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PERSPECTIVE OF HEALTH WORKERS IN THE IMPLEMENTATION OF COMMUNITY HEALTH CENTER MANAGEMENT INFORMATION SYSTEM IN BUKITTINGGI CITY

Anisa Sri Utami[1], *Ropika Ningsih*[2], *Emi Pebriani*[2]

[1,2] Departemen of Nursing, Faculty Of Health Science, Muhammadiyah University Of West Sumatra, West Sumatra,Padang

[3] Departemen of Nursing, Faculty Of Health Science, Dehasen University Bengkulu, Bengkulu

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CORRESPONDING AUTHOR

***Anisa Sri Utami,**

email:anisautami95@gmail.com

ABSTRACT

Community health centers are the primary healthcare facilities in Indonesia, but many of the services provided are still of poor quality. Service quality can be described by patient waiting times and unintegrated patient data. This is due to inadequate infrastructure to support services. Therefore, the government has issued a policy for community health centers to use a community health center management information system. The purpose of this study is to determine the perspectives of health workers in implementing a community health center management information system. The method used is descriptive qualitative with a centralized interview approach. The participants of this study were 14 health workers taken by purposive sampling. The location of this study was three community health centers in Bukittinggi City, namely the Nilam Sari Community Health Center, the Guguk Panjang Community Health Center, and the Tigo Baleh Community Health Center. This research instrument used an interview sheet and data were collected through semi-structured interviews with data analysis techniques through the use of thematic content analysis. The results of this study are described in two themes: the first theme of the information system facilitating work and improving the quality of services in community health centers and the second theme of obstacles to using the community health center information system consisting of infrastructure constraints such as network and application errors. Thus, it was concluded that the implementation of the community health center information system supported services at the community health center, but there were several obstacles during use, such as network and application errors. Therefore, the researchers hope that this research will be continued with the design of an adequate community health center management information system application by integrating other applications.

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INTRODUCTION

Health services are important public services that must be well organized by the government [1]. Services are well organized by meeting requirements such as the availability of infrastructure, connectivity between patients and service providers, ease of access, and a high level of satisfaction. Health services in Indonesia according to the Ministry of Health (2020) consist of primary health services, namely Community Health Centers, Primary Clinics, Independent Practices of Doctors and Midwives, the second health service is secondary health services, namely hospitals [2]. Regulation of the Minister of Health No. 43 of 2019 concerning Community Health Centers referred to as community health centers are first-level services that provide services in the form of promotive and preventive in their working areas [3]. Therefore, in the implementation of good services, adequate infrastructure is needed so that excellent service is realized.

The change of the era towards technological transformation requires technology-based infrastructure. So that community health centers (PUSKESMAS) must balance the development of the technology-based era in supporting public services. The Indonesian government is developing services based on information systems and technology called the puskesmas management information system (SIMPUS) which is regulated in the Minister of Health Regulation No. 31 of 2019 [4]. Regulation of the Minister of Health No. 31 of 2019, which states that to improve the management of health center management, it is necessary to have the support of a health center information system that is able to guarantee the availability of data and information quickly, accurately, up-to-date, continuously, and accountably [5].

SIMPUS is a Health Center Management Application whose main function is to manage patient data starting from registration, registration, examination (diagnosis) and patient treatment. The benefits of SIMPUS are to simplify and accelerate services, form service procedures and standards and obtain accurate information data. SIMPUS is expected to improve health center management more effectively and efficiently. The SIMPUS data processing procedure is based on timely, accurate, complete and effective information technology to support the management decision-making process [6]. The existence of computerized SIMPUS will greatly assist officers in presenting information quickly, accurately and reliably, so that the information presented at the health center can be used for decision making at various levels of the health system and various types of health management, so that it can improve the quality of service to the community [7]. According to Hakam (2024), the community health center information system provides information to assist the decision-making process [8]. Therefore, to improve the performance of SIMPUS, or the community health center management information system, an evaluation of the existing system is necessary to identify positive aspects that encourage its use and identify factors that create obstacles[9].

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Based on data from the Central Statistics Agency (2021), the number of Public Health Centers (PUSKESMAS) in Indonesia reached 10,260 units and each unit has been encouraged to implement an information system at the health center (Mahdi, 2021). The implementation of the health center management system in Indonesia has been partly successful and some have failed. This is supported by [10], in Kebumen Regency, the health center management information system is no longer used in several health centers. Tiara & Subinarto, (2019) at the Kalimas Health Center, Randudongkal District, Pemalang, the Pemalang Regency Health Office has socialized the implementation of SIMPUS in 2016, but currently the Kalimas Health Center no longer uses SIMPUS [11]. The Sarolangun Regency Health Office said that from 2018-2020 SIMPUS had been implemented in 13 health centers out of 16 health centers in Sarolangun Regency. However, since early 2021, the use of Simpus has no longer been carried out [12].

