The Role of Quality Family Planning Services in Contraceptive Switching to Long-Acting and Permanent Methods (LAPM)

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Abstract

The use of long-acting and permanent methods (LAPM) is one way to reduce fertility rates. However, the prevalence of LAPM use has decreased, while the use of non-LAPM has increased significantly. The high prevalence of short-term contraceptive use increases the dynamics of contraceptive use, including contraceptive switching behavior. The switching contraceptive method will reduce unintended pregnancies if switched from a less effective way to a more practical approach. This study aims to identify the switching contraceptive methods from non-LAPM to LAPM and to study the relationship between quality of family planning services which consists of informed choice and Family Planning officer's visit with switching contraception. The unit of analysis is short-term and traditional contraceptive use episodes during the 3-62 months before the survey among women in union age 15-49. The dependent variable is the duration of the risk period up to the contraceptive switch to LAPM. Based on the results of the inferential analysis, it was found that quality of family planning services had a significant relationship with contraceptive switching from non-LAPM to LAPM.

Keywords
Switching Contraceptive, LAPM, The Quality of Family Planning Services, Survival Analysis.

1. Introduction

The growth rate of Indonesia's population has decreased quite significantly since 1980, namely 2.31 percent in the 1971-1980 period to 1.06 percent in the 2015-2020 period (Badan Pusat Statistik, 2018). The success of controlling population growth with a decrease in Indonesia's population growth rate cannot be separated from the success of the Family Planning Program so that it has been able to reduce the fertility rate in Indonesia. The fertility rate has decreased significantly, namely until 1990, from 5 to 6 children per fertile woman in 1971 to 3 children per fertile woman in 1990. However, after a significant decline in 1990, the achievement of the fertility rate tends to slow down or stagnant, namely at 2.6 in 2000 to 2012 and only decreased again in 2017, namely 2.4 (BKKBN et al. 2018).

Family planning plays a role in reducing the risk of maternal mortality during childbirth caused by frequent births and too short spacing between births. The results of the International Conference on Population and Development (ICPD) in Cairo in 1994 called for family planning services to also be aimed at fulfilling reproductive rights and handling reproductive health problems as well as maternal, infant and child health. Family planning is included in the 17 Sustainable Development Goals (SDGs) (United Nations, Department of Economics, and Social Affairs 2019). Family planning is on the third goal of ensuring a healthy life and supporting well-being for all at all ages. Expanding contraceptive access and ensuring that family planning demands are met by using effective contraceptives is one of the target's agendas 3.7 Sustainable Development Goals (SDGs). One of the family planning program strategies to reduce fertility is through the long-term contraceptive method (LAPM). LAPM has a higher

level of effectiveness than non-LAPM for unintended pregnancy prevention (Finer et al. 2012). Dehlendorf et al. (2013) said that an unwanted pregnancy can have serious implications for the health and well-being of the mother. The high rate of unwanted pregnancies can also derail the realization of the Sustainable Development Goals (SDGs).

According to the results of the 2017 IDHS, the contraceptive method used by married women aged 15-49 in 2017 was still dominated by non-LAPM contraceptives, namely pills by 12 percent and birth control injections by 29 percent. Meanwhile, the use of LAPM contraceptives seems to be still low, namely 5 percent IUD, 5 percent implants, and 4 percent female surgery method (MOW) (BKKBN et al. 2018). The high prevalence of short-term contraceptive use has led to an increase in the dynamics of contraceptive use, including changing contraceptive methods.

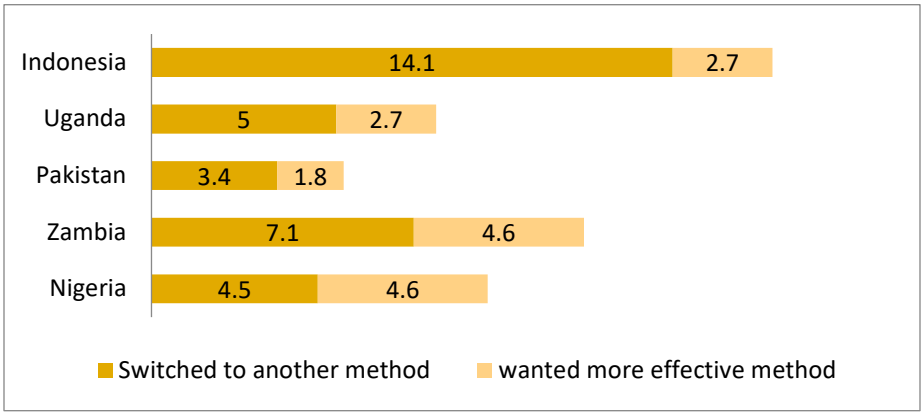

Figure 1. Percentage of Episodes Discontinued Within 12 Months According to Reasons for Termination

