

MODERN CONTRACEPTIVE USE AMONG URBAN AND RURAL YOUNG MARRIED WOMEN IN INDONESIA

*Sari Kistiana¹, Andhika Ajie Baskoro¹

¹Research Centre for Population, National Research and Innovation Agency, 12710 South Jakarta, Jakarta, Indonesia

*Corresponding Author: Sari Kistiana ; Email: sarikistiana@gmail.com

Published by Fakultas Kesehatan Masyarakat Universitas Airlangga

ABSTRACT

Keywords:
modern contraception,
family planning,
young women

Family planning is recognized as an essential key to reducing neonatal and maternal mortality and morbidity. The purpose of the study is to explore whether predictors of the use of modern contraceptives among young married women differ by place of residence. The data were drawn from the 2019 Indonesia Survey of Population, Family Planning, and Family Development. This study limited the sample of women aged 15-24 who were married or living together with a partner and not pregnant, creating a total sample of 3,927 women. Logistic regression was done to see the association between modern contraceptive use and the socio-demographic variables for each group of samples and put the place of residence variable as the interaction term. The total number of living children and region revealed to be significant predictors in the use of modern contraceptives among urban and rural young women. Urban young women with 1-2 living children had higher odds (OR=24.68; p=0.000) than rural ones (OR=15.25; p=0.000) of using modern contraceptives. Rural women residing in other islands (non-Java Bali) were less affected (OR=0.59; p=0.000) than urban young married women (OR=0.61; p=0.000) in using modern contraceptives. The use of modern contraceptives would be improved by the dissemination of information, education, and communication regarding the health risks associated with having more than two children. Family planning policies should be modified to accommodate the specific needs of different residences within geographical regions.

ABSTRAK

Kata Kunci:
kontrasepsi modern,
keluarga berencana,
ibu muda

Keluarga berencana diakui sebagai kunci penting untuk mengurangi angka kematian dan kesakitan neonatal dan ibunya. Tujuan dari studi ini adalah untuk mengetahui apakah prediktor penggunaan kontrasepsi modern di kalangan wanita menikah muda berbeda berdasarkan wilayah tempat tinggal. Data diambil dari Survei Kinerja dan Akuntabilitas Program Kependudukan, Keluarga Berencana dan Pembangunan Keluarga Indonesia tahun 2019. Studi ini membatasi sampel hanya pada wanita berusia 15-24 tahun yang sudah menikah atau tinggal bersama pasangan dan tidak hamil, sehingga menghasilkan total sampel sebanyak 3.927 wanita. Regresi logistik digunakan untuk melihat hubungan antara pemakaian kontrasepsi modern dengan variabel sosio-demografi pada masing-masing kelompok sampel dan variabel wilayah tempat tinggal digunakan untuk memodelkan hubungan tersebut. Jumlah anak masih hidup dan wilayah menjadi faktor signifikan dalam pemakaian kontrasepsi modern di kalangan wanita menikah muda perkotaan dan perdesaan. Wanita muda di perkotaan dengan 1-2 anak masih hidup memiliki peluang yang lebih tinggi (OR=24.68; p=0.000) dibandingkan dengan wanita muda di perdesaan (OR=15.25; p=0.000) untuk menggunakan kontrasepsi modern. Wanita perdesaan yang tinggal di pulau lain (non Jawa-Bali) tidak terlalu terpengaruh (OR=0.59; p=0.000) dibandingkan dengan wanita menikah muda yang tinggal di perkotaan (OR=0.61; p=0.000) dalam memakai kontrasepsi modern. Penggunaan kontrasepsi modern akan meningkat melalui penyebaran informasi, edukasi dan komunikasi mengenai risiko kesehatan yang terkait dengan memiliki anak lebih dari dua. Kebijakan keluarga berencana harus disesuaikan untuk mengakomodasi kebutuhan spesifik dari berbagai wilayah tempat tinggal dalam kawasan geografis.

INTRODUCTION

Contraceptive use among young women would postpone the first pregnancy, as early sexual activity might result in an early and risky first birth. Young women's increased risk of experiencing obstetric complications may be due to premature pelvic development (1–3). Additionally, contraception could lessen the high risks to mothers and newborns by having too many children and too close pregnancies (2,4,5) among young mothers. Also, teenage mothers have a higher chance of premature birth or low birth-weight conditions (1). Children born to teenage women have a higher mortality rate than children born to women in their 20s and 30s. Furthermore, young women face many barriers to contraceptive services, such as limited access to information, the stigma surrounding contraception, and fear of immediate and long-term side effects (3,4,6–8).

Indonesia is diverse, divided into 34 provinces and more than 600 languages spoken by 633 ethnic groups. Given the vastness and diversity of the nation, it is essential to analyze health outcomes at the state level to inform programs and policies. In addition, even within a state, there could be significant differences in health outcomes between urban and rural populations. The differences in the health outcomes are that women who reside in rural areas have a higher total fertility rate (TFR) than women who live in urban areas (2.6 vs 2.3 children) (9). The age-specific fertility rates (ASFR) among Indonesian women aged 20 to 24 were 111 births per 1,000 women, and among teenage women aged 15 to 19 were 36 births per 1,000 women (9). The ASFR for women under 25 is also lower in urban areas than in rural (9). Furthermore, compared to births of women who live in urban areas, the under-5 mortality rate is substantially higher for rural women (33 deaths per 1,000 pregnancies vs 31 deaths per 1,000 pregnancies) (9).

