sugiyono 2011). Primary data from this study was obtained from in-depth observations and interviews with all informants, both key informants, namely the head of the family health section of the Bima City health officials, the main informant, namely the coordinating midwife as a user or user of the information system for the e-kohort application for maternal and child health and supporting informants, namely the head of the puskesmas.

Research Informant

Two important standards in the withdrawal and determination of sample size for data collection in this study are the principles of conformity and depth. The principle of conformity is applied through the conformity between the research objectives, the way of sampling, and the size of the sample. Meanwhile, the principle of depth is assessed through the saturation of the information obtained (saturation) and the credibility of the data obtained (Utarini 2020). The number of samples in this study was not justified based on statistical generalizations to the population, but rather the quality of the information produced which is a function of the principle of the suitability of the research objectives and the way of sampling.

The decision regarding the size of the sample refers to the principle of saturation and the credibility of the data. In sampling, this study uses the purposive sampling technique, which is a non-random sampling technique where researchers determine sampling by setting specific criteria that are in accordance with the research objectives so that they are expected to answer research problems. The reason for using the purposive sampling technique is that not all samples have criteria that correspond to the phenomenon under study. Therefore, the authors chose this technique by establishing certain considerations or criteria that must be met by the samples used in this study.

Sampling Design

There are two important standards in shooting and determining sample size for data collection in this study, namely the principle of suitability and depth ([Utarini 2020](#)). The decision regarding sample size refers to the principle of saturation and the credibility of the data. Sampling using a purposive sampling technique. The main informants of the research in this study were midwives who used the MCH e-kohort application or users, the key informants were the Head of the Health Service Family Health Services Section, and the supporting informant was the head of the health center.

Research Variables

In this study, the focus of the study was on two main constructions of the Technology Acceptance Model (TAM), namely how the perception of usability and the perception of ease of use will affect the implementation of the KIA e-kohort application information system.

Inclusion Criteria

The criteria for determining the selection of informants (inclusion criteria) are as follows:

a. Willing to be interviewed as an informant.
b. The principal informants have operated the maternal and child health (MCH) e-kohort application.
c. Does not have a specific purpose or interest in research so that objective information can be obtained.

d. For the main informants, they have attended training or socialization on the use of the maternal and child health e-kohort application online or *zoom meeting* media.

Research Instruments

a. Observation

This technique is by making direct observations of the object under study, namely at the Bima City Health Center. This approach was chosen because it can use all data collection methods by building good relationships, and can be used to form relevant questions, and understand processes, events, and relationships in its social context ([Utarini 2020](#)). In this observation, researchers observed the use of the maternal and child health e-kohort application information system at the Bima City Health Center with the hope that the data obtained would be more complete. With this approach, it is hoped that researchers will obtain more complete and actual information.

b. In-depth Interviews

Interviews in this study used an *in-depth interview* type. The interview guide used is as follows:

1) How can implement the MCH e-kohort application on the MCH service section speed up your work?
2) How can the implementation of the MCH e-kohort application in the MCH service department improve your performance from the previous one?
3) How can implementing the MCH e-kohort application increase your performance productivity?
4) How can implementing the MCH e-kohort application make your work more effective?
5) How can implementing the KIA e-kohort application make your job easier?
6) How can implementing the MCH e-kohort application benefit your work?
7) How do you think the application of the MCH e-kohort is easy to learn in its use?
8) How do you think KIA's e-kohort application makes your job flexible?
9) How do you think KIA's e-kohort app can easily make you proficient or skilled in your tasks?
10) How do you think the KIA e-kohort app is easy to use?

c. Documentation

The documentation referred to in this study is the result of recorded interviews with users or users of the maternal and child health e-kohort application at the Bima City health center and documentation in the form of input of maternal and child health data conducted by users as evidence to strengthen those users have run and used the maternal and child health e-kohort application.

