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Association between empowerment factors and the utilization of long-acting and permanent contraceptive methods among married women in Indonesia

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ABSTRACT

Background and purpose: The use of long-acting and permanent methods (LAPMs) of contraception becomes one of the government's efforts to ensure the continuity of family planning program. Factors associated with the LAPMs use can be contingent upon the study context or setting that includes socio-demographic, social and cultural norms, and women empowerment factors. This study aims to examine the associations between women empowerment and the LAPMs use.

Methods: This was a cross-sectional study involving 97,316 records of married women aged 15-49 years, retrieved from three rounds of the Indonesia Demographic and Health Survey/IDHS (2007, 2012, and 2017). The dependent variable is the LAPMs use, whereas the main independent variables were women empowerment factors (i.e., educational level, occupational status, participation in household decision-making, attitude toward wife-beating). Adjusted associations between women empowerment and the LAMPs use were examined using binary logistic regression by controlling the influence of socio-demographic variables as potential confounders.

Results: About half of women in this study were 35-49 years old and completed primary education. Education level was found to be positively associated with the use of LAPMs. Working women increased the likelihood of using LAPMs by 1.10 (95%CI: 1.03-1.17) times. In addition, those who approved for being beaten by their husband in any circumstance were less likely to use LAPMs (OR=0.91; 95%CI: 0.86-0.97). However, participation in household decision-making was not associated with the LAMPs use.

Conclusion: Women empowerment factors that included educational level, occupational status, and the attitude toward wife-beating were associated with the use of LAPMs among Indonesian married women. Therefore, improving women empowerment by increasing women's educational level, participation in labor force, and reducing women's vulnerability to domestic violence can increase the uptake of LAPMs.

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INTRODUCTION

Based on the population census, the population in Indonesia reached 252,124,458 in 2014 and population density about 131.76 population/km², indicating the population growth has not been successfully controlled.[1] The uncontrolled population growth can negatively affect the food availability and the quality of human life. To avert these adverse impacts, the government continues reducing the birth rate through family planning programs, such as increasing the use of contraception. Contraception methods consist of two types, namely the long-acting and permanent methods (LAPMs) of contraception and non-LAPMs. Non-LAPMs comprise injections, pills, and condoms, while LAPMs encompass intrauterine device (IUD), female sterilization, male sterilization and implants.[2,3]

The family planning program is managed by the National Board of Population and Family which aims to reduce the birth rate. The use of LAPMs as one of family planning program increased from 20.5% to 21.1% (2015-2016).[4] The increase of LAPMs uptake is one of the family planning program's targets because LAPMs enable the continuity of participation in family planning program among couples of reproductive ages. The use of LAPMs also potentially reduces the drop-out of non-LAPMs, such as injections and pills. In addition, the advantage of increasing the use of LAPMs is to help governments to meet the needs of contraception in a targeted manner.[5]

Previous studies found that factors associated with the use of LAPMs are contingent upon the study settings. Determinants of the LAPMs use might include socio-demographic characteristics, socio-economic, and socio-cultural factors. Findings from studies in Zambia suggest that age and educational level of women and their husband or partners, area of residence, and women's employment status were factors associated with the use of LAPMs.[6,7] A study by Tekelab et. al. found that the LAPMs were more likely used by women, with higher education, from wealthier families, and with higher women empowerment.[8]

The Gender Inequality Index (GII) is commonly used to determine the level of women empowerment in a particular country with higher scores indicating more inequality or unfavorable women empowerment level on a 0-to-1 possible range. Indonesia currently has a high GII of 0.5 and became the third highest among ASEAN countries after Lao PDR and Cambodia. A high GII can also indicate that Human Development Index (HDI) of men is higher than women.[9] Women empowerment can be considered as an important factor that can influence women's use of LAPMs. Women empowerment can be defined as a process in which women gain greater control and increased ability to make decisions about their circumstances. In many low-and-middle income countries including Indonesia, the presence of gender inequality can negatively affect women empowerment, and hence, this manifests as a barrier in improving women's sexual and reproductive health outcomes, including the use of contraceptive.[10] Specifically, women empowerment indicators that can affect the choice of reproductive health, including the use of LAPMs are women's educational level, employment status, women's disagreement toward domestic violence (wife-beating), and level of participation in household decision-making.[11]

