DETERMINANTS OF CONTRACEPTIVE USE AND FERTILITY AMONG REPRODUCTIVE-AGE COUPLES IN MANGGIS DISTRICT

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Abstract: This study aims to analyze the determinants of contraceptive use and fertility among PUS in Manggis District, Karangasem Regency. The variables examined include household income, women's education level, child gender preference, and healthcare access as exogenous variables; contraceptive use as a mediating variable; and fertility as the endogenous variable. This research employs a quantitative approach with an associative design. A sample of 60 respondents was selected using quota sampling combined with accidental and snowball sampling techniques. Data were collected through questionnaires, structured and in-depth interviews, and observation, and analyzed using descriptive statistics and path analysis. The results reveal that household income, women's education level, and healthcare access have a positive effect on contraceptive use, meanwhile PUS who have a child gender preference have a shorter duration of contraceptive use. Furthermore, household income, women's education, healthcare access, and contraceptive use negatively affect fertility, whereas PUS who have a preference for the sex of the child have a higher fertility rate. Contraceptive use is also proven to partially mediate the effect of all exogenous variables on fertility.
**Keywords:** contraceptive use, fertility, reproductive-age couples, women's education

INTRODUCTION

Economic development is intrinsically linked to economic growth. Economic growth facilitates development, and conversely, development promotes economic growth. According to Adam Smith, economic development is the result of the integration of population growth and technological innovation. Therefore, the increase in population in a country needs to be balanced with the advancement of production technology to meet domestic needs. A large population can serve as a potential market for goods and services, while the quality of the population reflects its productivity. The population plays a central role in national development, as it represents both human capital and a key factor of production (Sukirno, 2008: 195).

Based on Figure 1, the global population growth rate has declined by 0.74 between 1971-2020. Similarly, Indonesia's population growth rate has decreased by 1.06 over the same period. In Bali Province, the growth rate has fluctuated, with the highest rate recorded during the 2000–2010 period. However, between 2010 and 2020, the growth rate fell below both the national and global averages, reaching 1.01. Population growth is influenced by several components, including births (fertility), deaths (mortality), and migration (Sudibia et al., 2013). Fertility is defined as the actual reproductive outcome of a woman or a group of women. A birth is considered live if

signs of life are observed at birth, such as breathing or a heartbeat (Marhaeni, 2018). Fertility is typically measured among women of reproductive age—from menarche to menopause (BPS DKI Jakarta, 2022).Uppun (2016) argues that a delayed decline in fertility compared to mortality is influenced not only by socio-economic progress but also by shifting societal values and attitudes toward childbearing.

Figure 1. Average Population Growth Rate, 1971-2020
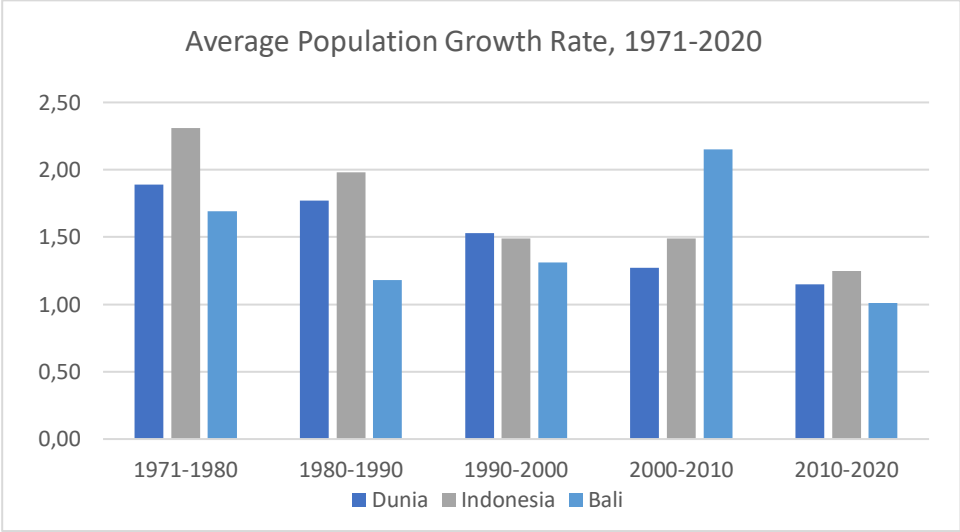
Source: World Bank and BPS