Data Analysis

In this study, the data analysis technique used was *thematic analysis.* Thematic analysis was chosen because it is a very effective method to explore in detail the qualitative data possessed to find the relationship of patterns in a phenomenon and explain the extent to which the phenomenon occurs through the lens of researchers (Yates & Partridge 2015). Even Holloway & Todres (2003) said that *this thematic analysis* is the basis or foundation for the benefit of analyzing in qualitative research. The stages of its implementation are shown in Figure 4.
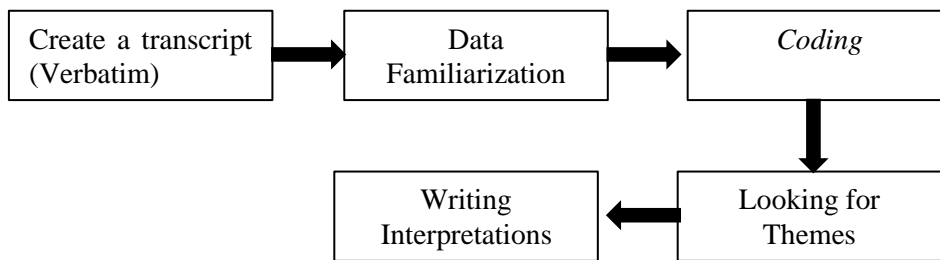

Figure 4. Data analysis steps

Result

Description of Research Informant

The informants in this study numbered 13 people. Data collection is carried out by in-depth interviews or in-depth interviews. During data collection, the means used to increase trust is source triangulation. To meet the criteria for timely feedback in this study, the analysis technique used is a qualitative thematic content analysis by describing predetermined categories. The interview was conducted with the Head of the Family Health Section of the Bima City Health Office because of his responsibility in managing the information system of the MCH e-kohort application, midwives who use the e-kohort system, and the head of puskesmas as supporting informants. Data collection with in-depth interviews is then compiled in the form of transcripts and coding carried out by researchers.

To maintain the rules of research ethics, the procedure for obtaining oral approval and anonymity is enforced and research ethics have been obtained from the Faculty of Medicine UGM. The interview starts from February 23, 2022, to March 01, 2022. Of the 7 puskesmas that were the object of the study, one of them did not meet the requirements for inclusion criteria in this study, namely the puskesmas had not run the MCH e-kohort application so the total number of puskesmas carried out data mining was 6 puskesmas. All informants have access to computers, cell phones, and the internet both at home and at the health center.

The most common age group of informants is 30 – 45 years, two informants are over 45 years old. Interviews are completed in an average of 10 minutes, during which time most research informants answer all questions relevant to their respective experiences. Table 1 provides detailed information about the characteristics of research informants.

Table 1. Characteristics of Research Informants

No	Initials	Age (year)	Position	Kind Informant	Gender	Education
1.	RA	32	User e-Kohort KIA	Main	Woman	Diploma IV
2.	AT	45	User e-Kohort KIA	Main	Woman	Bachelor
3.	MS.	39	User e-Kohort KIA	Main	Woman	Diploma III
4.	YF	36	User e-Kohort KIA	Main	Woman	Diploma III
5.	UH	35	User e-Kohort KIA	Main	Woman	Diploma III
6.	ST	33	User e-Kohort KIA	Main	Woman	Diploma III
7.	SW	39	Kasi Kesga	Key	Woman	Bachelor
8.	NR	48	Head of Puskesmas	Supporter	Woman	Bachelor
9.	AD	53	Head of Puskesmas	Supporter	Man	Bachelor
10.	FR	45	Head of Puskesmas	Supporter	Woman	Master
11.	AM	53	Head of Puskesmas	Supporter	Man	Bachelor
12.	NH	39	MCH Coordinator	Supporter	Woman	Diploma III
13.	RT	42	Head of Puskesmas	Supporter	Woman	Ners