Most contraceptive studies conducted in Indonesia have investigated the determinants at the national level (10–14), without distinguishing between the urban-rural disparity, which has different health outcomes. As such, this study aims to fill this gap in the current literature that urban-rural settings have not been extensively researched. Specifically, the study aims to determine urban and rural

differences in modern contraceptive use and the associated predictors in Indonesia. The focus on modern contraceptive use in this study is due to the centerpiece of the national family planning program in Indonesia to increase access and services of modern contraceptive use (15) considering that traditional methods are relatively less effective. In contrast, modern contraceptive methods significantly reduce fertility (5). The study's findings can provide valuable data to inform the development of effective programs and policies aimed at improving the contraceptive prevalence rate among young women, based on their area of residence.

METHODS

The study used secondary data from the 2019 Indonesia Survey on Family Planning, Population, and the Development of Family. The Indonesia Survey on Family Planning is a national survey managed by the Central Bureau of Statistics (Badan Pusat Statistik/BPS) and National Population and Family Planning Board (Badan Kependudukan dan Keluarga Berencana Nasional/BKKBN). In this survey, 59,824 women were interviewed using stratified multistage sampling as the nationally and provincially representative sample of households. This study uses a weighted sample of 3,927 unpregnant married women aged 15–24 for statistical analysis.

Modern contraceptives were the outcome variable for this study, which was categorized by using and not using. Modern contraceptive methods are effective, legal, and safe methods to control pregnancy, which are female sterilization, male sterilization, Intra Uterine Device (IUD), implants, injectables (one month and three months), pills, female condoms, condoms for males, emergency contraception, Lactational Amenorrhea Method (LAM), and intravaginal/diaphragm. The independent predictors were age (6,16–18), region (19,20), educational level (16–18,20), working status (6,16), the total number of living children (6,16,19), desire for children (6,19,20), family planning discussion with a health professional, contraceptive methods' knowledge, media exposure for family planning (6,16), household wealth index

(6,16,17,20) and had been visited by a health worker in the past 12 months.

This study begins with a descriptive analysis of dependent and independent variables to describe characteristics of women who were married aged 15 to 24 in both urban and rural areas. Bivariate logistic regression was utilized separately for both urban and rural residents to investigate the association between each independent variable and the use of modern contraceptives. All analyses were considered significant at a p-value of less than 0.05. The multivariate analysis estimated the association between selected social, economic, and demographic variables and the dependent variables using the binary logistic regression model. All the variables significant in bivariate analyses were simultaneously included in the model. Within the multivariate analysis, a p value lower than 0.05 and the Odds Ratio (OR) along with the Confidence Interval (CI) were employed to demonstrate a statistically significant connection between the independent variable and the usage of modern contraceptives.

RESULTS

Social and Demographic Characteristics of Young Married Women

Out of all the young married women included in the study, the majority (63.5%) reside in rural areas, whereas 36.5% live in urban regions. Table 1 shows that most young women were in the older group (20-24 years old). About 74% of urban young women live in Java-Bali Islands. Regarding education, 55.2% of young women in urban areas had

secondary or higher education, compared to only 37.3% of young women in rural areas who met this requirement. Young women residing in rural areas appear less educated than urban women. Most young women in the sample were unemployed during the survey.

Regarding the total number of living children, between both groups, there was no significant difference; the percentages were similar and generally had 1-2 children. More than 80% of young women in both groups want more children. Discussion about family planning with health workers was slightly higher in rural young women. About 37.2% of young urban women had a good knowledge of contraceptive methods, while only 30.0% of rural young women had a good knowledge. Two-thirds (66.2%) of women in urban areas and 60.6% in rural areas had some exposure to any media. Young women in rural areas are more financially disadvantaged than those in urban areas; in this study, 37.9% of young women from urban areas and 14.1% of rural young women were from wealthy wealth index households. A more significant share of urban (85.1%) and rural (84.7%) young women were not visited by health workers a year before the survey.

Modern contraceptives were more significant among young rural women (60%) than young urban women (55%). Figure 1 presents the proportion of married women aged 15 to 24 using modern contraceptive methods and place of residence in 2019. The most popular method among young women in urban and rural areas was three months of injectables. Figure 1 also demonstrates that pills were second to 3-month injections.

