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# The Effectiveness of Education Through “Pregnant Mother Family Class” on the Selection of Birth Attendants

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## Abstract

As many as 20% to 50% of maternal deaths occur during labor. In Indonesia, in 2015, 62% of deliveries were attended by a traditional birth attendant. Many teenage pregnant women have not been educated and bestows decision-making of birth attendants for baby delivery to their families. This study aimed to analyze the effectiveness of family classes in selecting a birth attendant. The study was held in July-October 2019 in Bogor; phase I used a cross-sectional design involving 90 pregnant women, analyzed using the model logistic regression test. Phase II: quasi-experimental design, a sample of 34 people for each intervention and control group, chosen not randomly. The intervention group provides education about pregnancy, childbirth, and the selection of birth attendants. The statistical test used Wilcoxon and Chi-square tests. The mother will select a health officer as a birth attendant if the perceived value of the birth cost is cheap, she has adequate family support, and she has a family with better knowledge. Factors that influence the selection of birth attendants are cost, family support, and knowledge. The family classes effectively improve the selection of health officers as birth attendants. Implementation of health education should involve the family.

**Keywords:** Class Family, Support Childbirth, Birth Attendant

## 1. Introduction

Indonesia has the highest Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) in Asia, number three and four in ASEAN. In 2015, MMR reached 305 per 100,000 live births. At the same time, IMR got 22.23 per 1,000 live births. The data shows that MMR and IMR in Indonesia are still far from the SDG target set, which in 2030 must be 70/ 100,000 live births for MMR and 25/ 1,000 live births for IMR (Kemenkes RI, 2019). For this reason, we need serious efforts to achieve these targets through childbirth by health officers. In Indonesia, health officers' delivery assistance decreased from 90.88% in 2013 to 88.55% in 2015, whereas the national target of delivery assistance by health officers was 95% (Sutardji et al., 2017). The aim of delivery assistance by health officers is to make complications in pregnancy, childbirth, and childbirth able to be identified and referred to quickly and accurately (Kemenkes RI, 2018).

According to the results of Amalia's research, there is an influence between the mother's education, the mother's knowledge, distance to the place of health care, social culture, and family income with the selection of birth attendants (Amalia, 2013). Meanwhile, according to Simanjuntak, attitude and culture were the factors that most influenced the choice of the behavior of birth attendants (Simanjuntak et al., 2013). Notoatmodjo also stated that the factors that influence health behavior include knowledge, and the most dominant are environmental factors (Notoatmodjo, 2012). Based on this, we should increase maternal knowledge to increase the delivery of assistance by health officers. According to the West Java Provincial Office report, in 2018, 98.96% of Primary Health Centers implemented maternal classes to increase the knowledge of pregnant women. Still, the participation of pregnant women in joining the class was low at 37.59% (Jabar, 2017). Whereas for the Bogor district, the proportion of participants of pregnant women in that class is only about 18% (Bogor, 2018).

Many pregnant women in their teens have not been exposed and leave decision-making about childbirth assistance to their mothers and their in-laws. Based on data from the West Java Provincial Health Office, more than 50% of marriage ages occur at less than 20 years, at risk of pregnancy (Bogor, 2018). Besides, in that age range, there is no independence and readiness to deal with pregnancy, childbirth decision-making, and infant nutrition. So that decision-making is taken over by parents or family. The research's novelty is the education provided to the family based on analysis in the first phase.

## 2. Method

This research was held in Bogor District, involved in Kemang and Cijeruk Districts, in August-December 2019. The interventions provided were education about pregnancy, childbirth, and birth attendant selection. The intervention took place for three consecutive days. The time needed in each class is 60 minutes; the class schedule depends on local conditions. The control group was given a pre-test in trimester III and a post-test after baby delivery. The research location is In Kemang and Cijeruk sub-districts, Bogor district; there is still a traditional birth attendance active in helping childbirth. Some people there still believe in traditional birth attendance, commonly called "Paraji." Marriage under 20 is also typical, increasing the risk of maternal and infant morbidity and mortality. This study population is the mother in the third trimester and lives near or with family (biological parents, in-laws, or husbands) in Bogor District.