Past work showed a positive association between women empowerment and the use of LAPMs. Women with the highest empowerment score were between 1.31 and 1.82 times more likely to use LAPMs compared to women who had zero empowerment score.[12,13] In addition, previous studies found that education as an indicator of women empowerment was associated with the use of contraception in Indonesia and Ethiopia.[14,15] Other indicators of women empowerment such as occupational status has been studied by Khan and Islam in Bangladesh, participation in household decision-making in Indonesia, and the attitude towards domestic violence perpetrated by husbands was investigated by Nanda et. al in Tanzania in relation to women's reproductive health outcomes.[16–18]

While several studies from other countries have assessed the association between indicators of women empowerment and the use of LAPMs, no study is present within the Indonesian context so far. This study aims to provide the information regarding the trend of LAPMs use in Indonesia and examine the adjusted association between women empowerment (educational level, occupational status, women participation in household decision-making, and women's approval toward wife-beating) and the LAPMs use after controlling the influence of potential confounders that included socio-demographic variables.

METHODS

Data
This was a cross-sectional study using data from three recent rounds of the Indonesian Demographic and Health Survey (IDHS) in 2007, 2012 and 2017. The approval for using the dataset has been granted from The DHS Program by submitting an online application (https://dhsprogram.com/). The IDHS is a nationally representative survey conducted by several institutions, such as the National Population and Family Planning Agency, the Central Bureau of Statistics, and the Ministry of Health. Data collection was carried out in 34 provinces. The sampling technique was multi-stage random sampling that consisted of the initial selection of census blocks by considering the differences between urban and rural areas using a probability proportional to size, followed by the selection of households in each census block using the systematic sampling.[19] This study used data of married women aged 15-49 years. The sample in this study was 97,316 married women, consisting of 30,869; 32,361 and 34,086 records from 2007, 2012, and 2017 IDHS, respectively. The content and methodology of the IDHS has been approved by ICF Institutional Review Board (IRB) and the Ministry of Health of the Republic of Indonesia.

Variables
The dependent variable in this study is the use of LAPMs (IUD, female sterilization, male sterilization and implants). Records of married women who used one of the aforementioned LAPMs during the survey was assigned as "yes", whilst those who did not use contraception or used non-LAPMs were categorized as "no". The main independent variables of this study were indicators of women empowerment that comprised educational level, occupational status, women's participation in household decision-making, and women's approval towards wife-beating. In addition, the influence of other variables was controlled in this study, such as age of married women, the age difference between women and their husband, husband's educational status, number of living children, household socio-economic status, residential area, and region.

This study adopted the framework from Phan's study, and indicators of women empowerment available from the IDHS. The indicators of women empowerment included educational level, labor force participation, the attitude towards wife-beating, and participation in household decision-making.[20] For this present study, we used the available categories provided in the dataset for women's education levels and occupational status. The attitude towards wife-beating was assessed based on married women's approvals on the following questions, "*In your opinion, is a husband justified in beating or beating his wife in the following situations: 1) If the wife leaves without telling her husband? 2) If the wife neglects the children? 3) If the wife quarrels with her husband? 4) If the wife refuses to have sex with her husband? 5) If the wife cooks the food until it is burnt?*" A "yes" response for being beaten for at least one out of five circumstances above was grouped as "yes" for the attitude towards wife-beating, following as was done in a previous study.[21] Participation

in household decision-making was evaluated using women's responses on their involvement in four domains, such as deciding her health care, visiting family or relatives, deciding the use of husband's income, and household expenditures. Women's participation in each domain was scored 1, and 0 for the otherwise. A total score ranging from 0 to 4 was regrouped as low (0), medium (1-3), and high (4) participation in household decision-making. The grouping for this variable was informed by past work.[10,21]

For most of the socio-demographic characteristics, this study used the available categories or values provided in the IDHS dataset, such as age of married women, husband's educational status, number of living children, household socio-economic status, and residential area. In this study, the variable of age difference between the couples (women and their husbands) was developed following published literature in Indonesia.[22] Household socio-economic status is presented by the wealth index which was developed using principal component analysis based on household ownership of several selected assets (e.g. television, access to water and sanitation, etc.).[19] In addition, regions in Indonesia were classified into some geographical areas, such as Java, Bali and Nusa Tenggara, Kalimantan, Sulawesi, Sumatera, Papua and Maluku, following some previous studies.[10,22]

