

Recording and Reporting Information System for Maternal Health Monitoring (Literature Review)

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ABSTRACT

The Maternal and Child Health (MCH) program is a health program in Indonesia that aims to improve the health and welfare of mothers and children as stated in Permenkes number 4 of 2019. To support the implementation of the program requires technology in the form of information systems. Information systems are designed to help health workers manage maternal and child health more effectively. Delays in data collection, incomplete filling and long time in presenting data are one of the reasons why a maternal health information system is needed to run optimally. The purpose of this study was to describe the recording and reporting of maternal health monitoring activities. The method used is a literature review based on the PRISMA flow. The results of the health information system research are able to provide the right, accurate and up-to-date quality of information data so as to improve the efficiency and effectiveness of services and facilitate evaluation and help health workers manage maternal health more effectively. The running of an information system will depend heavily on human resources to utilize the information system and produce records and reports to improve the performance of users of the system

INTRODUCTION

Minimum Service Standards (MSS) in the health sector as stipulated in Permenkes number 4 of 2019 have 12 types of service indicators, one of which is Maternal and Child Health (MCH) services which include maternal health services, delivery health services and newborn health services (Kemenkes RI, 2019). The Maternal and Child Health (MCH) Program is a health program in Indonesia that aims to improve the health and well-being of mothers and children. The Maternal and Child Health Program provides various health services such as antenatal care, postnatal care, immunization, and family planning (Harwijayanti et al., 2023). To support the implementation of the KIA program requires technology in the form of information systems.

A health information system is a series of interrelated arrangements in the form of data, information, indicators, procedures, devices, technology, and human resources (Handayani, 2020; Hidayat, 2020). The information system aims to facilitate the collection, processing, and analysis of data related to maternal and child health services that can improve the efficiency and effectiveness of services and facilitate the evaluation of maternal and child health (Martunus et al., 2019). The information system is designed to help health workers manage maternal and child health more effectively. Features such as data collection, recording and reporting, maternal health monitoring, and other health information aim to improve maternal and child health in Indonesia. Delays in collecting and incomplete data required result in inaccurate decision-making. (Martunus et al., 2019).

Maternal health program assessment aims to monitor the development of maternal health services at the service site. Delays in data collection, incomplete filling and long time in presenting data are one of the reasons why a maternal health information system is needed to run optimally. (Hizriansyah et al., 2023; Martunus et al., 2019; Ngemba & Syahrullah, 2018). The advantages of utilizing the use of recording and reporting information system applications are to be able to produce and help improve user performance (Bimaniar et al., 2018).

The use of information systems depends on the level of readiness of the users themselves to be able to accept it. The application of the system will be successful if the system can and is able to provide convenience based on the background, the purpose of this study is to describe the recording and reporting of maternal health monitoring activities.

LITERATURE REVIEW

Literature review is a form of scientific study that is focused on a particular topic and is at the top of the hierarchy of evidence (Cahyono et al., 2019) Literature review is a scientific technique or process to provide evidence or produce output in the form of a report focused on a study. Several stages of the process in preparing scientific literature. There are several stage processes in preparing scientific literature, first, finding relevant literature, second, evaluating the source of the literature review, third, identifying themes, fourth, analyzing the gap between theory and conditions in the field, fifth, outlining and compiling a literature review discussion (Cronin et al., 2008).

METHODOLOGY

This study uses the literature review method in the form of identification, evaluation and interpretation of all relevant research results related to maternal health information systems. Literature review in this study applies the PRISMA literature selection systematic or *Preferred Reporting Items for Sistematic Reviews and Meta-Analyses*. The criteria for studies reviewed in this article are articles or journals published in the last 8 years (2015-2023).

The research began at the identification stage by searching for journals with keywords: "Health Information Systems", "Recording and reporting" and "Maternal Health", then screening was carried out from Google Scholar and Garuda and found 12 articles that were in accordance with the issues raised, then at the eligibility stage, the results of the comparison of reference literature were summarized which were adjusted to the research objectives of the literature review and finally conducted further discussions in the literature review regarding Information Systems in the field of Maternal and Child Health.

