

Determinants of Women's Choice of a Long-Acting Reversible Contraceptive in Boyolali, Central Java

Desy Eka Ilmiyah¹⁾, Uki Retno Budihastuti²⁾,
Ismi Dwi Astuti Nurhaeni³⁾, Ambar Mudigdo⁴⁾

¹⁾Masters Program in Public Health, Universitas Sebelas Maret

²⁾Department of Obstetrics and Gynecology, Dr. Moewardi Hospital, Surakarta

³⁾Faculty of Social and Political Sciences, Universitas Sebelas Maret

⁴⁾Faculty of Medicine, Universitas Sebelas Maret

ABSTRACT

Background: Long-acting reversible contraceptives (LARCs) are the most effective methods of birth control. LARCs include the copper IUD, the hormonal (progesterone) IUD, and the hormonal contraceptive implant (effective for 10, 5 and 3 years, respectively). These methods of birth control can prevent unwanted pregnancy up to 20 times better than birth control pills, patches, and vaginal rings. However, the use of LARCs remains low in Boyolali, Central Java, Indonesia. This study aimed to analyze the determinants of women's choice of a LARC in Boyolali, Central Java.

Subjects and Method: This was a case control study conducted in 25 community health centers, Boyolali District, Central Java, from April 24 to May 20, 2018. A sample of 200 women in reproductive age was selected by fixed disease sampling. The dependent variable was choice of a LARC. The independent variables were age, education, parity, knowledge, husband support, and counseling by health worker. The data were collected by questionnaire and analyzed by a logistic regression multilevel using Stata 13 program.

Results: Women's choice of the LARC increased with age ≥ 35 years ($b = 4.54$; 95% CI= 1.69 to 12.15; $p = 0.003$), education \geq senior high school ($b = 4.59$; 95% CI= 1.80 to 11.70; $p = 0.001$), parity ≥ 3 ($b = 7.15$; 95% CI= 2.63 to 19.44; $p < 0.001$), better knowledge ($b = 2.20$; 95% CI= 0.88 to 5.50; $p = 0.089$), counseling by health worker ($b = 2.82$; 95% CI= 1.11 to 7.11; $p = 0.028$), and husband support ($b = 5.54$; 95% CI= 2.15 to 14.28; $p < 0.001$).

Conclusion: Women's choice of LARC increases with age ≥ 35 years, education \geq senior high school, parity ≥ 3 , better knowledge, counseling by health worker, and husband support.

Keywords: long-acting reversible contraceptive, women's choice, determinants

Correspondence:

Desy Eka Ilmiyah. Masters Program in Public Health, Universitas Sebelas Maret, Jl. Ir. Sutami 36 A, Surakarta 57126, Central Java. Email: desyekailmiyah@gmail.com

BACKGROUND

Long-acting reversible contraceptive (LARC) in Indonesia has a low achievement of acceptors of only 18.3% in 2014 and is targeted to reach 23.5% by 2019 (BKKBN, 2015). The use of LARC has many advantages both in terms of program and user. The advantage of the program is to reduce the Total Fertility Rate (TFR) to reduce the rate of population growth in Indonesia as the Millennium Development

Goals (MDGs). While the advantage in terms of users is that it is more efficient because it can be used in a long time, more secure and effective (Kurniawan et al., 2017). However, the number of LARC acceptors has decreased every year. The Indonesian population, especially the new contraceptive method participant, is more likely to use non-LARC contraceptive methods than MKJP (BKKBN, 2014).

Modern contraceptive acceptors such as LARC have increased in all over the world from 54% in 1990 to 57.4% by 2014 (WHO, 2014). Indonesia has achieved 75% FP prevalence consisting of IUD (11.07%) family planning acceptors, implants (10.46%), vasectomy (0.69%), tubectomy (3.52%), condom (3, 15%), pills (23.58%) and injection (47.54%) (Benjamins, 2018).

Active contraceptive method participant in Central Java accounted for 79% of IUD (8.74%), implants (11.48%), vasectomy (0.99%), tubectomy (5.32%), condom (2, 32%), pill (14.47%) and injection (56.67%) (Ministry of Health, 2014). Data from Boyolali District Health Office shows the number of acceptors of LARC which is lower compared to Non LARC users with prevalence of LARC acceptors for about 37.8% and non LARC for about 62.2%.