Statistics analysis

Bivariate analysis using cross-tabulation was used to determine the difference in the percentage (prevalence) of the LAPMs use by the categories or values of independent variables. In addition, simple logistic regression was also performed to examine the association between each independent variable and the LAPMs use. Multivariate analysis using logistic regression was applied to examine the adjusted associations between women empowerment variables and the LAPMs use. This study developed two multivariate models. Model 1 presents the association between women empowerment variables only and the LAPMs use. Meanwhile, Model 2 examined adjusted associations between women empowerment and the LAPMs use after controlling the influence

of all potential confounders from socio-demographic characteristics. Due to the multivariate analysis pooled three rounds of the dataset (2007, 2012, 2017), the multivariate model also included and controlled the influence of the survey year as a potential confounder. The results were presented with odds ratio (OR), 95% confidence level (CI) and p-values. Variables with p-value <0.05 were considered statistically significant. Since this study used nationally representative survey data with a complex sampling design, weighted percentages were reported.

RESULTS

Table 1 describes the trend of LAPMs use, women empowerment factors, and socio-demographic characteristics of married women in 10 years (2007-2017). The prevalence of the LAPMs use decreased slightly from 10.94% in 2007 to 10.60% in 2012, and then increased to be 13.40% in 2017. For women empowerment factors, the proportion of married women who completed primary education or less was more than 50% in three rounds of survey with trend decreased from 2007 to 2017. By contrast, married women who completed secondary and higher education increased in the last decade. In a 10-year period, the proportion of women who participated in labor force was more than half with increasing proportion from 2007 to 2012, and then decreasing in 2017. The percentages of married women with high participation in household decision-making were about 70%. The percentages of high participation in household decision-making increased from 2007 to 2012 before declining in 2017. Similar trend was also reported for women's attitude toward domestic violence. Around one out of three Indonesian married women accepted for being beaten by their husband at least at one from five given situations. The proportions of women's approval on domestic violence showed a decline in 2017.

For socio-demographic characteristics, there was a decline for married women from young age group (15-24 years) over time. Meanwhile, the proportion of married women having a younger husband or with the age as same as them

increased in last 10 years. Similar to the trend of women's educational level, husband who completed secondary and higher education also increased over a decade. On average, married women only had two living children in the family with its declining trend. Married women were almost equally distributed to each of the quintiles of socio-economic status with the lowest and decreased proportions of women from poorest households were observed. A balanced proportion of married women recruited from urban and rural areas was also reported. More than half of married women in this study settled Java region with the proportion of 61.51%, 59.63%, and 59.17% in 2007, 2012, and 2017, respectively.

Table 2 presents the weighted prevalence of the LAPMs use by independent variables. This table also displays the unadjusted association between each independent variable and the LAPMs use. Overall, findings from bivariate analysis suggest that some women empowerment factors, such as women's educational level, occupational status, and the attitude toward wife-beating were associated with the LAPMs use. Meanwhile, women's participation in household decision-making was not associated with the LAPMs use. All variables from socio-demographic characteristics were associated with the LAPMs use, except the age difference between married women and their husband.

Table 3 presents multivariate analyses between women empowerment factors and the LAPMs use. Two multivariate models were developed for this study. Model 1 examined the associations between women empowerment factors and the LAPMs use without adjusting for potential confounders (i.e., survey year and socio-demographic variables). Meanwhile Model 2 investigated adjusted associations between women empowerment factors and the LAMPs use after taking into account the influence of all potential confounders. We followed a previous study in developing the multivariate models.[10] Focusing on women empowerment, associations between women empowerment factors (i.e., educational level, occupational status, and attitude toward wife-beating) and the LAPMs use remained statistically

Table 1. The LAPMs use, women empowerment factors, and socio-demographic characteristics of married women in Indonesia