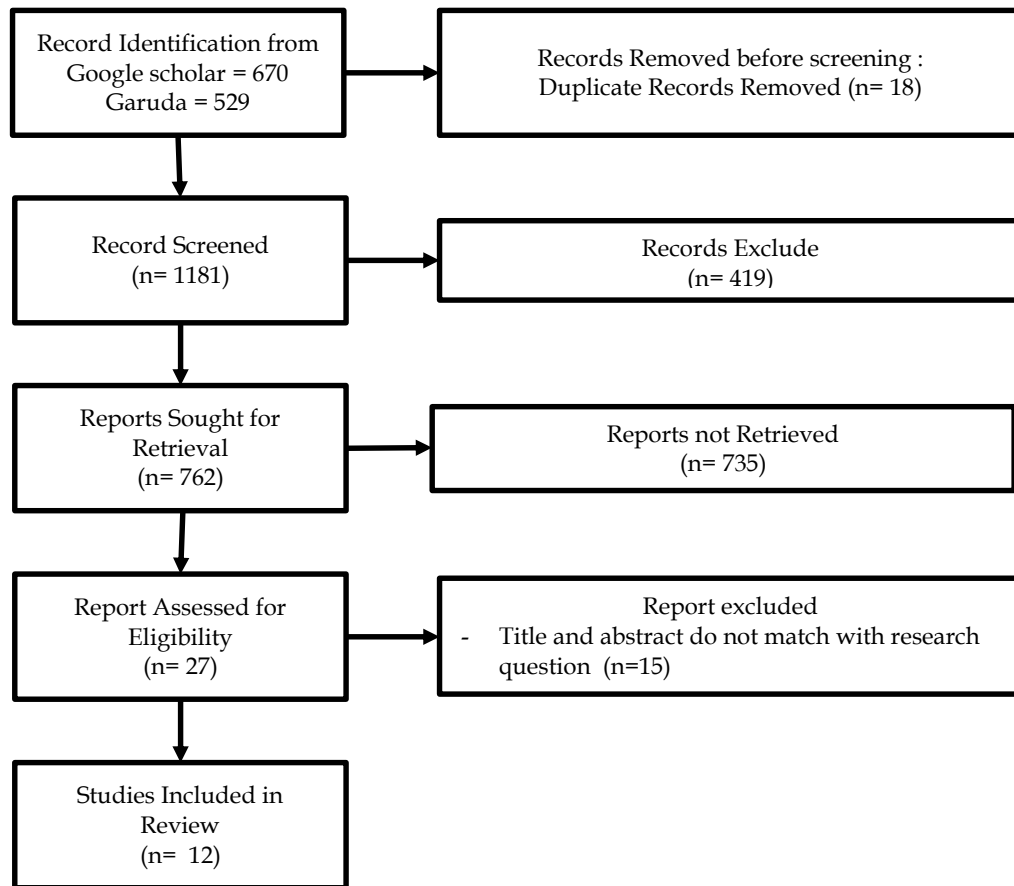


Figure 1. PRISMA Flow Diagram

RESULTS

Table 1. Scientific Article Selection Results

N	Title	Author	Purpose	methods	Result
1	Application of E-Cohort Register of Maternal and Child Health (MCH) at Puskesmas Nosarara Palu City	(Ngemba & Syahrullah, 2018)	Creating an application to assist midwives in services at the health center	Prototype method using <i>Borland dephi</i> and <i>MYSQL</i>	Creation of an e-cohort register application, facilitating midwives in searching data on MCH patients, both new patients and old patients who often visit, medical record data is obtained quickly and accurately.
2	Acceptance Analysis of Electronic Kohort	(Hizriansyah et al., 2023)	To determine the success of e-cohort	Qualitative research with a phenomen	Perceptual differences between operator and managerial levels. There are negative

	Information System for Maternal Child Using Technology Acceptance Model at the Bima City Health Centre		application acceptance	ological study design	constraints on the usefulness of the e-cohort application, making midwives' work not easier and faster, ineffective, not really increasing the productivity of midwives' performance.
3	Development of Android-based Pregnant Women Cohort Check Monitoring Application	(Mustakim et al., 2019)	Develop an android-based application that can provide information on the results of cohort examinations for pregnant women and children, as well as monitor the results of the examination and schedule the next visit.	Research using JSON (<i>Java Script Object Notation</i>) with API (<i>Application Program Interface</i>)	The development of e-cohort applications is useful for providing information on the results of cohort examinations of pregnant women and children as well as additional information about fetal development.
4	Evaluation of Acceptance of Maternal Health Service Information Systems using the TAM Method at the Bungo District Health Office	(Martunus et al., 2019)	Evaluate the acceptance of the maternal health service information system	Analytic observational research	Perceptions of convenience affect attitudes and interest in using maternal service information systems, perceptions of usefulness also affect attitudes and interest in using maternal service information systems.
5	Development	(Ulfah	Monitoring	Descriptiv	The development of an

	of Information System for Monitoring Pregnant Women at Risk in Puskesmas Ngemplak Simongan Semarang City	Fachrun Nisa & Kurniadi, 2016)	of at-risk pregnant women at health centers, providing information on risk factors for pregnant women, high-risk factors for pregnant women, treatment during pregnancy and childbirth	e qualitative research by applying the system development life cycle method	information system for monitoring at-risk pregnant women facilitates recording, reporting and delivery.
6	Determinants of Si-Cantik Application Utilization as an Effort to Reduce Maternal and Infant Mortality in Sidoarjo	(Nisak et al., 2021)	Determining factors that influence application utilization through perceived organizational support and behavioral intentions with TAM theory.	Observational research with a <i>cross-sectional</i> approach	Personal characteristics, perceived organizational support, ease of use of the application are determinants of the successful use of the Information System to Prevent Maternal and Child Mortality (Si Cantik) in Sidoarjo.
7	Midwives' Knowledge of Digital Maternal Cohort Compared to Manual Maternal Cohort in Bengkulu City	(Maulani & Nababan, 2021)	Analyzing the effectiveness of digital cohorts compared to manual cohorts	Quasi-experimental method, the research used the "Nonequivalent Control Group Design"	The use of digital maternal cohorts improves midwives' performance over the use of manual maternal cohorts