Many factors can influence a person in choosing a type of long-term contraceptive method. They are age, child sex, family and number of children (Hiremath et al., 2018). Husband's support also affects the contraceptive selection LARC because many women consider that decision makers in the family are husbands included in the health care (Durowade et al., 2017). In addition, couples need to conduct counseling on health personnel in determining the method of contraception that will be used. Counseling by health personnel is needed to eliminate misinformation and increase knowledge about the contraception (Benjamins, 2018). A good level of knowledge will influence the selection of LARC contraceptives (Ajong et al., 2016). A woman's education is also one of the factors that can influence the choice of contraceptive LARC (Yamamoto and Matsumoto, 2017). This is because a person with a high level of education will more easily accept a new idea so that it will be able to find the causes and solutions to determine which

contraception will be used (Dewi and Notobroto, 2014).

Policy direction and strategies for using LARC in family planning services should be encouraged. The use of LARC is expected to reduce the drop-out rate by providing continuous information and family planning services (BKKBN, 2015). Low LARC acceptors can have an impact on population growth and fertility that will drive the number of deliveries. The high number of deliveries indirectly can increase maternal mortality (Ministry of Health, 2015).

Several studies have been conducted to determine the determinants of the choice of types of long-term contraceptive methods. The novelty in this study is to analyze age, education, parity, knowledge, counseling by health workers, and support of husbands with the selection of types of long-term contraceptive methods simultaneously. And other novelty is that the research was done at different places and times. Based on the above description, the researcher is interested in conducting a study about the determinant of choosing the type of long-term contraception method in Boyolali District.

SUBJECTS AND METHOD

1. Study Design

This was an analytic observational study with a case control design. The study was conducted in Boyolali District, from 24 April to 20 May 2018.

2. Population and Sample

The population of this study was all female contraceptive acceptors in Boyolali District. The case population was respondents using long-term contraceptive method. Meanwhile, the control population was the respondents who use non LARC. A sample of 200 women was selected by fixed disease sampling.

3. Study Variables

The dependent variable was women choice on LARCs. The independent variables were age, education, parity, knowledge, health personnel counseling, and husband support.

4. Operational Definition of Variables

Women's choice of a long-acting reversible contraceptive was defined as the selection of contraceptive method such as implant, IUD, and tubectomy, in addition to such types of contraceptives such as pills and syringes are a type of non- LARCs.

Maternal age was defined as the age of the mother from birth until the time the data were taken. The data were collected by questionnaire. The measurement scale was continuous.

Education was defined as the highest educational level achieved by a person starting from elementary, junior high, high school, and college level. The data were collected by questionnaire. The measurement scale was categorical.

Parity was defined as the number of children born and still alive today. The data were collected by questionnaire. The measurement scale was continuous.

Knowledge was defined as maternal knowledge about long-term method of contraception. The data were collected by questionnaire. The measurement scale was continuous.

Counseling by health personnel was defined as a counseling that has been received by the respondents in the form of an explanation of the various - methods of LARCs by health personnel to assist women in decision making election of contraceptive method. The data were collected by questionnaire. The measurement scale was continuous.

Husband support was defined as husband's support for wife related to the contraception use. Type of support was in

the form of informational, moral, and financial support. The data were collected by questionnaire. The measurement scale was continuous.

5. Data Analysis

The data were analyzed by univariate, bivariate, and multivariate analysis. Univariate analysis aims to explain each characteristic data. Bivariate analysis aims to analyze the relationship of two variables using SPSS with chi square test. Multivariate analysis uses a multiple logistic regression run on Stata 13.

6. Research Ethics

This study has obtained ethical clearance from health research ethics commission Dr.Moewardi hospital, Surakarta with letter number: 376 / III / HREC / 2018.

RESULTS

1. Univariate Analysis

Table 1 shows that subjects aged ≤ 35 years were 98 mothers (49%), and those aged > 35 years were 102 mothers (51%). Mothers who have education $<$ senior high school consisted of 94 mothers (47%) and mothers who have education \geq senior high school consisted of 106 mothers (53%). Mothers with children < 3 children consisted of 109 mothers (54.5%), and who have children ≥ 3 children were 91 mothers (45.5%).

The proportion of mothers who have less knowledge was 87 mothers (43.5%) and mothers who have good knowledge were 113 (56.5%). Mothers who received counseling were 93 mothers (46.5%) and mothers who had received counseling were 107 mothers (53.5%). Mothers with weak husband support were 98 mothers (49%) and mothers with strong husband support were 102 mothers (51%).