Phase I: The sample was 90 respondents. Sampling was done by purposive sampling in select sub-district where there are still TBA active in helping childbirth. With inclusion criteria:

1. Third-trimester pregnant women
2. Living near or with mothers-in-law/ biological mother/ husband

Phase II: The sample was 68 respondents. The sampling technique was done by purposive sampling, with inclusion criteria:

1. Husband/parents/in-laws who have children
2. Have a pregnant family member in third-trimester
3. Family members usually play a role as decision-makers in family health
4. The subject can read and write and participate in activities for three days.

The study is divided into two phases. The first phase aims to analyze the factors contributing to the choice of labor behavior, cross-sectional. Independent variables include age, parity, education, knowledge, occupation, distance, labor costs, family support, and health officers' support. The dependent variable is the choice of birth attendant. The determinant factors for selecting birth attendants are used as variables to intervene in the second phase of the research class family class. The second phase aims to analyze the effect of family class on the choice of birth attendance. The study's design is a quasi-experiment; research subjects divide into two groups; the intervention and the control group are chosen non-randomize. Phase II research aims to analyze the effect of family class on the choice of labor. The design of the study *experimental* with the *non-approach-equivalent group design*, research subjects were grouped into two groups, namely the intervention group and the control group chosen not randomly. In the intervention group in the form of a family class, education was given about pregnancy, childbirth and the selection of labor.

group	Family Class	Pretest	Family Class	Post test
(P-1)		01	X	02
Control Group (P-2)				03-04

Description:

1. pretest family
  2. classes:Post-test class
  3. family:pretest
  4. control:Post-test control
- x: Intervention

The interventions provided were in the form of education about pregnancy, childbirth and labor force selection. The intervention took place for 3 consecutive days. The material provided is about pregnancy, childbirth and the selection of labor. The time needed in each meeting is 60 minutes, the implementation schedule is adjusted to local conditions. For the control group, it was given 1 test at the beginning of the activity and 1 time at the end of the activity. This research was conducted in the Districts of Kemang and Cijeruk, Bogor Regency. This research was conducted from April to December 2019

The questionnaire's validity-reliability test in this study provides to 30 pregnant women at the midwife clinic in Bogor district. The results of the data validity test were  $r > 0.3$  and  $p > 0.05$ . Phase I was analyzed by the Logistic Regression Model. Phase II was analyzed by a non-parametric test with the Wilcoxon test. Meanwhile, to determine the family class's effectiveness with the selection of birth attendants tested with chi-square.

The study was conducted after obtaining ethical clearance from the Health Research Ethics Committee of the Ministry of Health of Bandung on July 29, 2019, with letter number 27/KEPK/PE/VII/2019. Subsequently, participants were informed about the purpose of the study, and they had the right to discontinue or refuse to participate. In this study, the researchers obtained written consent from respondents. Researchers guarantee the confidentiality of research data.

### 3. Results

Based on Table 1, from 90 respondents, 75,5% of respondents aged 20- 35, with last education in a junior high school (37,7%), have an income above the minimum wage (84,4%). Most respondents get excellent support from family (60%) and health officers (80%) and experience deliveries assisted by TBA (56,7%). In District Bogor, Traditional Birth Attendance-TBA is called Paraji. Most respondents house near health facilities (56,6%) and perceived that health officers' healthcare costs are cheap (74,4%). Respondents also have excellent knowledge (68,8%) and attitude (86,7%). Besides, most respondents plan to select health officers as birth attendants in the next delivery.

Table 1: Bivariable Test Results

No	Variable of		Birth Attendance		Total	P
			TBA	Health Worker		
1	Education	Elementary School	23	20	33	0.373 *
		Junior High School	18	16	34	
		Senior High School	10	9	19	
		University	0	4	4	
2	Age	<20	1	4	5	0.998 *
		20-35	42	26	68	
3	Family income	<UMR	8	6	14	0.969 **
		> UMR	43	33	76	
4	Distance to Health Facilities	Far	27	12	39	0.029 **

No	Variable of	Birth Attendance		Total	P	
		TBA	Health Worker			
5	Family Support	Near	24	27	51	0.001 **
		Poor	28	8		
		Excellent	23	31		
6	Health Care Support	Poor	16	2	18	0.002 **
		Excellent	35	37		
		Expensive	20	3		
7	Perceptions of Cost of Labor by Health Workers	Expensive	20	3	23	0.001 **
		Cheap	31	36		
		Less	8	20		
8	Knowledge	Excellent	19	43	62	0,000 **
		Poor	12	0		
		Excellent	39	39		
9	Attitude	Poor	12	0	12	0.001 **
		Excellent	39	39		
		Excellent	39	39		
Total			51	39		

Note: \* Kolmogorov Smirnov

Test \*\* Chi Square Test

Analyzed data by Kolmogorov Smirnov and the chi-square test show that variables with p-value <0.25 are the variable perception of distance, family support, health support, perception of the cost, and knowledge and attitude towards health officers as labor assistants. These variables included multivariable analysis.