Table 1. Percentage Distribution of Women by Place of Residence and Socio-Demographic Characteristics, Indonesia 2019

Background characteristics	Place of residence						p value
	Urban		Rural		Total		
	Number	(%)	Number	(%)	Number	(%)	
Age							0.000
15-19	150	(10.5)	366	(14.7)	516	(13.1)	
20-24	1,284	(89.5)	2,127	(85.3)	3,411	(86.9)	
Region							0.000
Java-Bali	1,057	(73.8)	1,401	(56.2)	2,458	(62.6)	
Other islands	377	(26.2)	1,092	(43.8)	1,469	(37.4)	
Education							0.000
None	4	(0.3)	30	(1.2)	34	(0.9)	
Primary	639	(44.6)	1,532	(61.5)	2,171	(55.3)	

Background characteristics	Place of residence						<i>p value</i>
	Urban		Rural		Total		
	Number (%)		Number (%)		Number (%)		
Secondary	669	(46.7)	848	(34.0)	1,517	(38.6)	0.002
Higher	122	(8.5)	83	(3.3)	205	(5.2)	
Working Status							0.002
Not working	1,110	(77.4)	2,034	(81.6)	3,144	(80.1)	0.491
Working	324	(22.6)	459	(18.4)	783	(19.9)	
The Total Number of Living Children							0.491
0	276	(19.2)	481	(19.3)	757	(19.3)	0.099
1-2	1,147	(80.0)	1,983	(79.6)	3,130	(79.7)	
3+	11	(0.8)	29	(1.1)	40	(1.0)	
Desire to Have Children							0.100
No more children	219	(15.3)	332	(13.3)	551	(14.0)	0.100
Wanted more	1,215	(84.7)	2,161	(86.7)	3,376	(86.0)	
Discussion with Health Worker about Family Planning							0.000
No	1,058	(73.8)	1,777	(71.3)	2,835	(72.2)	0.000
Yes	376	(26.2)	716	(28.7)	1,092	(27.8)	
Contraceptive Methods' Knowledge							0.001
Poor	118	(8.2)	322	(12.9)	440	(11.2)	0.001
Fair	782	(54.6)	1,424	(57.1)	2,206	(56.2)	
Good	533	(37.2)	748	(30.0)	1,281	(32.6)	
FP Media Exposure							0.000
No	485	(33.8)	982	(39.4)	1,467	(37.4)	0.000
Yes	949	(66.2)	1,511	(60.6)	2,460	(62.6)	
Wealth Index							0.731
Poor	174	(12.1)	1,005	(40.3)	1,179	(30.0)	0.731
Middle	717	(50.0)	1,136	(45.6)	1,853	(47.2)	
Rich	543	(37.9)	352	(14.1)	895	(22.8)	
Health Worker's Visit							0.002
No	1,221	(85.1)	2,112	(84.7)	3,333	(84.9)	0.002
Yes	213	(14.9)	381	(15.3)	594	(15.1)	
Modern Contraceptive Use							0.002
Non users	647	(45.1)	997	(40.0)	1,644	(41.9)	0.002
Users	787	(54.9)	1,497	(60.0)	2,283	(58.1)	
number of women (weighted)	1,434	(36.5)	2,493	(63.5)	3,927		

Bivariate Analysis

Regarding the bivariate analysis, this study revealed predictors that could have a relationship with the utilization of modern contraceptive methods. The analysis uses the chi-square test to compare the use of modern contraceptives in both rural and urban areas, with significance for all analyses set at 5%. Table 2 displays the percentage of modern methods of contraceptive use among young women in rural and urban areas by selected socio-economy and demographic characteristics.

The findings reveal that in each group, modern contraceptive use was significantly associated with age, region, education, the total

number of children who live, a desire for children, discussed with a health worker about family planning, contraceptive methods knowledge, and family planning media exposure. The use of modern contraception is significantly associated with age. Comparing the two groups, older women living in urban areas are less likely than younger women living in urban to utilize modern contraceptive methods. In contrast, younger rural women are less likely to utilize modern contraception than their urban counterparts.

Regarding the regional aspect, young married women living on the islands outside Java-Bali Islands are less likely to utilize modern contraceptives than those living in

Java and Bali Islands. Rural young women who live in Java-Bali Islands are more significant in using modern contraception methods than urban young women. Surprisingly, the more schooling young women have, the less likely they are to use modern contraceptive methods. Over 60% of

young women in each group with only a primary education used modern contraceptives, but fewer in those with higher education reported using modern contraceptives. When comparing the two groups, education has a slightly more substantial effect on women who live in rural than urban women.