Bali Province, located in Indonesia, had a population of 4.32 million in 2020. Compared to previous census data, Bali's population has continued to rise, increasing by approximately 426,650 people over the decade from 2010 to 2020 an average of 42,665 people annually. During this period, the average annual population growth rate was 1.01 percent, a decline from the 2.14 percent recorded between 2000 and 2010 (BPS Bali, 2020). The province consists of eight regencies and one city: Jembrana, Tabanan, Badung, Gianyar, Klungkung, Bangli, Karangasem, Buleleng, and Denpasar. Table 1 outlines the Total Fertility Rate (TFR) for each of these areas. TFR is defined as the number of live births per 1,000 women by the end of their reproductive years (Marhaeni, 2018). It is a key demographic indicator used to estimate fertility levels in a population and provides a more accurate picture than the Crude Birth Rate (CBR), as it is not affected by the population's age structure.

Table 1. Total Fertility Rate (TFR) Results of the Long Form (LF) of the 2020 Population Census by Regency/City, 2020

Regency/City	TFR
Jembrana	2.15
Tabanan	1.81
Badung	1.89
Gianyar	1.91
Klungkung	2.16

Bangli	2.15
Karangasem	**2.31**
Buleleng	2.24
Denpasar	1.85
Bali	**2.04**

Source: Central Bureau of Statistics, 2023

Based on Table 1, it can be seen that the TFR in Bali Province is 2.04, which means that every 1,000 women after passing their fertile period will give birth to 2.04 male and female babies or each woman will give birth to 2.04 babies. Indonesia's TFR itself based on the Results of the SP2020 Long Form is 2.18. The TFR to achieve balanced population growth is ideally in the range of 2.1, which shows that each woman during her fertile period has an average of 2.1 children, where 2 children can replace both parents. In Bali Province, there are districts/cities with TFR below Indonesia's TFR, namely Tabanan Regency at 1.81, Denpasar City at 1.85, Badung Regency at 1.89, Gianyar Regency at 1.91, Jembrana and Bangli Regencies at 2.15, and Klungkung Regency at 2.16. However, there are districts that have a TFR above Indonesia's TFR, namely Buleleng Regency at 2.24 and the highest in Bali Province, namely Karangasem Regency at 2.31. Kingsley Davis and Judith Blake (1956) put forward the opinion that the decline in fertility can be caused by factors that influence conception, one of which is the use of contraception. The Contraceptive Choice Theory put forward by Palmore and Bulatao states that the use of contraception can space out or limit births. In addition to the national Family Planning (FP) program, the cultural context in Bali Province has given rise to a unique approach known as FP Krama Bali. This program, initiated by the local government, aims to preserve culture by considering local wisdom related to child naming traditions. Philosophically, this approach differs from the national FP program which advocates for two children, as FP Krama Bali historically accommodates the Catur Sanak naming tradition involving four children (Wayan, Made, Nyoman, and Ketut). The presence of this local wisdom indicates that decisions regarding fertility and contraceptive use in Bali are not only influenced by central government policies, but also by deeply rooted socio-cultural values within the community.

Subdistrict	Number of PUS	Active KB Participants						Amount KB	KB:PUS (%)
		Inject	Pill	Implant	IUD	MOW	Other		
Rendang	6,616	2,185	285	132	1,861	155	72	**4,690**	**70.89**
Sidemen	6,237	2,026	560	304	1,279	243	137	**4,549**	**72.94**
Manggis	7,572	1,554	496	259	1,407	299	116	**4,131**	**54.56**
Karangasem	15,872	3,807	570	1,078	3,606	659	357	**10,087**	**63.55**
Abang	14,117	4,360	376	635	3,204	782	343	**9,700**	**68.71**
Bebandem	8,606	1,960	333	299	2,168	379	87	**5,226**	**60.73**
Selat	7,952	1,944	624	211	2,564	182	65	**5,590**	**70.30**
Kubu	12,637	4,882	286	1.140	790	268	77	**7,443**	**58.90**
Karangasem	**79,609**	**22,718**	**3,530**	**4.058**	**16,879**	**2,967**	**26**	**51,416**	**64.59**