				design.	
8	Analysis of Maternal and Child Health Information System in the Working Area of Musi Banyuasin District Health Office	(Ratnasari et al., 2015)	Analyzing the MCH information system in the working area of the Health Office	Descriptive research with a qualitative approach	There is no specific policy governing the implementation of MCH information systems, special funds and information technology equipment specifically for MCH information systems, the need for efforts to increase competence in SIK and ICT, there is a lack of MCH data collection, data sources only come from puskesmas, there are still delays in collecting reports and there are Puskesmas that use manual methods.
9	Acceptance of the Online MCH Information System in Cengkareng District with the TAM Method	(Suriatno et al., 2022)	Knowing the description based on the dimensions of the Technology Acceptance Model (TAM)	Quantitative descriptive research	User perceptions of the online maternal and child health book information system are running well and are useful for generating information, making it easy enough so that users feel satisfied with this system.
10	The Effect of Perceived Ease of Use and Perceived Usefulness with Intention to Use Maternal and Child Health Surveillance Management Information	(Bimaniar et al., 2018)	Analyzing the effect of perceived ease of use and perceived usefulness on intention to use SIM Surveillance KIA.	Analytic descriptive research with <i>cross-sectional</i> study design	There is a relationship between perceived convenience and perceived usefulness with the intention to use MCH Surveillance MIS, there is an effect of perceived usefulness on the intention to use MCH Surveillance MIS, and there is no effect of perceived convenience on the intention to use

System				MCH Surveillance MIS.	
11	Analysis and Design of Information Systems for Maternal and Child Health Programs at Puskesmas Lingkar Barat Bengkulu City	(Ramadani et al., 2022)	Analyze and design maternal and child health information systems	Descriptive qualitative	The creation of an application to facilitate data processing into a maternal and child health report
12	Si-Bidan: Maternal and Child Health Information System	(Kusuma et al., 2019)	Facilitate midwives to record, report and submit information and facilitate the monitoring of maternal and child health development.	Using the water-fall software development model	This system is able to meet the needs of midwives and mothers.

DISCUSSIONS

System is an element that is interrelated to form a totality. One of the theories of information system use that is very influential and can be used to explain individual acceptance of the use of information systems is the information acceptance model which is an information system acceptance model that will be used for eaters. The health information system is a set of interrelated and integratedly managed arrangements in the form of data, information, indicators, procedures, devices, technology and human resources. (Handayani, 2020; Hidayat, 2020).

The use of information systems in the health sector can provide convenience in obtaining accurate and precise data and information (Ayu Indah Rachmawati, Ratna Dewi Puspitasari, 2017; Yani, 2018), An important component of the causes of high maternal mortality is the availability of accurate, precise and up-to-date information (Wicahyono et al., 2019). Manual recording must be changed using an information system in order to improve faster and more accurate data access (Lazuardi et al., 2021). The use of technology-based information systems provides benefits in making better

planning so that it can assist in decision making (Davlyatov et al., 2020; Sadoughi & Erfannia, 2017).

The utilization of information technology systems in their use depends on the readiness of the system users themselves. User attitudes will affect the success of a system (Suriatno et al., 2022). In TAM theory, it states that the desire for individual behavior to use a system is determined by the belief that a person believes that the system is able to provide benefits so as to improve the performance of information technology (Perceives usefulness) and (perceived ease of use) the ease of use of the system (Davis, 1989).

The results of the study (Martunus et al., 2019; Mustakim et al., 2019; Ngemba & Syahrullah, 2018) state that the information system gets fast and accurate medical record data, facilitates the search for data on patients both new and old patients. information systems can simplify the process of inputting data and speed up data transmission. so that information systems can be used as a tool to monitor at-risk pregnant women so as to reduce the risk of pregnant women and maternal mortality (Ulfah Fachrun Nisa & Kurniadi, 2016). Information systems as a determining factor in the successful utilization of information systems to prevent maternal deaths (Nisak et al., 2021). These results are not in line with research conducted by (Hizriansyah et al., 2023) which states that the use of information systems finds several obstacles and problems that have a negative impact on the use of information system applications and do not really increase work productivity and are considered information systems complicate and hinder work. Making service reports and searching for data is faster, more precise and accurate by using an information system (Ngemba & Syahrullah, 2018). The result (Maulani & Nababan, 2021) state that most midwives can use the information system and the rest are still manual. The use of information systems needs socialization (Suriatno et al., 2022).

CONCLUSIONS AND RECOMMENDATIONS

The health information system is able to provide the right quality, accurate and up-to-date information data so as to improve the efficiency and effectiveness of services and facilitate the evaluation of maternal and child health, helping health workers manage maternal and child health more effectively. The running of an information system will depend on human resources to utilize the information system and produce records and reports to improve the performance of users of the system.

This article is to add insight and serve as a reference for other researchers who have similarities with different objects, so that research can make a better contribution.

FURTHER STUDY

This article can be useful for other researchers to develop or conduct research related to health information systems.

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This article is far from perfect, hopefully it can add insight for yourself and related parties and the general public.

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