

The Design Of The Application "Detektip " For Early Detection Of Risk Factors For Preeclampsia In Pregnant Women

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Abstract

Background: The long form results of the 2020 population census (SP2000) show that the Maternal Mortality Rate (MMR) in Indonesia was 189, while the MMR in West Java Province in 2015 was 823 per 100,000 live births. Preeclampsia is the second cause of maternal death after bleeding, around 24% of maternal deaths are caused by preeclampsia. Obstetric complications that often occur in cases of preeclampsia are stunted fetal growth/IUGR, fetal death in the womb, premature labor, HELLP syndrome (Hemolysis Elevated Liver Enzyme Low Platelet), and eclampsia. **Objective:** Until now there has been no application related to screening for preeclampsia risk factors, therefore this research aims to design an application to make it easier for health workers to identify risk factors for preeclampsia in pregnant women. **Method & Results:** The research method used is the Research & Development (R & D) method. The results of the material expert assessment received a score of 82, with a very feasible category and recommended for trial but must first be improved according to suggestions. Meanwhile, the results of the assessment from media experts obtained a score of 95. The conclusion was that this application was very adequate, meaning that this application was very suitable for use in clinical practice. Meets almost all assessment criteria very well. **Conclusion:** the Android-based application "Detektip" shows that the design of this application is very feasible and can be used.

INTRODUCTION

The results of the 2020 population census long form (SP2000) show that the Maternal Mortality Rate (MMR) in Indonesia is 189, This means that there are 189 female deaths during pregnancy, childbirth, the postpartum period every 100,000 live births (BPS, 2020), while the MMR in West Java Province in 2015 was 823 per 100,000 live births (Pribadi, 2018). Preeclampsia is the second cause of maternal death after bleeding, about 24% of maternal deaths are due to preeclampsia (Fitriani et al, 2021).

In Indonesia, the incidence of preeclampsia is 25%, while the incidence in West Java is 24% (Fitriani et al, 2021). The incidence of preeclampsia in the hospital dr. Soekardjo Tasikmalaya City until December 2021 reached 1,441 people, the data shows that pregnant women with preeclampsia are the main problem causing AKI at Dr hospital. Soekardjo Tasikmalaya (Suryatini, 2022).

According to Pankiewicz et al (2019) obstetric complications that often occur in cases of preeclampsia are stunted fetal growth/IUGR, intrauterine fetal death, preterm labor, HELLP syndrome (Hemolysis Elevated Liver enzyme Low Platelet), and eclampsia (Fox et al, 2021) (Haslan and Trisutrisno, 2022) (Suleman et al, 2021). As for the non-obstetric complications that often occur : heart failure, peripartum cardiomyopathy, pulmonary edema, risk of cardiovascular disease, stroke,

kidney failure, liver failure, coagulopathy (thrombocytopenia and Disseminated intravascular Coagulation) (Pankiewicz et al (2019) (Wulandari et al, 2021) (Haslan & Trisutrisnno, 2022).

POGI (Indonesian Obstetrics and Gynecology Association) West Java branch since 2017 launched the ZOOM (Zero Mother Mortality Preeclampsia) Program, with the vision of lowering AKI as low as possible in West Java province by involving all health workers. Preeclampsia is the first target because it has characteristics that can be prevented, and its facilities and infrastructure have been widespread in West Java province (Pribadi, 2018).

Given the dangerous impact of preeclampsia, early identification of preeclampsia risk factors is very important. Health workers are expected to identify the risk factors of preeclampsia and control it, as one of the primary prevention of preeclampsia (Wibowo, 2016).

According to the National Institute of Health and Care Excellence (NICE) recommends that women with high risk factors be identified before 13 weeks of gestation so that adequate prevention efforts can be made (Fox, 2019).

According to the results of research by Zainiyah et al (2023) and Andani et al (2022), there is a significant relationship between high risk factors for preeclampsia: parity, obesity, multiple pregnancies, history of preeclampsia, age, chronic hypertension, family history of preeclampsia with the incidence of preeclampsia (Yushida and Zahra, 2020). Conclusion from the research of Andani et al, (2022) the previous history of preeclampsia is the factor that most influences the occurrence of preeclampsia.

Until now there has been no application related to screening for preeclampsia risk factors, therefore this study aims to design an application to make it easier for health workers to identify preeclampsia risk factors in pregnant women.

METHOD

The research method used is the Research & Development (R & D) method, which is a process or steps to develop a new product or improve an existing product (Okpatrioka, 2023).

According to Sugiyono (2021) there are 10 steps of Research & Development Research Methods, only 9 steps will be adapted in this study.