Table 2. Active KB Participants According to Contraceptive Type and District (People)
Other: Condom, MOP, MAL, and Traditional
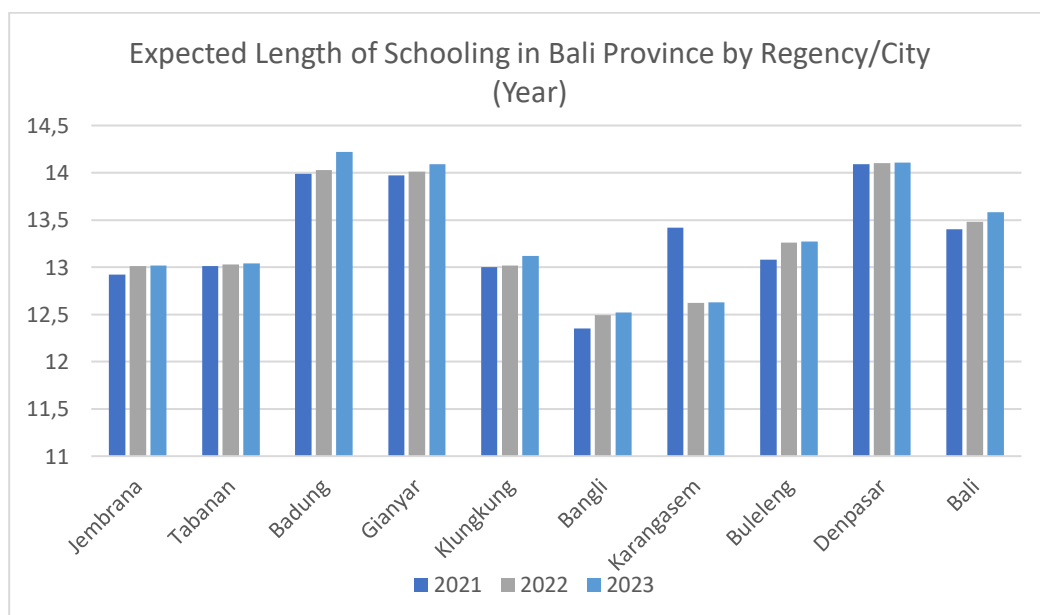
Source: BKKBN Bali Province, 2023

Table 2 shows the participation of residents in sub-districts in Karangasem Regency in using KB. Based on the table, as many as 51,416 people use KB or around 64.59 percent of the total PUS in Karangasem Regency. As for Sidemen District with the number of active KB participants as many as 72.94 percent, then followed by Rendang District 70.89 percent, Selat District 70.30 percent, Abang District 68.71 percent, Karangasem District 63.55 percent, Bebandem District 60.73 percent, Kubu District 58.90 percent, and Manggis District 54.56 percent. Many factors influence a person in using contraception, one of which is age (Kempson, 2004 in Candamayanti & Karmini, 2024). Age also influences the number of children to be born, where in the age period of 20-49 years is the age period that will space out pregnancies, therefore contraceptives with a fairly high or long-term level of efficacy are needed. Table 3 explains that Gegelang Village is the Village with the highest number of fertile age couples (PUS) of 1,129 people compared to other Villages in Manggis District, while the proportion of the lowest number of active KB participants falls in Nyuh Tebel Village at 42.34%.
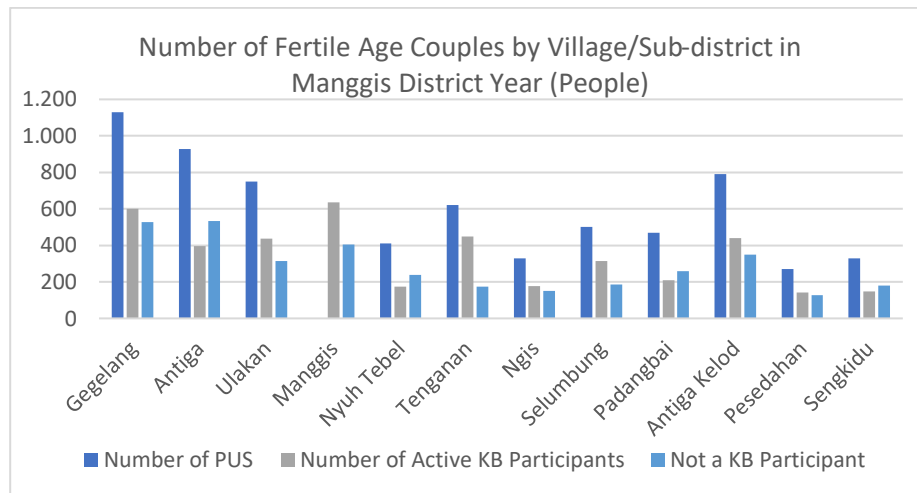
Source: BKKBN Bali Province, 2023