The failure of this implementation can be influenced by several functional, organizational, behavioral, technical, managerial, political, cultural, legal, strategic, economic, educational and user acceptance systems [13]. Research another said that the disuse of the health center management information system was influenced by human resource factors, implementation methods, supporting materials, infrastructure and funding sources that were not yet appropriate [11]. Other research suggests that errors in the implementation of the Community Health Center Management Information System (CMS) are caused by incorrect input, the lack of verification and rechecking before payment, and system errors [14]. The results of this study are quantitatively illustrated by several other studies, thus highlighting the need to qualitatively assess the perspectives of healthcare workers regarding the implementation of the CMS.

Qualitative research describes the CMS management information system, specifically the evaluation of healthcare workers' use of the CMS, which concluded that it provides benefits in their work processes [15]. Amelia (2024) stated that the implementation of the CMS management information system can be improved by addressing obstacles in human, organizational, and technological aspects. These studies have not yet comprehensively described the use of the CMS information system from the perspective of healthcare workers and are still focused on a single research site [16]. Therefore, the researcher wants to expand on other research on the perspectives of healthcare workers on the use of the CMS information system at three community health centers (PUSKESMAS) in Bukittinggi City.

METHOD

This study uses a descriptive qualitative design focusing on healthcare workers' perceptions of information system implementation in community health centers. The study used a systematic qualitative research method using the COREQ (Consolidated Criteria for Reporting Qualitative Research) checklist [17]. Fourteen healthcare workers participated in the study, using a purposive sampling technique. The

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study took place at three community health centers in Bukittinggi: Nilam Sari Community Health Center, Guguk Panjang Community Health Center, and Tigo Baleh Community Health Center.

The research instrument used an interview sheet, with in-depth semi-structured data collection techniques focused on healthcare workers' perceptions of information system implementation in the community health centers. The researcher created a semi-structured interview guide containing the following questions: 1) What kind of information system is currently used in the community health center? 2) How do you feel about using the current information system? 3) Does this information system make your work easier? 4) What benefits do you experience when using the community health center information system? 5) What obstacles do you encounter when using the community health center information system? Conversely, with each respondent's response, the number of questions increased until saturation reached 24 participants.

Before data collection, the researcher obtained official permission to visit the hospital. Participants were asked for consent before the interviews were recorded by the researcher, who then conducted face-to-face interviews with participants. The researcher conducted interviews on average for 10-20 minutes. The researcher gave participants the opportunity to explore their perceptions of using the community health center management information system. The data analysis technique used manual coding to conduct thematic analysis to identify and report themes in the interview transcripts [21]. Data saturation was confirmed when no new codes were found for other themes. Interviews were recorded using an audio-visual recorder, and verbatim transcriptions were conducted live and validated by listening back to the recordings by the researcher. Each interview and transcript were reviewed, analyzed, and discussed collectively by all researchers. Participants in the study were coded P1–P24.

Data analysis of the interview transcripts was conducted by the interviewer in Microsoft Word and assessed by the other interviewee to ensure accuracy. Based on the transcripts, coding and data analysis were conducted by two authors. The data were analyzed using Colaizzi's seven-step method approach, which is used as a data analysis step. This includes the following steps: 1) reading and rereading transcripts from participant recordings; 2) identifying key statements relevant to the phenomenon being studied; 3) characterizing and classifying each meaning; 4) collecting all key repeated ideas; 5) developing and articulating the meanings from the received meanings; 6) incorporating and categorizing shared meanings into topics; and 7) providing the results back to the participants for validation. In the verification stage, all authors verified the data to obtain the true meaning of the research results and agreed with the results of the data analysis.

This study uses credibility, confirmability, dependability, and transferability as the validity and reliability processes. Credibility was achieved through source triangulation and member checking, including direct observation, field notes, and medical records. In this study, confirmation was achieved by sending interview findings in the form of results obtained and then requesting feedback to obtain approval

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from participant representatives. Transferability was achieved by refining the research findings and then providing a narrative explanation of the interview findings.

