



The Use of Contraception and Adolescent Fertility in Indonesia

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Abstract

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BACKGROUND: Fertility in adolescents is closely related to the incidence of early marriage which will have an impact on increasing the incidence of pregnancy in adolescents so that it will directly affect the health of mothers and babies. The younger the age at marriage, the higher the fertility rate.

AIM: This study aimed to determine the relationship between contraception and fertility among adolescents.

METHODS: This quantitative study used a cross-sectional design. The population of this study was adolescents aged 15–19 years in Indonesia. The total sample of 7547 adolescents was selected from the 2017 Indonesia Demographic and Health Survey (IDHS). Multivariate analysis using binary logistic regression was used to analyze the independent variable (contraception use) on the dependent variable (fertility) with education, work status, region, age at first sexual intercourse, economic status, and marital status as the controlled variables.

RESULTS: Multiple logistic regression analysis was used to report the relationship between independent and dependent variables controlled by potential confounder variables. The results showed that the odds ratio of contraceptives users was 46 times compared to non-user after being controlled by confounding variables (AOR = 4.8; 95%CI 33.857–441.046) after controlled by economic status, age at first sexual intercourse, and marital status.

CONCLUSION: The relationship between contraceptive use and fertility in adolescents is affected by confounding variables such as age at first sexual intercourse, economic status, and marital status. In addition, the odds ratio of contraceptives users was 46 times compared to non-users after being controlled by confounding variables.

Introduction

The agenda of the WHO for sustainable development in 2030 includes 169 targets and 232 indicators to achieve global progress. One indicator that has not been achieved in the field of sexual and reproductive health is the rate of births in adolescents [1]. The birth rate among adolescents is closely related to the fertility of a country.

In 2020, the number of adolescents in Indonesia has the largest proportion compared to other groups [2]. The WHO data show that in 2015–2020, the adolescent fertility rate is relatively high, that is, 80 per 1000 female adolescents (WHO, 2019). The 2017 IDHS data show that 7% of adolescents have already given birth and/or are pregnant with their first child (BPS, 2018). In East Java, the percentage of adolescents who have given birth and are pregnant is 8.1%. These data show that East Java Province has a high percentage of adolescent fertility.

Fertility in adolescents is closely related to maternal and child morbidity and mortality. The pregnancy that occurs in adolescents has a

worse risk of maternal and child health than other ages [3], [4], [5]. Teenage pregnancy can cause morbidity and even mortality in mothers and babies. Physical and psychological conditions of adolescents are not ready for pregnancy.

The world program to minimize the fertility rate is contraception. One of the government's efforts to reduce the fertility rate among adolescents is the use of contraception. At this time, there has been research on the factors that affect the use of contraception in adolescents; however, it is not yet known whether the use of contraception can reduce the fertility rate of adolescents in East Java. This study aims to determine the effectiveness of contraceptive use in married adolescents in East Java so that it can be used as a policy material regarding contraceptive use in married adolescents.

Methods

This study used a quantitative approach with a cross-sectional study design. The data used were

secondary data from the Indonesian Demographic Health Survey (IDHS) in 2017. The number of samples used refers to the availability of the 2017 IDHS data. The sample was young women aged 15–19 years, 7547 adolescents, who are the respondents of the 2017 IDHS survey.

The dependent variable in this study was fertility. The measures of fertility were collected from the question about total children ever born. It was categorized by no children and one or more than 1 children. The independent variable was contraceptive use its current use among when interviewed in the survey. It was dichotomous categorized: Contraceptives users on non-users. The traditional method was used when the respondents answered the contraception was done using periodic abstinence, withdrawal, or other traditional methods. Meanwhile, when it was done using pill, IUD, injection, male condom, female sterilization, male sterilization, implants/Norplant, lactational amenorrhea (LAM), a specific method, or the other methods, they were categorized as the modern method.

The potential confounding variables were education, work status, economic status, region, and age at first sexual intercourse. The education level had been grouped into no education, primary, secondary, and higher education. The work status was based on the respondents' working experience in the past 12 months. Economic status was based on a wealth index that is divided into the poorest, poorer, middle, richer, and the richest. The region was grouped into urban and rural. The age of first sexual intercourse was divided into 10–14 years, 15–17 years, and 16–19 years. Marital status is the condition of a woman who has a legally registered marital status and lives with her partner, divided into two categories: Married and unmarried.