Figure 2. Number of Fertile Age Couples by Village/Sub-district in Manggis District Year (People)

Income can be one of the factors that can affect fertility. Leibenstein (1974) put forward the opinion that the child to be born is seen from two sides, namely the utility side and the cost side. Based on the utility side, it provides satisfaction, can provide economic rewards or help in production activities and is a source that can support parents in the future. From the cost side, namely in terms of raising where the cost is the cost incurred to raise the child who is born. Costs are divided into two, namely direct costs and indirect costs. Direct costs are costs incurred when taking care of children, while indirect costs are opportunities lost due to the addition of a child. So it can be concluded that families with higher incomes tend to be better able to bear the costs associated with raising children, so they are more likely to have more children and vice versa.

Source: BPS Bali Province, 2023

Figure 3. Expected Length of Schooling in Bali Province by Regency/City (Year)

Mantra in Fitri (2016), education level is one of the demographic factors related to the knowledge of fertile age about the benefits and objectives of the family planning program, namely by regulating births that can reduce fertility rates and improve population quality. The level of education of a region can be seen from the expected length of schooling. Expected Years of Schooling (EYS) can be interpreted as the length of schooling in years that are expected to be felt by children at a certain age in the future. Expected Years of Schooling assumes that the child's chances of continuing to attend school at the following ages are the same as the chances of the population attending school per population for the same age currently. Expected Years of Schooling are used by the government and related parties to determine the condition of the development of the education system at various levels which are shown in the form of the length of education (in years) that each child is expected to achieve. In Table 1.3, Expected Years of Schooling in Karangasem Regency tends to fluctuate and in 2023 the Expected Years of Schooling Figure is 12.63. Education level is the main means to achieve the success of the implementation of the family planning program (Todaro, 1998). The higher the level of education, the more likely someone is to use contraception and participate in a family planning program.

Preference for the sex of a child can be a variable that has a positive effect on population demographics, namely fertility, but is a variable that has a negative effect on the use of contraception (Margolis & Myrskyla, 2016). Families who have a desire to have a child with a certain sex will tend to continue having children until they get a child with the sex they want. This will result in a delay in using contraception. Families who have a desire to have a child with a certain sex and the number of family members will motivate a mother to get pregnant and have a baby, as happened in India, Uganda and Vietnam(Khanna, 2018; Matovu, 2017; Yen, 2020 in Manuaba & Marhaeni, 2023).

Health is one of the main aspects that can reflect the quality of life of people in an area. The availability of access to health facilities such as hospitals, health centers, clinics, and integrated health posts not only offers various health services, but also offers prevention programs to improve the quality of life of the community itself. Bongaarts (1978) stated that the existence of adequate and easily accessible health facilities plays a role in reducing fertility rates through the implementation of effective family planning programs. In addition, health facilities also help reduce mortality rates by providing services such as immunization, prenatal care, and treatment of infectious diseases (Omran, 1971). Conversely, lack of access to health facilities is often associated with high maternal and infant mortality rates and an increased risk of untreated diseases (Hossain & Rahman, 2017). Access to health is also a variable that has not been widely studied so this variable is considered suitable for use in this study.

