Women, Midwives, and Midwifery
https://wmmjournal.org
Publisher: Asosiasi Pendidikan Kebidanan Indonesia (AIPKIND)
http://aipkind.org

Determinants of Long-acting Reversible Contraception (LARC) Use among Women of Reproductive Age in Indonesia: 2017 IDHS Data Analysis

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ABSTRACT

Background: The achievement of active Long-acting reversible contraceptive (LARC) participants for West Kalimantan Province was only 9.54% in 2019 and it has not meet with the main performance target in the Strategic Plan (2015-2019) 15.19%. **Research Objectives:** To analyze the determinants of the use of LARC by women of reproductive age in West Kalimantan based on the results of the 2017 IDHS data analysis. **Research Method:** Analytical research with cross-sectional research design and using data from the 2017 IDHS in West Kalimantan. The research sample was all women of reproductive age aged 15-49 years in West Kalimantan who were using contraception, namely 501 respondents. **Results:** Bivariate analysis illustrates that there is a correlation between age (p value = 0.008), education level (p value = 0.002), parity (p value = 0.009), place of residence (p value = 0.005, economic status (p value = 0.000), and internet access with the status of LARC usage by women of reproductive age in West Kalimantan (p value = 0.000). Other results concluded that there was no relationship between the variables of work (p value = 0.3), knowledge (p value = 0.674), distance to health services (p value = 0.2), health promotion by health workers (p value = 0.478), spousal support (p value = 0.8) and the variable number of wanted children with the status of women of reproductive age using LARC in West Kalimantan (p value = 0.173). **Conclusion:** There is a need to increase education and reach of contraceptive services for husbands by conduction collaborative works with public figure, religious leaders and women's organizations in carrying out health promotions about contraception in various public facilities.

Keywords: *LARC, women of reproductive age, SDKI 2017, West Kalimantan*

Corresponding email: *Lydia.febriy@gmail.com*
Submitted: 03 May 2023; Accepted: 30 October 2023; Published: 31 October 2023

ISSN: 2775-4448
DOI: https://doi.org/10.36749/wmm.3.3.45-55.2023

BACKGROUND

Indonesia is the fourth most populous country in the world after the United States, India and China. The 2020 Population Census (SP2020) recorded that Indonesia's population in September 2020 was 270.20 million people. These results show an increase in the population of 32.56 million compared to SP2010 or an average of 3.26 million per year with a population growth rate of 1.25 percentage points per year in the period 2010-2020 (Statistik, 2021)

To overcome these population problems, the government since 1970 through the National Population and Family Planning Agency (BKKBN) initiated the Family Planning (KB) program. This idea is stated as an international development target on the seventh point of sustainable development goals (Sustainable Development Goals/SDGs), namely guaranteeing universal access to sexual and reproductive health services. This idea is also poured into the national program through the 2015-2019 National Medium Term Development Plan (RPJMN).

The fact that the family planning program has been running for quite a long time, there are still targets that have not been achieved so far. Analysis of the 2017 IDHS data found that the use of traditional birth control methods is still increasing. The 2017 IDHS results also show that 64% of women of reproductive age have used contraception, but only 13% of women use LARC such as IUDs, implants, and sterilization (13%). Even though, LARC methods is the method with the highest protection rate (95%) for preventing pregnancy, it does not contain hormones so it is safe for the mother's health in the long term. Apart from that, fertility can also return immediately after removing the contraceptive device (Kementrian Kesehatan RI, 2018) .

For West Kalimantan Province, the achievement of active LARC family planning participants was 9.54 in 2019 and this number decreased from the achievement of active LARC family planning participants of the previous year, which was 10.3. The achievements in these 2 years are still far from the main performance target in the Strategic Plan (2015-2019), which is 15.19. From the same data source, it is explained that injections are still the contraceptive method most used by married women, followed by pills, implants and IUDs. Together with MOP, implants for KB, IUD and MOW are LARC which are recommended for use in the KKBPK program (BKKBN, 2020).

LARC is the most effective contraceptive (95%), so it is expected to contribute to reducing the national TFR rate. However, the previous survey results explained that the use of LARC is still low in many provinces in Indonesia.

The determinants of low use of LARC include age, place of residence, social and economic status, parity, knowledge, level of education, and husband's involvement. Further analysis concluded that wives tend to choose to use LARC 17 times if their husbands are involved in choosing contraceptives (Hariastuti et al., 2021).