Table 2: Multivariable Analysis

Variable	Coefficient	P	OR (IK95%)
1 Family Support	.006		.193 1,645(0.060-0.625)
2 Knowledge	.025		3,859 1,350(1.180-12.614)
3 Perceptions of health officer's Labor Costs	-1 671	.028	.188 (0042-0836)
4 Constant	.641	.121	1897

\*logistic regression

From the logistic regression test (Table 2), results in the variables that influence the selection of birth attendants are family support, knowledge, and perceptions of labor costs by health officers. From that can make the equation:  $Y = 0641-1671 (\text{fee}) + 1645 (\text{family support}) + 1.350 (\text{knowledge})$

Variable fees, family support, and knowledge improve health officers' selection of birth attendants. In the family class, we can increase knowledge about the importance of pregnancy and its risks because the assistance for delivery by the health officer can minimize mortality and morbidity.

### 3.1. Phase II

#### 3.1.1. Characteristics of the Research Subjects

In Phase II, from 54 respondents (each group 27 respondents), most respondents old more than 35 years (67,6%), had the last elementary school education (67,6%), and they have families who had just given birth in the "Paraji" (41,2%). From chi-square test results shows that age and family education do not affect the choice of delivery of pregnant women with a p-value of more than 0.05 each.

#### 3.1.2. The Changes of Knowledge and Attitude After Family Class

There was a decrease in the post-test mean score of 0.41 compared to the pre-score of knowledge in the control group. There was an increase in the mean value of 3.94 points from the pre-test value in the intervention group on the post-test score. Table 2 shows that family class significantly influences increasing family knowledge with a value of  $p < 0.05$ .

Table 3: Change of Knowledge and Attitude in Each Group

No.	Group		N	Median (min-max)	Mean $\pm$ SB	p
Knowledge						
1	Control	Pre-test	34	18 (11-24)	18.41 $\pm$ 4,445	0,900
		Post-test	34	18 (10-24)	18.00 $\pm$ 4,005	
2	Interventions	Pre-test	34	20 (13-23)	18.71 $\pm$ 3,636	0.003
		Post-test	34	23 (16-25)	21.94 $\pm$ 3.071	
Attitude						
1	Controls	Pre-test	34		17.6 (5-8) 6.47 + 0,800	
		Post-test	34	6 (5-8)	6.87 $\pm$ 0.800	
2	Interventions	Pre-test	34	7 (6-10)	7.53 $\pm$ 1,463	0.001
		Post-test	34	10 (7-12)	9.29 $\pm$ 1,312	

\* Wilcoxon Test

In the control group, the average post-test attitude increased by 0.40 compared to the p-value. Whereas in the intervention group, the post-test attitude value increased by 1.76 points from the pre-test value. Table 3 informs us that the class of family class has a significant influence on improving family attitudes with a value of  $p < 0.05$ .

### 3.1.3. The Influence of Family Classes on Family Knowledge and Attitude

Based on Table 3, the average post-test knowledge values between groups intervention and control amounted to 3.94, with a  $p < 0.05$ , so there is a significant influence between the family class with changes in family knowledge.

Table 4: Effect of Family Class on Knowledge and Attitude

No	Group	N	Median Knowledge	Average $\pm$ SB	P
Knowledge					
1	Control	34	18	18.00 $\pm$ 4,005	0.014
2	Intervention	34	23	21.94 $\pm$ 3.071	
Attitude					
1	Control	34	6	6.87 $\pm$ 0800	0.000
2	Interventions	34	10	9.29 $\pm$ 1,312	

\* Mann Whitney Test

Table 4 describes the mean post-test attitude values between the intervention and control groups were 2.42, with a  $p < 0.05$ , so there was a significant influence between the families of pregnant women and the changes in family attitudes towards health officers at birth assistants.

