ORIGINAL ARTICLE

DIFFERENCES IN FERTILITY BETWEEN TRADITIONAL AND MODERN CONTRACEPTIVE USERS IN INDONESIAN WOMEN

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ABSTRACT

The national Total Fertility Rate in Indonesia was 2.4 children per woman. The use of contraception is being promoted to reduce fertility rates which can quickly increase the number of elderly. There are two types of contraceptive methods, namely modern and traditional contraception. This study was aimed to determine the differences in fertility between traditional and modern contraceptive users in Indonesian women. This study was quantitative research with a cross-sectional design that was a further analysis of the 2017 Indonesia Demographic and Health Survey (IDHS) 2017. This study was restricted to 30,101 respondents selected through a complex sample design. The multiple logistic regression analysis was used in this study. The results of the study indicated that women who used traditional methods had 1.8 times (95%CI 1.4-2.4) more chances of having more than two children compared to women who didn't use any contraception. While women who used modern methods had 2.4 times (95s%CI 0.1-40.9) more chance of having more than two children compared to women who didn't use any contraception. There was a modifier effect between contraceptive use and socio-economic level on fertility. Therefore, it is necessary to have regulations governing the use and planning of contraception on the number of children to reduce its impact in the future.

Keywords: contraceptive, fertility, women

INTRODUCTION

The world's population in 2020 will reach 7.9 billion people. The country with the largest population, Indonesia ranks fourth in the world and first in ASEAN[1]. The population of the world is always increasing with the growth rate in 2050 estimated at only around 0.53%[2]. The big impact of the population growth is closely related to the economic growth and family welfare. Development planning is currently population oriented[3].

One of the affecting factors of population growth is fertility. The total Fertility Rate (TFR) worldwide in 2018 is 2.415[4]. The low fertility rate in Italy (1.33) was made on the old population pyramid. The reason women don't have children was that they are not ready for finances to raise children and have no help from the government for it. Most countries in the world with high fertility rates were in Africa. Nigeria is the highest TFR followed by Somalia and Congo[5]. Based on the 2017 Indonesia Demographic and Health Survey (IDHS), the national TFR is 2.4 children per woman. It means that the average number of children born to Indonesian women at the end of their reproductive period is 2.4. This shows a decreasing trend from the previous survey[6].

Many factors have been related to fertility, including social demographics, reproductive health services, and reproductive behavior aspects[7]. In the multilevel analysis, fertility at the individual level shows lower rates in areas with good levels of economic development and family services[8]. Based on the socio-demographic perspective, the factors that influence fertility include age at first sex, age at first birth, education of women and husband, occupations, and socioeconomic conditions. From the reproductive behavior, the influencing factors include contraceptive use, methods, and child mortality[7,9,10]. Sources of information also affect female fertility[10].

Contraception is classified into modern and traditional methods[12]. Modern methods are technological advances in biology in the form of medical products or procedures designed to reduce the risk of pregnancy due to sexual intercourse[13]. Classified into modern methods of contraception are pill, IUD, injection, male condom, female sterilization, male sterilization, implants/Norplant, LAM, patches, diaphragms, and cervical caps, spermicidal agents (gels, foams, creams, suppositories), vaginal rings, sponge, and specific methods[14,13]. Therefore, traditional contraception has received less attention[15]. IDHS classify traditional methods of contraception into three categories: periodic

abstinence, withdrawal, and other traditional methods[14].

Approximately 885 million women worldwide want to delay pregnancy. About three-quarters of them use modern contraceptive methods. In 2020, United States Agency for International Development (USAID) supports the goal of the Family Planning program to reach more than 120 million women and children in poor countries through access to information, contraception, and voluntary family planning services[11].

In Indonesia, the use of contraception is being promoted to reduce fertility rates which can quickly increase the number of the elderly. Decreasing fertility rates does not only reduce the birth rate but also the conditions and impacts that occur also need attention. Another goal is to create a quality family nationally[16]. Therefore, this study aimed to determine differences in fertility between traditional and modern contraceptive users in Indonesian women.

METHODS

Study Design
This study was a secondary data analysis of the IDHS 2017. The survey was quantitative research with a cross-sectional design and was conducted from 34 provinces in Indonesia. The population of this study was all of the women of childbearing age in Indonesia who have given birth. The sample was women of childbearing age 15-49 years who have given birth that successfully interviewed and selected in the sample of 2017 IDHS. The study was restricted to 30,101 respondents selected through a complex sample design.