Other research results based on the 2017 IDHS data source in Indonesia explain that LARC users in Indonesia are only 21.05%. This means that out of 5 currently

married women of reproductive age who are using contraception, only 1 woman of reproductive age uses LARC. It can also be seen that 3 out of 5 provinces on Kalimantan Island indicate that women of reproductive age in Kalimantan Island are still dominated by non-LARC users. Based on the results of inferential analysis, the status of using LARC is influenced by age, education level, age at first marriage, children born alive, access to information, decision makers, husband's age, and husband's education level (Syahidah & Budyanra, 2021).

The determinants of the use of LARC by women of reproductive age in West Kalimantan need to be studied in more depth because the target achievement is still far from expectations and can ultimately contribute to various good impacts on reproductive health. If followed for a longer time, these impacts can affect various sectors of the country. Therefore, researchers want to further analyze the Factor Prediction Model for the Use of LARC by Women of Reproductive Age in West Kalimantan.

OBJECTIVE

This study analyzes "Determinants of Long-acting Reversible Contraception (LARC) Use among Women of Reproductive Age in Indonesia: 2017 IDHS Data Analysis".

METHODS

The type of research used is analytical research with a cross-sectional research design. The research conducted was research using IDHS 2017 data in West Kalimantan which aims to determine the determinants of the use of LARC by women of reproductive age in West Kalimantan. The population in this study were all women of childbearing age (women of reproductive age) aged 15-49 who were respondents to the 2017 IDHS survey in West Kalimantan Province, namely 1026 respondents. The sampling technique used purposive sampling. The inclusion criteria were women of reproductive age in West Kalimantan, aged 15-49 years who used contraception and had a complete data set in the 2017 IDHS. The number of samples in this study was 501 respondents. Data were analyzed univariately, bivariately with chi-square and multivariately using multiple logistic regression to develop the model.

RESULTS

The research sample was 501 women of childbearing age who were using contraception, which were analyzed in the table 1.

Table 1. Frequency Distribution of Respondents based on Individual Characteristics and Behavior

Variables	Category	N	%
LARC Usage	LARC	75	15

	Beside LARC	426	85
Age	20-35 years	264	52,7
	<20 dan >35 years	237	47,3
Employment Status	Employed	222	44,3
	Not working	279	55,7
Education	≤9 years	338	67,5
	>9 years	163	32,5
Parity	0-2 children	289	57,7
	>2 children	212	42,3
Residency	Urban	164	32,7
	Rural	337	67,3
Economic Status	Middle to bottom	356	71,1
	Upper middle to top	145	28.9
Knowledge about LARC	Know	501	100
	Don't know	0	0
Internet Access	Using the Internet	126	25.1
	Not Using the Internet	366	73.1
Distance of nearby KB	Near	432	86.2
services	Far	69	13.8
Health Promotion by Health	Ever	95	19
Workers	Never	406	81
Spouse Support	Supportive	486	97
	Unsupportive	15	3
Desired children number	0-2 children	270	53.9
	>2 children	231	46,1
	Total	501	100

The next analysis carried out is an analysis of the two variables that are suspected to be related or correlated. In this analysis, the Chi Square (x) statistical test was carried out. The results of the analysis are presented in the form of table 2.

Table 2. The Relationship Between The Characteristics of Respondents and The Use of LARC

Variables	Category	LARC Usage				Total	%	*P-Value*	*OR*	*95% CI*
		LARC	%	Non LARC	%					
Age	20-35 years	46	61,3	191	44,8	237	47,3	0.008	1.952	1.181-3.225
	<20 dan >35 years	29	38,7	235	55,2	264	52,7			
Employment Status	Employed	37	49.3	185	43.4	222	44.3	0.3	1.268	0.776-2.074
	Not working	38	50.7	241	56.6	279	55.7			
Education	≤9 years	36	36	127	29.8	163	32.5	0.002	2.173	1.320-3.577
	>9 years	39	52	299	70,2	338	67.5			
Parity	0-2 children	42	56	170	39.9	212	42.3	0.009	1.917	1.168-3.146
	>2 children	33	44	256	60.1	289	57.7			
Residency	Urban	35	46.7	129	30.3	164	32.7	0,005	2.015	1.224-3.316
	Rural	40	53.3	297	69.7	337	67.3			
Economic Status	Middle to bottom	39	52	106	24.9	145	28.9	0.000	3.27	1997-5411
	Upper middle to top	36	48	320	75.1	356	71.1			

