International Journal of Academic Multidisciplinary Research (IJAMR)
ISSN: 2643-9670
Vol. 6 Issue 6, June - 2022, Pages: 69-77

Management Information System of Pregnancy Documentation in Midwife Delima NY. Tibyani Halim, S.St Using PHP and MYSQL

Muhasshanah Muhasshanah[1]*, Novita Amalia[2]
[1,2]Universitas Ibrahimy, Situbondo, Indonesia
[1]*muhasshanah@gmail.com, [2]lianovita130400@gmail.com

Abstract: *Midwife Delima Ny. Tibyani Halim, S.St is one of the pomegranate midwives located in Asembagus District, Situbondo Regency who provides obstetric care for pregnancy. The things that are done in the midwifery care process include recording and storing the health history of pregnant women. The recording here is in the form of cohort data, KSPR, and SOAP midwifery care. This large number of recording processes causes midwives not to write SOAP midwifery care so that midwifery documentation is not well documented. In addition, the large amount of data written makes data search difficult and takes a long time. Based on some of the problems experienced by the pomegranate midwife Ny. Tibyani Halim, S.St in handling the process of recording obstetric care during pregnancy. So, it is necessary to design an information system for obstetrics pregnancy documentation management. With this system, it is hoped that it can help speed up the process of recording obstetric care, which has been quite time-consuming so far so that obstetrics documentation of pregnancy can be carried out properly. This system was created using the waterfall method with several stages carried out starting from requirements to maintenance. The results of this study, it is expected to be able to overcome the problems of obstetrics pregnancy documentation management found in the Delima Midwife Ny. Tibyani Halim, S.St so far. The test results become a benchmark of whether the system is running well or not. The level of suitability of the design of the obstetrics pregnancy documentation management system can help midwives and assistant midwives in recording pregnancy history so that obstetric pregnancy documentation can be carried out properly.*

Keywords— *Information Systems, Management, Pregnancy Obstetrics Documentation***.**

1. INTRODUCTION

Pregnancy is defined as fertilization or union of spermatozoa and ovum and followed by nidation or implantation. When calculated from the time of fertilization to the birth of the baby, a normal pregnancy will take place within 40 weeks or 10 months, or 9 months according to the international calendar. So, it can be concluded that pregnancy is the meeting of the egg and sperm inside or outside the uterus and ends with the expulsion of the baby and the placenta through the birth canal [1].

Pregnancy is a natural and physiological process for every woman. In the process of pregnancy, midwifery care is needed [2]. The purpose of midwifery care is to monitor the progress of pregnancy, to ensure the health of the mother and the growth and development of the baby, to improve and maintain the physical, mental and social health of the mother and baby, to recognize early any abnormalities or complications that may occur during pregnancy, including medical history. In general, prepare for term delivery and deliver a safe mother and baby with minimal trauma [3].

The implementation of midwifery care cannot be separated from midwifery documentation which serves to account for the actions that have been taken and as evidence of every action, the midwife takes in the event of a lawsuit against her [4]. While the benefits of midwifery documentation from the management aspect, namely through documentation, it can be seen the extent to which the role and function of the midwife in providing care to clients. Thus, it can be concluded that the level of success of providing care for further guidance and development [5].

Midwifery care can be administered at hospitals, health centers, clinics, Pushtu, Independent Practice Midwives (BPM), and Delima Midwives. The Delima Midwife Ny. Tibyani Halim, S.ST in Asembagus District, Situbondo Regency is one of the locations for the Pomegranate Midwife. The Pomegranate Midwife offers obstetric care during pregnancy; ideally, the examination is performed once a month, while routine inspection visits are performed four times in the first trimester, twice in the second trimester, and twice in the third trimester. However, these pregnancy visits may be carried out less than four times depending on the pregnant woman's knowledge to monitor her pregnancy. The examination, computation of the Poedji Rohjati Score Card (KSPR), and midwifery paperwork, including collecting and archiving the health history of pregnant women, are all part of the midwifery care process. At the time, the processes used to manage midwifery care at Delima midwife Ny. Tibyani Halim, S.ST were done on paper at each visit, and the Poedji Rohjati Score Card (KSPR) was generated manually. Midwives can not only serve one patient per day, but they may serve around 15-20 patients per day, and the amount of records that are done manually at each prenatal checkup visit includes cohort data, KSPR, and SOAP midwifery care. As a result of midwives failing to write SOAP midwifery treatment, midwifery documentation is inadequate. Furthermore, the vast volume of data published makes data search complicated and time-consuming. The use of these

methods reduces the effectiveness and efficiency of the recording process [6].

Based on the assessment carried out on existing problems, an information system is needed that facilitates midwives in the process of recording SOAP midwifery care, calculating the Poedji Rohjati Score Card (KSPR), and searching for data if needed at any time without taking a long time.

2. THEORETICAL BASIS

2.1 Information Systems

The system is a collection of people who work together with the provisions of the rules that are systematic and structured to form a single unit that carries out a function to achieve goals. The system has several characteristics or properties consisting of system components, system boundaries, system inputs, system outputs, system processing, and system targets. While information is data that is processed to be more useful and meaningful for the recipient and to reduce uncertainty in the decision-making process regarding a situation. An information system is an organized combination of people, hardware, software, computer networks, and data resources that collects, transforms, and disseminates information within an organization [7].

