

# Development Model of Antenatal Education for Pregnant Women in Makassar City, Indonesia

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**Abstract:** Indonesia's maternal and infant mortality rates are still relatively high and have not shown an encouraging decline. This condition requires antenatal education for pregnant women to reduce the risk of pregnancy failure. Health cadres are responsible for educating pregnant women to prevent the risk of pregnancy failure and reduce maternal and infant mortality. This study aims to develop an antenatal education model for pregnant women in Makassar City and increase the knowledge and attitudes of cadres. This study uses the one-group pre-test post-test method to refer to the ADDIE model. In addition, the author developed a website-based educational model that includes an antenatal education module. The results showed that the antenatal education model developed was valid and practical to be used by health cadres in educating pregnant women. Furthermore, the analysis results also show an increase in the knowledge of cadres after the application of the model to health cadres. In addition, the attitude of cadres has also increased after reading and viewing module books and the antenatal education website *Demi Ibu dan Anak (DIAN)*.

**Keywords:** cadres, module, valid, practice, effective.

## I. INTRODUCTION

The facts show that the increase in the population's mortality rate is closely related to the potential of human resources, such as the level of education, welfare, and access to health services [1]. Specifically, the mortality of infants and pregnant women during childbirth is an essential indicator of a country's health standards. Therefore, quality health services for pregnant women aim to reduce pregnancy failure rates.

Furthermore, [2] revealed that the service for pregnant women is known as antenatal care. The definition of the service is the service provided to pregnant women to have a safe pregnancy and a healthy baby [3]. Cadre as a volunteer recruited to assist the smooth running of health services. Community health cadres are men or women selected by the community and trained to deal with individual and community health problems to work closely with health care delivery sites [4].

Education for pregnant women is the responsibility of health cadres, where cadres must be able to educate and mobilize pregnant women to prevent risk factors for pregnancy failure. The development of practical attitudes impacts pregnant women's desire to visit health services and carry out a healthy lifestyle. As a form of health education, the antenatal education model must be able to provide information, descriptions, instructions, and an understanding of health. Antenatal education models are developed according to the community's needs and problems so cadres can quickly transform knowledge. The preparation of the educational model cannot be separated from the definition of education. The antenatal education model is developed according to the community's needs and problems, so it is easy for cadres to transform knowledge. The preparation of the educational model cannot be separated from the definition of education. This study aims to develop an antenatal education model for pregnant women in Makassar City.

## II. RESEARCH METHODS

### 1. Health Services

According to [5] Defines policies as principles that govern actions directed towards specific goals. Policies are made in a problem-oriented and action-oriented manner. [6] writes that policy is a tool for setting plans, and the policy is a statement or understanding or understanding that directs the mind in making decisions. Public policy is multidisciplinary, including in the health sector, so health policy is part of public policy. From this explanation, the definition of health policy is described, namely the concept and outline of a government's plan to regulate or supervise the implementation of health development to achieve optimal health status for all its people [7]. Therefore, in making health policies, it is possible to follow several essential principles that support the policy's basis in implementing it.

Quality is the embodiment or description of the results that meet customers' needs and provide satisfaction. For users of health services, the quality of health services is more related to the dimensions of the responsiveness of officers to meet patient needs, smooth communication between officers and patients, concerns, and friendliness of officers in serving patients and healing patients' illnesses. Relation to developing the Antenatal care model is an effort to create good service quality. The level of satisfaction of pregnant women in receiving services becomes a model reference, as well as the ease with which pregnant women access these services. [8] Explained that many pregnant women also access the internet to get support and information to make the right decision. However, for personal services, service providers usually provide online classes. Antenatal care is a preventive effort in obstetric health care programs to optimize maternal and neonatal mortality through routine monitoring activities to prevent pregnancy complications. Mothers' compliance with antenatal care is essential because it can help reduce maternal and infant mortality. The antenatal education model in Indonesia has not become a concern. At the same time, the need to improve human resources quality is urgent. Therefore, guidance for pregnant women is a strategic step in transferring knowledge about the health of pregnant women.

Health service policies focus on health services as an organized effort to treat or treat illness and disability [9]. Community development and organization Community health cadres are men or women selected by the community and trained to deal with individual and community health problems and work closely with health care delivery sites [10]. In essence, health is patterned to involve the community actively and responsibly. Community participation in improving service efficiency is based on limited resources and funds for the operation of health services. The effort will encourage people to utilize existing resources as optimally as possible.

## 2. Knowledge and Attitude

Knowledge is a person's ability to access the physical and social environment. [11] Human knowledge about the environment is relevant and very important because environmental quality is a guideline for achieving the objectives of environmental protection and management. This knowledge comes from thoughts, experiences, competencies, commitments, and actions. For example, knowledge about Antenatal care is easily transferred if pregnant women have a good awareness of healthy living. Thus pregnant women have an interest in efforts to improve their quality of life. An attitude is a form of a person's perception of an object that is described by the expression of likes or dislikes [12]. According to [13], attitudes consist of three main components: affective, cognitive, and behavioral or conative.