Key Findings

Figure 5 and Figure 6 below show the results of the manual code with the help of the Nvivo 12 application which has the same contents grouped and named according to the meaning contained in the code.
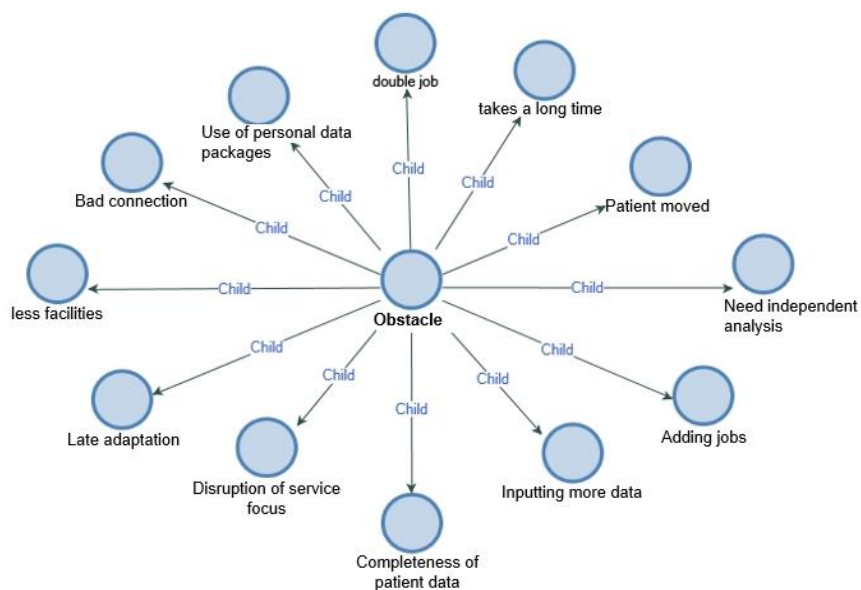
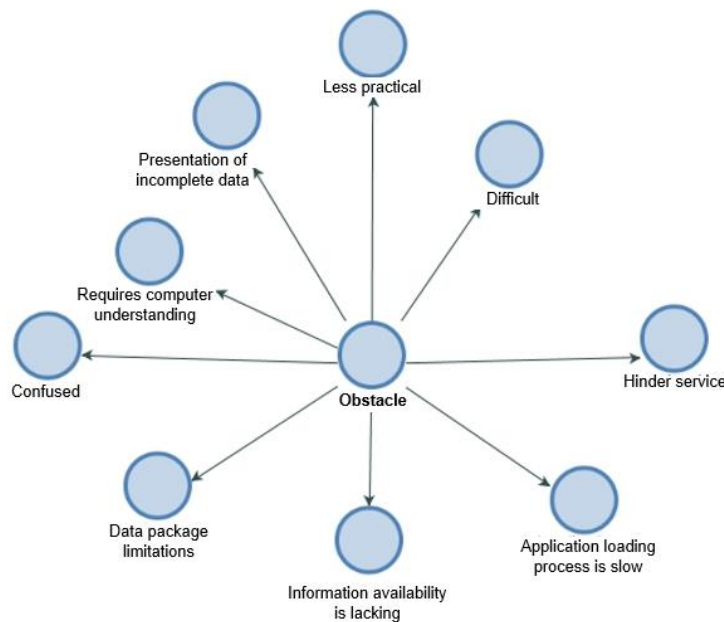**Figure 5. Grouping of barriers to perceived usability**

Figure 6. Grouping of barriers on the perception of ease of use

During interview sessions and in-depth observation, midwives can complete and demonstrate tasks using the core functions of the e-kohort app's navigation menu, including viewing information, entering data, and evaluating it. Most of the users can understand the features after a while of exploring the e-kohort.

The study proposes that perceived perceptions of ease of use may not be in line with perceived expediency to explain variations in the successful acceptance of MCH e-kohort applications. The study also found that there were differences in outcomes between user perceptions at the operational level and policymakers at the managerial level. In general, the analysis collected several types of obstacles and potential problems that negatively affect the usability of e-kohort applications namely: not being able to make the work of midwives easier and faster, ineffective, and not so much increased performance productivity. Regarding ease of use, users feel that the e-kohort can be easily learned and used.

Related obstacles to the use of e-kohort were conveyed by several different informants, namely:

"... don't speed up. In fact, it adds to the burden of time, and thoughts, we have recorded, already in the cohort, already in the register, the mother's card, and the patient's mother, then we must input again. So instead increase the workload. It makes it even more difficult with the addition of work" **(Informant 5)**

"... In our opinion, this e-kohort is to speed up work, it doesn't seem to be well. Why? Because when we finish the service, we are usually full of service. So, our service must be ANC up to standard, there are a lot of standards that we have to adhere to. Then if this e-kohort once the service is finished, it must be inputted, for example, for example, we must get pregnant women's examination services, we must input while there are other pregnant women who come to check on one pregnant woman, it takes a lot of time, om well. Then if the input after completion is for example network, network problems can also be, problems that do not have packages also because of that, you must use packages too. Use the personal package again om hehehehe. Personal plan. for example, the name is online, right, om whose name is input if for example suddenly an error, yes tired we have to repeat it again from the beginning" **(Informant 6)**

"... Ineffective. Double job and it takes a long time and cannot be done at the same time. It's very different if we use a manual one, we could have written right away at that service" (**Informant 2**)

"It has no effect on work productivity. Therefore, we still use the manual one as well for the recording, even more using the manual one. Not to mention that we have difficulties with patient data. So, this application demands complete data, but still, most of our patients who do not carry identities continue to exist from outside the region as well. So, well it makes it harder again" (**Informant 4**)