2.2 Management

Management is an effort to organize everything (resources) to achieve a goal, so management is the process of integrating unrelated resources into a totality system to complete its goals [8]. Malay S.P Hasibuan said that management is the science and art of managing the process of utilizing human resources and other resources effectively and efficiently to achieve a certain goal. Meanwhile, Burhanuddin explained that management is an activity that moves a group of people and moves all facilities to achieve certain goals [9]. From some of the above understandings, management is generally associated with planning, organizing, controlling, placing, directing, motivating, communicating, and decision-making activities carried out within an organization intending to coordinate various resources within an institution so that embodied effectiveness and efficiency in achieving predetermined goals.

In regulating, Made Pidarta revealed that management produces certain activities in educational institutions with their programs, facilities, budget, implementation and success criteria, and implementation instructions, so the educational process is carried out [10].

2.3 Midwifery Care

Midwifery care is the application of functions and activities that are the responsibility of providing services to clients who have needs/problems in the field of maternal health during pregnancy, childbirth, postpartum, after birth, and family planning [11].

2.4 Pregnancy

Pregnancy is the growth and development of the intrauterine fetus starting from conception and ending until the onset of labor [12]. The duration of pregnancy from ovulation to parturition is approximately 280 days (40 weeks) and no more than 300 days (43 weeks). Pregnancy at 40 weeks is called a pregnancy term (term). If the pregnancy is more than 43 weeks, it is called a postmature pregnancy. Pregnancy between 38 and 36 weeks is called preterm pregnancy [13].

2.5 Cohort

The term cohort is derived from the word cohort, which indicates a prospective observation procedure or a prospective survey of a topic or object [14]. Health workers, namely midwives, make up the group. Cohort registers are classified into three types: maternal cohort registers, baby cohort registers, and toddler cohort registers. The maternal cohort registry is a source of data on services for pregnant women and the circumstances or hazards that mothers face, and it is designed in such a manner that information is collected from cadres and birth attendants without duplication [15].

3. RESEARCH METHODS

The following data gathering approaches were utilized in this study to gain information on the information system to be built:

a. Observation

Observing directly the department concerned by reviewing the flow of the system carried out in the obstetrics pregnancy documentation process at the Midwife Delima Ny. Tibyani Halim, S.ST, Asembagus District, Situbondo Regency.

b. Interview

Conducting a question and answer process to related parties to get the information needed in the process of making the Midwifery Pregnancy Documentation Management Information System at the Delima Midwife Ny. Tibyani Halim, S.ST, Asembagus District, Situbondo Regency.

c. Documentation

Searching and collecting data needed in making the Pregnancy Information System for Midwifery Care at the Delima Midwife Ny. Tibyani Halim, S.ST, Situbondo Regency.

d. Literature

At this stage, the author collects data using the literature method. The literature method itself is where researchers collect data related to research based on journals on the internet as a reference [16].

4. ANALYSIS AND DESIGN

The author describes how to describe an item of study in this section of the analysis. The process flow is continued with designs intended to construct the proposed information system.

International Journal of Academic Multidisciplinary Research (IJAMR)
ISSN: 2643-9670
Vol. 6 Issue 6, June - 2022, Pages: 69-77

4.1 Process flow

The process flow is a description that describes a business process that runs on a system [17]. With the process flow, it will be easier to understand and explain the course of business processes that exist in the object of research that has been studied by the author.

4.1.1 Business Process Identification

Based on research conducted by researchers related to the management of midwifery documentation available at the Delima Midwife Ny. Tibyani Halim, S.St. The processes are as follows:

a. Subjective Examination

This process is carried out by midwives, pregnant women, and assistant midwives. This subjective examination is carried out on the initial visit by pregnant women; following visits do not include this subjective assessment. The assistant midwife will next write down the results of the examination. Figure 1 depicts the flowchart of subjective inspection documents:

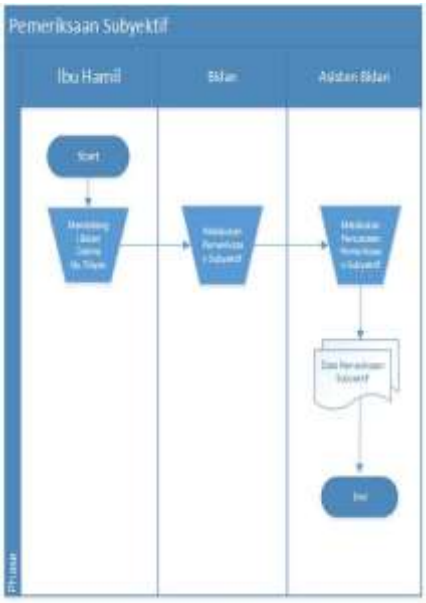


Figure 1. Subjective Examination Document Flowchart

b. Objective Check

After the subjective examination process is carried out, the next process is an objective examination involving midwives, pregnant women, and assistant midwives in charge of recording the results of the examination. This objective examination was carried out at every visit for antenatal care. The flowchart of the objective inspection document can be seen in Figure 2 below:

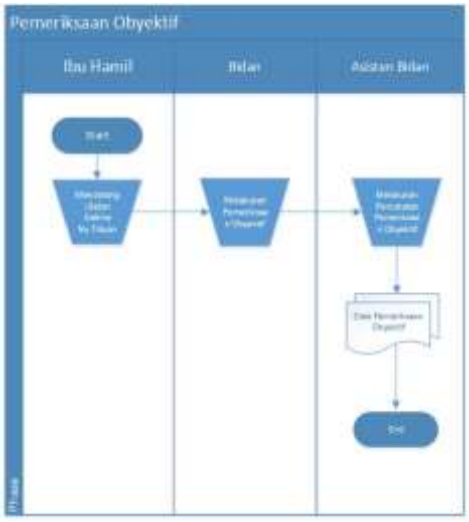


Figure 2. Objective Inspection Document Flowchart

c. Planning

This process only involves midwives and assistant midwives. This planning is obtained after a subjective and objective examination is carried out. This planning is in the form of analysis results from subjective and objective examinations in the form of actions or suggestions given by midwives to pregnant women. This planning is carried out at every pregnancy visit of pregnant women. The flowchart of the planning document can be seen in Figure 3 below:

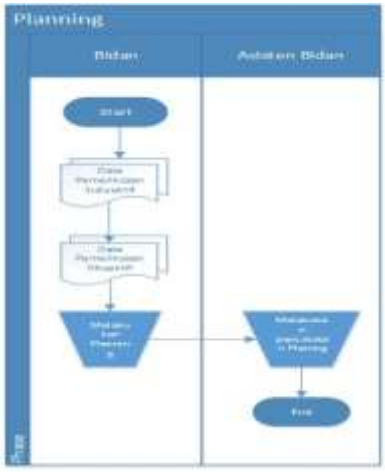


Figure 3. Planning Document Flowchart

d. KSPR

This process aims to detect early risk factors for pregnant women, which in turn makes it easier to identify the condition of pregnant women to prepare for childbirth. Those involved in this section are midwives, assistant midwives, and pregnant women. This process is carried out at each pregnancy check-up visit. The KSPR flowchart can be seen in Figure 4 below:

International Journal of Academic Multidisciplinary Research (IJAMR)
ISSN: 2643-9670
Vol. 6 Issue 6, June - 2022, Pages: 69-77

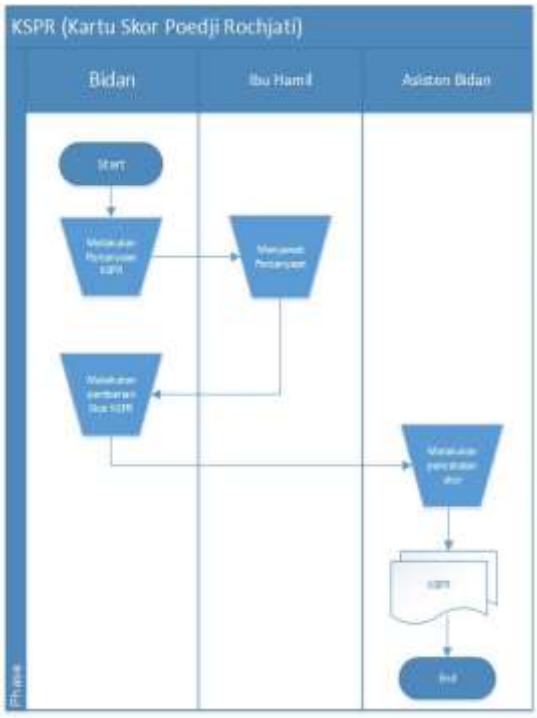


Figure 4. KSPR Document Flowchart

4.2 Process Design

Process design is an information system design stage in the form of tables, context diagrams, and data flow diagrams. The purpose of this process design is to determine the process flow of the system to be created. This process design includes process identification, application architecture, and system modeling.

4.2.1 Process Identification

Process identification is the initial step in process design. The goal of process identification is to determine the processes you want to build while developing a Midwifery Documentation Management Information System. The sections that follow will describe some of the system's processes. Figure 5 shows an example:

Nama Proses	Deskripsi Proses	Input Proses	Output Proses
login	Proses ini merupakan proses pertama yang dilakukan untuk bisa mengakses sistem dengan cara memasukkan username dan password	Cek username, password dan hak akses	Variabel cookies dan hak akses sistem
Pemeriksaan Subyektif	Proses ini dilakukan oleh admin atau asisten bidan berdasarkan hasil pemeriksaan yang dilakukan oleh bidan terhadap ibu hamil	Data subyektif berupa identitas istri dan suami, alasan datang, keluhan utama, riwayat kesehatan, riwayat obstetri ginekologi, riwayat KB, pola kebutuhan sehari-hari, data psikososial, kultural, spiritual, data pengetahuan ibu hamil, dan kondisi lingkungan ibu hamil	ASKEB SOAP dan Kohort Ibu Hamil
Pemeriksaan Obyektif	Proses ini dilakukan oleh admin atau asisten bidan berdasarkan hasil pemeriksaan yang dilakukan oleh bidan terhadap ibu hamil	Data obyektif berupa identitas ibu hamil, pemeriksaan fisik, status present, status obstetri, pemeriksaan penunjang dan pemeriksaan panggul luar	ASKEB SOAP dan Kohort Ibu Hamil
Planning	Proses ini dilakukan oleh oleh admin atau asisten bidan setelah pemeriksaan obyektif telah dilaksanakan oleh bidan	identitas ibu hamil, evaluasi 1, evaluasi2 , evaluasi3, evaluasi4, evaluasi5, evaluasi6 dan Evaluasi 7	ASKEB SOAP
Pengisian Skor Poedji Rochjati	Proses ini dilakukan oleh admin atau asisten bidan berdasarkan hasil yang dilakukan oleh bidan terhadap ibu hamil	Skor hasil pemeriksaan	Skor perhitungan KSPR