RESULTS AND DISCUSSION

This study involved 14 participants with the following characteristics (Table 1):

Table 1. Characteristics of the study participants

Characteristics	n	%
Education		
Diploma III	10	71%
S1	2	14.5%
Profesi	2	14.5%
Employment Status		
Civil Servant	11	78.5%
Contract	3	21.5%

Based on the table above, it was found that the majority of participants' education was diplomas in the health sector, amounting to 10 people (71%), and the majority of participants' employment status was civil servants/first aid workers, amounting to 11 people (78.5%). The results of this study showed that there were two themes that were discussed separately, obtained through structured interviews with participants. These themes were arranged based on categories found from several keywords mentioned by 14 participants regarding health workers' perceptions of the use of the health center information system. These themes can be explained in detail using the following diagram:

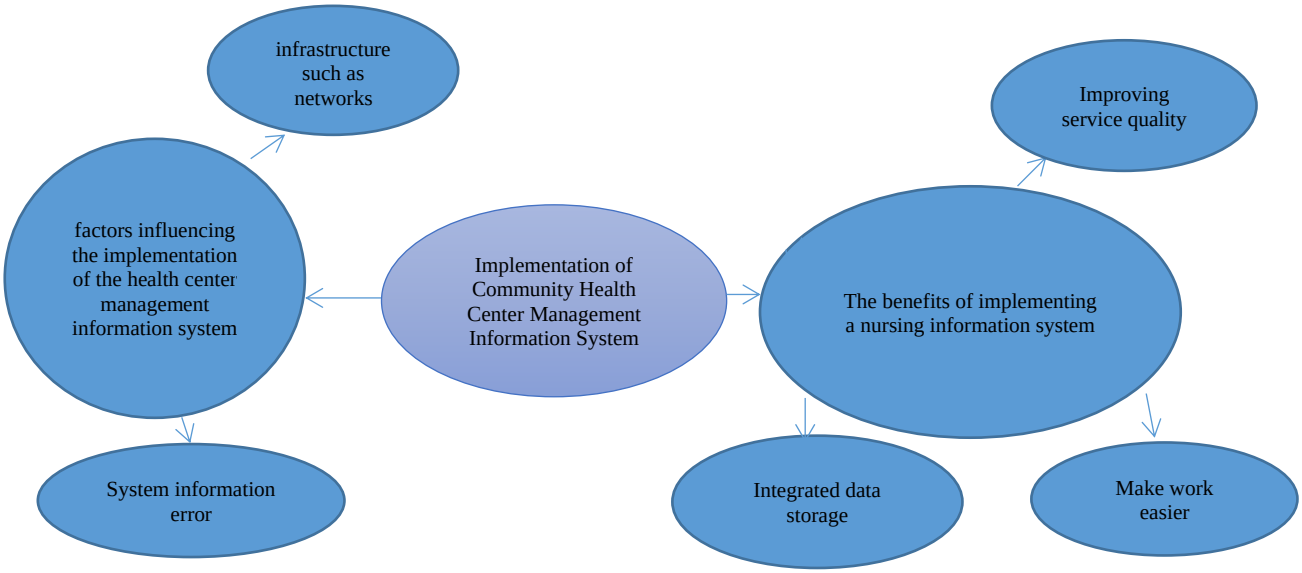

Diagram 1. Research theme

Based on the diagram above, two themes emerged. *Theme 1*: Participants perceived that implementing a nursing information system provided performance benefits, including streamlining work, integrated data storage, and improved service quality. This theme is structured into three categories: (category 1) streamlining work, (category 2) secure and integrated data storage, and (category 3) improving service quality.

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Category 1 was derived from statements by 10 participants who stated that the community health center information system made their work easier. This is reflected in the statements "…makes it easier to store and send data" (P3), "…makes it easier to input and retrieve reports" (P12), and "…makes it easier to carry out administrative services" (P13).

Category 2 was obtained from statements by 10 participants who mentioned secure and integrated data storage. This was reflected in the statements "…Data is stored neatly and is not easily lost" (P2), "…Medical records are recorded, and patients are easily accessible" (P11).

Category 3 was obtained from statements by 10 participants who stated that the information system improves service quality. This was reflected in the statements "…service for patients, so they receive maximum service" (P13), "service for patients, so they receive maximum service" (P14).

This is supported by research conducted by (Suary, 2024) the implementation of SIMPUS increases the efficiency and effectiveness of services. The electronic system implemented in health care facilities certainly aims to improve the quality of services provided to visitors or patients. The main impact of the use of SIMPUS on medical record services is the acceleration of service time, which is more efficient than before SIMPUS was implemented. In addition, the existence of a database that stores patient data greatly facilitates services, because there is no need to search for medical record files manually. Simply by searching for it on the computer, the service process becomes more efficient and of higher quality [1]. This finding supports the results of research by [18], which shows that system integration increases process efficiency and reduces administrative burden. Although this system has accelerated services, there is still room for improvement regarding system stability and user training.

