

Evaluation of Use of Web-Based PolAc-D Application

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Abstract: Maternal and child health is a national policy that is one of the strategic plans, namely the challenge of making pregnancy safer. One of the main strategies implemented is to increase access and reach of quality maternal and neonatal health services to reduce maternal and infant mortality. PolAc-D is a web-based application that has been designed to monitor the health of pregnant women and fetuses. The purpose of this study was to evaluate the use of the PolAc-D application. The research method is a survey with a questionnaire that has been tested for validity and reliability, the sample used is all midwives who are in the Work Area of the Langsa Baro Health Center, totaling 47 people. The results obtained a total score of 2,136, an average value of 45.4, for a maximum score of 53 and a minimum score of 39. These results mean that the evaluation of the use of the polAc-D application is very good, both in terms of use, application features that are easy to understand and according to the services that are carried out by midwives every day in providing services.

Keywords: Midwife; PolAc-D Application; Use Evaluation.

Introduction

Maternal and Child Health is a national policy, in the KIA it is stated that one of the national strategic plans is about making pregnancy safer in Indonesia where the vision is to ensure that all mothers experience safe pregnancy and childbirth and give birth to healthy babies. Its mission is to reduce maternal and newborn morbidity and mortality (Firdaus et al., 2021). One of the main strategies implemented is to increase access to and reach of quality maternal and neonatal health services. With quality maternal and neonatal health services, it is hoped that maternal and infant mortality rates can be reduced. The infant mortality rate reaches 18/1000 live births. This condition is high in ASEAN (Herlambang, 2016).

The main factors that cause high perinatal mortality rates in developing countries are birth trauma and infectious diseases. As for one of the efforts made to reduce perinatal mortality caused by fetal hypoxia in the womb, among others, by monitoring the welfare of the fetus in the womb (Fajrin et al., 2021). There are several variables used as parameters to determine fetal well-

being, one of which is the fetal heart rate. For this reason, quality health services are needed (Pasaribu et al., 2022).

Abnormal fetal heart rate not only reflects the function of fetal heart movement but also reflects the function of fetal nerve control. Fetal ischemia or hypoxia in the mother's womb will cause an abnormal fetal heart rate (Yang et al., 2021). Clinically, Fetal abnormality is mainly assessed by early fetal heart rate variability, deceleration fetal heart rate variability, late decelerations. Currently fetal monitoring is mainly carried out in larger hospitals (Yang et al., 2021). In the face of the large number of pregnant women, limited medical resources are facing new challenges. In addition, the current monitoring method has two drawbacks, one is inconvenient to use and the other is that it cannot monitor the fetus in real time. In this regard, remote fetal monitoring equipment has broad application prospects (Widadi et al., 2020).

Quality health services are health services that can satisfy every user of health services in accordance with the level of satisfaction of the average population, and the implementation is in accordance with established professional standards and ethical codes (Hussen &

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Worku, 2022). Antenatal care (ANC) is a preventive program for obstetric health services to optimize maternal and neonatal contributions through a series of routine monitoring activities during pregnancy (Hendarwan et al., 2018). A clean and safe ANC examination and delivery will reduce the possibility of a pregnant woman experiencing complications during pregnancy, childbirth or the puerperium. Carrying out regular ANC examinations also reduces the risk of complications and can monitor the health of the mother and the welfare of the fetus in the womb (Do et al., 2017).

Monitoring the well-being of the fetus cannot be separated from the speed of service and access to health services to detect complications early that will occur. Currently, the cause of the high perinatal mortality rate is also caused by four things of delay, namely being late in recognizing danger signs, being late in making a decision to seek help, being late in getting transportation and being late in getting help at referral health facilities (Emiru et al., 2020). Therefore we need a system that can make it easier for pregnant women to know the danger signs of pregnancy, so that the mother can immediately go to the nearest health service and make it easier for health workers to monitor the development of the health of the mother and fetus so that they can immediately provide health service assistance to the mother (Kebede et al., 2020). The use of these applications can be supported by technological developments, where most of the Indonesian population is accustomed to using smartphones and the internet, so that they can be used to increase the speed of health services (Suryoputro et al., 2020).

The development of mobile communication devices such as smartphones and tablet computers has spurred rapid growth in the field of mobile health, the use of mobile-enabled applications that collect or convey health care information and data. These applications offer the potential for dynamic engagement of patients and providers in healthcare and new ways to improve health outcomes.

PolAc-D is a web-based application that has been designed by the Aceh Poltekkes lecturer. The application consists of features for pregnancy control data and health data for pregnant women. Evaluation of the use of the PolAc-D application is needed to find out the user's response as a basis for further development.