Figure 5. Process Identification

4.2.2 Application Architecture

This application architecture is a description of the interaction between the application and the database, and the system is carried out based on the needs of the organization. In the operation of this system, several users who get access are assistant midwives who act as admins, midwives, and pregnant women. The description of the software architecture of the midwifery documentation management information system at the Delima Midwife Mrs. Tibyani Halim, S.St is as shown in Figure 6 below:

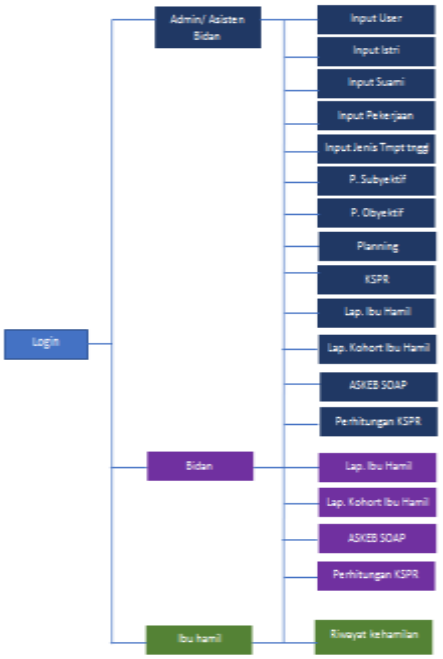


Figure 6. Application Architecture

4.2.3 System Modeling

International Journal of Academic Multidisciplinary Research (IJAMR)
ISSN: 2643-9670
Vol. 6 Issue 6, June - 2022, Pages: 69-77

In this section, the modeling system used in the Midwifery Documentation Management Information System consists of Context Diagrams, Level 1 Data Flow Diagrams, and Level 2 Data Flow Diagrams. The following is an explanation of each section.

a. Context Diagram

This context diagram is a general description of the system. The first step is to determine the number of external entities. In the context diagram modeling of the midwifery documentation management information system at the Delima Midwife Mrs. Tibyani Halim, it can be seen in Figure 7 below:

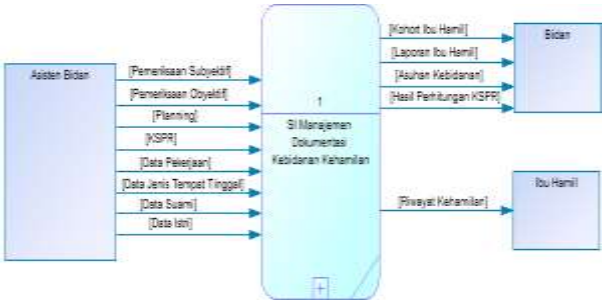


Figure 7. Context Diagram

b. Data flow chart

DFD (Data Flow Diagram) level 1 is a more detailed explanation of the entity's activities after decomposition from level 0 in the midwifery documentation management information system at the Delima Midwife, Mrs. Tibyani Halim. The DFD (Data Flow Diagram) level 1 is shown in Figure 8 below:

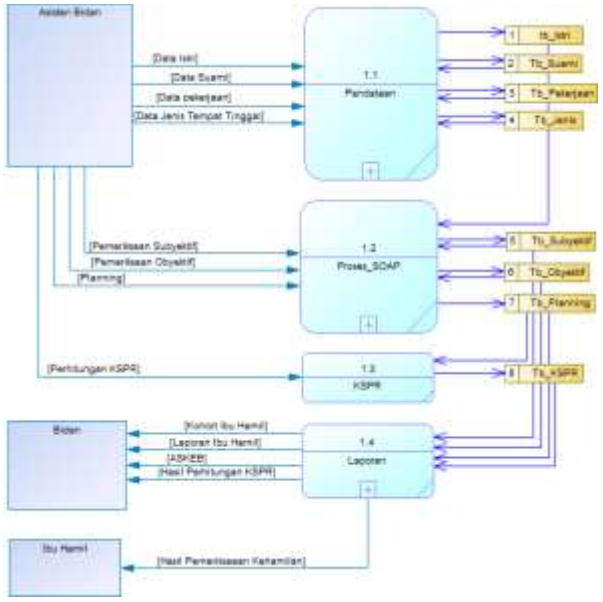


Figure 8. Data Flow Diagram

c. Data Flow Diagram Level 2 Data Collection

DFD (Data Flow Diagram) level 2 data collection is the result of decomposed from the data collection process that existed in the previous level 1 DFD. DFD level 2 data collection explains in more detail how the data flow runs in the data collection system. The DFD (Data Flow Diagram) level 2 data collection is as shown in Figure 9 below:

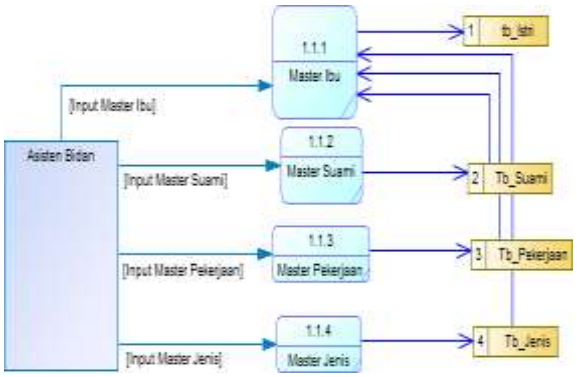


Figure 9. DFD Level 2 Data Collection

d. SOAP Data Flow Diagrams

The SOAP level 2 DFD is the result of the decomposition of the SOAP process in the previous level 1 DFD. This SOAP level 2 DFD explains how data flows work in the SOAP process. The SOAP level 2 DFD is displayed as shown in Figure 10 below:

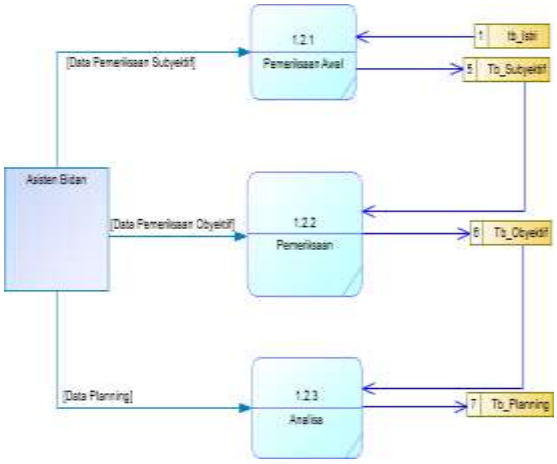


Figure 10. DFD Level 2 SOAP

e. Data Flow Diagram Level 2 Report

The report level 2 DFD is the result of the decomposition of the report process at the previous level 1 DFD. This DFD level 2 report describes how data flows work in a SOAP process. The DFD level 2 reports are displayed as shown in Figure 11 below:

International Journal of Academic Multidisciplinary Research (IJAMR)
ISSN: 2643-9670
Vol. 6 Issue 6, June - 2022, Pages: 69-77

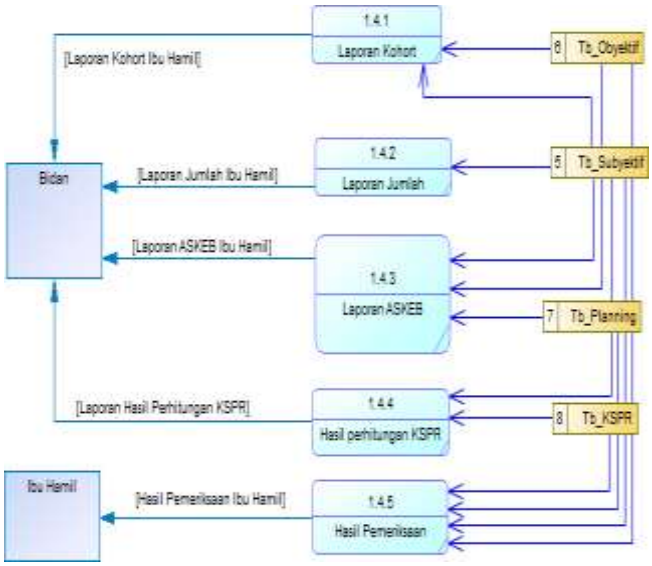


Figure 11. DFD Level 2 Report

4.2.4 **Database** Modeling

This database modeling section describes the database design that will be created on a midwifery documentation management information system consisting of a Conceptual Data Model and a Physical Data Model. The following is a more detailed explanation of both.

a. Conceptual Data Model

Conceptual Data Form The information system model below is a conceptual model of data objects that have not been defined in the database and is an overall logical structure of a database. The conceptual data model is depicted in Figure 12 below:

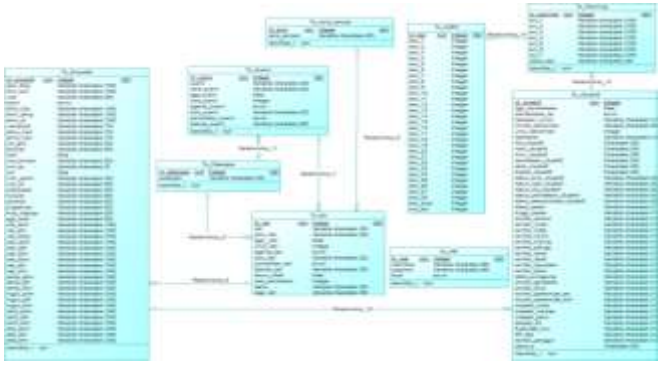


Figure 12. Conceptual Data Model

b. Physical Data Model

The physical data model in this information system describes the relationship between entities that will later be used as storage or databases. The physical data model of the midwifery documentation management information system at the Pomegranate Midwife Mrs. Tibyani Halim is as shown in Figure 13 below:

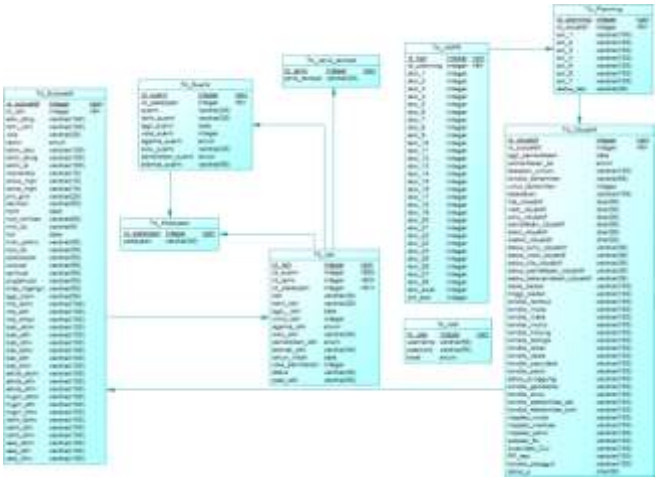


Figure 13. Physical data model

4.3 **Implementation**

a. Login Page

To access the main menu page you must login first. By entering the username and password provided. If the correct username and password are entered, they will enter the main page based on the specified user type. The following is an overview of the login page in Figure 14 below.

Figure 14. Login Page

b. Main Page View

This main menu page display provides several menus that can be used by users in using the Midwifery Pregnancy Documentation Management Information System application at the Delima Ny. Tibyani Halim. The following is a picture of the main page in Figure 15 below.

International Journal of Academic Multidisciplinary Research (IJAMR)
ISSN: 2643-9670
Vol. 6 Issue 6, June - 2022, Pages: 69-77

Figure 15. Main page view

c. Wife Data Input Display

The wife's data entry includes her name, husband's name, place of birth, date of birth, occupation, religion, education, ethnicity, and residence. After completing the form, the data will be recorded and utilized in the subjective inspection transaction process. Figure 16 is a representation of the wife's shape.

Figure 16. Wife Data Input

d. Subjective Examination Display

This transaction part contains data on the subjective examination of pregnant women; it is performed just once during the initial examination or at the start of the visit. Figure 17 depicts the presentation of the subjective examination.

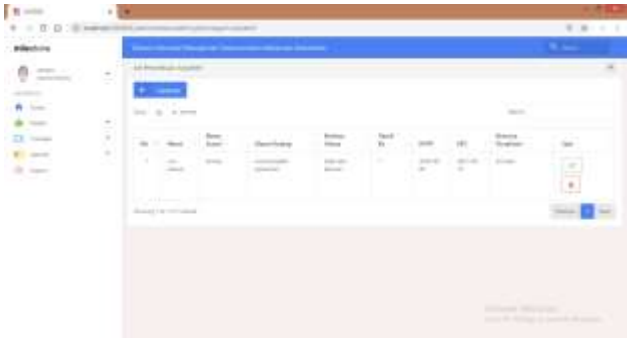


Figure 17. Display of Subjective Examination

e. Objective Inspection Display

This section includes an objective or physical examination of pregnant women. This evaluation is performed at every prenatal appointment after a subjective examination. Figure 18 depicts the appearance of the objective examination.

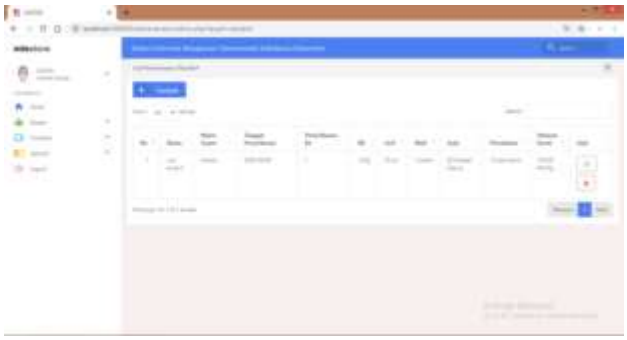


Figure 18. Objective Check Display

f. Planning View

This section includes information for pregnant women. This assessment is performed at each prenatal care appointment once an objective examination has been completed. Figure 19 depicts the planning perspective.

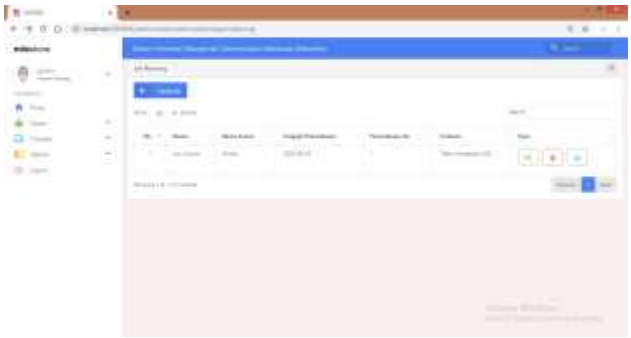


Figure 19. Display Planning

g. KSPR Display

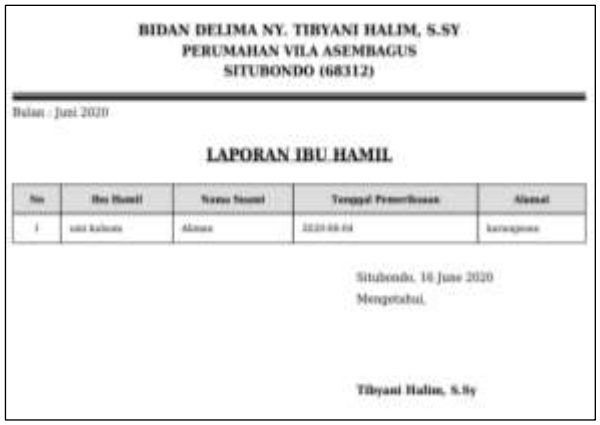
Scores for pregnant ladies can be found in this area. This score is filled out at each prenatal check-up visit and is performed after planning to discover pregnancy risk factors early. Figure 20 illustrates the KSPR display.