Figure 1 shows the percentage of episodes of contraceptive use in the five years preceding the survey that were discontinued within 12 months in some countries (National Institute of Population Studies -NIPS/Pakistan and ICF, 2019; National Population Commission (NPC) [Nigeria] and ICF 2019; ZSA et al. 2019; BKKBN et al. 2018) . From this figure, it can be seen that the percentage of contraceptive use discontinuation due to switching to another method in Indonesia has the highest rate of switching among other countries. Meanwhile, while look at the reasons for discontinuing because they want a more practical approach, it turns out that the percentage of stopping in Indonesia is lower than in Nigeria and Zambia.

Contraceptive switching is closely related to the choice of contraceptive method. Since the purpose of using contraception is primarily to limit pregnancy, family planning acceptors must choose an effective method to prevent unintended pregnancy. KB acceptors should consider their options when switching from one method of contraception to another taking into account the effectiveness of their new method with discontinued methods (Steele et al. 1999).

Several studies have shown that there is a very close relationship between the quality of family planning services with a person's acceptance of a contraceptive and the continuity of its use (Rahardja 2011). According to Hamill et al. (1990), several factors affect the switching in contraceptive methods and the choice of contraceptive methods. These factors include individual characteristics, previously used contraceptive methods, and knowledge of methods, effectiveness, availability, and side effects of contraception used. Improving the quality of family planning services is carried out with the aim of not only helping family planning acceptors to achieve an optimal degree of individual health, but also the potential to reduce fertility rates through increased use of contraceptives (Budiman and Kasto 2009). Access to quality family planning services is an important element in the effort to realize reproductive health services.

1.1 Objectives

This study aims to study the relationship between quality of family planning services which consists of informed choice and FP officer's visit by switching the contraceptive method from the short-term contraceptive method) and traditional methods to the long-term contraceptive method (LAPM) after being controlled by other factors. This

research is expected to increase the use of contraceptives which are more effective in preventing unwanted pregnancies so as to reduce maternal mortality.

2. Literature Review

Contraceptive switching indicates discontinuation of the use of one contraceptive method because of switching contraceptive methods. The switching of a woman's contraceptive method depends on two things, namely the woman's decision to use another method and the effectiveness of that method (Steele et al. 1999). Contraceptive switching provides two possibilities, switching to a more effective method or switching to a less effective method (Bradley et al. 2009). Switching contraception to less effective methods can lead to unintended pregnancy (Steele et al. 1999; Steele and Curtis 2003).

Contraceptive switching and choosing the method are closely related to the explanation of the various contraceptive method options available at the time of being a family planning acceptor (Rahardja 2011). Providing information and counseling on contraceptive use given to acceptors will add insight into the effectiveness of the contraceptive used. A good understanding of contraception is needed to increase the perception of family planning acceptors and thus encourage rational, effective, and efficient use of contraception (Amran et al. 2019). According Prijatni and Rahayu (2016), providing an informed choice is one of the goals of family planning counseling, which is to help clients understand reproductive needs according to themselves and their families and to choose suitable contraceptives. Informed choice is information about the choice of contraceptive method by family planning acceptors after understanding the reproductive needs that best suit him or his family. An informed choice is seen from the information obtained by respondents regarding contraceptives, namely regarding the side effects of the contraceptive used, actions to overcome these side effects, and regarding other contraceptives that can be used (BKKBN et al. 2018). Information received about contraception is needed by couples of childbearing age to obtain sufficient and accurate information to determine the choice of contraceptive method used.