## 3. Antenatal Education Concept

The gestation period is divided into three trimesters, each consisting of 13 weeks or three months according to a calendar count. Another definition of pregnancy is a condition that causes physical and psychosocial changes in a woman due to the growth and development of the reproductive organs and fetus. Theoretical basis According to [14], when calculated from fertilization to the birth of the baby, a normal pregnancy will last 40 weeks. Therefore, pregnancy is divided into the first trimester lasts for 12 weeks, and the second trimester is 15 weeks (weeks 13 to 27). And the third trimester is 13 weeks (weeks 28 to 40).

Antenatal care (ANC) education is given to pregnant women. Antenatal care education must be given to pregnant women. During pregnancy, women must contact health workers at least four times.

Factors that cause the high maternal mortality rate are insufficient knowledge of women in good personal Hygiene and child care. Although several factors, including education, influence knowledge, education means the guidance someone gives others towards specific goals, the higher a person's education, the higher the level of expertise [15].

Pregnancy causes an increase in energy metabolism. Therefore the need for energy and other nutrients increases during pregnancy. If the mother's nutritional needs are unmet, it can cause dietary problems. However, pregnant women are often unaware of increased nutritional needs during pregnancy. Antenatal care is a service provided to pregnant women to monitor, support maternal health and detect whether pregnant women are normal or have problems [16]. The purpose of antenatal care visits is to monitor the progress of pregnancy to ensure maternal health and infant growth and development. As well as to improve and maintain the physical, maternal, and social health of mothers and babies. The purpose of integrated antenatal care is to fulfill the right of every pregnant woman to obtain quality care. The caring program includes healthy pregnancy, giving birth safely, and giving birth to a healthy baby [17]. Couples of childbearing age need to be able to plan and determine the spacing of pregnancies. The higher the family's responsibility for the child's value, the higher the family's encouragement to design the ideal number of children. Contraception as an effort to prevent pregnancy is one of the essence of family planning problems which is officially used by the National Family Planning Coordinating Board of the Indonesian Government.

## III. RESEARCH METHOD

This research is development research that refers to the ADDIE model. The antenatal education model under the principles of community learning, namely encouraging community responsibility, using community resources (cadres), learning with an informal pattern, and efficiency at low costs [18]. The development of the antenatal education model produces a set of modules and evaluation instruments that can be accessed through educational support websites. The purpose of this model is to increase the knowledge and attitudes of cadres in antenatal education efforts. This research was conducted in Makassar City with the subject of the study being health cadres. Specifically, cadres were selected in Balla Parang and South Pisang Villages of Makassar City.

This study focuses on two variables, namely cadres' knowledge and attitudes towards pregnant women's education. In the analysis of model needs, data collection of information about antenatal education is carried out through literature review, observation, and interviews. The results of data collection are processed using descriptive statistical analysis. At this stage, the researchers identified the needs of cadres for antenatal education and designed modules and websites as educational media. Furthermore, in the design stage, researchers developed six materials obtained from the formulation of cadres' needs for antenatal education, namely rest for pregnant women, nutrition for pregnant women, personal Hygiene, ANC standards, delivery processes, and pregnancy spacing. In the development phase, the researcher used the instrument of validity, practicality, and evaluation to measure the model's achievement and validated the module. Then measurements were made using an agency validated in the previous stage. At this stage, the researcher used the pre-test post-test one-group design method. Data collection methods in research using quantitative and qualitative techniques.

## IV. RESEARCH RESULTS

This research and development (Research & Development) is oriented towards achieving antenatal education products for pregnant women. The material presented in training refers to the cadre handbook that has been used to educate pregnant women.

Needs analysis was carried out in the working area of Puskesmas throughout Makassar City. The researcher divided the knowledge test instrument to 100 cadres from fourteen sub-districts. The following is a recap of the knowledge and experience analysis of cadres which can be seen in the table; 1 and table 2.

Tabel 1. Cadre Knowledge Analysis Recap

Cadre Knowledge		
Aspect	Category	Percentage (%)
Maternity Rest	Very high	46%
Personal Hygiene	Very high	48%
Nutrition for Pregnant Women	Very high	64%
Labor Process	Very high	54%
Antenatal Standards	Very high	52%
Maternity Range	High	52%

Table 2. Cadre Experience Analysis Recap

Cadre Experience		
Aspect	Category	Percentage (%)
Maternity Rest	High	98%
Personal Hygiene	Currently	96%
Nutrition for Pregnant Women	Low	100%
Labor Process	Currently	60%
Antenatal Standards	Currently	100%
Maternity Range	High	94%

Based on tables 1 and 2, it can be concluded that pregnant women in Makassar City have understood well and understood antenatal education. It can be seen in the table that the knowledge and experience of pregnant women, on average, are in the high category. It's just that pregnant women still have a little difficulty in implementing their understanding of antenatal education.