RESEACRH OBJECTIVES

1) To analyze the influence of household income, women's education level, preference for child gender, and health access on contraceptive use among fertile couples in Manggis District.
2) To analyze the influence of household income, education level, preference for child gender, health access, and contraceptive use on fertility among fertile couples in Manggis District.
3) To analyze the role of contraceptive use in mediating the influence of household income, women's education level, preference for child gender, and health access on fertility among fertile couples in Manggis District.
4) To analyze respondents' desire to increase the number of children in the future.

LITERATURE REVIEW

The Microeconomic Theory of Fertility uses economic principles to explain household decisions regarding the number of children. In this theory, children are considered as consumption goods or investments, so the demand for children is a rational choice for families. The desired number of children is directly influenced by the family's income (assuming other factors remain constant). Conversely, the desired number of children is negatively correlated with the cost of childcare and the desire to have other goods.

Caldwell's Wealth Flow Theory (1976) explains the relationship between family structure and birth rates through intergenerational wealth transfer. There are two family models: in traditional societies, wealth flows from the younger generation to the older generation, encouraging parents to have many children due to economic value and assurance in old age (children help work and care for parents). Conversely, in developed countries, wealth flows from the older generation to the younger generation, leading parents to tend to have fewer children due to the high costs of children's health and education. Wealth in this theory includes physical forms (money, goods) and non-physical forms (services, care, assurance of elderly care). Education affects fertility in three ways: increasing the cost of child-rearing, which encourages a decrease in the number of children, changing the traditional value of children into pursuers of personal goals, and affecting the ability of children to contribute to the family's income due to the time spent on education.

In their effort to present an analytical framework for comparing fertility, Kingsley Davis and Judith Blake introduced the term "intervening variables" as intermediaries for each social factor affecting fertility. So it can be said that intervening variables can directly affect fertility. Davis and Blake (1956) in Lucas (1982) proposed that these intermediate variables encompass three important stages of the human reproductive process, namely: (1) the stage of intercourse; (2) the stage of conception;

and (3) the stage of gestation. These three stages can be detailed into 11 intermediate variables that can directly affect fertility.

Income is all the receipts (monetary or non-monetary) of an individual or household within a certain period [2]. Household consumption includes expenditures for living necessities such as clothing, shelter, food, transportation, and entertainment. Households, as economic actors, use goods/services to meet their living needs. Household habits and behaviors vary, influenced by income (higher income tends to lead to higher expenditures), lifestyle, number of family members, environmental influences, and preferences. When basic needs are met, other needs will arise. Education is a crucial aspect that enhances a person's quality of life. Derived from the Greek word "pedagogy" (paedos: child, agoge: guiding), education is defined as the activity of guiding children towards optimal growth and development so that they become independent and responsible. Education is the key to future development and the improvement of human resource quality; the higher the level of education, the higher the quality of an individual.

Preference for a child's gender is the desire to have a child of a specific gender, which is related to the child's role in the family structure. If a family only has children of one gender, this can hinder the formation of small families because parents may continue to strive for a child of the desired gender, potentially creating large families. This preference is based on various social reasons and motives: boys are generally expected to continue the family lineage and bear the economic needs of their parents in the future, while girls are desired to help with household chores and care for their parents [2]. In some South Asian countries, boys are more valued for economic and social status reasons, considered as supporters and successors of the family name. However, research in Sweden shows a reverse preference, where daughters are more desired to care for elderly parents [3]. Health access, defined as "entry point" in KBBI, is healthcare services that can be reached by the community. This is important to reduce the Maternal Mortality Rate (MMR) and is a prerequisite for a quality family, with mothers and children as the priority of health efforts. The success of maternal health programs reflects the degree of public health, assessed by the accessibility and quality of services. Childbirth assisted by healthcare workers in healthcare facilities is established as an indicator of family health efforts in the Ministry of Health's Strategic Plan 2020-2024 (Kementerian Kesehatan, 2022). The utilization of healthcare facilities by pregnant women is related to the mother's attitude, travel time and distance, support from healthcare workers, socio-economic factors, and the perception of pregnant women [4].