Data Source Triangulation

Triangulation of data sources is to explore the truth of certain information through various sources of data acquisition. In this case, the researcher conducted interviews with 6 supporting informants, namely 5 people including the head of the puskesmas and 1 KIA service coordinator, 6 main informants, namely users of the e-kohort application at the puskesmas and 1 key informant, namely the head of the family health service section of the Bima City Health Office. The interview process is carried out in different spaces and by being given the same type of questions to see the extent of similarity or similarity of answers. This method is expected to produce different evidence or data, which will further provide different views (insights) regarding the phenomenon under study. These views will give birth to freedom of knowledge to obtain reliable truths. To see the similarity of answers from various research informants can be seen in Figure 7.
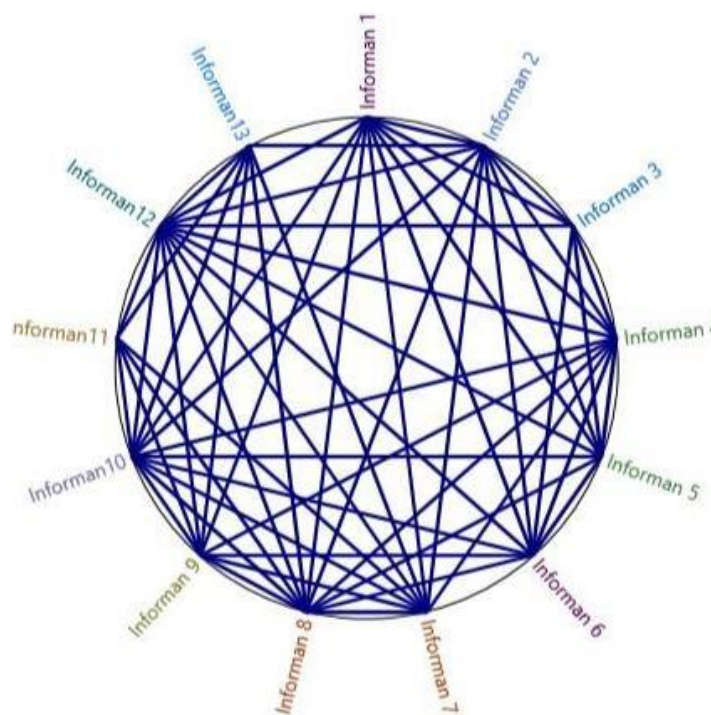

Figure 7. Items grouped according to word similarity

The reliability of this study was assessed using a similarity matrix between Pearson's correlation coefficient and Cronbach's alpha. The general reliability threshold is 0.7 as recommended by Ghozali and Latan (Ghozali & Latan 2015).

Based on figure 1 above, a very high degree of similarity was obtained, namely with an average value of >0.7 so it has a strong relationship. However, there are some whose alpha is <0.70 so in the picture above we do not find a line of connectedness, for example, one of them is informant 7 and informant 5. Despite this, its alpha is still >0.60 and under the provisions of Ghozali & Latan (2015) it is still tolerable

and still acceptable. , so it can be concluded that the results of the triangulation of this source have a fairly high similarity or similarity of answers.

Discussion

This study proposes that perceived perceptions of ease of use may not be in line with perceptions of usability to explain variations in the successful acceptance, absorption, and sustainability of the use of technology-based health information systems, namely *MCH e-kohorts*. Understanding how end users view the ease of use and usability of technology is important because these factors have been linked to the user's intention to adopt the technology (Davis 1989; Legris et al. 2003; Venkatesh & Davis 2000; Yi et al. 2006).(Legris et al. 2003)(Venkatesh and Davis 2000)(Yi et al. 2006) The study found that for users who experienced the ease of use of e-kohort applications, it does not actually bring about a change in the perception of usability that would then lead to higher acceptance. In a small percentage of cases, users say that the appearance, elements, features, and design are quite easy to use, thus increasing the sense of comfort in accessing, but e-kohort is considered by some users to be a system that hinders and makes the work of midwives more difficult.