### 3.1.4. Effect of Family Class on The Selection of Birth Assistance

Table 5: Effect of Family Class on The Selection of Birth Attendance

No	Variable	Birth Attendance		Number	p
		TBA	health officers		
1	Control	15	19	34	0.038 *
2	Intervention	7	27	34	

\* Chi-square

Table 5 shows that 15 pregnant women in the control group whose families did not attend the Family Class still chose traditional birth attendants. In the intervention group, of the 7 subjects, as many as 27 people had selected

health officers as birth assistants. The family class significantly affects the selection of birth attendance with a p-value  $<0.05$ .

#### 4. Discussion

##### 4.1. Phase I

From the equation of logistic regression analysis, the selection of birth attendance depends on the perception of birth cost, family support, and knowledge. The mother will choose health officers as birth attendants if the mother perceives that cost is cheap; family support and knowledge are excellent.

According to Ghazi's research, socio-cultural and familial reasons influence some women to choose childbirth at home and hesitate to seek professional emergency care for complications (Ghazi Tabatabaie et al., 2012). This opinion is also consistent with the results of Moyer's research, which states that the characteristics, immediate social circle, the community, the closest facilities, and the context of the country in which pregnant women live influenced their healthcare choice for childbirth (Moyer & Mustafa, 2013). Where one of the immediate social circles is a family. So, one effort to improve maternal health status is through family education. Health workers should provide understanding, information, and counseling to patients and create a support system that supports patients to change their behavior, for example, by involving family as one of the factors influencing a person's health behavior.

In this study, the cost is one factor that influences the selection of birth attendants. Cost is closely related to economic factors. This study's results are consistent with Fotso's study, which states that economic factors hinder pregnant women from accessing health services (Fotso et al., 2009). The same was also expressed by O'Brien, who stated that pregnant women chose labor by traditional birth attendance rather than health officers because of considerations to save more costs (O'Brien et al., 2010). For people with middle to lower economic status, the price of childbirth assistance by paraji is much more affordable. So sometimes they forget about the risks due to this choice.

In this study, knowledge also affects the choice of birth attendants. This condition follows the results of research obtained by Siswanto et al. Stating that the higher the mother's level of knowledge, the more likely she is to choose labor by health officers. Kabakyenga also stated that maternal knowledge about the danger signs of childbirth would improve maternal preparation in the face of childbirth (Kabakyenga et al., 2012). The preparation includes costs, equipment for delivery, contact health personnel who assist in childbirth, and transportation to reach health facilities (Juliwanto, 2009).

In addition to cost and knowledge, family support is also an influential variable in selecting birth attendants. So health officers need to increase family support through family classes of pregnant women. The results of this study are consistent with Alhidayati's study, which states that the behavior of mothers choosing health officers is related to knowledge, attitudes, socio-cultural aspects, access to health facilities, and family support (Alhidayati & Asmuliyanti, 2016; Nurfurqoni & Nuryati, 2020).

According to the research of Astuti et al. in 2014, childbirth by traditional birth attendance costs is affordable because they are voluntary and can be in the form of goods, so mothers choose TBA. Besides, the support of the husband and family is quite strong in the selection of birth attendants (Astuti et al., 2014). So it is crucial to increase family support for births assisted by health officers. This statement is consistent with Kabaknyenga's research, which states that the spouse/family makes 56% of decisions regarding location/birth attendants.

This phase 1 study will be the basis for phase 2 research. In phase 2, research increases family knowledge regarding pregnancy, childbirth, and the benefits of childbirth. It is assisted by health officers and emphasizes that the more expensive delivery costs for health officers are comparable to the benefits of mothers in the delivery process. Especially now, they can use universal insurance coverage, "BPJS," to finance the baby delivery process.

#### 4.2. Phase II

Coverage of delivery assistance by health officers must be optimal to identify cases of high-risk pregnancies and delivery complications quickly and accurately (Notoatmodjo, 2012). Theory Lawrence Green reveals behavior related to the utilization of health services which is determined by three factors, namely: predisposing factors manifested in knowledge, attitudes, perceptions, beliefs, socioeconomic, and education level; enabling factors such as a person's ability to obtain health facilities both from the ability to pay financially and from the availability of health facilities; and reinforcing factors that manifest in the attitudes and behaviors of people closest such as family/relatives (Notoatmodjo, 2012).

According to Kabaknyenga's research, age and education influence knowledge and childbirth preparation (Kabakyenga et al., 2011). Education aims to increase knowledge, where education, both formal and non-formal such as Family Classes. The expectation is that families who have attended the Family Class have excellent knowledge in making health decisions, especially in supporting mothers in choosing the proper birth attendants. Family Classes are held, paying attention to andragogy principles, participant-oriented, and learning by doing (RI & Pokjanal Posyandu Pusat, 2011).