Knowledge about LARC	Know traditional and natural method	0	0	1	0	1	0.2	0.674		1.134-1.221
	Know modern method	75	100	425	99.8	500	99.8			
Internet Access	Using the Internet	31	41.3	95	22.3	126	25.1	0.000	2.45	1470-4101
	Not Using the Internet	44	58.7	331	77.7	375	74.9			
Distance of nearby KB services	Near	68	90.7	364	85.4	432	86.2	0.2	1.6	0.726-3.769
	Far	7	9.3	62	14.6	69	13.8			
Health Promotion by Health Workers	Ever	12	16	83	19.5	95	19	0.478	0.787	0.406-1526
	Never	63	84	343	80.5	406	81			
Spouse Support	Supportive	73	97.3	413	96.9	468	97	0.8	1.149	0.254-5.197
	Unsupportive	2	2.7	13	3.1	15	3			
Desired children number	0-2 children	35	46.7	235	55.2	270	53.9	0.173	0.711	0.435-1.163
	>2 children	40	53.3	191	44.8	231	46.1			

DISCUSSION

The results of the analysis show that there is a significant relationship between age, education, parity, area of residence, economic status, and access to the internet with the use of LARC contraception among women of reproductive age in West Kalimantan, with all p values <0.05.

Other analyzes found no significant relationship between work variables, knowledge about contraception, contraceptive service distance, health promotion by health workers, partner support and the desired number of children with the use of LARC in women of reproductive age in West Kalimantan with all p values > 0.05.

The results of this study indicate that age has a significant effect on the use of LARC with (p-value = 0.008 <0.05) and an OR value of 1.952 with a 95% CI 1.181-3.225. These results illustrate that women of reproductive age who have a high-risk age (<20 and >35 years) are 1,952 times more likely to use LARC compared to women of healthy reproductive age.

Age groups can cause differences in the need for types of contraception. The age group of women over 30 years tends to choose solid contraception such as vasectomy or tubectomy, because it can be used long-term and has minimal complications, so it is effective for terminating a pregnancy. So, the main choice of contraception is the pattern of family planning needs according to age. It is like an inverted U curve, namely low in women in the age group 15-19 and 45-49 years and high in the age group 30-34 years. Young women tend to use injection and pill birth control methods, while those who are older use LARC such as IUDs, implants, and sterilization (Kantorová et al., 2021).

The results of a similar study conducted by Bolarinwa & Olagunju (2020) The results showed that 21.0% of women were using traditional methods. 14.8% of the sampled women were using LARCs methods. Findings further showed that at both levels of analyses, there is a significant relationship (P<0.05 and P=0.00 for binary and

logistic regression, respectively) between knowledge of LARCs and the use of LARCs (Bolarinwa & Olagunju, 2020).

The results of the bivariate analysis showed that the level of education had a significant effect on the use of LARC with (p-value=0.002 <0.05) and OR 2.173 95%CI 1320-3577, which means that mothers with basic education (graduated elementary, junior high and not completed high school)) have the opportunity to use LARC 2,173 times compared to mothers who have graduated from high school and college. The results of further analysis of the highest proportion of LARC user education were completing high school education by 23%. This proportion is higher than not attending school (2.7%), not completing primary school (16%), and completing primary school (18.7%).

This is not in accordance with the theory which states that the higher the level of education, the more rational decision making will be. The research results of Hariastuti, et al (2021) explain that the higher the education of a woman of reproductive age, the higher the opportunity to use LARC (Hariastuti et al., 2021).

Apart from just education, there are many factors that can influence family planning decisions, such as the results of a study entitled analysis of determinants of the use of LARC in women of reproductive age in East Java Province in 2012 using secondary data from the 2012 IDHS with a total of 171 respondents showing variables that influence the use of LARC by women of reproductive age (p = 0.008), sources of family planning services (p = 0.000), area of residence (p = 0.016) (Triyanto, 2019).

