



Determinants of Fertility among Women of Childbearing Age in North Sulawesi Province, Indonesia

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Abstract

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AIM: This study aims to determine the determinants associated with the productivity of women of childbearing age in North Sulawesi Province.

METHODS: The research design used is an analytic study with a cross-sectional approach. This research uses the raw data of the North Sulawesi Province Program Performance and Accountability Survey (SKAP) of 2019. The sample of this study was all women of childbearing age (15–49 years), married and unmarried in North Sulawesi Province based on the SKAP raw data of 2019, totaling 1454 women of childbearing age. The variables in this study consisted of independent and dependent variables. The independent variables in this study were age, education, marital status, the ideal number of children, decision using contraception, age at first sexual intercourse, and contraceptive use in women of childbearing age.

RESULTS: Fertility with >2 children is 349 people (24.01%). There is a significant relationship between age, education, marital status, ideal number of children, the decision to use contraception, age at first sexual intercourse, and use of contraception on fertility with $p < 0.05$. The multivariate test showed that ideal children (odds ratio [OR] 5.555), age (OR 5.619), age at first sexual intercourse (OR 9.486), and use of contraception (OR 0.450).

CONCLUSION: The age of sexual intercourse had the most significant influence on the fertility of women of childbearing age with an OR of 9.486. This indicates that the age at sexual intercourse in women of childbearing age will affect fertility 10 times compared to other variables, namely, the ideal number of children, age, and use of family planning.

Introduction

The world population has reached 7 billion and will continue to increase to 9 billion by the year 2045 and is become a current population issue, especially in developing countries [1]. This is because more than three-quarters of the world's population are in developing countries. One of them is Indonesia [2]. Indonesia has three population problems that are currently being faced, including quantity because Indonesia is in the 4th position in contributing to the world's population and still has a high growth rate. Furthermore, the quality of Indonesia's human resources is still low [3]. Indonesia's superior position in quantity is not followed by the quality of its population, as reflected in the human development index, which was in 111 positions out of 189 countries in 2019 and was followed by unstable population movements [4].

One indicator of the increasing population is total fertility rate (TFR). Indonesia's TFR figure based on the 2019 program performance and accountability survey (SKAP) results is 2.4 children per woman, meaning that a woman in Indonesia gives birth to an

average of 2.45 children during her lifetime. The TFR results have increased compared to 2018, which was 2.36 children per woman. In North Sulawesi province alone, the TFR figure is 2.54 and higher than the national target of 2.24 children per woman [5].

According to the TFR, which is still high, it is necessary to reduce the TFR. Some of the factors that influence the number of births are age, education, marriage status, the ideal number of children, the decision to use contraception, age at sexual intercourse, the 1st year of giving birth, and contraception usage. This study aims to determine the determinants associated with the productivity of women of childbearing age in North Sulawesi Province.

Methods

The research design used was an analytic study with a cross-sectional approach. This research used the raw data of the SKAP of North Sulawesi Province, 2019. The population in this study was all

women of childbearing age (15–49 years) in North Sulawesi Province based on the SKAP raw data of 2019. The sample of this study was all women of childbearing age (15–49 years), both married and unmarried in the Province of North Sulawesi based on SKAP 2019 raw data, about 1454 women of childbearing age. Data processing time was April–June 2020. The variables in this study consisted of independent and dependent variables. The independent variables in this study were age, education, marital status, the ideal number of children, decision using contraception, age at first sexual intercourse, and contraception usage of women of childbearing age (15–49 years old). In comparison, the dependent variable in this study was the fertility of women of childbearing age.

This study used secondary data from the results of the 2019 Provincial Decree of North Sulawesi. These data were obtained from the National Population and Family Planning Agency of North Sulawesi Province.

Raw data were analyzed using the Chi-square test to determine the relationship between the independent variable and the dependent variable. Furthermore, the multivariate analysis test was carried out to determine the most dominant variable affecting the fertility of women of childbearing age using logistic regression tests.

Results

Respondents in this study were women of childbearing age (15–49 years) who used contraception based on the SKAP of 2019 raw data, totaling 1454 people. Chi-square test analysis was conducted on the independent variables (age, education, marital status, the ideal number of children, decision using contraception, age at first sexual intercourse, and using contraception) against the dependent variable (fertility of women of childbearing age). The correlation between the two groups of variables can be seen in Table 1.

The results of bivariate selection can be seen in Table 2. Based on the analysis, it was known that the education and marital status variables showed a $p > 0.25$, so these variables could not enter the multivariate stage.