This happens because no matter how easy the assumption is regarding the use of e-kohort applications, it does not bring changes to the perception of usability which will then lead to higher acceptance due to suggestion or rejection behavior in the first place. So that things that hinder the process of using the application will automatically weaken self-confidence and motivation in users. This is in line with what was conveyed by one user, namely "we are actually comfortable and used to the use of kohorts that were previously pak (manual). Not to mention that the burden of our duties is quite a lot, so with the use of this application from the beginning, friends have complained. In fact, there are also many midwife friends who from the beginning said we still use the old ones. So yes, we are no longer motivated to hear sir (informant 3)"

In addition, interoperability between applications is also an urgent demand in the development of technology-based information systems in Indonesia, especially in the field of MCH so that the principle of the continuum of care can be fulfilled (Pradita et al. 2022). This is due to the need for inter-field and multisectoral data in the context of policymaking to overcome problems involving data from various fields and between related sectors. While the current state of e-kohort applications, generally still sectoral, cannot communicate with each other applications, is heterogeneous and focuses only on maternal *health*. Although if this e-kohort application is successfully implemented, it will be the most complete maternal and child health database because the incoming data variables are the most numerous and can be the *data supply* for related parts such as infectious diseases and birth control services. So, this research also proposes the need to develop system interconnectivity with other systems, interrelated and interrelated with potential systems such as nutrition services such as e-PPGBM, care applications to protect, namely pedulilindungi applications, infectious and non-communicable diseases such as the PPTM application., immunization of schoolchildren and so on to improve the efficiency and utilization of use. This is also to support the achievement of digital health transformation activities, namely realizing one health record because the source of e-kohort data is sourced from individual data by prioritizing the principle of the continuum of care.

The presence of the KIA e-kohort application information system is not guaranteed to have a significant impact on the mentality of users who have been patterned about the complexity of new information systems that must be learned and applied in solving daily tasks. Although the purpose of implementing a technology-based information system is to improve work effectiveness and ease of work (Yulianti et al. 2015), the truth based on the context in the field in this study says another thing, namely inhibiting and complicating the work of midwives as users. Nonetheless, this study is still in the early stages of evaluating user acceptance of e-kohort applications and this is not the end of its journey. The use of e-kohort is still a work in progress and it could be that if re-evaluated the results will be different.

The study also found that there were differences in outcomes between perceptions of e-kohort users at the operational level and policymakers or users at the managerial level. If at the operational level, some of the main informants as e-kohort users say that the presence of an e-kohort application can add to the

burden, complicate, and hinder the work, is ineffective, and has no effect on work productivity but on key informants and all supporting informants at the managerial level as policymakers, then it is said otherwise that e-kohorts. The application is very helpful and supports their duties and authorities and has a positive impact on their performance.

This can happen due to differences in information needs at the operational and managerial levels. To make logical and rational decisions at the managerial level, it is necessary that accurate and timely information is very important and needed by the leaders of the organization. Through the implementation of the MCH e-kohort application, policymakers can quickly find out the success, impact, and constraints of MCH services by monitoring MCH service indicators (Susanto & Haryati 2019). On the other hand, decision-makers at the health facility level have an important role to play as they will be related to death, safety, and public health. Therefore, stakeholders must seriously strive to optimize this role so that the use of the e-kohort application information system is one way to facilitate decision-making that focuses on improving the degree of public health. According to Sigilipu (2013), the application of the information system will affect performance and decision-making at the managerial level (Sigilipu 2013). In terms of user aspects, the use of the MCH e-kohort application requires midwife skills as a user so according to Desvronita (2021) perceptions, beliefs, attitudes, knowledge, workload, and skills will affect the increasing interest in the use of new information systems (Desvronita 2021).

This study chose to focus on the two main constructions of TAM because there are still gaps or differences in results found by previous studies, also hypothesized as determinants of computer use. It has even been consistently reported as the main determinant influencing user behavior to use technology (Jing et al. 2020). These efforts have been successful in several ways, namely demonstrating a significant empirical relationship with self-reported measures of user behavior. Also, some new insights are generated about the perceived benefits and ease of use as determinants of user acceptance as a gradual process to achieve the successful use of new information systems (Nadal et al. 2020).

Previous research has shown that user acceptance of information systems has been identified as a problem. For example, Mikarsih et al (2020) and Hardiana et al (2022) recently stated that the perception of usability does not affect the acceptance of the use of computer-based information systems (Hardiana et al. 2022; Mikarsih et al. 2020; Nugroho et al. 2021). Perception of usability and ease of use (Nugroho et al. 2021) will largely depend on management support in the acceptance of the use of health information systems (Handayani et al. 2017), the perception of ease of use (Barzekar et al. 2019; Handayani et al. 2017).