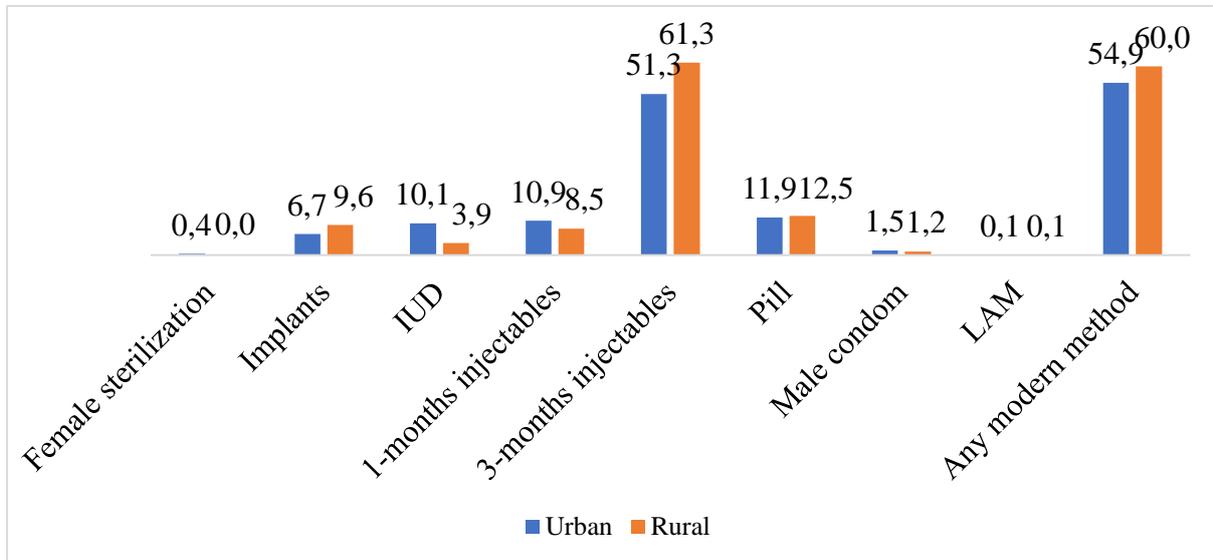


Figure 1. Percentage Distribution of Modern Contraceptive Use by Place of Residence

The research discovered that among all residential groups, the usage of contraceptive methods was highest among women who had 1-2 living children. Women who wanted a child had a lower percentage of utilizing modern contraceptive methods. It can be seen from Table 2 that, among young women who do not want any more children, significantly fewer young women living in urban areas appeared using modern methods of contraceptives compared with women living in rural areas.

Results also show the highest number of women discussing family planning with health workers in urban and rural areas. Regarding the knowledge aspect, this study found that modern contraception is associated positively with knowledge of contraceptive

methods. Among groups, the usage of contraception is most prevalent among young women who possess a good understanding of contraceptive methods. Rural young women are more likely to experience gaps in knowledge of contraceptive methods. Among women who live in urban areas, modern contraceptive use was highest in those women who had not been exposed to family planning in the media. On the contrary, among women who reside in rural areas, the utilization of modern contraceptives was highest for those who had exposure to family planning. The utilization of modern contraception by both groups does not seem to have any correlation with either their employment status or their household's wealth index.

Table 2. Percentage Distribution of Young Married Women Currently Using Modern Contraception Method by Place of Residence and Socio-Economic Characteristics, Indonesia 2019

Background Characteristics	Place of Residence	
	Urban	Rural
Age		
15-19	66.4	49.5
20-24	53.5	61.8
p value	0.004	0.000

Background Characteristics	Place of Residence	
	Urban	Rural
Region		
Java-Bali	57.4	64.1
Other islands	47.6	54.8
p value	0.001	0.000
Education		
None	75.0	50.0
Primary	61.7	62.5
Secondary	51.6	57.3
Higher	36.9	46.3
p value	0.000	0.003
Working Status		
Not working	55.9	59.9
Working	51.2	60.8
p value	0.151	0.761
Number of Living Children		
0	6.9	13.5
1-2	66.4	71.3
3+	54.5	57.1
p value	0.000	0.000
Desire for Children		
No more children	65.3	74.1
Wanted more	53.0	57.9
p value	0.001	0.000
Discussion with Health Worker about Family Planning		
No	50.4	56.8
Yes	67.6	68.0
p value	0.000	0.000
Contraceptive Methods' Knowledge		
Poor	45.8	37.6
Fair	52.7	62.6
Good	60.0	64.7
p value	0.004	0.000
FP Media Exposure		
No	59.0	56.6
Yes	52.7	62.3
p value	0.029	0.006
Wealth Index		
Poor	55.2	59.4
Middle	55.3	60.6
Rich	54.1	60.2
p value	0.915	0.842
Health Worker's Visit		
No	53.0	60.0
Yes	65.7	60.1
p value	0.001	1.000
number of women (weighted)	1,434	2,493

Multivariate Results

The logistic regression findings of modern contraceptive use and socio-economic characteristics among young women can be

found in Table 3. The factors of modern contraceptive methods used among women in this study are nearly identical in both groups.

Factors Associated with the Use of Modern Contraception among Urban Women

Table 3 displays contraceptive use predictors among women living in urban areas. It is observed that women with 1-2 living children, having family planning discussions with a health worker, living in Java-Bali Islands, and having an older age have significantly higher odds of using modern contraception on multivariable logistic regression analysis.

Compared to young women who did not have children, women with 1-2 children (OR=24.676; 95% CI:14.993-40.612) and women with three or more children (OR=23.777; 95% CI:6.308-89.626) were more likely to use modern methods of contraception. Young married women who discussed with a health professional about family planning were 1.5 times (OR=1.499; 95% CI:1.124-1.999) more likely to use modern methods of contraception than their counterparts. Compared to women living in Java-Bali Islands, the odds of using contraceptive methods were lower (OR=0.612; 95% CI:0.467-0.801) than among young women living in other islands. Regarding their age, young women of older age (20 to 24 years) were less likely (OR=0.530; 95% CI: 0.344-0.818) to utilize modern contraception compared with 15 to 19 years married women.

Factors Associated with the Use of Modern Contraception among Rural Women

The factors influencing modern contraceptive methods use among women who

live in rural areas can be found in Table 3. The total number of living children, the knowledge of various contraceptive methods, the desire for more children, and region showed significant association with the use of modern methods of contraception among young rural women.