The next variable is the place of residence that significantly influences the use of LARC with (p-value=0.005 <0.05) with OR = 2 (95% CI 1.224-3.316) which means that women of reproductive age who are in rural areas have 2 times more chances to use LARC.

The results of this study are in accordance with research entitled Determinants of Long-Term Contraceptive Method Selection (LARC at women of reproductive age in Central Java Province. The research also uses secondary data sourced from the 2018 SUSENAS data. The results of this study also describe the use of LARC only around 14.37% with a factor what affects them is that women of reproductive age who live in rural areas are 1.16 times more likely to use LARC (Kaafi & Nurwahyuni, 2021).

The results of other bivariate analysis show that economic status has a significant effect on the use of LARC with (p-value = 0.000 <0.05) and OR = 3.27 with 95% CI 1.997-5.411, which means that mothers with upper-middle to upper-class economies have the opportunity to use LARC 3.27 times.

Based on the results of the analysis using Pearson Chi Square, a significance of 0.001 (<0.05) was obtained, statistically indicating that there is a significant influence between work on the choice of contraceptives. High-income groups have a greater opportunity to use LARC because they have higher accessibility, especially in terms of finance, to pay for the installation costs of LARC. Sufficient income can make a person

able to pay for transportation and procedural costs for using LARC, especially in private health care facilities (Magdalena et al., 2021).

These results are inconsistent with the results of Hariastuti's research, et al (2021) explaining that women of reproductive age who have sufficient and good knowledge tend to be 2 times more likely to use LARC compared to those with less knowledge. High knowledge describes a broader level of insight making it easier to accept new innovations and make appropriate decisions (Hariastuti et al., 2021).

This is supported by another research, including Safitri (2021), The results of this study explain that knowledge has a positive correlation with the selection and use of LARC. Knowledge will make the mother determine the mindset, attitude, and behavior in choosing the type and place of health services in using contraceptives, including the mother already knows the side effects, comfort and safety. Good knowledge is obtained from education and a lot of one's experience in seeking information, including participating in health education activities. However, good knowledge is also not absolute to make a mother choose LARC because there are many factors that can influence a person's attitude, including the cost of using alcohol and the side effects obtained (Safitri, 2021).

The results of the bivariate analysis show that access to the internet has a significant effect on the use of LARC with (p-value=0.000 <0.05) and OR=2.45 with 95% CI 1.470-4.101, which means that mothers who use the internet have a 2.45 chance of using LARC.

The results of the study explain that the chances of using LARC are greater for women of reproductive age who have media access, this is because they get educational media and get information regarding types of contraceptive methods (Saloranta et al., 2022).

The results of this study are also in accordance with the results of a study entitled The Influence of Age, Occupation, Number of Children and Mass Media on The Selection of Long Term Contraception Methods in New Contraception Acceptors. The results of the study concluded that women of reproductive age who have access to mass media have a greater chance of using LARC with a p value of 0.000. The mass media allows women of reproductive age to gain access to information as widely as possible so that it can become a medium of communication and a source of power for control tools, management to media innovation which in society can be utilized as a substitute for power or other resources (Zainiyah et al., 2020).

The results of the bivariate analysis showed that access to contraceptive services did not significantly influence the use of LARC with (p-value = 0.2 <0.05) OR 1.6 times 95% CI 0.726-3769, which means that women of reproductive age who have access to close contraceptive services have a 1.6 chance times using LARC.

The results of other analyzes explain the same thing. In addition to service distance, the availability of non-hormonal KB LARC services is related to the use of LARC. Availability of services related to the completeness of tools, operational

facilities, transportation used in the delivery of health services. Statistical analysis explains that p value = 0.05 which means that respondents who have a complete range of family planning services have the possibility of choosing non-hormonal LARC (Bolarinwa & Olagunju, 2020)

Research in Ethiopia using EDHS data, concluded that women of reproductive age who received visits from health workers regarding the use of contraception had a greater opportunity to use LARC. Therefore, to increase the scope of use, a health service access approach is needed (Merera et al., 2022).

The results of other bivariate analysis showed that the promotion of contraception by health workers did not significantly influence the use of LARC (p-value = 0.478 < 0.05).