Variables	IDHS 2007 (n=30,869) %*	IDHS 2012 (n=32,361) %*	IDHS 2017 (n=34,086) %*
Dependent variable			
LAPMs use			
No	89.06	89.40	86.60
Yes	10.94	10.60	13.40
missing or not reported			
Women empowerment factors			
Educational level			
No education	23.00	16.05	10.80
Primary	51.74	50.72	50.83
Secondary	18.35	23.20	26.09
Higher	6.90	10.03	12.28
missing or not reported	*0.01*		
Occupational status			
Unemployed	40.45	36.69	38.36
Employed	59.41	63.23	61.55
missing or not reported	*0.14*	*0.08*	*0.09*
Participation in decision-making			
Low	4.25	5.82	3.96
Medium	26.32	23.47	27.56
High	69.33	70.36	68.31
missing or not reported	*0.10*	*0.34*	*0.16*
Attitude toward wife-beating			
No	68.69	66.50	69.14
Yes	31.17	33.47	30.80
missing or not reported	*0.14*	*0.03*	*0.06*
Socio-demographic variables			
Women's age			
15-24 years	15.41	13.76	11.10
25-34 years	36.70	36.70	33.95
35-49 years	47.90	49.53	54.94
Husband's age			
≤wife's age	13.32	14.87	17.02
1-5 years older	48.76	48.61	48.06
6-10 years older	27.53	26.53	25.57
>10 years older	10.02	9.83	9.09
missing or not reported	*0.37*	*0.15*	*0.27*
Husband's educational level			
No education	20.26	14.80	10.82
Primary	48.10	47.42	46.13
Secondary	23.21	27.35	30.81
Higher	8.22	10.18	11.95
missing or not reported	*0.21*	*0.24*	*0.29*
Number of living children			
Mean (SD)	2.27 (1.57)	2.12 (1.42)	2.07 (1.29)
Wealth index			
Poorest	18.66	17.59	17.32
Poorer	20.15	19.77	19.96
Middle	20.50	20.56	20.77
Richer	20.55	21.66	21.33
Richest	20.13	20.42	20.62
Place of residence			
Urban	41.52	49.30	48.54
Rural	58.48	50.70	51.46
Region			
Java	61.51	59.63	59.17
Bali and Nusa Tenggara	5.74	5.39	5.30
Sumatera	17. 86	20.28	20.71
Kalimantan	5.92	5.82	5.95
Sulawesi	7.02	6.67	6.68
Maluku and Papua	1.95	2.21	2.20

*weighted percentage

Table 2. **The prevalence of LAPMs use by independent variables and bivariate analysis of factors associated with LAPMs use in Indonesia**

Variables	%* (n=97,316)	Unadjusted OR (95%CI)	p-value
Year of IDHS			
2007	10.94	Ref	
2012	10.60	0.97 (0.89–1.04)	0.377
2017	13.40	1.26 (1.18–1.35)	<0.001
Women empowerment factors			
Educational level			
No education	10.66	Ref	
Primary	10.25	0.96 (0.88–1.05)	0.328
Secondary	12.96	1.25 (1.14–1.39)	<0.001
Higher	18.04	1.84 (1.66–2.05)	<0.001
Occupational status			
Unemployed	10.43	Ref	
Employed	12.48	1.22 (1.15–1.30)	<0.001
Participation in decision-making			
Low	10.91	Ref	
Medium	10.90	1.00 (0.87–1.15)	0.893
High	12.07	1.12 (0.98–1.28)	0.100
Attitude toward wife-beating			
No	12.39	Ref	
Yes	10.23	0.81 (0.76–0.86)	<0.001
Socio-demographic variables			
Women's age			
15-24 years	4.22	Ref	
25-34 years	8.60	2.14 (1.88–2.44)	<0.001
35-49 years	15.84	3.85 (3.77–4.85)	<0.001
Husband's age			
≤wife's age	11.69	Ref	
1-5 years older	11.44	0.98 (0.90–1.06)	0.549
6-10 years older	12.50	1.08 (0.99–1.18)	0.085
>10 years older	10.90	0.93 (0.82–1.04)	0.118
Husband's educational level			
No education	11.20	Ref	
Primary	10.01	0.88 (0.81–0.97)	0.006
Secondary	12.34	1.12 (1.02–1.23)	0.021
Higher	18.62	1.81 (1.63–2.01)	<0.001
Number of living children			
Mean (SD)	2.69 (1.27)	1.29 (1.28–1.31)	<0.001
Wealth index			
Poorest	8.98	Ref	
Poorer	10.50	1.19 (1.08–1.31)	<0.001
Middle	10.84	1.23 (1.12–1.35)	<0.001
Richer	11.19	1.28 (1.16–1.40)	<0.001
Richest	16.65	2.02 (1.86–2.21)	<0.001
Place of residence			
Urban	12.93	Ref	
Rural	10.63	0.80 (0.76–0.85)	<0.001
Region			
Java	12.34	Ref	Ref
Bali and Nusa Tenggara	16.48	1.40 (1.30–1.51)	<0.001
Sumatera	10.75	0.86 (0.80–0.91)	<0.001
Kalimantan	6.98	0.53 (0.48–0.59)	<0.001
Sulawesi	10.00	0.79 (0.73–0.85)	<0.001
Maluku and Papua	8.53	0.66 (0.59 – 0.74)	<0.001