The antenatal education module can be accessed through the website. The preparation of antenatal education materials is carried out by compiling many materials. The learning model inserted in website-based antenatal education training. Based on the results of the FGD (Focus Group Discussion), the antenatal education items that will be included in the model book are:

1. Rest for pregnant women, including how to have good and reasonable rest patterns.
2. Nutrition for pregnant women contains material about eating patterns and the right portion of food for pregnant women.
3. *Personal Hygiene, this material provides information about the Hygiene of pregnant women.*
4. The caring standard contains more information about the purpose of antenatal care.
5. The process of childbirth contains how the stages of the delivery process.
6. Birth spacing, this material is one of the most critical ministers, which contains the benefits of keeping birth spacing and how to maintain birth spacing.

In the process of developing the antenatal education module, it goes through several stages, such as planning (planning), design (design), scripting, testing (trial), and promotion (promotion). Then prepare the module usage guide through the website. Antenatal education materials are designed for cadres to learn independently. This material has functioned as a reference for cadres in education programs for pregnant women. The material focuses on pregnant women to try to build the participants' motivation to carry out a healthy lifestyle.

This antenatal education training module device has been declared valid. Therefore, the modules and instruments are feasible to be tested and disseminated. An individual trial was conducted for the initial trial, then a tiny group trial, and finally, an expanded group trial. The results of the test of knowledge and attitudes of cadres can be seen in tables 3 and 4.

Table 3. Cadre Knowledge in The Pre-Test and Post-Test

Trials	Pre Test	Post Test
Individual Trial	5,39	7,83
Small group trial	3,80	7,211
Expanded group trial	2.27	5.33

Table 4. Cadre Attitude in The Pre-Test and Post-Test

Trials	Pre Test	Post Test
Individual Trial	3,02	4,06
Small group trial	2.8	4.05
Expanded group trial	1.71	2.92

The next step is the practicality test on the module that has been made. The practicality test stages of the module can be seen in table 3.

Table 5. Module Practicality Test Recapitulation

Trials	Score	Information
Individual Trial	3.77	Very Practical
Small group trial	3.58	Very Practical
Expanded group trial	3.61	Very Practical

Cadres with good knowledge are expected to carry out their duties well and have a positive attitude. Attitude is a reaction or response to a stimulus or object [19]. Through this education, cadres provide knowledge about physical and mental preparation for pregnant women to prepare for the birth process. The confidence of pregnant women to go through the delivery process will be formed with the knowledge provided by the cadres.

The results of the Paired Samples Correlations analysis of cadre knowledge, the correlation coefficient value is 0.304 with a significant deal of 0.507. These results indicate that a considerable value greater than 0.05 means no relationship exists between the pre-test and post-test variables. The Paired Samples Test of knowledge analysis results shows that the sig value is 0.000 or less than 0.05. It means there is a difference between the pre-test and post-test of cadre knowledge after participating in the trial, or H1 is accepted. The Paired Samples Correlations analysis of cadre attitudes showed that the correlation coefficient value was 0.304 with a significant deal of 0.507. These results indicate that a substantial value greater than 0.05 means no relationship exists between the pre-test and post-test variables. The Paired Samples Test analysis results show that the sig value is 0.000 or less than 0.05, meaning there is a difference between the pre-test and post-test of cadre knowledge after participating in the trial, or H1 is accepted.

## V. DISCUSSION

Cadres' knowledge of antenatal care is in the high category. The website-based antenatal education model includes six materials: rest for pregnant women, personal Hygiene, nutrition for pregnant women, antenatal care standards, birth spacing, and delivery process. Cadres can access the model through a website named "Dian" (For Mother and Child). The validity of the antenatal care module and website has been achieved through several revisions based on the validator's suggestions. As a result, the antenatal education model is stated to be practical to implement in other words. Cadres can easily access antenatal education materials through the website. The trial application of the antenatal education model increased cadres' knowledge and attitudes about the importance of educating women about healthy lifestyles for pregnant women. In detail, the web-based antenatal education model begins with four menus: Home, About, E-Book, and Contact.



Figure 1. Display of the module page on the website

This is different from the previous antenatal education model, which only explained the antenatal care and nutrition standards for pregnant women. In comparison, pregnant women should get more information about ways to live a healthy lifestyle so that mothers can be safe and healthy in giving birth to babies. In addition, the antenatal education model provides opportunities for cadres to participate in encouraging the community to be involved in overcoming the problem of high maternal and infant mortality rates.

## VI. CONCLUSION

The antenatal education model for pregnant women in Makassar City is valid after three validation stages. The validation of module content, media, and website validation by four expert validators are the stages of research. After going through the revision and validation process, the module is declared valid with a beneficial category. Finally, antenatal education modules are displayed as practical or can be used by cadres. The model's practicality was obtained based on the application process in three stages: individual trials, small group trials and expanded trials involving 48 cadres. The analysis results show that the antenatal education model is included in the very practical category. The results of the cadre knowledge test showed that in the three stages of model implementation, there was an increase in knowledge before and after the application of the model. Furthermore, the attitude of cadres towards antenatal education also increased after reading module books and websites.

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