3. Methods

The analytical method used in this research consists of descriptive analysis and inferential analysis. The analytical method used in this inferential analysis is survival analysis with the Gompertz Proportional Hazard Model. Gompertz hazard models are a parametric model and estimated using likelihood procedures. The Gompertz proportional hazard model was used in this study because the Akaike's Information Criterion (AIC) and Bayesian Information Criterion (BIC) criteria were low compared to other models and represented the switching contraceptive process.

The hazard function or h(t) is the risk of discontinuation of contraception at month t, given that contraception was still used right before that month. In this study, the hazard function refers to discontinuation of contraception and then switching to LAPM after using non-LAPM during time t. What distinguishes the survival analysis from other regression analyzes is the use of the time element in the survival analysis (Kleinbaum and Klein 2012). The hazard model for the study is as follows.

$$h(t,x) = exp(\gamma t)exp\,(\beta_0 + \beta_1\, visit_1 + \beta_2\, decision_1 + \beta_3\, decision_2 + \beta_4\, infcho + \beta_5 method_1 + \beta_6 method_2 + \beta_7 method_3 + \beta_8 intent + \beta_9 age_1 + \beta_{10} age_2 + \beta_{11} edu_1 + +\beta_{12} edu_2 + \beta_{13} resid + \beta_{14} workstat + \beta_{15} parity_1 + \beta_{16} parity_2 + \beta_{17} wel)$$

The model implies that the hazard of switching of a short-term and traditional contraceptive method to a LAPM was determined by Family planning officer's visit, the informed choice, contraceptive use decision maker, method switching, contraceptive intention, age at switching, education, place of residence, work status, parity, and household wealth index.

4. Data Collection

The scope of this research area in Indonesia. This analysis used data from the 2017 Indonesia Demographic and Health Survey (IDHS). The unit of analysis in this study is the segment or episode of contraceptive use in the women age group 15-49 years who use non-LAPMs, namely the short-term contraceptive method (birth control pills, contraceptive injections, condoms, and Lactational Amenorrhea Method or LAM) and traditional methods (withdrawal and periodic abstinence) which then stopped and switched to the LAPM, namely IUD, Norplant, and

sterilization in women and men in the period of use starting at period 3- 62 months before the interview month. Data on contraceptive use periods based on the reproductive contraceptive calendar of women's questions in the survey. The 2017 IDHS calendar is in the form of a matrix consisting of 4 columns and 72 rows. The calendar data used is the period of short-term and traditional contraceptives obtained from column 1 of the 2017 IDHS calendar. Several queues mark one segment for months filled with the same contraceptive usage code.

The number of samples analyzed was 10,023 segments of non-LAPM use during 3-62 months before the interview month. In determining the unit of analysis in this study, censorship was carried out on the segment data of contraceptive use. Censorship is one of the steps that must be taken to overcome the incompleteness of observational data (Cox and Oakes 1984). The data is said to be censored if the research subject until the end of the study has not switched a method to LAPM (Kleinbaum and Klein 2012).

This study's dependent variable was the length of time using short-term contraceptives and traditional from starting to using until switching to long-term contraceptive methods. This variable is expressed in months. The primary independent variable is quality of family planing service which consists of two variables: informed choice and family planning officer's visit. At the same time, the control variables consist of method-related factors and socioeconomic and demographic factors. Method-related elements consist of contraceptive methods previously used and contraceptive intentions. Meanwhile, socioeconomic and demographic factors consist of age, education, residence status, employment status, parity, or several children still alive at the end of the episode of use, and wealth index. Age is the woman's age at the end of the outbreak of contraceptive use.

5. Results and Discussion

5.1 Sample Characteristic

Table 1 shows the distribution of the percentage of episodes of contraceptive use in the five years preceding the survey, according to Family planning officer's visit or field worker visit, informed choice, contraceptive decision-makers, method-related factors, and socio-demographic and economic factors.

Table 1 shows that most non-LAPM contraceptive use are not visited by field worker. According to the informed choice received, most women have obtained the informed choice, which is 67.5%. Decision makers are dominated by joint decision making while the husband's decision-maker is only 6.6%. Based on contraceptive-related factors, most non-LAPM contraceptive use episodes used the injection contraceptive method (60%). Besides, 54% of attacks occurred in women whose contraceptive goal was birth spacing.

Based on socio-demographics and economic factors, the majority of episodes of contraceptive use are in women aged 35 years and over, amounting to (43%), women with secondary education (58%), women in rural areas (53%), women who are currently not working (50.3%), women who have 2 to 3 children and women who are in the high wealth index (61%) (Table 1).