Other literature also explains how perceived usability and ease of use can affect the acceptance of a system. For example, Mardiana et al (2015) says that the perception of usability is the strongest predictor in the reception of information systems. Perceived usability and ease of use can increase user acceptance in the adoption of technology-based health information systems so it needs to be considered in planning to run new systems (Garavand et al. 2017; Kowitlawakul 2011; Jo et al. 2017).

Similar qualitative studies include a model of acceptance of health information systems, but user responses in the study data were processed using SEM and AMOS 21.0 (Handayani et al. 2017). Another health application study measuring acceptance of the use of care applications (Usmanova et al. 2020) explores the perspectives of health providers and managers. Design, features, and functional elements will influence the improved ease of use and highlight the need for users to consider how the system can be easily implemented to optimize usability (Kurahashi et al. 2018).

The results of this study show that users still feel that organizational support is still low in the implementation of the MCH e-kohort information system at the Bima City Health Office and Health Center. This is indicated by several obstacles revealed by the research informant, such as double jobs, input outside of working hours, limited network availability, and the use of personal data packets. According to Nugroho et al (2016), the support of superiors or organizations in the implementation of the MCH information system refers to the encouragement given by the direct supervisor and manager of the information system. This should be a serious concern for supervisors and system administrators.

Active mentoring and supervision will condition users to always actively implement information systems (Nugroho et al. 2016)

This study has grouped themes based on indicators from each of the two main constructions of the Technology Acceptance Model (TAM) and then considered how the acceptance of midwives as users of the MCH group is related to each of those indicators.

Research Implications and Limitations

This research has provided an overview of how the perception of usefulness and perception of ease of use is felt by users of the MCH e-kohort application at the Bima City Health Center in recording and reporting maternal and child health services. From a theoretical perspective, the results of this study serve as indicators to reveal the level of acceptance of midwives as end users to the application of MCH e-kohorts in the context of recording and reporting MCH services using TAM. From a practical perspective, the use of the related MCH e-kohort application reported by users provides references and suggestions for special stakeholders within the Bima City Health Office and Puskesmas to make policies in minimizing various obstacles to potential failure and acceptance and use of e- KIA cohort in the field. For example, providing advanced training to minimize delays in the adaptation by midwives.

The challenges shown in this study also confirm the areas of improvement for the implementation of the MCH e-kohort application, such as facilitating the facilities and infrastructure of access devices that are used more widely to support the implementation of e-kohort applications. From a broader perspective, the use of technology-based health information systems is likely to become a growing trend in health services during the pandemic and even the post-pandemic era, with the government's consensual on the 2024 health digital transformation strategy.

The limitation of this study is that the midwife coordinator who is not willing to be an informant must select and sort out the midwives in the village who are outstanding and who are most active in using the e-kohort to be recommended to be informants in this study. This will tend to the selection of informants based on the emotional proximity of the recommender to affect the subjectivity of the information provided. In addition, the model proposed in this study also does not include all other TAM constructs and only 2 main constructs, namely the perception of usefulness and the perception of ease of use. Primary data sources are only from users and policymakers of the organizations studied, so other researchers in the future are also expected to explore perspectives from the patient's view as a service recipient.

When observed, the user is asked to input data on his e-kohort system. At the same time, users are more likely to express negative feedback and less likely to comment on features that are easy to navigate when interacting with the system. The study also did not schedule follow-up interviews to measure changes in their user experience. Thus, this data represents a point-in-time measurement. In addition, this study also did not measure user experiences that might be relevant when an application is studied.

Conclusion

For the perception of usability, some users feel that the presence of the KIA e-kohort application can increase the burden, complicate, and hinder work, is ineffective, and does not affect the work productivity of midwives. This is due to several things, namely (a) the network is not always available, (b) the use of personal data packets, (c) requires independent follow-up analysis, (d) the patient moves, (e) more input forms, (f) the input requires a process and takes a long time, (g) adds work, (h) incomplete patient data, (i) late adaptation, (j) the input interferes with the focus of other services, (k) dual work, and (l) lack of MCH e-kohort access devices

For the perception of ease of use, all user informants feel that the appearance, elements, features, and design are very easy, thus increasing the sense of comfort in accessing the KIA e-kohort application. This is due to several things, namely (a) detailed data, (b) detailed format, (c) systemized and automatic,

(d) flexible, (e) easy access, (f) clear filling format, (g) easy, (h) practical, and (i) only need the interest to use.

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