Compared to nulliparous women, the odds of using modern contraception among young married women with 1-2 children were 15 times (OR=15.248; 95% CI:11.330-20.519). Women with three or more children were eight times (OR=7.899; 95% CI:3.460-18.033) more likely to utilize modern contraceptive methods than women without children.

Compared to those young married women with poor contraceptive methods knowledge, the odds of contraceptive use were almost two times higher among young married women with fair knowledge of methods of contraception (OR=1.895; 95% CI:1.406-2.554) and among young women with a good knowledge of methods of contraception (OR=1.931; 95% CI: 1.381-2.699). Women who did not desire more children were more likely to utilize modern contraceptives than women who desired more children (OR=0.638; 95% CI:0.480-0.848). Regarding regions within the country, the odds of using modern contraceptives among young married women living on islands other than Java-Bali Islands were 0.6 times lower (OR=0.591; 95% CI:0.0489-0.715) compared to young women living on Java-Bali Islands.

Table 3. Results from Logistic Regression of Modern Contraceptive Use and Socio-Demographic Factors among Young Married Women, Indonesia 2019.

Background Characteristics	Urban		Rural	
	OR (95% CI)	p value	OR (95% CI)	p value
Age				
15-19	1		1	
20-24	0.530 (0.344-0.818)	0.004	0.779 (0.587-1.035)	0.085
Region				
Java-Bali	1		1	
Other islands	0.612 (0.467-0.801)	0.000	0.591 (0.489-0.715)	0.000
Education				
None	1		1	
Primary	0.198 (0.009-4.192)	0.298	1.458 (0.626-3.394)	0.382
Secondary	0.148 (0.007-3.126)	0.219	1.334 (0.567-3.138)	0.509
Higher	0.099 (0.005-2.159)	0.141	0.852 (0.319-2.271)	0.748

Background Characteristics	Urban		Rural	
	OR (95% CI)	p value	OR (95% CI)	p value
Number of Living Children				
0	1		1	
1-2	24.676 (14.993-40.612)	0.000	15.248 (11.330-20.519)	0.000
3+	23.777 (6.308-89.626)	0.000	7.899 (3.460-18.033)	0.000
Desire to have Children				
No more children	1		1	
Wanted more	1.043 (0.754-1.444)	0.799	0.638 (0.480-0.848)	0.002
Discussed FP with Health Worker				
No	1		1	
yes	1.499 (1.124-1.999)	0.006	1.214 (0.984-1.497)	0.070
Knowledge of Contraceptive Methods				
Poor	1		1	
Fair	1.165 (0.717-1.895)	0.537	1.895 (1.406-2.554)	0.000
Good	1.729 (1.034-2.889)	0.037	1.931 (1.381-2.699)	0.000
FP Media Exposure				
No	1		1	
Yes	0.785 (0.599-1.029)	0.079	1.009 (0.829-1.228)	0.929

Notes: 1, reference category

DISCUSSION

This study assesses the socio-economic and demographic determinants associated with modern contraceptive methods among married, non-pregnant women under 25 years old who lived in rural and urban areas of Indonesia. The data uses the 2019 Indonesia Accountability and Program Performance Survey of Family Planning, Population, and Family Development for young (age 15-24) married and non-pregnant women.

Surprisingly, modern contraceptive utilization was higher (60%) among young women residing in rural areas than those in urban areas (55%). Similar to other studies in Indonesia (10,11) and Sub-Saharan Africa (6), women in rural areas tended to utilize modern methods of contraception than in urban areas women. This situation partially could be explained by the fact that urban women are exposed to information about the possibility of undesirable side effects and the risk of subfecundity of hormonal contraception, thus raising awareness to consider using modern contraceptive methods and choosing traditional methods (21–23). In contrast, studies in Nepal (16), Nigeria (24) and Bangladesh (19) discovered that the proportion of current use of modern contraception was higher among urban young women.

Results indicated that the total number of living children and region were associated significantly with modern contraception among urban and rural women. Other factors like discussing family planning with health professionals and age are also significant predictors in explaining modern contraceptive use among young urban women. In addition, among rural young women, the predictors were contraceptive knowledge methods and desire to have children.

As expected, the total number of living children was one of the significant factors in describing the use of modern contraceptives among the two groups, urban and rural young married women. Compared to women with no children, women with 1 to 2 living children were more likely to utilize modern contraceptive methods in rural and urban areas. This finding is similar with studies in Nepal (16), Jordan (22), Ethiopia (25–27), Ghana (28) Senegal (29), and Sub-Saharan Africa (6). This finding could be attributed to the growing need for spacing or limiting pregnancy after having one or two children, while for most young women, having one or two children was considered as the ideal value (27). Another possible explanation is that when women reached their desired number of children, they started using contraception in order to avoid pregnancy (26).

The region was found to have significant effects on the use of modern

contraceptives. Similarly, other studies in Indonesia found that women who live in Java-Bali Islands were higher in modern contraceptive use compared with other major islands in Indonesia (10,11). This finding might explain the situation related to the access and knowledge about family planning being more difficult for women in other islands (30). The same time, Java Island is home to more than half of Indonesia's population despite being the country's center of economics and politics. Consequently, regarding industry, education, and other aspects, Java Island is becoming the most developed area (30). The economic contribution analysis shows that Java Island contributes the most, with an average contribution of 57.96% (31). Women in Java and Bali Islands had better and easier access to information about health care and greater capacity to use high-quality medical services. Studies about modern contraception emphasizing spatial distribution revealed that a low percentage of contraceptive prevalence may be linked to low urbanization and areas under development (20,29,32). This result suggests that more effort should be put into reducing barriers to using modern contraception in these areas.