International Journal of Academic Multidisciplinary Research (IJAMR)
ISSN: 2643-9670
Vol. 6 Issue 6, June - 2022, Pages: 69-77

Figure 20. Display of KSPR

h. Pregnant Women Report

This pregnant woman's report is a report on the visit of pregnant Women who examined the Pomegranate Midwife NY. Tibyani Halim, S.Sy every month. The report for pregnant women is shown in Figure 21 below.


BIDAN DELIMA NY. TIBYANI HALIM, S.SY
PERUMAHAN VILA ASEMBAGUS
SITUBONDO (68312)

Bulan : Juni 2020

LAPORAN IBU HAMIL

No	Ibu Hamil	Nama Suami	Tanggal Pemeriksaan	Alamat
1	ainn kafeda	Alimun	2020-06-04	karangsono

Situbondo, 16 June 2020
Mengetahui,

Tibyani Halim, S.Sy

Figure 21. Reports of Pregnant Women

i. Maternal Cohort Report

This Cohort Report of Pregnant Women is a report of the Cohort of Pregnant Women taken from a physical examination at every pregnancy check-up visit at Midwife Delima Ny. Tibyani Halim, S.Sy. The report for pregnant women is shown in Figure 22 below.


Laporan Kohort Ibu Hamil
BIDAN DELIMA NY. TIBYANI HALIM

Nama : Ainun Fadila
Nama Suami : Mubarok
Alamat : karangsono

Tanggal Lahir : 1995-06-04
Pekerjaan : Petani
Umur : 24 Tahun

No	Keluhan	TD	BB	Usia Hamil	TFU	LILA	HPHT	HPL
1	Sedang merasa sehat tidak ada masalah	115/cm	45kg	12 Minggu	23 cm	12cm	2020-07-17	2021-04-24

Figure 22. Maternity Cohort Report

j. KSPR Calculation Output

The output of this KSPR calculation is the KSPR report for pregnant women, which is taken from filling in the score at each pregnancy check-up visit at the Delima Midwife Ny. Tibyani Halim, S.Sy. The KSPR report is shown in Figure 23 below.


Laporan Perhitungan
KSPR(Kartu Skor Poedji Rochjati)

Nama : Ainun Fadila
Nama Suami : Mubarok
Alamat : karangsono

No	Masalah / Faktor Berisiko	Skor
1	Skor awal	2
2	Terlalu muda atau hamil	0
3	Terlalu tua atau hamil 1 > 35 th	0
4	Terlalu lambat hamil 1 kawin > 4 th	0
5	terlalu lama hamil lagi (>10 th)	0
6	Terlalu cepat hamil lagi	0
7	Terlalu banyak anak 4 / lebih	0
8	Terlalu tua umur > 35 tahun	0
9	Terlalu pendek	0
10	pernah gagal keskoran	0
11	pernah melahirkan dengan	
	a. Tarikan tang/vakum	0
	b. Uri dirogoh	0
	c. Diberi infus / Tranfusi	0
12	Pernah Operasi Sesar	0
13	Penyakit pada ibu hamil	
	a. Kurang darah	0
	b. Malaria	0
	c. TBC Paru	0
	d. Payah jantung	0
	e. Kencing Manis (Diabetes)	0

Figure 23. KSPR Calculation Output

k. ASKEB SOAP output

The output of ASKEB SOAP is data taken from the process of subjective examination, objective examination, and planning at each pregnancy examination visit at the Delima Midwife Ny. Tibyani Halim, S.Sy. The ASKEB SOAP output is shown in Figure 24 below.


ASKEB KEHAMILAN SOAP
ASUHAN KEBIDANAN PADA IBU HAMIL NY AINUN FADILAH 24 TAHUN G1 P0 A0
USIA KEHAMILAN 12 MINGGU DENGAN KEHAMILAN NORMAL

A. DATA SUBYEKTIF

1 **Identitas**

Nama Ibu	: Ainun Fadila	Nama Suami	: Mubarok
Umur	: 24 Tahun	Umur	: 30 Tahun
Agama	: Islam	Agama	: Islam
Suku/bangsa	: jawa	Suku/bangsa	: jawa
Pendidikan	: SMP	Pendidikan	: S1
Pekerjaan	: Petani	Pekerjaan	: Petani
Alamat	: karangsoni	Alamat	: Karangsono

2 **Alasan Datang**
Ibu mengatakan ingin memeriksakan kehamilannya

3 **Keluhan Utama**
Ibu mengatakan sedang merasa sehat tidak ada masalah

4 **Riwayat Perkawinan**
a. Status Perkawinan : Sah
b. Usia Kawin : 21 Tahun
c. Kawin ke : 1
d. Lama Nikah : 3 Tahun