The use of a health information system can improve the performance of several healthcare workers at community health centers, including those in the registration, general health department, pediatric health department, elderly health department, and pharmacy departments. However, the maternal and child health, dental, psychology, and laboratory departments have not yet benefited from the system's use [19]. Ramadhan (2020) stated that the Puskesmas management information system provides benefits such as simplified and integrated reporting, and is effectively implemented to improve services [20]. Other research also indicates that the Puskesmas management information system provides benefits such as accelerating administrative work, increasing efficiency, and providing relevant information [15]. The implementation of a Puskesmas management information system is perceived to benefit healthcare workers' performance, particularly by simplifying reporting. Therefore, if performance is good, it can effectively improve services at Puskesmas.

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The second theme highlighted participants' perception that information system implementation can be affected by inadequate infrastructure, such as network and system errors. This theme was structured into two categories: (category 1) network constraints and (category 2) information application system errors.

Category 1 was derived from statements by 14 participants who stated that the implementation of the information system at the community health center was affected by the network. This was reflected in the statements "...A frequently disconnected or unstable network causes slow data input processes" (P8), "...It will take longer to complete the work if there is no network, because accessing data in this application requires a stable network" (P6).

Category 2 was derived from statements by 10 participants who stated that the implementation of the information system at the community health center was affected by information application system errors. This was reflected in the statements "...The application sometimes has errors" (P11), "...The application sometimes suddenly crashes or cannot be accessed" (P13).

This is supported by Alfian's (2020) [21]research on E-Puskesmas at the Health Center, Padang City, it was found that the most common obstacles faced were network problems when entering patient data and the inability of officers to use the computerized system. This resulted in the implementation of data input and reporting at the Health Center being carried out in two ways, namely electronically (E-Puskesmas) and manually. So that not all data is entered on the same day every day [12]. One of the causes of the failure of the implementation of the health center information system is due to unsupported facilities and infrastructure [10]. Prasorojo (2024) said that infrastructure factors also play an important role in the success of the implementation of SIMPUS [22]. In several research results conducted showed that the availability of an unstable and optimal network is an obstacle to the use of SIMPUS [23], [24], [25], [26], [27]. Research by Haniasti et al., (2023) revealed that the use of one wi-fi network causes signal interference that prevents the entire building from getting internet service and has an impact on officers having to wait a long time to enter data [28]. Research by Wardani, (2018), conveyed that network interference has an impact on the process of sending patient registration to the center or the City Health Office becoming slow and disrupted [29].

The author found stating that the main facilities in the form of limited computers and insufficient server capacity made the operation of SIMPUS quite hampered [30], and in the research [11], the limited supply of computers in the patient reception area which is the main tool in running SIMPUS is an obstacle in technological factors. In utilizing information systems, management or organizational administrators must also know the conditions and accessibility of the current infrastructure. This is because even with a strong application, the management information system will not function optimally if it is not supported by adequate infrastructure or technology [31].

Another obstacle in implementing SIMPUS is the technological factor [32]. In the research of it was stated that SIMPUS has less controlled data security [33][34]. In the research of Nurrul Ainy, (2022), it

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was stated that the system did not display some relevant, brief, concise, clear information with the inputted data [35]. In addition, the research of Utami & Musyarofah, (2022), also stated that the SIMPUS display is still less efficient in terms of appearance because the display looks simpler, monotonous, and the background color is brighter so that it affects eye health[24]. This was not mentioned in the research of which said that the interface display and design of the information system were less comfortable and difficult to understand [29]. Research by Jonny et al., (2021), stated that the absence of antivirus updates, data backup, and security of SIMPUS data and IT assets, and the system requires more financial supplies because it requires online support such as software for virus and malware protection is an obstacle in the implementation of SIMPUS at Health Centers in Indonesia [33]

Conclusion

The perspective of health workers on the use of the Community Health Center Management Information System in Bukittinggi City is that the information system simplifies work and improves the quality of services at the Community Health Center. During implementation, obstacles were encountered consisting of infrastructure constraints such as network and application errors. Therefore, the use of the Community Health Center Management Information System requires the involvement of all parties, such as support from the local government by creating policies in the form of regulations related to the implementation of the Community Health Center Information System and optimizing the budget to upgrade the information system adequately in terms of the web and network.

Author Contributions

This research was conducted by all authors with their respective duties and roles. Author 1 designed the initial research draft, collected data and conducted a literature review. Author 2 played a role in analyzing the data. Author 3 played a role in creating the article and revising the article.

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