Our results indicate that family planning discussion with a health professional was associated significantly with modern contraceptives among women living in urban areas. The result is supported by findings from Nigeria (24), Ethiopia (32), and Rwanda (33). One possible explanation is that communication with health professionals could have improved knowledge among young women about family planning and contraception (24). Better understanding of family planning, including false myths, the potential for side effects, and misconceptions regarding contraceptive methods might have generated demand for modern contraceptive methods (24,34,35). A study in India suggests that women who communicate with health professionals have a positively significant association with the intention of using contraceptive methods (34).

A higher proportion of urban young women in younger age groups of 15-19 years use modern contraceptives. This finding echoes similar findings from studies in Nigeria (24), Senegal (29), Ethiopia (26), and Jordan (22). This finding could be related to the fact that women at younger ages are usually more

open to adopting modern technology and often less bound to cultural beliefs; thus, they are more prone to accept and use modern contraception (22).

This study shows that knowledge of contraceptive methods affects modern contraceptive utilization. The finding of this study is similar to the previous studies conducted in Senegal (29) and Myanmar (36). Knowledge can empower women by improving their independence and involvement in decision-making (29). Also, high knowledge of contraception might lead to a better choice of modern contraception and more likely to have a positive attitude toward using modern contraception (36).

This study also found an association between young rural women's desire to have children and modern contraceptive use. Consistently, other studies done in Bangladesh (19) and Nigeria (24) showed that women who desired another child were less likely to use modern contraceptive methods. Women who desired no (more) children, as stated in other studies, had several reasons for postponing or limiting children, such as financial circumstances, career planning, education, participation in the labor market, and health conditions (19,20).

Although findings offer important insights, they need to be interpreted cautiously considering a few limitations. First, this study could only show an association, not a causal effect, between the determinants of social and demography and the utilization of modern contraceptives because of the cross-sectional nature. Second, the study's reliance on self-reporting by the women, which is subject to recall bias, was another drawback. Finally, the dataset employed in this study may have missed significant unmeasured factors contributing to the observed associations.

CONCLUSIONS AND SUGGESTIONS

Conclusion

The utilization of modern contraceptive methods was higher among young married women living in rural areas than in urban areas. Overall, two key predictors of using modern contraceptive methods among young urban and rural women in Indonesia have been highlighted by this study. The key predictors are women with 1-2

children and those living in Java-Bali Islands. These results suggest that more concerted efforts must be made to target modern contraception, specifically among these subgroups, urban and rural areas.

Suggestion

The results of the study are important for policies and scientific research related to Indonesia's efforts to promote family planning. Policy-makers should establish and implement practical approaches for rural and urban areas to increase women's awareness of the importance of modern contraceptive methods. Efforts shall be toward enhancing family planning knowledge and services for young women in urban and rural areas, particularly those with more than three children who reside in other major islands than Java and Bali Islands. It will be necessary to increase contraceptive use among these subgroups of young women with messages through effective communication channels. It is also essential to reduce obstacles such as access to family planning services and the availability of a range of modern contraceptive methods through more effective program efforts.

ACKNOWLEDGMENTS

The author would like to thank Indonesia's National Population and Family Planning Board for the data support. The author also would like to thank her colleague, Maria Gayatri (Coordinator at National Population and Family Planning Board), for sharing her wisdom and guidance during this study.

REFERENCES

1. Timofeev J, Reddy UM, Huang CC, Driggers RW, Landy HJ, Laughon SK. Obstetric Complications, Neonatal Morbidity, and Indications for Cesarean Delivery by Maternal Age. *Obstet Gynecol* [Internet]. 2013;122(6):1184–1195. Available from: <https://doi.org/10.1097/aog.00000000000000017>
2. Ahmed S, Li Q, Liu L, Tsui AO. Maternal Deaths Averted By Contraceptive Use: An Analysis of 172 Countries. *Lancet* [Internet]. 2012;380(9837):111–125. Available from: [https://doi.org/10.1016/S0140-6736\(12\)60478-4](https://doi.org/10.1016/S0140-6736(12)60478-4)
3. Sarkar A, Chandra-Mouli V, Jain K, Behera J, Mishra SK, Mehra S. Community Based Reproductive Health Interventions for Young Married Couples in Resource-constrained Settings: A Systematic Review. *BMC Public Health* [Internet]. 2015;15:1–19. Available from: <https://doi.org/10.1186/s12889-015-2352-7>
4. Subramanian L, Simon C, Daniel EE. Increasing Contraceptive Use among Young Married Couples in Bihar, India: Evidence from a Decade of Implementation of the PRACHAR Project. *Glob Heal Sci Pract* [Internet]. 2018;6(2):330–344. Available from: <https://doi.org/10.9745%2FGHSP-D-17-00440>
5. Brown W, Ahmed S, Roche N, Sonneveldt E, Darmstadt GL. Impact of Family Planning Programs in Reducing High-Risk Births Due to Younger and Older Maternal Age, Short Birth Intervals, and High Parity. *Semin Perinatol* [Internet]. 2015;39(5):338–344. Available from: <https://doi.org/10.1053/j.semperi.2015.06.006>
6. Ahinkorah BO. Predictors of Modern Contraceptive Use among Adolescent Girls and Young Women in Sub-Saharan Africa: A Mixed Effects Multilevel Analysis of Data from 29 Demographic and Health Surveys. *Contracept Reprod Med* [Internet]. 2020;5:1–12. Available from: <https://doi.org/10.1186/s40834-020-00138-1>
7. Smith E, Daley AM. A Clinical Guideline for Intrauterine Device Use in Adolescents. *J Am Acad Nurse Pract* [Internet]. 2012;24(8):453–462. Available from: <https://doi.org/10.1111/j.1745-7599.2012.00753.x>
8. Chandra-Mouli V, McCarraher DR, Phillips SJ, Williamson NE, Hainsworth G. Contraception for Adolescents in Low and Middle Income Countries: Needs, Barriers, and Access. *Reprod Health* [Internet].