Table 1. The results of univariate analysis

Variable	Frequency	(%)
Age		
≤35 years old	98	49
>35 years old	102	51
Education		
<senior high school	94	47
≥ senior high school	106	53
Parity		
<3 children	109	54.5
≥3 children	91	45.5
Education		
Less	87	43.5
Good	113	56.5
Counseling by health personnel		
Less	93	46.5
Good	107	53.5
Husband support		
Weak	98	49
Strong	102	51

2. Bivariat analysis

Bivariate analysis looked at the relationship of independent variables of age, education,

parity, knowledge, counseling by health personnel, and support of husbands with the dependent variable which is the choice of long-term contraceptive method.

Based on Table 2, the results of bivariate analysis using chi square showed the effect between age, education, parity, knowledge, counseling by health worker, and husband support for the selection of long-term contraceptive method. Women age >35 years were 9.01 times more likely to choose the LARCs, and it was statistically significant (OR= 9.01; 95% CI= 4.75 to 17.01; p<0.001).

Education variable showed that women with a level of education of ≥senior high school were 7.83 times more likely to choose long-term contraception method than women who were <senior high school. The result of analysis showed that there was a relationship between education and the choice of long-term contraception method which was statistically significant (OR= 7.38; 95% CI= 3.94 to 13.83; p<0.001).

Table 2. Chi-Square analysis on the Determinants of Women's Choice of a LARCs

Variable	Non-MKJP		MKJP		OR	95% CI	p
	n=100	%	n=100	%			
Age							
<35 years old	74	74%	24	24%	9.01	4.75 to 17.01	<0.001
≥35 years old	26	26%	76	76%			
Education							
<senior high school	70	70%	24	24%	7.38	3.94 to 13.83	<0.001
≥senior high school	30	30%	76	76%			
Parity							
<3 children	84	84%	25	25%	15.75	7.81 to 31.73	<0.001
≥3 children	16	16%	75	75%			
Knowledge							
Less	67	67%	20	20%	8.12	4.26 to 15.45	<0.001
Good	33	33%	80	80%			
Counseling by health personnel							
Less	71	71%	22	22%	8.68	4.57 to 16.47	<0.001
Good	29	29%	78	78%			
Husband Support							
Weak	78	78%	20	20%	14.18	7.17 to 28.02	<0.001
Strong	22	22%	80	80%			

Parity variable showed that women who have ≥ 3 children were 15.75 times more likely to choose long-term contraception method than women who have < 3 children. The result of analysis showed that there was a relationship between parity and the choice of long-term contraception method which was statistically significant (OR= 15.75; 95% CI= 7.81 to 31.73; $p < 0.001$).

The result of analysis showed that there was a relationship between knowledge and the choice of long-term contraception method (OR= 8.12; 95% CI= 4.26 to 15.45; $p < 0.001$).

There was a relationship between counseling by health personnel and the choice of long-term contraception method

(OR= 8.68; 95% CI= 4.57 to 16.47; $p < 0.001$).

There was a relationship between husband support and the choice of long-term contraception method which was statistically significant (OR= 14.18; 95% CI= 7.17 to 28.02; $p < 0.001$).

3. Multivariate Analysis

From table 3, it can be seen that the choice of long-term contraception method was influenced by age, education, parity, knowledge, counseling by health personnel, and husband support.

Women's choice was positively affected by age > 35 years old ($b = 4.54$; 95% CI= 1.69 to 12.15; $p = 0.003$), education of \geq high school ($b = 4.59$; 95% CI= 1.80 to 11.70; $p = 0.001$), parity ≥ 3 ($b = 7.15$; 95% CI= 2.63 to 19.44; $p < 0.001$).

Table 3. The result of multiple logistic regression analysis of age, education, parity, knowledge, counseling by health personnel, and husband support on women's choice of long-term contraceptive method

Dependent Variable	b	95% CI		p
		Lower Limit	Upper Limit	
Age	4.54	1.69	12.15	0.003
Education	4.59	1.80	11.70	0.001
Parity	7.15	2.63	19.44	0.000
Knowledge	2.20	0.88	5.50	0.089
Counseling	2.82	1.11	7.11	0.028
Husband Support	5.54	2.15	14.28	< 0.001
N observation= 200				
log likelihood = -63.42				
Pseudo R2 = 0.54				
Prob. chi ² < 0.001				

There was a positive association between knowledge and women's choice to LARCs. Women with good knowledge were 2.20 times more likely to use LARCs than women who have lack of knowledge ($b = 2.20$; CI 95%= 0.88 to 5.50; $p = 0.089$).