*weighted percentage; O=odds ratio; CI=confidence interval; ref=reference group

Table 3. Multivariate analysis of associations between women empowerment factors and the LAPMs use

Variables	Model 1		Model 2	
	Adjusted OR (95%CI)	p-value	Adjusted OR (95%CI)	p-value
Year of IDHS				
2007			Ref	
2012			0.95 (0.88–1.03)	0.230
2017			1.20 (1.11–1.29)	<0.001
Women empowerment factors				
Educational level				
No education	Ref		Ref	
Primary	0.98 (0.90–1.07)	0.651	1.27 (1.14–1.41)	<0.001
Secondary	1.27 (1.16–1.39)	<0.001	1.68 (1.49–1.90)	<0.001
Higher	1.79 (1.61–2.00)	<0.001	2.09 (1.81–2.43)	<0.001
Occupational status				
Unemployed	Ref		Ref	
Employed	1.18 (1.11–1.25)	<0.001	1.10 (1.03–1.17)	0.004
Participation in decision-making				
Low	Ref		Ref	
Medium	1.00 (0.85–1.14)	0.860	0.93 (0.80–1.07)	0.298
High	1.05 (0.92–1.20)	0.477	0.99 (0.86–1.13)	0.854
Attitude toward wife-beating				
No	Ref		Ref	
Yes	0.84 (0.79–0.89)	<0.001	0.91 (0.86–0.97)	0.005
Socio-demographic variables				
Women's age				
15-24 years			Ref	
25-34 years			1.58 (1.38–1.81)	<0.001
35-49 years			2.54 (2.20–2.92)	<0.001
Husband's age				
≤wife's age			Ref	
1-5 years older			1.07 (0.99–1.16)	0.097
6-10 years older			1.24 (1.13–1.36)	<0.001
>10 years older			1.09 (0.97–1.23)	0.160
Husband's educational level				
No education			Ref	
Primary			0.98 (0.89–1.09)	0.751
Secondary			1.09 (0.97–1.23)	0.130
Higher			1.35 (1.25–1.30)	<0.001
Number of living children				
Mean (SD)			1.27 (1.25–1.30)	<0.001
Wealth index				
Poorest			Ref	
Poorer			1.19 (1.08–1.32)	0.001
Middle			1.15 (1.03–1.28)	0.010
Richer			1.09 (0.98–1.23)	0.101
Richest			1.31 (1.17–1.48)	<0.001
Place of residence				
Urban			Ref	
Rural			1.06 (0.99–1.13)	0.098
Region				
Java			Ref	Ref
Bali and Nusa Tenggara			1.38 (1.27–1.50)	<0.001
Sumatera			0.77 (0.72–0.83)	<0.001
Kalimantan			0.54 (0.49–0.60)	<0.001
Sulawesi			0.73 (0.67–0.79)	<0.001
Maluku and Papua			0.62 (0.55–0.70)	<0.001

OR=odds ratio; CI=confidence interval; Ref=reference group

significant after controlling potential confounders. Based on confounder-adjusted model (Model 2), the likelihood of the LAPMs use increased by the increase in married women's educational level. Married women who completed primary, secondary, and higher education were 1.27 (95%CI: 1.14-1.41), 1.68 (95%CI: 1.49-1.90), and 2.09 (95%CI: 1.81-2.43) times more likely to use LAPMs compared to their counterparts without education, respectively. In addition, those who worked increased the likelihood of using the LAPMs by 1.10 (95%CI: 1.03-1.17) times. Meanwhile, married women who accepted domestic violence perpetrated by their husband were less likely to use LAPMs (OR=0.91; 95%CI: 0.86-0.97). Other socio-demographic characteristics were found to be associated with the LAPMs use, except urban-rural status.