Furthermore, multivariate analysis using logistic regression was carried out on the selected variables from the previous bivariate analysis. These variables were the ideal child, age, age at first having sex, the decision to do contraception, and the use of contraception. The results of logistic regression analysis are presented in Table 3.

Then, it was known that the decision variable to use contraception had a $p > 0.05$ so that the decision variable using contraception was excluded from the

Table 1: The relationship between age, education, marital status, the ideal number of children, decision in using contraception, age at first sexual intercourse, and using contraception on fertility

Variable	Fertility				Total n=1453	p
	≤2 children n=1104	%	>2 children n=349	%		
Age (years)						0.000
<20	192	17.3	0	0	192	
20–35	495	44.9	71	20.4	566	
>35	417	37.8	278	79.6	695	
Education						0.000
No school	3	0.3	1	0.2	4	
Elementary-junior high schools	340	30.6	188	54.8	528	
Senior high school	547	49.3	127	37.1	674	
College	220	19.8	27	7.9	247	
Marital status						0.000
Single	263	23.7	0	0	263	
Married	812	73.2	325	94.6	1137	
Living together	16	1.4	3	0.9	19	
Divorced	9	0.8	6	1.8	15	
Death divorce	10	0.9	9	2.7	19	
The ideal number of children (persons)						0.000
≤2	994	89.6	218	63.7	1212	
>2	116	10.4	128	37.3	244	
Age at first sexual intercourse						0.000
No answer	24	21.2	7	2.1	31	
Do not know/forget	9	0.8	2	0.5	11	
Has never been	234	21.1	0	0	234	
<15 years (10–14 years)	11	0.9	11	3.2	22	
15–19 years	323	29.1	156	45.5	497	
20–35 years	500	45.1	167	48.7	667	
36–49 years	9	0.9	0	0	9	
Contraception usage						0.000
Yes	700	63.1	318	92.7	1018	
No	410	36.9	25	7.3	435	

modeling. Following the results of the omnibus test (Table 4), it can be seen that $p < 0.05$ indicated that the ideal child variable, the age of women of reproductive age, age at sexual intercourse, and contraceptive usage were related to fertility. The results of the analysis showed that the highest odds ratio (OR) was the age of first sexual intercourse, which was 9.486. Those mean that the age at sexual intercourse in women of childbearing age would affect fertility ten times compared to other variables, namely, ideal children, age, and use of contraception.

Table 2: Bivariate analysis results

Variable	p-value
Age	0.009
Education	0.491
Marital status	1.000
The decision to use contraception	0.105
Age for first sexual intercourse	0.062
Ideal children	0.000
Use of contraception	0.000

Discussion

The age of a woman is related to the age at first marriage, the age at first birth, and the age at which a woman has a chance of having more than one child [6]. However, the results were not in line with the research [7], which defined that the age of a woman affects fertility through the age of first marriage. Since age has enough correlation to the age at first marriage, the age of women of childbearing age has a vital role in reducing the number of births. The age of marriage determines the reproductive period for a woman, the

Table 3: Effects of the ideal children, age, age at first sexual intercourse, the decision to use contraception, and use of contraception on the fertility of women of childbearing age

Variable	B	S.E	Wald	df	Sig.	Exp.(B)	95% C.I. for EXP(B)	
							Lower	Upper
The ideal children	2.042	0.241	71.832	1	0.000	7.704	4.805	12.353
Age	1.656	0.206	64.628	1	0.000	5.237	3.498	7.841
Age for first sexual intercourse	20.900	40194.476	41.165	26	0.030	1193818009.148	0.000	
Decisions on contraception	19.198	28407.589	11.193	5	0.058	217516567.339	0.000	
Use of contraception	-2.036	0.217	88.222	1	0.000	0.131	0.085	0.200

Table 4: Effects of the ideal children, age, age at first sexual intercourse, and use of contraception on the fertility of women of childbearing age

Variable	B	S.E	Wald	df	Sig.	Exp.(B)	95% C.I. for EXP(B)	
							Lower	Upper
The ideal children	1.715	0.183	87.691	1	0.000	5.555	3.880	7.954
Age	1.726	0.166	107.518	1	0.000	5.619	4.055	7.787
Age for first sexual intercourse	19.750	40204.491	54.598	33	0.010	9.486	0.000	
Use of contraception	-0.799	0.258	9.571	1	0.002	0.450	0.271	0.746

sooner the woman gets married, and the greater the chance of having more children [8]. However, it cannot be denied that today, many women give birth without going through the marriage process. The current age of a woman also affects the ability and desire to have children again, so that the age of the women of childbearing age can directly affect fertility [9]. The older the woman is the lower her ability to give birth and the desire to have more children.