5 **Riwayat Kesehatan**
a Riwayat Kesehatan yang Lalu
Ibu mengatakan tidak pernah menderita penyakit menular seperti TBC,
b Riwayat Kesehatan yang Sekarang
Ibu mengatakan tidak pernah menderita penyakit menular seperti TBC,
c Riwayat Kesehatan yang Keluarga
Ibu mengatakan tidak pernah menderita penyakit menular seperti TBC,

Figure 24. ASKEB SOAP Output

5. CONCLUSION

Based on the data obtained by the authors in this study, the Midwifery Documentation Management Information System at the Pomegranate Midwife Ny. Tibyani Halim, S.St can be designed using the PHP and MySQL programming languages because the author adapts the research object needs that require web-based applications. So that the existence of this information system can facilitate midwives in the process of managing obstetric pregnancy documentation, besides that this system also helps midwives in the process of making reports. To meet the needs of the application design, the

author conducted research using several data collection methods including direct observation or observation at the research site and supported by the data that the authors managed to collect during the study by coordinating and consulting or interviewing the parties concerned.

6. REFERENCES

[1] R. J. Swanson and B. Liu, "Conception and pregnancy," in *Fertility, Pregnancy, and Wellness*, Elsevier, 2022, pp. 53–71.

[2] D. O. A. Daemers, E. van Limbeek, H. A. A. Wijnen, M. J. Nieuwenhuijze, and R. G. de Vries, "Factors influencing the clinical decision-making of midwives: a qualitative study," *BMC Pregnancy Childbirth*, vol. 17, no. 1, pp. 1–12, 2017.

[3] A. J. Narayan, L. M. Rivera, R. E. Bernstein, W. W. Harris, and A. F. Lieberman, "Positive childhood experiences predict less psychopathology and stress in pregnant women with childhood adversity: A pilot study of the benevolent childhood experiences (BCEs) scale," *Child Abuse Negl.*, vol. 78, pp. 19–30, 2018.

[4] J. H. Robertson and A. M. Thomson, "An exploration of the effects of clinical negligence litigation on the practice of midwives in England: A phenomenological study," *Midwifery*, vol. 33, pp. 55–63, 2016.

[5] P. A. Tabloski, "Setting the stage for success: Mentoring and leadership development," *J. Prof. Nurs.*, vol. 32, no. 5, pp. S54–S58, 2016.

[6] A. Hassan, A. S. Kazi, and Z. A. Asmara Shafqat, "The Impact of Process Writing on the Language and Attitude of Pakistani English Learners," *Asian EFL J.*, vol. 27, no. 4.3, pp. 260–277, 2020.

[7] J. Fernandes, F. Ferreira, F. Cordeiro, V. V. G. Neto, and R. P. dos Santos, "A conceptual model for systems-of-information systems," in *2019 IEEE 20th International Conference on Information Reuse and Integration for Data Science (IRI)*, 2019, pp. 364–371.

[8] M. Cao and Q. Zhang, "Supply chain collaboration: Impact on collaborative advantage and firm performance," *J. Oper. Manag.*, vol. 29, no. 3, pp. 163–180, 2011.

[9] M. Makmur, H. N. Utami, and W. Wilopo, "Training needs analysis, implementation of training, and evaluation of training to improve human resource quality: study at Gunung Harta autobus company," *Russ. J. Agric. Socio-Economic Sci.*, vol. 59, no. 11, 2016.

[10] H. Baharun, A. Mundiri, Z. Zamroni, and F. Jannah, "Quality Assurance of Education in Senior High School during Covid-19 Pandemic," *Al-Ishlah J. Pendidik.*, vol. 13, no. 3, pp. 2203–2212, 2021.

[11] C. E. Warren *et al.*, "Sowing the seeds of transformative practice to actualize women's rights to respectful maternity care: reflections from Kenya using the consolidated framework for implementation research," *BMC Womens. Health*, vol. 17, no. 1, pp. 1–18, 2017.

[12] P. Chaemsaithong, D. Cuenca-Gomez, M. N. Plana, M. M. Gil, and L. C. Poon, "Does low-dose aspirin initiated before 11 weeks' gestation reduce the rate of preeclampsia?," *Am. J. Obstet. Gynecol.*, vol. 222, no. 5, pp. 437–450, 2020.

[13] L. Hilder, K. Costeloe, and B. Thilaganathan, "Prolonged pregnancy: evaluating gestation-specific risks of fetal and infant mortality," *BJOG an Int. J. Obstet. Gynaecol.*, vol. 105, no. 2, pp. 169–173, 1998.

[14] R. Agha *et al.*, "STROCSS 2019 Guideline: strengthening the reporting of cohort studies in surgery," *Int. J. Surg.*, vol. 72, pp. 156–165, 2019.

[15] M. Jackson, P. Duff, S. Kusumanigrum, and L. Stark, "Thriving beyond survival: understanding utilization of perinatal health services as predictors of birth registration: a cross-sectional study," *BMC Int. Health Hum. Rights*, vol. 14, no. 1, pp. 1–10, 2014.

[16] R. L. Wasserstein and N. A. Lazar, "The ASA statement on p-values: context, process, and purpose," *The American Statistician*, vol. 70, no. 2. Taylor & Francis, pp. 129–133, 2016.

[17] J. A. G. Coria, J. A. Castellanos-Garzón, and J. M. Corchado, "Intelligent business processes composition based on multi-agent systems," *Expert Syst. Appl.*, vol. 41, no. 4, pp. 1189–1205, 2014.