Table 1. Characteristics of Non-LAPM Use in Indonesia

Characteristics	N	%
Field Worker visit		
No	10724	97.3
Yes	300	2.7
Informed Choice		
No	3579	32.5
Yes	7444	67.5
Decision-makers to use contraception		
Respondent only	4118	37.4
Husband Only	724	6.6

Joint Decision	6181	56.1
Contraceptive method switched		
Pill	2407	21.8
Injectables	6595	59.8
Other short-term contraceptive methods	648	5.9
Traditional	1374	12.5
Contraceptive Intent		
Spacing	5997	54.4
Limiting	5026	45.6
Age		
15-24	1771	16.1
25-34	4514	41
35 above	4738	43
Education		
Lower	3410	30.9
Middle	6376	57.8
Higher	1237	11.2
Place of Residence		
Rural	5811	52.7
Urban	5212	47.3
Working Status		
Not employed	5547	50.3
Employed	5477	49.7
Parity		
0-1	3487	31.6
2-3	6536	59.3
4+	1001	9.1
Wealth Index		
Lower	4329	39.3
Higher	6694	60.7

5.2 Patterns and Differences of Contraceptive Switching to LAPM

Based on descriptive analysis results, switching contraceptive status had a small percentage across all characteristics, ranging from 3 to 7 percent. Table 2 shows that the portion of switching contraceptive to LAPM is more in contraceptive users who were visited by field officers and who gets the officer's informed choice.

The percentage of contraception switching to LAPM is higher in women who use injection contraceptives to use contraception because it limits births. The rate of switching contraceptives to LAPM is higher for those aged 15-24 years, highly educated, living in rural areas, working status, the number of children who are still alive four children or more, and high wealth index (Table 2).

Table 2. Characteristics of Non-LAPM Use in Indonesia

Characteristics	Switching to LAPM		N	%
	No	Yes		
Foeld Worker				
No	94.62	5.38	10724	100
Yes	91.67	8.33	300	100
Informed Choice				
No	96.12	3.88	3579	100
Yes	93.79	6.21	7444	100
Decision-makers to use contraception				
Respondent only	94.75	5.25	4118	100
Husband Only	96.82	3.18	724	100
Joint Decision	94.14	5.86	6181	100
Contraceptive method switched				
Pill	94.60	5.40	2407	100
Injectables	94.04	5.96	6595	100
Other short-term contraceptive methods	94.91	5.09	648	100
Traditional	96.65	3.35	1374	100
Contraceptive Intent				
Spacing	95.15	4.85	5997	100
Limiting	93.83	6.17	5026	100
Age				100
15-24	93.00	7.00	1771	
25-34	94.24	5.76	4514	100
35 above	95.42	4.58	4738	100
Education				100
Lower	94.99	5.01	3410	
Middle	94.60	5.40	6376	100
Higher	93.13	6.87	1237	100
Place of Residence				100
Rural	94.13	5.87	5811	
Urban	95.03	4.97	5212	100
Working Status				
Not employed	95.06	4.94	5547	100
Employed	94.01	5.99	5477	100
Parity				
0-1	95.21	4.79	3487	100
2-3	94.26	5.74	6536	100

4+	94.01	5.99	1001	100
Wealth Index				
Lower	94.83	5.17	4329	100
Higher	94.37	5.63	6694	100

5.3 Inferential Analysis Results

Analysis using survival analysis. The Gompertz proportional hazard model was used in this study because the Akaike's information criterion (AIC) and Bayesian information criterion (BIC) criteria were low compared to other models and represented the switching contraceptive process. From Table 3, the coefficient of the Gompertz model can be interpreted based on the hazard ratio (HR) value. Hazard ratio (HR) is the relative likelihood of an individual experiencing an event than other categories. In this study, the hazard ratio (HR) is the relative likelihood of an individual experiencing switching contraceptive to LAPM compared to different types.