Method

This research method is a demonstration and practice of using the web-based PolAc-D application followed by a survey using a questionnaire that has been tested for validity and validity to see the usability and experience of using the application.

Validity and reliability tests have been carried out in the working area of the LangsaBaro Health Center with 20 midwives.

Table 1. Validity and Reliability Test

Question	Validity	Reliability
Question 1	0.936	
Question 2	0.537	
Question 3	0.936	
Question 4	0.936	
Question 5	0.537	0.946
Question 6	0.658	
Question 7	0.495	
Question 8	0.936	
Question 9	0.936	
Question 10	0.658	
Question 11	0.936	

From the table above it is known that the 11 items are valid with a t_{count} value greater than t_{table} ($t_{count} > 0.444$), and for all reliable questions with a t_{count} of 0.946.

The PolAc-D application can be accessed on Google Chrome or Mozilla Firefox with the link <https://polacd.net/login>. Respondents do not need to register because the respondent's data has been entered by the admin, respondents can directly use the application by logging in to the account and password that has been created. After the demonstration and practice of using the application, it is followed by filling out a questionnaire consisting of 11 questions using the Google form <https://bit.ly/PolAc-D>. The instrument used uses a Likert scale which consists of 5 choices of strongly disagree, disagree, neutral, agree and strongly disagree, each of which has a score of 1 to 5 with a total score of 55.

Table 2. Question Instrument

No	Question
1	Is the information provided by the PolAc-D application easy to understand?
2	Is the use of menus or menu application features easy to use?
3	Is the application comfortable to use?
4	Overall is using this application satisfactory?
5	Does this application meet the needs?
6	Is the application easy to learn?
7	Is the application easy to apply?
8	Is it easy to avoid mistakes when using the application?
9	Is the application useful in midwifery services?
10	Is the menu display in the application easy to recognize?
11	Does the application have the capabilities and functions as expected?

The sample for this study were all midwives in the working area of the LangsaBaro Public Health Center,

totaling 47 people, using a total population sampling technique.

Result and Discussion

PolAc-D Application

The PolAc-D application is a fetal well-being monitoring application with fetal heart rate and visitskehamilan. This application consists of several features, namely the first is pregnancy control data which contains data on pregnant women such as the first day of last menstruation, estimated day of delivery, upper arm circumference, KEK status, height, contraceptive use, medical history, history of allergies. The second contains the control history of the pregnant woman, namely number, date, blood pressure, weight, gestational age, fundal height, fetal position, heart rate. Both data on the health of pregnant women which contain data on swollen feet, actions, advice, information (examiner's name, location), when to return and laboratory test results.

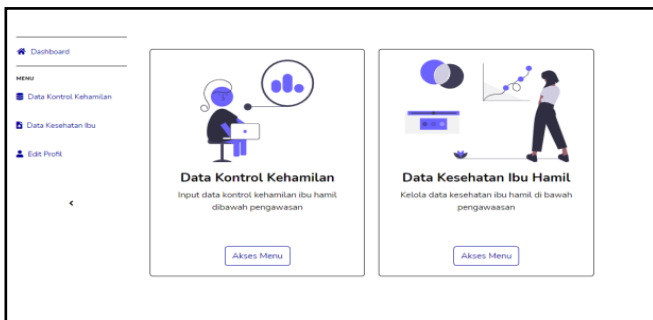


Figure 1. Features of the Midwives Menu PolAc-D Application

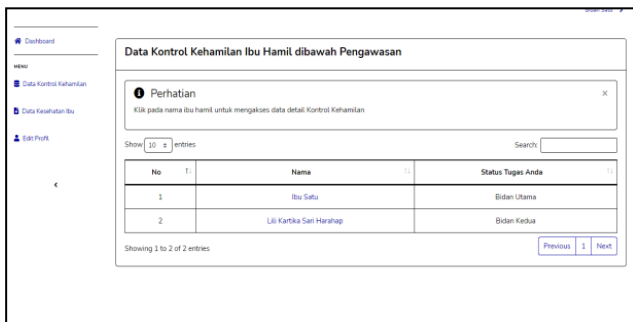


Figure 2. Midwives Menu Features for Pregnancy Control Data

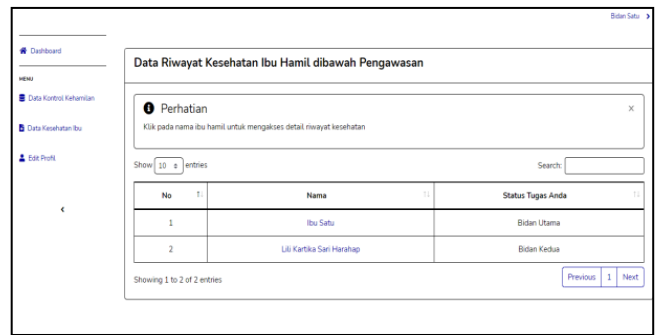


Figure 3. Midwives Menu Features Health Data for Pregnant Women

This application can not only be used by midwives but can also be used by pregnant women and specialist doctors. Menus and features are available for each application holder. For pregnant women, an application menu is available in the form of information relating to the health