The results of this study are not in accordance with some of the results of previous studies. The results of Yuanti's research (2018) also explain that education by health workers regarding family planning methods can increase the chances that women of reproductive age prefer to use LARC. Promotion and education delivered by health workers guarantees the correctness of the information compared to other sources of information. Sources of information can affect a person's knowledge and attitudes, both from people and from the media related to human groups giving the possibility to be influenced by others. Sources of information are usually used to arouse "awareness" or public awareness of an innovation, not yet expected to change behavior (Yuanti, 2018).

The results of other bivariate analysis show that spousal support has no significant effect on the use of LARC.

The results of this study are in accordance with the results of a study entitled Husband's influence in the use of long-acting reversible contraception (LARC) method in Special Region of Yogyakarta, Indonesia. The results showed that there was no relationship between husband's knowledge (p value = 0.330), husband's knowledge attitude (p value = 1.000), and husband's support (p value = 0.771) on the choice of LARC in the Special Region of Yogyakarta (Utami et al., 2022).

For this research, actually 97% of women of reproductive age have received support, but have not yet used LARC. Much information concludes that there is a lack of complete information about LARC received by husbands so that in providing support for choosing contraceptives only in general. Some incorrect information about LARC that husbands receive includes MOP causing reduced libido, the IUD makes it feel like being stabbed during coitus and the presence of prisoners and the IUD makes the wife have frequent vaginal discharge (Linton et al., 2023).

The results of the bivariate analysis showed that access to contraceptive services had no significant effect on the use of LARC (p-value = 0.173 > 0.05).

The results of this study are different from the results of several other studies, including the results of the research by Syahidah & Budyanra (2021) which showed that women of reproductive age who already have more than 2 children also have a greater

tendency to use LARC compared to when women of reproductive age still have less than or equal to 2 children (Syahidah & Budyanra, 2021).

Multivariate analysis was carried out to determine the effect of each independent variable simultaneously on the dependent variable. The variables analyzed by regression were independent variables which had a bivariate relationship with a p value ≤ 0.25. Therefore, of the 12 independent variables, only 8 were included in the logistic regression model. The variables included in the regression model are age, education, parity, area of residence, economic status, internet access, distance to family planning health services, and desired number of children. The results of the analysis can be seen in the following table:

Table 3. Results of Multivariate Analysis of Factors Associated with the Use of LARC

							95% C.I.for EXP(B)	
		B	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(B)*	*Lower*	*Upper*
Step 4[a]	V201Parity category(1)	-.649	.285	5.185	1	.023	.522	.299	.914
	Desired number of children category(1)	.336	.289	1.353	1	.245	1.400	.794	2.466
	Economic status category(1)	-.981	.304	10.428	1	.001	.375	.207	.680
	Internet access category (1)	-.593	.322	3.398	1	.065	.553	.294	1.038
	Constant	2.433	.294	68.488	1	.000	11.397		
Step 5[a]	V201Parity category(1)	-.772	.265	8.455	1	.004	.462	.275	.778
	Desired number of children category(1)	-.957	.302	10.027	1	.002	.384	.212	.694
	Economic status category(1)	-.546	.318	2.951	1	.086	.579	.311	1.080
	Internet access category (1)	2.638	.241	119.714	1	.000	13.983		

With the backward method, there are five steps to arrive at the final result. The variables that have the most influence on the use of LARC are categories of internet use, parity, and economic status with the strength of the relationship can be seen from the value of OR (Expβ). The strength of the relationship obtained is internet use (OR= 0.579), parity (OR= 0.462) and economic status (OR= 0.384).

The regression equation model used from the above analysis is:
y=constant+a1x1+ a2x2+ a3x3
y=2638+(-0.546) internet usage + (-0.957) (economic status) + (-0.772) parity
The application of the equation obtained is to predict the probability of women of reproductive age using LARC by using the formula:
p= 1/(1+e-y)
Information:

P = probability of using LARC

e = natural number = 2.7

y= constant+a1x1+ a2x2+ a3x3

a = coefficient value of each variable

x = independent variable value

CONCLUSION

There is a relationship between the age, education level, parity, place of residence, economic status and internet access variables and found no significant relationship between work, service distance, knowledge, health promotion, spousal support, and desired number of children on the use of LARC by women of reproductive age in West Kalimantan. Suggestions for further research, to analyze more programs related to the use of LARC are very welcomed.

ACKNOWLEDGMENTS:

We thank the BKKBN for providing us with this research grant and for facilitating the research process up to publication.

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