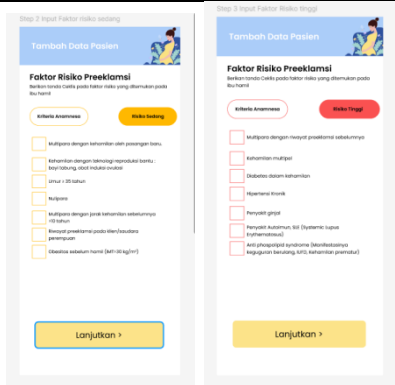
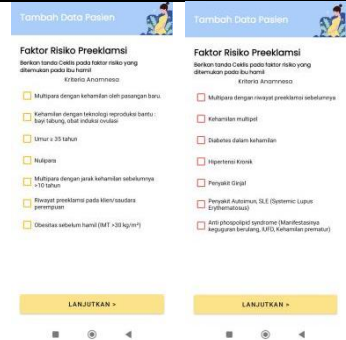
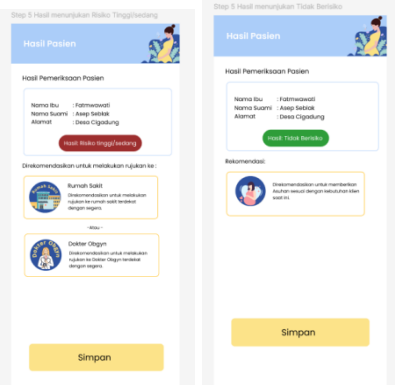
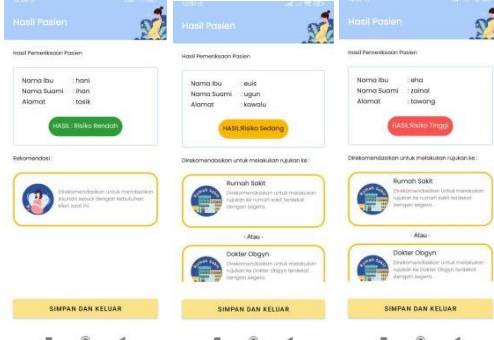
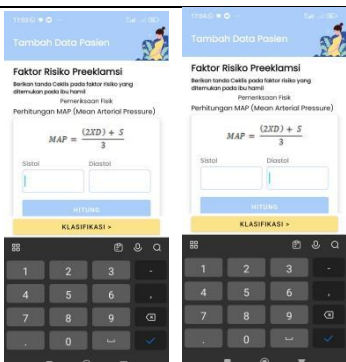
The population of this study is pregnant women and midwives. At the time of testing the product was carried out on 10 pregnant women and 2 midwives, while at the trial stage the use was carried out on 40 pregnant women and 8 midwives.

RESULTS AND DISCUSSION

The product resulting from the results of this study is the application of "Detektip" for early detection of risk factors preeclampsia in pregnant women, with pregnant validation material experts and media experts. The expert assessment of the material received a score of 82, with the category of very feasible and recommended to be tested but must first be improved according to the suggestions. While the assessment results of media experts obtained a value of 95, the conclusion is that this application is very adequate, meaning that this application is very feasible to use in clinical practice. Meets almost all assessment criteria very well.

The revised results from material experts and media experts can be seen in the following table :

Table 1. Revised results from Media experts and material experts

No	Initial display	Current display
1		
2		
3		

The results of product trials and application usage trials to determine the weaknesses and shortcomings of the android-based application design “Detektip” (Andini, 2022), an average application feasibility assessment score from midwives was obtained of 97, which shows that this application design is very feasible and can be used without revision.

Of the 9 Steps of R & D research adopted by the researcher, this research has only reached the following stages (Sugiyono 2020 & Sugiyono 2022) :

1. Potential and problems

Based on the results of field surveys, it turns out that there is a lot of documentation that must be done by health workers when providing care for pregnant women, an application is needed to simplify and shorten the time for documenting the care, one of which is related to screening/early detection of risk factors for preeclampsia in pregnant women. In fact, almost all health workers have android phones, therefore this is one of the potential to solve these problems.

2. Data Collection

From the results of data collection, it was obtained that screening for early detection of preeclampsia risk factors in health services is only in the KIA book, there is no Android/web based application that can make it easier for health workers to early detect preeclampsia risk factors in pregnant women.

3. Product Design

The design of this application design is made with the following stages :

- a. Preparation stage: preparing materials that will be included in the application include: preeclampsia risk factors, classification and recommendations that must be given to clients
- b. Creation stage : the creation of this android-based application is carried out by experts
- c. Completion stage: before testing this application is validated by material experts and media experts

4. Design Validation

Before the product trial, the design of this application is validated by a material expert, namely by a specialist in obstetrics and gynecology and validation by a media expert, namely by a lecturer in University Hospital Administration BTH

5. Design Revision

Revision carried out 1 Stage includes advice from material experts and from media experts.

6. Product trials

This application is currently in the first phase of trials conducted on 10 pregnant women & 2 midwives to determine the weaknesses and shortcomings of the design of android-based applications "Detektip" (12). From the results of the first phase of product trials obtained an average application feasibility assessment score of 97 midwives, which shows the design of this application is very feasible and can be used without revision.

7. Product Revision

After the first phase of product trials, the results obtained no advice.

8. Usage Trial

Then enter the stage of trial use conducted on 40 pregnant women and 8 midwives, from the results of these trials obtained an average score of 97 application feasibility assessment of Midwives, which shows the design of this application is very feasible and can be used without revision.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of early product trials and trials of the use of android-based applications "Detektip" obtained the results that the design of this application is very feasible and can be used without revision. As for the input to the upcoming research, it is hoped that this application in the future can be accessed through laptop / hp iphone, so it is necessary to develop a web-based "Detective " application.

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