

WEB-BASED PREGNANT WOMEN'S HEALTH RECORDING INFORMATION SYSTEM

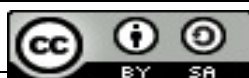
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ABSTRACT

Integrated Health Posts are basic health services for pregnant women. Currently, services at Posyandu, including registration and recording of examination results, are still performed manually, written in a maternity register. This makes data processing difficult and reports inaccurate. This research aims to design a website-based information system to assist cadres and midwives in more efficient registration, recording, data processing, and reporting. This research is a descriptive study with observation and interview data collection methods using a cross-sectional approach. The subjects in this study were village midwives and cadres, while the object of this research was the flow of recording and processing data on pregnant women. The method used was the development of the System Development Life Cycle (SDLC), which is the process of designing and creating a system, as well as the methodology used to develop the system. The website-based maternal health information system was developed using the PHP programming language and MySQL database. The resulting output is a report on the processing of pregnant women, as well as examinations and immunization data. The results of this study indicate that the application of the developed information system can facilitate staff in registering, recording, processing, and reporting, thus providing optimal pregnancy registration services.

KEYWORDS

information system, pregnant women, Website



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INTRODUCTION

Health is a crucial factor in human life, influencing quality of life and productivity. Health is not just a medical or physical issue, but also encompasses psychological and social aspects that support individual well-being. One way to improve public health is

through community-based health care systems such as Integrated Service Posts (Posyandu). Integrated Health Posts (Posyandu) play a crucial role in supporting community health services. They are a form of community-based health effort managed and implemented by, for, and with the community in health development. They facilitate and empower the community to access services such as child growth monitoring, maternal health checks, immunizations, nutrition counseling, and early detection of health problems.

Maternal health is a priority for improving the quality of life. In Indonesia, maternal and infant mortality rates remain a challenge, particularly in rural areas. Based on data from the Maternal Perinatal Death Notification (MPDN), the number of maternal deaths in Indonesia reached 4,129 in 2023, and the number of infant deaths in 2023 was 29,945. Posyandu, as a community-based health service, plays a crucial role in providing maternal and child health services. However, the implementation of this program is often hampered by manual recording, lack of data integration, and limited access to information, often hindering the effectiveness of services.

Maternal health services at integrated health posts (Posyandu) are still largely manual, involving the active role of cadres and midwives in routinely monitoring and supporting pregnant women. Cadres and midwives are tasked with recording examination results and compiling reports on maternal health data to optimally monitor pregnancy progress. This impacts the length of service time for each pregnant woman and increases the risk of recording errors, data corruption, and data loss. Furthermore, midwives experience difficulties in monitoring maternal health developments in real time and in obtaining integrated data from all Posyandus in a village. Therefore, a website-based maternal health information system is needed that can simplify the process of recording, processing, and reporting, as well as presenting accurate and centralized data as a basis for decision-making in maternal health services.

The development of a website-based maternal health information system can be a solution to the aforementioned problems and improve service quality. This system not only enables more efficient data processing but also supports real-time communication and consultation between pregnant women, Posyandu (Integrated Health Post) cadres, and health workers.

The website-based maternal health information system is designed to simplify the processing of maternal health data. This system integrates various health services for pregnant women with the aim of monitoring health and providing more efficient health information and education. This information system can be used to record and monitor the health development of pregnant women, making it more flexible, efficient, and structured.

RESEARCH METHOD

The research method used was descriptive with a cross-sectional approach. The subjects were village midwives and Posyandu cadres in Beji Tulung Village, Klaten. The object of this study was the data recording and processing process for pregnant women at the Posyandu. Data collection techniques used were interviews and observation

The system development method used in this research is the System Development Life Cycle (SDLC) with the Waterfall model, namely a systematic and sequential software development model, where each stage must be completed before proceeding to the next stage.