Data Collection
Data in this study were collected through 2017 IDHS's questionnaire type of woman's questionnaires and were taken from the DHS open-access program website[17]. The dataset was done by cleaning the data on the variables that had missing data consisted of don't know, inconsistent, dot (.), code 9, or code 99. Previously, the data was declared as survey data by entering weighted, strata, and primary sampling unit variables.

Variables
The dependent variable in this study was fertility. The measures of fertility which observed by 2017 IDHS's questionnaire part 2 number 209 was based on the question "mother has ... live-born child". For respondents who answer no child was ever born, they were excluded from this study. It was categorized by 1-2 children and more than 2 children. The independent variable was contraceptive use that reports current use among women when interviewed in the survey. It was trichotomous categorized: not using, traditional method, and modern method. The traditional method was used if respondents answered with periodic abstinence, withdrawal, or other traditional. For the answers like pill, IUD, injection, male condom, female sterilization, male sterilization, implants/Norplant, lactational amenorrhea (LAM), a specific method, or the other modern method, they were categorized into the modern method.

The potential confounding variables consisted of socioeconomic, region, age at first sex, age at first birth, education (women and husband), occupation, information of contraception, and child mortality. Socioeconomic was based on wealth index that divided into the poorest, poorer, middle, richer, and richest. The region was grouped into urban and rural. Age at the first sex and age at the first birth were divided into 21-34 years, ≤20 years, and ≥35 years. The education level grouped into no education, primary, secondary, and higher. The occupation was women currently working when interviewed grouped into no work and work. The measure of information on contraception by the question of source known for any method that was categorized into yes and no. The child mortality that describes the child as alive was divided into no and yes.

Data Analysis
Data were analyzed through a three-stage statistical analysis. The first stage was a univariate analysis to determine the distribution frequencies of variables. The second stage was bivariate analysis used a chi-square test to determine cross-tabulation and significance tests between independent and potential confounding with the dependent variable. Reporting of the stage consisted of significant with p-value <0.05 and Odds Ratio (OR) with 95% Confident Interval (CI)[18]. The last stage was multivariate analysis with multiple logistic regression to report the relationship between independent and dependent variables adjusted with potential confounding variables by Adjusted OR (AOR)[19]. It also determined the interaction between variables.

Ethical Considerations
The IDHS used in this study was a DHS standardized questionnaire that has been reviewed and approved by Institutional Review Board Finding Form ICF IRB FWA00000845. The findings of the board ensure that the survey complies with all of the requirements of 45 CFR 46 'Protection of Human Subjects'.

RESULTS

Table 1 shows the distribution of fertility and contraceptive use. The proportion of Indonesian women fertility who have 1-2 children in this study was 64.9%. On contraceptive use, the proportion of Indonesian women who not using contraception was 34.2%, while others used

contraceptives (divided into traditional and modern methods). Pregnant women were categorized as not using[14]. The largest proportion of the use of traditional methods is withdrawal (4.8%), while in the modern method is pill (12.4%). Pill, IUD, injection, male condom, female .

sterilization, male sterilization, implants/Norplant, LAM, and other modern methods were standard methods of contraception. While specific methods additional codes were used in contraceptive on of country-specific methods and there should exist in data[14]

Table 1. The Distribution of Fertility and Contraceptive Use in Indonesian Women (n=30,101)

Variable	Category		n	%
Fertility	1-2 children		17,998	64.9
	>2 children		12,103	35.1
Current Contraceptive	Not using		10,306	34.2
	Traditional methods	Periodic abstinence	689	2.3
		Withdrawal	1,456	4.8
		Other traditional	129	0.4
	Modern methods	Pill	3,737	12.4
		IUD	1,358	4.5
		Injections	1,350	4.5
		Male condom	767	2.6
		Female sterilization	1,210	4.0
		Male sterilization	46	0.2
		Implants/Norplant	1,632	5.4
		LAM	41	0.1
		Specific method	7,377	24.5
		Other modern methods	3	0.1

Table 2 shows the relationship between contraceptive use and potential confounding with fertility. There were nine potential confounding variables identified in this study, namely socioeconomic, region, age at first sex, age at first birth, education (women and husband), occupation, information of contraception, and child mortality. The results of this study indicate that in the contraceptive use, the proportion of women who has 1-2 children greater than >2 children, consisting of not using is 68.3%; traditional methods is 60.0%; modern methods is 63.8%. In bivariate analysis, child mortality has the highest OR compared to other potential confounding variables (OR=2.6). All of the variables had a significant p-value with fertility, except for contraceptive information (*P*=0.455). The multiple logistic regression results show contraceptive information has a large change in odds ratio (OR=0.9) and the adjusted odds ratio (AOR=9.9) that affects contraceptive use on fertility. It was carried out by including all potential confounding variables and corrected by adding variables that substantially had interactions or modifier effects with contraceptive use was socioeconomic. Age at first sex and husband's education was outside the model.