- 2014;11(1):1–8. Available from: <https://doi.org/10.1186%2F1742-4755-11-1>
9. National Population and Family Planning Board, Central Bureau of Statistics, The Ministry of Health U. National Population and Family Planning Board. 2018. p. 1–446 Survei Demografi dan Kesehatan Indonesia 2017.
 10. Gayatri M, Utomo B. Contraceptive Method Use in Indonesia: Trends and Determinants between 2007, 2012 and 2017. *Journal Indian J Public Heal Res Dev* [Internet]. 2019;10(12):1818–1823. Available from: <https://doi.org/10.37506/v10/i12/2019/i12jphrd/192130>
 11. Kistiana S, Gayatri M, Sari DP. Determinants of Modern Contraceptive Use among Young Married Women (Age 15-24) in Indonesia. *Glob J Health Sci* [Internet]. 2020;12(13):37–48. Available from: <https://doi.org/10.5539/gjhs.v12n13p37>
 12. Gafar A, Suza DE, Efendi F, Has EMM, Pramono AP, Susanti IA. Determinants of Contraceptive Use among Married Women in Indonesia. *F1000Research* [Internet]. 2020;9:1–9. Available from: <https://doi.org/10.12688%2Ff1000research.22482.1>
 13. Mas'udah AF, Pristya TY, Andarmoyo S. Parity and Marital Status as Factors Influencing Contraceptive Use among Adolescents in Indonesia. *Kesmas J Kesehat Masy Nas* [Internet]. 2021;16(1):33–38. Available from: <https://doi.org/10.21109/kesmas.v16i1.3276>
 14. Wijayanti N, Thaweessit S, Sunpuwan M. Contraceptive Use among Married Adolescent Women in Indonesia. *J Heal Res* [Internet]. 2017;29(5):323–331. Available from: <https://doi.org/10.14456/jhr.2015.22>
 15. Rahayu R, Utomo I, McDonald P. Contraceptive Use Pattern among Married Women in Indonesia. In: *International Conference on Family Planning: Research and Best Practices* [Internet]. Kampala; 2009. p. 1–36. Available from: http://fpconference.org/2009/media/DI_R_169701/15f1ae857ca97193ffff83a6ffffd524.pdf
 16. Kafle RB. Dynamics of Contraceptive Use among Young Women in Nepal. *Nepal Popul J* [Internet]. 2018;18(17):33–42. Available from: <https://doi.org/10.3126/npj.v18i17.26375>
 17. Worku AG, Tessema GA, Zeleke AA. Trends and Determinants of Contraceptive Use among Young Married Women (Age 15-24) Based on the 2000, 2005, and 2011 Ethiopian Demographic and Health Surveys: A Multivariate Decomposition Analysis [Internet]. 2014. Available from: <https://dhsprogram.com/pubs/pdf/WP103/WP103.pdf>
 18. Casey SE, Gallagher MC, Kakesa J, Kalyanpur A, Muselemu JB, Rafanoharana RV, et al. Contraceptive Use among Adolescent and Young Women in North and South Kivu, Democratic Republic of The Congo: A Cross-Sectional Population-Based Survey. *PLOS Med* [Internet]. 2020;17(3):1–16. Available from: <https://doi.org/10.1371/journal.pmed.1003086>
 19. Islam AZ. Factors Affecting Modern Contraceptive Use among Fecund Young Women in Bangladesh: Does Couples' Joint Participation in Household Decision Making Matter? *Reprod Health* [Internet]. 2018;15:1–9. Available from: <https://doi.org/10.1186%2Fs12978-018-0558-8>
 20. Asiiimwe JB, Ndugga P, Mushomi J, Ntozi JPM. Factors Associated with Modern Contraceptive Use among Young and Older Women in Uganda; A Comparative Analysis. *BMC Public Health* [Internet]. 2014;14:1–11. Available from: <https://doi.org/10.1186/1471-2458-14-926>
 21. Namasivayam V, Dehury B, Prakash R, Becker M, Anand P, Mishra A, et al. Understanding the Rise in Traditional Contraceptive Methods Use in Uttar Pradesh, India. *Reprod Health* [Internet]. 2023;20:1–14. Available from: <https://doi.org/10.1186/s12978-022-01547-y>