Table 3 shows that the risk of switching the contraceptive method to LAPM is higher for women whose decision to use contraception is made by their wives only and who have obtained an informed choice from health workers. Those who got the informed choice tended to switch to LAPM more than those who did not get the informed choice from health workers. The risk of contraceptive switching from non-LAPM to LAPM is higher for those who use birth control pills. There is an increased tendency to switch from non-LAPM to LAPM among those aged 15-24 years, highly educated, living in rural areas. Those who have four or more children who are still alive and have a high wealth index have an increased tendency to switch to LAPM methods.

Table 3. Parameter Estimator and Hazard Ratio of Contraceptive Switching to LAPM

_t	Coef	Haz. Ratio	Std. Err.	z	P>z	[95% Conf.Interval]		Sig
Field Worker								
No								
Yes	0.361	1.435	0.298	1.740	0.082	0.955	2.156	*
Informed Choice								
No								
Yes	0.380	1.462	0.145	3.830	0.000	1.204	1.776	*
Decision-makers to use contraception								
Respondent only								
Husband Only	-0.478	0.620	0.136	-2.180	0.029	0.403	0.953	**
Joint Decision	0.130	1.139	0.100	1.480	0.138	0.959	1.353	
Contraceptive method switched								
Pill								
Injectables	-0.160	0.852	0.088	-1.540	0.123	0.696	1.044	****
Other short-term contraceptive methods	-0.048	0.953	0.194	-0.240	0.813	0.640	1.419	
Traditional	-0.556	0.573	0.101	-3.140	0.002	0.405	0.811	*
Contraceptive Intent								
Spacing								
Limiting	0.258	1.295	0.132	2.540	0.011	1.060	1.581	**
Age								
15-24								
25-34	-0.899	0.407	0.054	-6.730	0.000	0.313	0.529	*
35 above	-1.526	0.218	0.034	-9.750	0.000	0.160	0.296	*
Education								
Lower								
Middle	0.082	1.085	0.108	0.820	0.413	0.892	1.320	
Higher	0.522	1.685	0.250	3.520	0.000	1.260	2.253	*

Place of Residence								
Rural								
Urban	-0.156	0.855	0.076	-1.760	0.078	0.719	1.018	***
Working Status								
Not employed								
Employed	0.114	1.121	0.095	1.350	0.177	0.950	1.323	
Parity								
0-1								
2-3	0.599	1.819	0.244	4.470	0.000	1.399	2.366	*
4+	0.929	2.533	0.500	4.710	0.000	1.720	3.729	*
Wealth Index								
Lower								
Higher	0.161	1.175	0.112	1.690	0.092	0.974	1.416	***
/gamma		-0.005	0.003	-1.540	0.124	-0.011	0.001	

**** p<0.15
*** p<0.1
** p<0.05
* p<0.01

5.4 Discussion

The family planning program has an effort to regulate the birth of children, spacing of births, the ideal age for childbirth and regulate unwanted pregnancy. Family planning program as an effort to create a healthy and quality family (Kementrian Kesehatan Republik Indonesia 2014). Contraception is a method used as an attempt to regulate pregnancy. But not all contraceptive methods are effective at preventing pregnancy. A person who still wishes to continue using contraception, if she wants to change the method then she will switch to a more effective method to prevent unwanted pregnancy.

The switching of the contraceptive method in this study was the switching of non-LAPM which consisted of short-term contraceptive methods and traditional methods, switching to long-acting and permanent methods (LAPM). The results of the analysis in this study indicate that contraceptive switching in Indonesia is still very low. These results are in line with research conducted by Salamiah (2018).

Contraceptive switching is closely related to the choice of the contraceptive method (Fathonah 1996). Hamill et al. (1990) in their research developed a conceptual framework related to the choice of a contraceptive method from time to time-based on individual characteristics. The results of this study also showed that among users of the non-LAPM method, there was 33 percent who did not get an informed choice from health workers. An informed choice is an important indicator in monitoring quality family planning services (Badan Pusat Statistik et al. 2013). Officers who provide contraceptive services are required to inform the side effects that may arise from each contraceptive method and what to do if they experience side effects and alternative methods that can be chosen. The information obtained through this counseling service will help to overcome side effects and reduce the dropout rate. When experiencing side effects, complications, and failures, they are not surprised because they already understand the contraception they have chosen. For family planning participants, if they experience side effects, complications will quickly seek treatment at a service center (Prijatni and Rahayu 2016).