The information from those two variables was collected using a questionnaire through structured

IDHS interviews with respondents. The questionnaire used in the IDHS is a standardized Demographic and Health Survey (DHS) questionnaire. The procedures and questionnaires for standardized DHS surveys have been reviewed and approved by the informed consent form (ICF) of the Institutional Review Board (IRB). In addition, the ICF of IRB reviewed a specific country for DHS survey protocols and typically it is decided by the IRB in the host country. The ICF of IRB ensures that the survey complies with the United States Department of Health and Human Services regulations to protect human subjects (45 CFR 46). Meanwhile, for the host country, IRB ensures that the survey complies with laws and norms of the nation. The data used in this analysis were obtained with the DHS program's permission.

The data processing and analysis were carried out starting from data cleaning, coding, and analysis. The analysis was carried out starting from the univariate analysis to determine the description of each research

variable. Furthermore, bivariate analysis was used to determine the relationship between two variables and multivariate analysis was used to determine the relationship between contraceptive variables and fertility with the influence of confounding variables. The multivariate analysis used in this study was logistic regression.

Results

Participants' characteristics

The total number of the respondents was 7547 adolescents. The proportion of fertile adolescents was 3.05%. The methods used in the contraception were divided into user and non-user. The adolescents using the contraception are about 2.01%. Regarding education, most of the respondents have passed basic education, namely, secondary and higher education (84.23% and 11.09%). The economic status of the very poor (25.23%) and the unemployed (72.15%) is mostly from urban areas (55.72%). The age of first sexual intercourse for the married is done at the age of young adolescents (95.19%) and unmarried (96.25%) (Table 1).

Table 1: Distribution of respondents' characteristic

Variable	Category	Total	Percentage
Fertility	Infertile	7317	96.95
	Fertile	230	3.05
Contraceptive use	User	152	2.01
	Non-user	7395	97.99
Education	No education	22	0.29
	Primary	331	4.39
	Secondary	6357	84.23
	Higher	837	11.09
Work status	Unemployed	5445	72.15
	Working	2102	27.85
Economic status	The poorest	1904	25.23
	Poorer	1536	20.35
	Middle	1350	17.89
	Richer	1361	18.03
	The richest	1396	18.50
Region	Rural	3342	44.28
	Urban	4205	55.72
Age at first sex	Early	7184	95.19
	Middle	160	2.12
	Late	203	2.69
Marital status	Married	238	3.75
	Unmarried	7264	96.25

Fertility determinants

The determinants of fertility in this study include contraceptive use, education, employment status, socioeconomic status, area of origin, age at first sexual intercourse, and marital status (Table 2).

All of the variables had significant p-values with fertility, except education, region, and work status. A multivariate analysis was performed to complete modeling among the dependent variables, the main independent variables, and the confounding candidate variables. The independent variables of confounding covariates were removed one after the other, starting

from the variable with the biggest p-value. If after the exclusion, it turned out that the main variable's OR value has changed by more than 10%, then the variable was declared as confounding and must remain in the model. Thus, the final model contained significant or confounding variables. Data processing was performed by utilizing multivariate analysis using binary logistic regression.

As a result of the relationship between contraceptive use and fertility in adolescents, there was an effect between contraceptive use and fertility by confounding variables such as age at first sex, economic status, and marital status. The odds ratio of using contraceptives was 46 times compared to not using after being controlled by confounding variables (Table 3).

Discussion

There are four variables that affect fertility in adolescents, namely, the use of contraceptives, socioeconomic status, age at first sexual intercourse, and marital status. Meanwhile, the other three variables, namely, education, area of origin, and employment status did not significantly affect fertility in adolescents in Indonesia. This can be seen from $p < 0.05$.

This study reports that there is a relationship between the use of contraceptives and fertility in adolescents (Table 2) with $p < 0.001$ (CI: 379,961–1,494,982). However, when viewed from the data, there are things that are contrary to the theory that adolescents who use contraceptives are more fertile than those who do not [6]. The use of contraception in adolescents is mostly done after giving birth to their first child because adolescents who are not yet pregnant are afraid to use contraceptives because they are worried about affecting fertility or side effects. Hence, despite the use of contraception, fertility is still high [6], [7].