22. Almalik M, Mosleh S, Almasarweh I. Are Users of Modern and Traditional Contraceptive Methods in Jordan Different? *East Mediterr Heal J* [Internet]. 2018;24(4):377–384. Available from: <https://doi.org/10.26719/2018.24.4.377>
23. Thulaseedharan JV. Contraceptive Use and Preferences of Young Married Women in Kerala, India. *Open Access J Contracept* [Internet]. 2018;9:1–10. Available from: <https://doi.org/10.2147/OAJC.S152178>
24. Ankomah A, Anyanti J, Oladosu M. Myths, Misinformation, and Communication about Family Planning and Contraceptive Use in Nigeria. *Open Access J Contracept* [Internet]. 2011;2:95–105. Available from: <https://doi.org/10.2147/OAJC.S20921>
25. Ahmed M, Seid A. Association between Exposure to Mass Media Family Planning Messages and Utilization of Modern Contraceptive among Urban and Rural Youth Women in Ethiopia. *Int J Womens Health* [Internet]. 2020;12:719–729. Available from: <https://doi.org/10.2147/IJWH.S266755>
26. Gebre MN, Edossa ZK. Modern Contraceptive Utilization and Associated Factors among Reproductive-Age Women in Ethiopia: Evidence from 2016 Ethiopia Demographic and Health Survey. *BMC Womens Health* [Internet]. 2020;20:1–14. Available from: <https://doi.org/10.1186/s12905-020-00923-9>
27. Shagaro SS, Gebabo TF, Mulugeta BT. Four Out of Ten Married Women Utilized modern Contraceptive Method in Ethiopia: A Multilevel Analysis of the 2019 Ethiopia Mini Demographic and Health Survey. *PLoS One* [Internet]. 2022;17(1):1–16. Available from: <https://doi.org/10.1371/journal.pone.0262431>
28. Appiah F, Seidu AA, Ahinkorah BO, Baatiema L, Ameyaw EK. Trends and Determinants of Contraceptive Use among Female Adolescents in Ghana: Analysis of 2003–2014 Demographic and Health Surveys. *SSM - Popul Heal* [Internet]. 2020;10:1–6. Available from: <https://doi.org/10.1016/j.ssmph.2020.10.0554>
29. Zegeye B, Ahinkorah BO, Idriss-Wheeler D, Olorunsaiye CZ, Adjei NK, Yaya S. Modern Contraceptive Utilization and Its Associated Factors among Married Women in Senegal: A Multilevel Analysis. *BMC Public Health* [Internet]. 2021;21:1–13. Available from: <https://doi.org/10.1186/s12889-021-10252-7>
30. Investments I. Reducing Indonesia’s Java-Centric Development by Moving the Capital Away from Jakarta, But Where Will All the Demonstrations Go? [Internet]. 2019 [cited 2020 Oct 10]. Available from: <https://www.indonesia-investments.com/id/news/news-columns/reducing-indonesia-s-java-centric-development-by-moving-the-capital-away-from-jakarta/item9195>
31. Julio J, Marwoto PB, Manullang RR. Analisis Disparitas Perekonomian Antar Pulau Besar di Indonesia Tahun 2013-2017. *J Ilm Progresif Manaj Bisnis* [Internet]. 2019;6(2):1–11. Available from: <https://e-jurnal.stie-ibek.ac.id/index.php/JIPMB/article/view/115>
32. Wondie KY, Badi MB, Tamiru AT. Rural–Urban Differentials of Long-Acting Contraceptive Method Utilization among Reproductive-Age Women in Amhara Region, Ethiopia: Further Analysis of the 2016 EDHS. *Open Access J Contracept* [Internet]. 2020;11:77–89. Available from: <https://doi.org/10.2147/OAJC.S255551>
33. Mazzei A, Ingabire R, Mukamuyango J, Nyombayire J, Sinabamenye R, Bayingana R, et al. Community Health Worker Promotions Increase Uptake of Long-Acting Reversible Contraception in Rwanda. *Reprod Health* [Internet]. 2019;16:1–11. Available from: <https://doi.org/10.1186/s12978-019-0739-0>
34. Kumar A, Jain AK, Ram F, Acharya R, Shukla A, Mozumdar A, et al. Health Workers’ Outreach and Intention to Use Contraceptives among Married

- Women in India. *BMC Public Health*. 2020;20:1–9. Available from: <https://doi.org/10.1186/s12889-020-09061-1>
35. Ochako R, Temmerman M, Mbondo M, Askew I. Determinants of Modern Contraceptive Use among Sexually Active Men in Kenya. *Reprod Health* [Internet]. 2017;14:1–15. Available from: <https://doi.org/10.1186/s12978-017-0316-3>
36. Lun CN, Aung T, Mya KS. Utilization of Modern Contraceptive Methods and Its Determinants among Youth in Myanmar: Analysis of Myanmar Demographic and Health Survey (2015-2016). *PLoS One* [Internet]. 2021;16(10):1–19. Available from: <https://doi.org/10.1371/journal.pone.0258142>