In inferential terms, the informed choice has a positive and significant effect on a switching contraceptive to LAPM. Someone who gets an informed choice, namely knowledge about the side effects of family planning used, how to overcome these side effects or other alternative contraceptive methods that can be used as a 1.48 times greater tendency to switch contraception to MKJP than those who do not get an informed choice.

This result is by following the hypothesis. A person who gets an informed choice from health workers has a greater chance of changing the contraceptive method to LAPM. These results are in line with research conducted by Salamiah (2018), in which respondents who received an informed choice had a greater chance of switching to using LAPM. The informed choice received by a person shows that he/she gets information about the side effects of family planning used, how to deal with these side effects, or about various choices about contraceptive methods

from health professionals. After obtaining the informed choice, he will make choices regarding the contraceptive method to use by following under him and his family and the purpose of his family planning. When a person gets an informed choice, he will get information about various contraceptive methods. When they experience side effects from the contraception they use and feel uncomfortable, armed with this information will encourage non-LAPM contraceptive users to switch to a more effective method, namely the long-acting and permanent method (LAPM).

The status of getting field worker's visits has a significant effect on the status of contraceptive switching. Visits by family planning field officers indicate an interaction between health workers and family planning acceptors. Visiting officers has a statistically significant effect on the tendency to change the contraceptive device used. Visits by field officers reflect the form of post-service counseling that has had a good impact on changing the use of contraceptives to LAPM.

These individual characteristics affect a person's choice of a contraceptive method to use and influence a person's decision to continue using a contraceptive method or stop and then not use certain contraceptives or switch to another method. The results of the analysis in this study indicate that the decision-maker of contraceptive use affects the switching of contraception from non-LAPM to LAPM. The decision made by the husband alone has a negative and significant effect on switching contraception to LAPM. Decisions made only by husbands were 0.6 times lower than those made by women alone. This study shows that the decision to change the method to LAPM is strongly influenced by the consent of the wife. This is probably due to the growth mindset and attitude of a woman where she has the initiative and power to make family planning choices and is responsible for her decisions. This high-powered woman plays an important role in switching contraceptive. They will tend to change the contraceptive method from non LAPM to LAPM.

The decision to use contraception that was taken together had a positive effect on switching contraceptive, but not significantly. Decisions made jointly had a 1.63 times greater tendency to switch to LAPM methods compared to contraceptive decisions made by only wives. These results suggest that switching contraceptive to LAPM will increase when the awareness of a husband to take part in determining contraceptive choices and encourages his wife to both to decide to use certain contraceptives increases. The use of LAPM contraception is closely related to its level of effectiveness in preventing unintended pregnancy and higher costs than other methods. So when someone decides to switch long-term contraceptive methods, they will tend to communicate with their partners before switching to LAPM. The higher tendency to use LAPM in those whose decision to use contraception was shared is in line with research conducted by Mahendra et al. (2019). The results of research by Mahendra et al. (2019) showed that women who had made decisions together with their partners were 2.3 times more likely to use LAPM than women who made their own decisions about contraceptive use.

Other literature also shows a significant relationship between the role of partners in decision making to use contraceptive methods and their continuation. According to Hidayah and Lubis' research, the husband's support influences contraceptive choice and affects contraceptive discontinuation (Hidayah and Lubis 2019). The effect of partner support is also in line with the results of a study conducted by Henry-Lee (2001) where the role of partners has a major influence on contraceptive use. The partner's participation in this decision-making and the partner's consent to the use of contraception is the key to the success of the family planning program (Henry-Lee 2001).

6. Conclusion

This study shows that the quality of family planning services is a factor that has a significant effect on contraceptive switching to LAPM. Family planning officer's visit and informed choice significantly influence the possibility of family planning (FP) acceptor to switch their contraceptive method from non LAPM to LAPM. To encourage the switching of contraceptive methods to more effective ways, health workers need to increase visits to FP acceptor and increase the provision of informed choices to women who can use contraception. The government also needs to encourage more women to participate in empowerment programs, especially for family planning acceptors and couples of childbearing age. This is done as an effort to increase the role of women in decision-making about family planning use.

Contraception-related factors, namely previous contraceptive methods and contraceptive intentions, had a significant effect on contraceptive switching. Judging from the socio-economic and demographic factors, only working status does not significantly affect the switching of contraceptives from non-LAPM to LAPM.

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