It empowers the community through the Family Class to support the selection of birth attendants. This Family Class consists of a series of activities aimed at giving the family the ability to support mothers choosing health officers as birth attendants and also postnatal care. This activity consists of 3 meetings.

In this study, one person in the intervention group still chose TBA as a laborer. The interview results revealed that the mother decided to be accompanied by paraji because it was her fifth pregnancy, and the baby was born before she had time for the midwife. In the control group, nine people still chose Paraji as birth attendants. They decided on Paraji because Paraji helped their family from generation to generation, and there had never been any complications. They are more comfortable giving birth in Paraji because they are more patient than health officers (Nurfurqoni & Nuryati, 2020). The reason for choosing TBA as birth assistance is that many families still trust the TBA (Nuryati & Nurfurqoni, 2021). Based on Rochayah's research in 2012, they have assumption that TBA services are more comprehensive, friendly, and can pay less. TBA is hereditary, authorized by the community to help with childbirth, and charismatic and respected. Besides that, TBA is also willing to provide services or treatments before-after giving birth to local customs and culture. Paraji, who helps as a childbirth assistant at home, is paid by the family according to ability, not necessarily in the form of money but can also use chicken, rice, or other agricultural products voluntarily (Rochayah, 2012). Selection of the birth attendant is crucial. Not only in the delivery phase but also continues in the health of the mother in the postpartum period. Research results in Bogor Regency show a relationship between traditional birth attendant assistance and culture on maternal independence and self-care during the early postpartum period (Nurfurqoni & Nuryati, 2020).

For this reason, midwives should duplicate paraji in terms of patience, while for cost constraints, there is universal coverage, "BPJS," for childbirth. As for the problems, people in the village usually did not have an identity or family card and did not register their marriage, making it challenging to administer BPJS. Even though midwives at the Primary Health Care (Puskesmas) and the clinic usually remind mothers to administer identity, family, and BPJS cards from the first contact with pregnant women.

Austin's research states that they may contribute to the first delay (seeking care) if women lose the confidence that they will receive needed obstetric services in a timely fashion by attending a facility (Austin et al., 2012). Likewise, with Prastiwi's research results, the decision to choose TBA was made by family members of the laboring woman, and TBA's charisma influenced this choice (Prastiwi et al., 2016). As a developing country with various geographical conditions, Indonesia must educate families as a support system for maternal and child health decision-making. Other variables that have a significant relationship with the choice of delivery attendant behavior are knowledge, health officers' role, and class support of pregnant women (Rochayah, 2012). For this reason, increasing group support, such as family support, in selecting birth attendants is urgent.

In the Cijeruk sub-district, there are still several Paraji who are active in helping with childbirth. Most of the respondents who live in Cijeruk give birth, assisted by Paraji. The reason is that the TBA has helped their families down. This reasoning is consistent with Adatara's research, which states that these women's cultural beliefs greatly affected their decision to deliver at home (Adatara et al., 2019). Besides, their place of residence is closer to the TBA. They also assume that if there are no problems during pregnancy, childbirth is naturally helped by Paraji because of more familial and cheaper financing. Based on the Triratnawati study, the socio-cultural aspect of pregnancy and delivery practices still exists in developing countries. The TBA's render different services to fulfill their social obligation rather than for economic gain (Triratnawati et al., 2016). In Indonesia, there was a partnership program between midwives and paraji. This program aims to solve the problem of the number of Paraji-helped childbirth. In this partnership, midwives and paraji work together to help with deliveries. Paraji accompanies the mother and the midwife to help with the delivery. Nevertheless, there are still many paraji who still help with childbirth.

According to Titaley's research, some mothers choose to be assisted by TBA and home delivery compared to midwives in the village because there are two leading causes: physical distance and financial limitations (Titaley et al., 2010). Thus, it is crucial to continue to form supporting systems in the form of educated families. Pregnant women cannot make their own decisions correctly if there is no support from the family, especially husbands, mothers, or mothers-in-law. Moreover, there is a culture of "pamali" that may not refute parents'/husbands' words or instructions.

#### 4. Conclusion

The factors that influence the selection of birth attendants are cost, family support, and knowledge. There are differences in the knowledge and attitude before and after the implementation of the family class. Family class is effective in improving the right selection of birth attendants.

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