Characteristics of Respondents

The research respondents were 47 midwives with educational characteristics, 5 respondents with D4 Midwifery education (10.6%) and 42 respondents with D3 Midwifery education (89.4%). Based on age, 28 people aged 20-35 years (59.5%) and 19 people aged > 35 years (40.5%). As many as 12 people work at the polindes in each village of LangsaBaro District (25.5%) and 35 people work at the Langsabaro Health Center (74.5%).

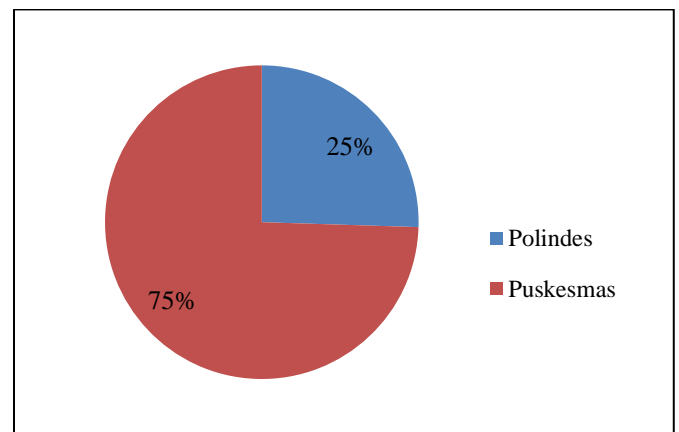


Figure 4. Status of the Midwife's Workplace

Evaluation of the Use of the PolAc-D Application

The results of evaluating the usefulness of the PolAc-D application used a questionnaire that had been prepared, totaling 11 questions that had been tested for validity and reliability. Evaluation results can be seen in the Table 3.

Table 3. Evaluation of the Use of thePolAc-D Application for Each Question Item

Question	Mean	Min.	Max.
1	3.97	3	5
2	4.10	3	5
3	4.08	3	5
4	4.12	3	5
5	4.12	3	5
6	4.21	3	5
7	4.14	3	5
8	4.14	3	5
9	4.19	3	5
10	4.12	3	5
11	4.19	3	5

In the table above it is known, the average for each question ranges from 3.97 to 4.19 with a minimum score of 3 and a maximum score of 5.

Table 4. Evaluation of the use of the PolAc-D application

N	Total Score	Mean	Min.	Max.
47	2.136	45.4	39	53

In the table above it is known that the number of respondents was 47 people with a total score of 2,136, an average score of 45.4, for a maximum score of 53 and a minimum score of 39. These results mean that the evaluation of the use of the PolAc-D application is very good, both from in terms of use, the application features are easy to understand and according to the services that midwives perform every day in providing services.

Based on these results, the application can be accepted and included in the good category. Most of the respondents thought the information provided was easy to understand, the menus or features in the application were easy to use, the application was comfortable and good to use, the application was easy to learn, the application was very useful in midwifery services, the menu display was easy to recognize, the application had the capabilities and functions as expected, and This application is in accordance with the needs required in the provision of midwifery services today. Respondents also said that this application was not only for monitoring the development of pregnant women but also for documentation because the contents in the feature were complete according to the documentation of midwives and the MCH book for pregnant women. Weaknesses of the questionnaire cannot be known which factors or aspects are low. How to find out by conducting interviews with respondents. If the respondent thinks the application is complicated, the researcher can ask further what features are complicated so that they can be improved. Respondents only thought that if it were better, this application could be downloaded using the Playstore.

This research is in line with research conducted by (Suryoputro et al., 2020), regarding the "Dear Mother" application. This application is to detect emergencies that occur in pregnant women. After being evaluated using the system usability scale (SUS) questionnaire and the user experience questionnaire (UEQ), it was found that the application of Sayang Ibu is acceptable and useful with an average value of 70.18. The user experience of the application or the user's digital literacy plays a very important role in application development, the application used is not only useful but also suitable and comfortable to use (Sumunar et al., 2021). Health workers or midwives have good appeal, so users feel interested and happy in using the application, because the menus and features in the application are easy to use.