The level of education is closely related to changes in attitudes, behavior, views, and socioeconomic status of a society [10]. Over time, the development of education, especially women's education, is getting better. The high and low level of education will affect the age of first marriage, which in turn will affect fertility [11]. Women with higher education levels are generally high at the age of first marriage, and this will ultimately affect fertility. Education level affects fertility not directly, but through other variables that are directly related to fertility, that is, age at first marriage [7]. Education for women of childbearing age is crucial to improve. The higher the education, a woman will postpone her marriage. Those due to if her education is high, the woman will not marry immediately but will work first. For a woman, the higher the education she takes, the less her reproductive period will be, and the higher the age in her first marriage. This causes less fecundity of a woman to give birth. Conversely, if the low level of education will encourage a woman to start her first marriage at a very young age, in turn, cause the reproductive period to be longer, and the higher the period of fecundity and fertility that she can pass.

Marital status is related to the fertility of women of childbearing age [12]. In marriage, a person will yearn for some satisfaction in their marriage relationship. Marriage satisfaction itself is defined as the extent to which a married couple feels fulfilled and fulfilled in the relationship they live [13]. In Indonesia, several factors influence marital satisfaction between husband and wife. One of them is the presence of children and shows that the presence of children has an essential role in happiness in marriage [14]. The goal of a married couple is to get offspring, and success in having offspring is

also a reproductive achievement for married couples [15]. The same thing was also explained by one of the subjects where he felt that the presence of children was an achievement for married couples. Children can also carry on their parents' hopes, desires, and aspirations.

Children in developing countries considered as investment, that is, in addition to cultivating land and a means of living in old age [16]. Thus, determining the demand for children is a form of rational choice for couples. The option to increase the number of children is obtained by sacrificing the selection of other items. The number of children desired is positively influenced by family income [17]. On the other hand, the number of children desired will be negatively related to the cost of caring for the child and the strong desire to own something else. Based on the results of the study, the ideal number of children had a significant relationship to fertility, as indicated by the smaller significant value of alpha, which was 0.000. Therefore, it is necessary to socialize the community to change the thoughts and desires of couples of childbearing age regarding the ideal number of families so that by changing the paradigm of society from lowering the children they wanted, it will be associated with a decrease in the number of births.

Most respondents made decisions in regulating the number of children by mutual agreement with the domination of the wife. This was due to the inherent reproductive function of the wife and the compromises made with the husband. Most respondents made the decision making in regulating the birth spacing of children by the wife. This was also due to the inherent reproductive function of the wife. Most respondents made the decision making in choosing a place of treatment based on mutual agreement with the dominance of the husband because the husband who responsible for medical therapy. Hence, the choice of the location for treatment is made together, but the husband is the one who decides.

Age at first sexual intercourse can contribute to birth rates. Age at first sexual intercourse affects high and low fertility [18]. Sexual intercourse at an early age has a high risk of marital failure, pregnancy at a young

age that is at risk of death, as well as the risk of being mentally ill to nurture marriage and be responsible parents [19], [20]. Age at sexual intercourse can affect a woman's reproductive health. A woman tends to have a greater risk during childbirth, and it is not uncommon to cause death to the mother or baby who is born when the age of the first marriage is getting younger. Delaying the age for sexual intercourse can reduce fertility because it will shorten a woman's reproductive period [21], [22]. Women who have sex at a young age (under 20 years and ages 20–29 years) and then become pregnant are likely to have multiple children, possibly giving birth to 3 or more children. Meanwhile, those who have sex for more than 30 years, the fewer the number of children born, no one gives birth to 3 or more children.

Family planning program or contraception usage program is an activity that aims to build a prosperous and healthy family by limiting births [23]. That means planning the number of families conducted by limiting the probability of pregnancies using birth control or contraceptives such as spiral intrauterine devices and condoms [24]. The family planning program is believed to have a role in reducing fertility and mortality rates, which in turn have an impact on reducing the level of population development, especially in third world countries, such as Indonesia.

Conclusion

There was a relationship between age, education, marital status, the ideal number of children, the decision in using contraception, age at first sexual intercourse, and contraceptive use related to fertility among women of childbearing age. The results of logistic regression analysis showed that ideal children, age, age at first sexual intercourse, and the use of contraception showed a large influence value, among other factors (education, marital status, and decision to use contraception). The age of sexual intercourse had the greatest influence on fertility among women of childbearing age with an OR of 9.486. It defined that the age of sexual intercourse in women of childbearing age would affect fertility 10 times compared to other variables such as ideal age, age, and the use of contraception.

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