DISCUSSION

Overall, findings from this study suggest robust associations between women empowerment factors (i.e., education level, employment status, and attitude toward wife-beating) and the utilization of the LAPMs. This is in agreement with findings from a study by Do and Kurimoto that found a positive association between the overall empowerment score and the use of contraception in African countries with relative-risk ratio ranging between 1.1-1.3.[23] Similarly, Palamuleni and Adebowale found the same result that there was an increase in the prevalence of LAPMs use by the increase in women empowerment level. Women empowerment can naturally reflect women's independence in decision-making and the rights to bear and care for children.[13] Therefore, the higher women empowerment, the more likely women utilize reproductive health services, including the use of LAPMs.

Similar to the findings from this present study on the association between educational level and the LAPMs use, a study from Ethiopia showed that a higher level of women's education was associated with the use of LAPMs (OR=1.82; 95%CI: 1.09-3.04).[24] Another study also found that women with secondary education and above were more likely to use long-term and permanent contraception in the future than those with primary education and below.[25] A higher educational level might help women to act rationally, and

hence, they are more likely to accept new messages, ideas, and benefits regarding the LAPMs use. Women's educational level can encourage women's decision-making on family planning issues, particularly in the choice of contraceptive methods.[26,27]

Occupational status might be related to the income level which can play an important role on the LAPMs use. Previous findings from several studies showed that the use of LAPMS was more common in high-income groups.[28] A study by Azmoude et al. also suggests that the likelihood of the LAPMs use increased among those with high income (OR=8.364; 95%CI: 3.99-17.51).[29] However, different results from studies in Bangladesh, India, and Haiti appeared that poorer women were more likely to use LAPMs than richer women.[30] This may suggest that different study context and policy environment might influence the study findings. In addition, working opportunity can also make someone expand their knowledge through wider social relationships and contacts where they tend to get more information, particularly on contraceptive methods.[31] A study by Mekonnen et al. also identified that richer households were more likely to reach a spouse's agreement on family planning than the poor ones.[32]

Another women empowerment factor is the attitude toward domestic violence. This study found that women who approved wife-beating were less likely to use LAPMs. This finding is in line with Blackstone which stated that women who justified wife-beating in one or more circumstances were less likely to use contraception, and were more likely to have their contraceptive needs not being met. Tolerance toward violence which is considered a normal phenomenon in a woman's life can negatively affect the sense of entitlement or self-worth among women. The lower self-esteem can become a barrier in accessing medical care, particularly reproductive health services, such as LAPMs.[16,33]

In this study, women's participation in decision making was not associated with the LAPMs use. This can be attributed to the lack of influence of participation in decision-making on the use of LAPMs within the Indonesian context. Therefore, it is necessary to have further research on the association between women's participation in decision-making and the use of LAPMs. Whereas, several other

studies showed that women's participation in decision-making was statistically significant associated with the use of modern contraceptives after adjusting for age, education, religion, parity, wealth, and residential status. Participation in household decision-making can enable women to make more personal decisions regarding their reproductive health, such as the use of modern contraceptive methods.[33,34]

The findings from this study suggest some implications to improve the use of LAPMs among Indonesian married women by focusing on women empowerment factors. The stakeholders need to increase the women's access to secondary and high education that is vital to improving women's health and wellbeing, including the LAPMs uptake. Women who spend more time in education are also less likely to experience early marriage. They tend to have better knowledge of health and have more opportunities to participate in the labor force. This situation can put women at an advantage where they have more power to make an informed decision about their health and disapprove of domestic violence for any reason in the household setting. In addition, the government can collaborate with some organizations to campaign and strengthen the implementation of policies on reducing domestic violence against women. Furthermore, the government can integrate women empowerment programs, such as improving women's negotiating skills about the use of family planning services and educating women about available family planning services.[35] These efforts are expected to increase the coverage of LAPMs.

CONCLUSION

Women empowerment factors that included educational level, occupational status, and the attitude toward wife-beating were associated with the use of LAPMs. Improving women empowerment by increasing women's education, labor force participation, and reducing women vulnerability to domestic violence can potentially increase the use of LAPMs. Findings from this study suggest that collaboration between multidisciplinary sectors, such as education, health, social, and other organizations to work together in increasing women empowerment might

result in better women's reproductive health outcomes in Indonesia.

AUTHOR CONTRIBUTION

NNAA designed and conceptualized the study, analyzed the data, wrote the first draft, and edited the manuscript. EM provided critical inputs and edited the manuscript. IGNEP peer-reviewed the data analysis and edited the manuscript.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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