In the final result, seven confounding variables were evident to affect fertility, namely socio-

economic, region, age at first birth, women's education, occupation, information of contraception, and child mortality. Women who used traditional methods had 1.8 times (95%CI 1.4-2.4) more chances of having more than two children compared to women who didn't use any contraception. While women who used modern methods had 2.4 times (95%CI 0.1-40.9) more chance of having more than two children compared to women who didn't use any contraception (Table 2).

In this study, the socio-economic level has serves as the modifier effect of contraceptive use methods on fertility (Table 3). However, this only happens to women who use traditional methods. The greatest influence was seen from the higher socio-economic levels. While at other levels, data showed relatively similar modifier effect. Women with higher socio-economic levels who use traditional contraceptive methods had 2.3 times higher fertility rate for having more than two children, those who are poorer had 1.9 times higher fertility rate, who are the poorest and the highest had 1.8 times higher fertility rate, and those at the middle socio-economic had 1.7 times fertility rate when compared to women who did not use contraception after controlled by region, age at first sex, age at first birth, women education, occupation, information of contraception, and child mortality.

Table 2. The Relationship between Contraceptive Use and Fertility in Indonesian Women

Variable	Category	Fertility (%)		Total	OR	AOR	95%CI	P^
		1-2	>2					
Contraceptive use	Not using	68.3	31.7	10,306	1.0	1.0		
	Traditional method	60.0	40.0	2,274	1.4	1.8	1.4-2.4	<0.001
	Modern method	63.8	36.2	17,521	1.2	2.4	0.1-40.9	0.536
Socio-economic	Poorest	56.5	43.5	6,907	1.0	1.0		
	Poorer	65.1	34.9	5,886	0.7	0.7	0.5-0.8	<0.001
	Middle	67.3	32.7	5,807	0.6	0.6	0.5-0.7	<0.001
	Richer	67.6	32.4	5,802	0.6	0.6	0.5-0.7	<0.001
	Richest	66.8	33.2	5,699	0.6	0.6	0.5-0.8	<0.001
Region	Urban	66.1	33.9	15,097	1.0	1.0		
	Rural	63.9	36.1	15,004	1.1	0.8	0.8-0.9	0.004
Age at first sex	21-34 years	74.5	25.5	12,344	1.0			
	≤20 years	58.3	41.7	17,612	2.1			
	≥35 years	97.7	2.3	145	0.1			
Age at first birth	21-34 years	71.9	28.1	16,950	1.0	1.0		
	≤20 years	55.3	44.7	12,799	2.0	1.8	1.7-1.9	<0.001
	≥35 years	97.9	2.1	352	0.1	0.1	0.0-0.1	<0.001
Women education	No education	38.7	61.3	609	1.0	1.0		
	Primary	53.9	46.1	9,644	0.5	0.6	0.5-0.8	<0.001
	Secondary	70.9	29.1	15,685	0.3	0.3	0.2-0.4	<0.001
	Higher	75.6	24.4	4,163	0.2	0.3	0.2-0.3	<0.001
Husband education	No education	42.6	57.4	534	1.0			
	Primary	57.8	42.2	9,512	0.5			
	Secondary	69.3	30.7	16,107	0.3			
	Higher	69.5	30.5	3,948	0.3			
Occupation	No work	66.9	33.1	11,308	1.0	1.0		
	Work	63.7	36.3	18,793	1.2	1.2	1.1-1.2	<0.001
Information of contraception	Yes	63.8	36.2	17,518	1.0	1.0		
	No	66.7	33.3	12,583	0.9	2.9	0.2-48.9	0.455
Child mortality	No	65.4	34.6	29,399	1.0	1.0		
	Yes	42.4	57.6	702	2.6	2.4	2.0-3.0	<0.001