In addition, the drawback of this study is that it uses a cross-sectional design (not a cohort), so it cannot see whether the fertile state of adolescents in Indonesia is a result of the use of contraceptives. Adolescents who come from the poorest socioeconomic groups have an impact on adolescent fertility. The poor group has a contribution of 6% to fertility compared to the rich group. This finding is in line with findings in adolescents in Timor-Leste and Ethiopia [8], [9], [10]. Low economic status triggers the emergence of early marriage and low access to modern contraception. Meanwhile, adolescents from high socioeconomic groups will be able to delay pregnancy because they can access modern contraceptives more easily. However, the findings of this study are in contrast to the findings in Central Java, Indonesia. That socioeconomic factors

Table 2: The relationship of contraceptive use and fertility in adolescents

Variable	Category	Fertility		Total	p-value	OR	95% CI		
		Infertile N	%					Fertile n	%
Contraceptive use	User	15	9.87	137	90.13	152	<0.001	753.7	379.961–1494.982
	Non-user	7302	98.74	93	1.26	7.395		Ref	
Education	Primary	291	87.92	40	12.08	331	0.115	3.01	0.765–11.861
	Secondary	6175	97.14	182	2.86	6.357	0.477	0.62	0.166–2.318
	Higher	832	99.40	5	0.60	837	0.015	0.12	0.021–0.665
Work status	No education	19	86.36	3	13.64	22		Ref	
	Working	2031	2.031	71	3.38	2.102	0.744	1.06	0.733–1.544
Economic status	Unemployed	5286	97.08	159	2.92	5.445		Ref	
	The poorest	1494	97.27	42	2.73	1.536	<0.001	0.434	0.275–0.685
	Poorer	1315	97.47	35	2.59	1.350	0.007	0.518	0.323–0.834
	Middle	1338	98.31	23	1.69	1.361	0.002<0.001	0.374	0.202–0.695
Region	Richer	1383	99.07	13	0.93	1.396		0.113	0.054–0.236
	The richest	1787	93.86	117	6.14	1.904		Ref	
	Rural	3201	95.78	230	4.22	4.205	0.003	1.68	1.193–2.381
Age at first sex	Urban	4116	97.88	89	2.12	3.342		Ref	
	Middle	64	40.00	96	60.00	160	<0.001<0.001	314.3	181.779–543.498
Marital status	Late	113	55.67	90	44.33	203		150.9	90.448–251.857
	Early	7140	99.39	44	0.61	7.184		Ref	
	Married	105	37.10	178	62.90	283	<0.001	337.1	209.270–543.101
	Unmarried	7212	99.28	52	0.72	7264		Ref	

Table 3: The relationship between contraceptive use and fertility in adolescents

Variable	Category	B	OR	SE	95% CI	p-value
Contraceptive use	User	3.836	46.367	22.247	18.094–118.818	<0.001
	Non-user		ref			
Age at First Sex	Middle	2.730	15.336	8.903	4.911–47.889	<0.001<0.001
	Late	2.201	9.042	5.582	2.694–30.346	
Economic status	Early		ref			
	The poorest	-1.539–0.996–2.533–1.894	0.214	0.469	-2.459–	0.013
	Poorer		0.369	0.431	0.619–1.842–	0.050<0.001
	Middle		0.079	0.617	0.150–3.747–	0.021
Marital status	Richer		0.150	0.639	1.324–3.147–	
	The richest		ref		0.640	
	Married	2.874	17.72	0.568	1.759–3.990	<0.001
	Unmarried		ref			

The determinants of fertility in this study include contraceptive use, education, employment status, socioeconomic status, area of origin, age at first sexual intercourse, and marital status [Table 2]

are not related to adolescent fertility in Central Java because socioeconomic factors are supported by the couple's education factor [11].

Adolescents who are married have a higher fertility rate than those who are not. Married adolescents contributed at least once given birth in a range of 42%–70% [6], [11]. People in Indonesia still hold the custom that the main reason for getting married is to have children even though the mother is still a teenager, so it will not delay the first pregnancy and result in a higher fertility rate in married adolescents than unmarried [7], [12]. Meanwhile, unmarried adolescents will delay pregnancy to prevent unwanted pregnancies [13].

From the results of statistical tests, it was found that OR 46 means that adolescents who use contraception have a 46 times greater probability of giving birth to live children than adolescents who do not. The results of the study in North Sulawesi stated the odds ratio (OR) age at first sexual intercourse, which is 9.486 [14].

The area of origin in this study (rural/urban) did not affect fertility in adolescents, which means that this result is not in line with the study in Timor Leste [8] which states that the OR for the fertility of adolescents from rural areas is 2.8 times compared to those from urban areas. However, the research results have the opposite result that the area of origin does not affect fertility rates in adolescents [11]. This happens because even though they are from rural areas, they can already access contraceptives and have higher education.

Limitation

The design uses a cross-sectional study which can only see the condition of the independent and dependent variables in one condition, so it cannot see whether fertility in adolescents occurs due to the use of contraceptives.

Conclusion

The study concludes that there is a relationship between contraceptive use and fertility in adolescents, which is affected by confounding variables such as age at first sex, economic status, and marital status. The odds ratio of using contraceptives was 46 times compared to not using after being controlled by confounding variables.

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