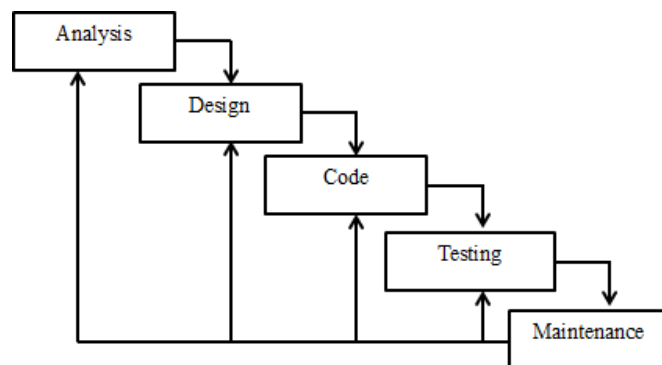


Figure 1. SDLC

The stages of the Waterfall model in this study include:

1. Analysis

In this stage, information is collected regarding the maternal health registration and data processing system. The analysis phase yields various insights into system requirements.

2. System Design

In this stage, the analysis results are transformed into a detailed description of the requirements. The researchers analyze the interactions between objects and functions in the maternal health information system to be developed. This system design includes user interface design, database design, and system process flow. The diagrams used in this design include Data Flow Diagrams (DFDs) to illustrate data flow within the system, Flowcharts to describe work processes, and Entity Relationship Diagrams (ERDs) to model the database.

3. Implementation (Coding)

At this stage, the system is developed using PHP as the programming language and MySQL as the database. Some of the features developed include registration, recording, data management, and reporting.

4. Testing

The system is tested using the Black Box Testing method, which focuses on testing system functionality based on usage scenarios.

5. Maintenance

After the system is implemented, a maintenance phase is carried out to ensure the system continues to function properly. If problems arise or improvements are needed, the system will be repaired and further developed according to user needs.

RESULT AND DISCUSSION

Based on observations and interviews, it is known that the Posyandu (Integrated Health Post) in Beji Tulung Village, Klaten, provides services for pregnant women, toddlers, children, adolescents, couples of childbearing age, and the elderly. The Posyandu is held once a month in the second week.

Activities at the integrated health post (Posyandu) include registration and data processing, including examinations, vitamin administration, and immunizations. All data processing is still performed manually, recorded in registers and sheets. The existing system has shown that manual data recording and processing can slow down service delivery and provide outdated information. These various obstacles were analyzed, necessitating the need for an information system that can address these issues.

The development of the information system involves several steps, including:

1. Context diagram.

The context diagram of the maternal health information system can be seen in the following image:

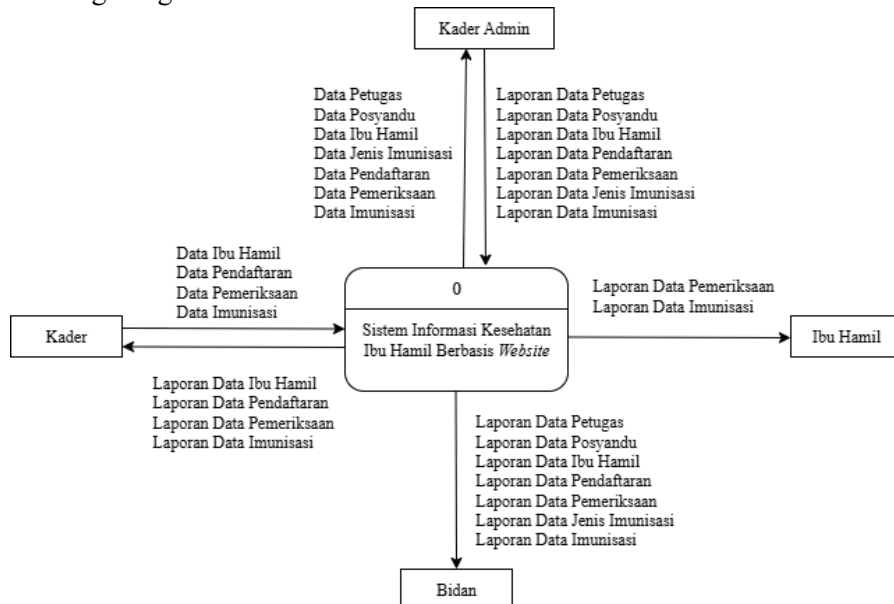


Figure 2. Context Diagram

2. Database Design

The database is used to store data to be input into the system. The Posyandu database consists of several tables used to group the data to be input. The tables used in the maternal health information system include the Posyandu table, the staff table, the pregnant women table, the registration table, the immunization table, the schedule table, and the examination table. The following is an example of the table structure in the Posyandu database:

a. Posyandu Table

The Posyandu table is used to store data on Posyandu. The structure of the Posyandu table is as follows:

Table 1. Posyandu Table

No	Nama Field	Type	Width	Information
1.	kd_posyandu *	varchar	5	Kode posyandu
2.	nama_posyandu	varchar	30	Nama posyandu dusun
3.	alamat	varchar	50	Alamat posyandu

b. ibu hamil Table

The ibu hamil table is used to store information about pregnant women. This table includes personal data, including the husband's name. The data in this table is used as a reference in the system to record examination results, medical history, and integrated health post (Posyandu) services received by pregnant women. Structure of the ibu hamil table.

Table 1. Posyandu Table

No	Nama Field	Type	Width	Information
1.	id_ibu	varchar	8	Id ibu hamil
2.	kd_posyandu	varchar	5	Kode_posyandu
3.	nama	varchar	50	Nama

4.	nik	<i>varchar</i>	16	Nik
5.	tempat_lahir	<i>varchar</i>	15	Tempat lahir
6.	tanggal_lahir	<i>date</i>	8	Tanggal lahir
7.	umur	<i>int</i>	5	Umur
8.	goldar	<i>enum</i>	'A', 'B', 'AB', 'O'	Golongan darah
9.	tb	<i>int</i>	3	Tinggi Badan
10.	pekerjaan	<i>enum</i>	'IRT', 'Wirawasta', 'PNS', Pedagang', 'Buruh', 'Lainnya'	Pekerjaan
11.	pendidikan	<i>enum</i>	'Tidak sekolah', 'SD', 'SMP', 'SMA/Sederajat', D3', 'S1', 'S2', 'S3'	Pendidikan terakhir
12.	nama_suami	<i>varchar</i>	50	Nama suami
13.	alamat	<i>varchar</i>	50	Alamat
14.	no_hp	<i>varchar</i>	12	No hp

c. Pemeriksaan Table

The pemeriksaan table is used to record all data from the results of health examinations of pregnant women conducted by Posyandu staff. The structure of the examination table is as follows:

Table 3. Pemeriksaan Table

No	Nama Field	Type	Width	Information
1.	id_pemeriksaan	<i>varchar</i>	5	Id pemeriksaan
2.	id_pendaftaran	<i>varchar</i>	5	Id pendaftaran
3.	id_petugas	<i>varchar</i>	6	Id petugas
4.	tanggal_periksa	<i>date</i>	8	Tanggal pemeriksaan
5.	usia_kandungan	<i>int</i>	2	Usia kandungan
6.	tekanan_darah	<i>int</i>	7	Tekanan darah
7.	berat_badan	<i>decimal</i>	3	Berat badan ibu
8.	lila	<i>decimal</i>	3	Lingkar lengan
9.	tinggi_fundus	<i>decimal</i>	4	Tinggi fundus

3. Implementation sistem

The results of the system implementation are the stages of system implementation that will be carried out if the system is approved, including for operation. The implementation of the maternal health information system is as follows:

a. Implementing Program Activation and Login

Users must first activate the Apache and MySQL services, then access the system through a browser. Afterward, users can log in to operate all provided features according to their service needs.

The login page is the initial gateway for users to access the system. On this page, users will enter their registered username and password. The system will validate the entered data, and if correct, the user will be directed to the main dashboard to begin operating the available features. The login page can be seen in Figure 1 below:



Figure 3. Login Menu

b Dashboard

After successfully logging in, users will be directed to the dashboard page, which serves as the system's navigation center. This page displays the identities of active users, as well as general information such as the total number of pregnant women, the number of integrated health posts (Posyandu), the number of staff, the total number of registrations, the total number of examinations, and graphs. The dashboard is designed to provide a comprehensive overview of ongoing service activities.