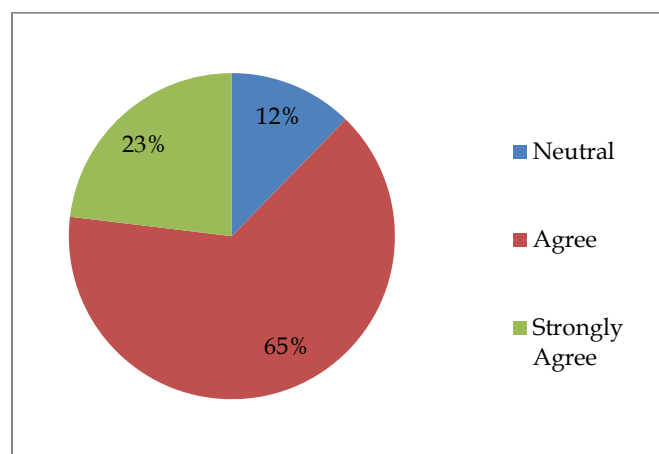


Figure 5. Menu or Application Features

From the picture above on the question of using menus or easy-to-use application features, it was found that most of the respondents agreed that the use of menus or features available in the application was very easy to use.

“... The menus in the available applications are quite good, easy to understand and easy to apply. Menu options are not complicated, color display is fine and good.”

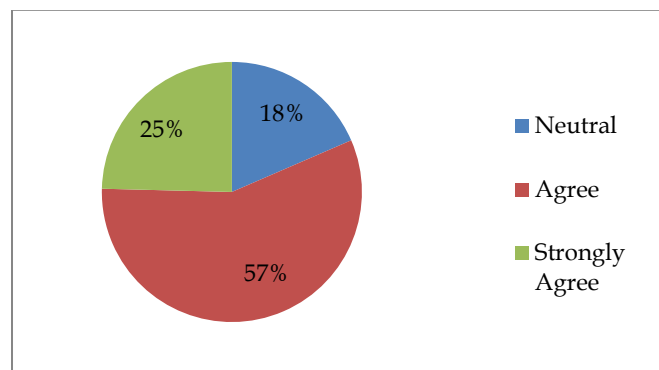


Figure 5. This Application as Needed

From the picture above it is known that the majority of respondents agree that 57% of this application is very suitable for the needs of today's health workers, especially midwives, because this application is for monitoring the development of maternal and fetal health as well as documentation of the results of the care or services provided.

“..... The whole application is good, according to current needs, there is already a menu for monitoring maternal and fetal health, the information needed for documentation also exists and is good. The results of monitoring the fetal heart rate are there so we can provide health services more quickly if there is an abnormal detection in the fetal heart rate.

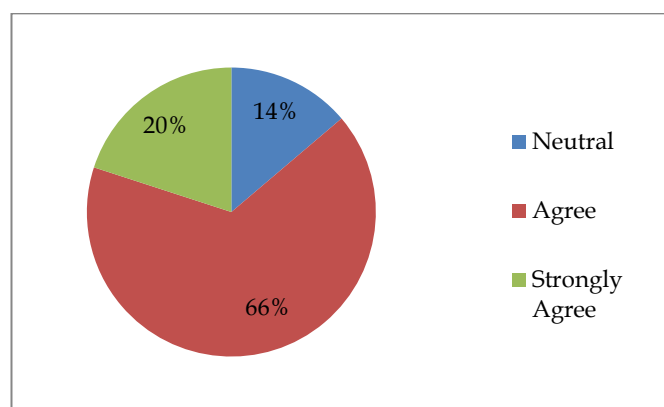


Figure 6. Useful Applications for Midwifery Services

From the diagram above it is known that the majority of respondents agree (66%) that the PolAc-D application is very useful for health services, especially midwifery. Because the features in the application are the information needed in providing services and for documenting midwifery services.

Conclusion

The PolAc-D application is acceptable and useful for midwives. The respondent's level of understanding, interest, ease of use, efficiency is quite good, but it is better if the application can be downloaded from playstore.

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Author Contribution

The first author contributed in designing research, conducting research and writing articles. The second author contributed to guiding polac-d application design and writing research

articles. The third author contributed to guiding polac-d application design and writing research articles. The fourth author contributes to preparing research instruments that will be used in data collection. The fifth author contributed to the research data collection and guided the writing of the research article. All authors have read and agree to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflict of interest

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