^*Significant at level P<0.05*

Table 3. The Modifier Effect of Socio-economic on Contraceptive Methods and Fertility

Contraception by Socio-economic	B	SE	OR	95% CI	P
Traditional method by poorest	4.0	0.3	1.8	1.4-2.4	<0.001
Traditional method by poorer	4.2	0.3	1.9	1.4-2.5	<0.001
Traditional method by middle	4.0	0.2	1.7	1.3-2.3	<0.001
Traditional method by higher	6.7	0.3	2.3	1.8-3.0	<0.001
Traditional method by highest	5.2	0.2	1.8	1.5-2.3	<0.001

DISCUSSIONS

The finding of this study shows that the most widely used contraceptives by Indonesian women are withdrawal (traditional method) and pill (modern method). More than half of them have 1-2 children. Either traditional or modern contraceptive methods give equal chances for women to have >2 children.

Modern methods are more preferred than traditional methods. Similar to research in Sub-Saharan Africa, the results of a national survey indicate that there has been an increase in the use of modern contraceptives, but they have not reached the target[25,26]. A large number of groups use modern contraceptives by the influence of promotion, counseling, development, and

improvement of contraceptive methods[27,28]. Of contraceptive mehods; all of which have provided easier access to contraception[28]. The addition of one type of contraception correlates with the percentage of contraceptive use[29]. All types of contraceptive methods have contraindications; for example, long-term contraceptives had a high risk for sexual dysfunction[30,31,32].

Modern methods are more trusted than traditional methods in terms of its effectiveness[33]. The results show that withdrawal was the most widely used on traditional methods. This method is as effective as female condoms in modern methods[34,35]. Most women choose the healthiest method of contraception[36].

Contraceptive use among women has an impact on fertility rates. A study comparing developing countries with sub-Saharan African countries showed a similarity between an increase in the prevalence of contraceptive use and a decrease in fertility rates[9]. Fertility levels between urban and rural areas were varied[37].

Fertility is women's capacity to establish a clinical pregnancy[20]. Fertility rate can be seen from the average number of children born per woman until the end of her reproductive period 15-49 years[6,21]. It has an impact on population decline or growth[22]. Reduction in numbers is carried out by controlling the birth rate, one of which is through the Family Planning program. The government's limit for the number of births is two children[23]. USAID provides support related to family planning programs, one of which is contraception[11]. In America, studies on fertility state that contraception is a form of individual freedom[24].

Early marriage and an exposure to sources of information have affected women's fertility rate[10,38]. Fertility period generally starts once women got married, hence gives impact on the number of children born[39]. While the number of children who died also encourages an increase in the number of children. This makes it the biggest contributor to the live birth rate[10]. Women are very sensitive to conditions, so that work can also affect fertility rate[40]. Generally, education level contributes none to fertility[41]. However, Italian women's decision to become mothers and or to have their second child is positively influenced by their higher education. Such phenomenon comes from a perspective that highly educated women will provide meaningful times with the second child[42].

The results of this study also indicated a modifier effect between contraceptive use and the socio-economic level on fertility. Especially on a higher level that has the highest effect. This only happens in the use of traditional methods, whereas in modern methods there is no modification effect. Modern and traditional methods are not consistently applied to show whether the contarceptives methods were more or less effective[34,35].

The strengths of this study are its usage of large samples and its national scope description. However, this study also has several limitations. First, its information bias originated from the categorization of contraceptive use. Special methods do not always suit traditional or modern methods. It is an additional code for country-specific methods and is not available in the 2017 IDHS recode book. Second, its selection bias due to the large amount of missing data that was not included in this study, so it will affect the significance of the variables. Third, the cross-sectional design in this study. The measurement was carried out on the variables of the number of children and the status of contraceptive use at the time of the interview conducted. Women who have had many children (two or more) are more likely to use contraception. Women who have only 1-2 children still desire more children, so they don't use contraception especially when they only have one child.

CONCLUSIONS

From this study, women who use traditional or modern methods have an opportunity to have more children than women who do not use any contraceptives after being controlled by socio-economic, region, age at first birth, women's education, occupation, information of contraception, and child mortality. There is a modifier effect between contraceptive use and socio-economic level on fertility. The use of contraceptives for women fails to restrict the number of children born to be under the government regulations i.e. two children only. Therefore, it is necessary to have regulations governing the use and planning of contraception on the number of children to reduce its impact in the future.

ACKNOWLEDGMENTS

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