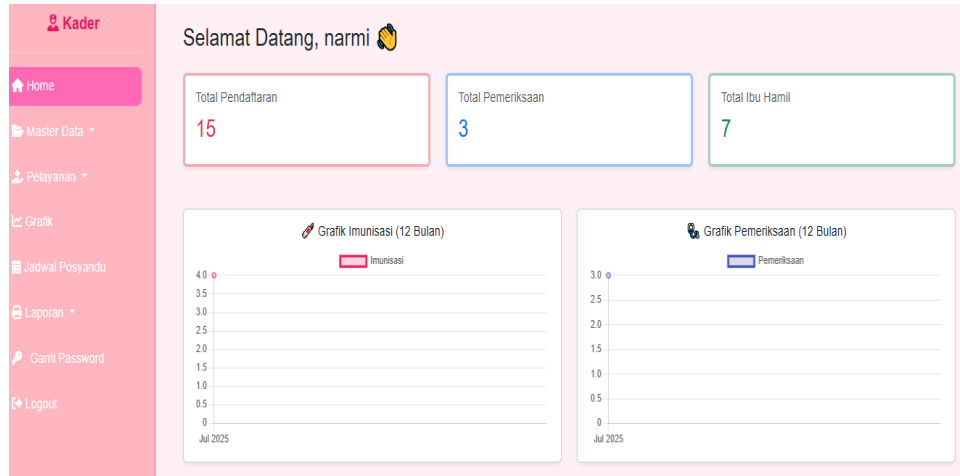


Figure 4. Dashboard

c Implementation of the Master Menu

The master menu is static and serves as a reference for every service process, including filling out registration forms and recording pregnancy test results. Clicking Staff Data will display the following Staff Master Data:

The screenshot shows the 'Input Data Petugas' form with fields for ID Petugas, Nama, Jabatan, No. Telepon, Alamat, Password, and Posyandu. Below the form is a table displaying the entered data.

ID Petugas	Nama	Jabatan	No Telp	Alamat	Posyandu	Password	Aksi
2	narmi	Kader	081357924680	Beji Rt 06 Rw 02 Beji Tulung Klaten	Kartini 1	narmi	[Edit] [Hapus]
BD01	gunaning	Bidan	085951652806	Beji Rt 06 Rw 02 Beji Tulung Klaten	Kartini 1	gunaning	[Edit] [Hapus]

Figure 5. Master Data

d Implementation of the Service Menu

The service feature is the core of this information system, used to record the registration and examination process. Before receiving services, pregnant women must first be registered by a cadre using a registration form. After that, examination results can be recorded on the examination form and immunizations administered on the immunization form.

The screenshot shows the 'Input Pendaftaran Baru' form with fields for No. Pendaftaran, Nama Ibu, Jenis Pelayanan, ID Ibu, Nama Suami, Tanggal Lahir, ID Petugas, Posyandu, and Tanggal Daftar. Below the form is a table displaying the entered data.

No	ID Pendaftaran	Nama Ibu	Jenis Pelayanan	Posyandu	Tanggal	Status	Aksi
1	PD006	ismi	pemeriksaan	Kartini 1	19-07-2025	Sudah Diperiksa	[Edit] [Hapus]
2	PD005	iskandar	pemeriksaan	Kartini 2	18-07-2025	Sudah Diperiksa	[Edit] [Hapus]
3	PD004	ismi	imunisasi	Kartini 1	17-07-2025	Belum Diperiksa	[Edit] [Hapus]
4	PD001	ismi	pemeriksaan	Kartini 1	16-07-2025	Sudah Diperiksa	[Edit] [Hapus]

Figure 6. Registration Form

e Pemeriksaan Form Display

Click on the service menu, then click on inspection, and you will be directed to the following display:

Figure 7. Pemeriksaan Menu

f Report Implementation

The report menu contains several reports: officer data reports, integrated health post (Posyandu) data reports, pregnant women data reports, immunization type data reports, registration data reports, examination data reports, and immunization administration data reports. Click on the report menu, then click on inspection report. This will take you to the following screen:

Figure 8. Report Menu

CONCLUSION

The conclusion of this study is: The process of registration, recording, data processing and reporting of pregnant women's data is still done manually. This causes the service process to be less efficient and has a high risk of data loss or errors; This website-based maternal health information system is designed using the PHP programming language and MySQL database, and provides features for inputting and generating reports in the form of officer data, posyandu data, pregnant women data, immunization type data, registration data, examination data and immunization data; With this information system, the service process becomes more structured, efficient, and digitally documented. This system is intended to make it easier for midwives and cadres to manage pregnant women's data and compile reports automatically, thereby improving the quality of service.

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