There was a positive association between counseling by health personnel and women's choice to LARCs. Women who got counseling from health personnel were

2.82 times more likely to use LARCs than women who did not get counseling from health personnel ($b = 2.82$; 95% CI= 1.11 to 7.11; $p = 0.028$).

There was a positive association between husband support and women's choice to LARCs. Strong husband support increased the likelihood of women's choice of LARCs ($b = 5.54$; 95% CI= 2.15 to 14.28; $p < 0.001$).

From the analysis, it was known that the log likelihood score was -63.42 which indicated that there was compatibility between the model and the empirical data collected. While the score of pseudo R² indicated that there were 54% variations of the choice of long-term contraception method determined by the 6 variables. The score of prob>chi² was less than 0.001 which showed a significant.

DISCUSSIONS

1. The effect of maternal age on the women's choice of long-term contraception method

The result of analysis showed that there was an effect of maternal age on the choice of long-term contraception method and it was statistically significant. Women at the age of >5 years old were more likely to choose long-term contraception method than women who were ≤35 years old.

The result of this study was in line with a study by Olaolorun and Hindin (2014) that the use of modern contraceptives such as long-term contraception method was higher among women aged 35-49 years old. This was because older women would tend to use long-term contraception in order to stop the pregnancy compared to younger women (Dambo *et al.*, 2017)

2. The effect of education on the women's choice of long-term contraception method

The result of analysis showed that there was an effect of education on the choice of long-term contraception method and it was statistically significant. Women with education ≥high school were more likely to choose long-term contraception.

The result of this study was in line with a study by Jalang *et al.* (2017), which showed that women with higher education were more likely to use LARCs than those

with low education. Other studies have also shown that the higher a woman education, it would increase the likelihood of choosing sterilization by 1.4 times compared to women who had no formal education (Yamamoto and Matsumoto, 2017).

3. The effect of parity on the women's choice of long-term contraception method

The result of analysis showed that there was an effect of parity on the choice of long-term contraception method and it was statistically significant. Women who have ≥3 children were more likely to choose long-term contraception method than women who have <3 children.

The result of this study was in line with a study by Islam (2016), which stated that women who have more than 2 children and who did not want more children were more likely to use long-term contraception method. This was because women felt that the number of children was already enough as desired by the family, therefore, they prefer long-term contraception method in preventing the pregnancy (Shimeka, 2015).

4. The effect of knowledge on the women's choice of long-term contraception method

The result of analysis showed that there was an effect of knowledge on the choice of long-term contraception method and it was statistically significant. Women who have good knowledge were more likely to choose long-term contraception method than women who have lack of knowledge.

The result of this study was in accordance with a study by Ajong *et al.* (2016), which stated that women who have good knowledge of various contraceptives tend to choose modern long-term contraception. This was also in line with a study done by Kari *et al.* (2013), which stated that women who have knowledge about long-term contraception method would be more

interested in using long-term contraception. The most common reasons were because it was easier, effective, and provided long-term protection.

5. The effect of counseling by health personnel on the women's choice of long-term contraception method

The result of analysis showed that there was an effect of counseling by health personnel on the choice of long-term contraception method and it was statistically significant. Women who got good counseling were more likely to choose long-term contraception method than women who got lack of counseling from health personnel.

The result of this study was in accordance with a study by Odu (2013), which showed that women would be more likely to use long-term contraception method after visiting the nearest health facility to get a counseling about contraception. In addition, women who get counseling by health personnel were more likely to use LARCs because they knew the long-term benefits of the selected contraception (Prateek and Saurabh, 2012).

6. The effect of husband support on the women's choice of long-term contraception method

The result of analysis showed that there was an effect of husband support on the choice of long-term contraception method and it was statistically significant. Women with strong husband support were more likely to choose long-term contraception method than women with weak support from their husband.

The result of this study was in accordance with a study by Mohammed *et al.* (2014), which stated that women who got support and often communicate with their husband would tend to use modern contraceptives such as LARCs. This was because many women still rely on their

husbands in taking important decisions including health care because they considered that the decision makers in the family were their husbands (Durowade *et al.*, 2017).

This study concluded that there was a positive and statistically significant relationship between age, education, parity, knowledge, counseling by health personnel, and husband support on the choice of long-term contraception method.

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