Contraception comes from the words contra and conception. Contra means to prevent or oppose, and conception means the meeting of a mature egg cell with a sperm cell that results in pregnancy. Therefore, contraception is a method or tool aimed at preventing pregnancy caused by the meeting of a mature egg cell with a sperm cell

(BKKBN, 2013). In general, the purpose of using contraceptive methods is to strive to save mothers and children from the consequences of giving birth at a young age when a woman's uterus is not yet mature, and to plan for the formation of a small, happy, and prosperous family. Fertility, often referred to as birth, is one of the main components in population growth that increases the number of people. Thompson (1953) in Mardiani and Purnomo (2018) defines fertility as the number of live births from a woman or a group of women. Therefore, fertility can be a concrete indicator to measure the reproductive output (live births) of an individual or a group of women. Other terms related to fertility in the context of reproduction are natality and birth.

METHOD

This study aims to examine how socioeconomic variables affect fertility through contraceptive use. To that end, a quantitative approach with an associative design was used in fertile age couples (PUS) in Manggis District, Karangasem Regency. This district was chosen because it has the highest Total Fertility Rate (TFR) in Bali Province, while Manggis District has the lowest KB participation rate. The variables studied include household income, women's education, preference for child gender, and access to health (exogenous variables), use of contraception (mediating variable), and fertility (endogenous variable). The operational definition and indicators of each variable are determined in detail, such as household income in million rupiah per month, education level in years, and access to health measured using a Likert scale.

This study's population consisted of all 4,131 active family planning participants recorded in Manggis District for the year 2023. The sample was determined as many as 60 respondents using the quota sampling technique, with the criteria of fertile age couples who actively use contraception. The sampling technique combines accidental sampling for initial respondents and snowball sampling to find subsequent respondents. Data were obtained through observation, structured and in-depth interviews, and questionnaire distribution. Data sources consist of primary data (questionnaire and interview results) and secondary data (documents from BPS, BKKBN, and the World Bank). The research instrument was tested using validity and reliability tests to ensure measurement accuracy and consistency.

Data analysis was conducted through descriptive statistics and path analysis. Descriptive statistics are used to describe data characteristics such as the mean, maximum, minimum, and standard deviation values of each variable. Path analysis technique is used to test the magnitude of the contribution indicated by the path coefficients in each path diagram of the cause-and-effect relationship between independent and dependent variables. The main objective of path analysis is to predict the significance (magnitude) of the relationship between one variable and another, as well as the presence of indirect effects. The significance of the relationship between

variables consists of significance, direction, and the magnitude of the influence or relationship.

RESEARCH RESULTS AND DISCUSSION
Research Instrument Test Results
      The research instrument was tested using validity and reliability tests. In this study, the Statistical Package for the Social Sciences (SPSS) version 30 program was used. The results of this research instrument test are as follows:
Validity Test

Table 3. Results of the Validity Test of Research Instruments

Variables	Instrument Code	Pearson Correlation Value	Conclusion
Health Access (X_4)	$X_{4.1}$	0.756	Valid
	$X_{4.2}$	0.796	Valid
	$X_{4.3}$	0.828	Valid
	$X_{4.4}$	0.830	Valid
	$X_{4.5}$	0.797	Valid

Source: Primary Data, 2025

Reliability Test

Table 4. Results of the Research Instrument Reliability Test

Variables	Cronbach's Alpha Value	Conclusion
Health Access (X_4)	0.861	Reliable

Source: Primary Data, 2025

Research Data Analysis Results
Descriptive Statistical Analysis of Research Variables Household Income (X_1), Women's Education Level (X_2), Preference for Child Gender (X_3), Health Access (X_4), Contraceptive Use (Y_1), and Fertility (Y_2)

Table 5. Descriptive Statistical Analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Household Income (X1)	60	1.00	7.75	3.5783	1.69764
Women's Education Level (X2)	60	4	16	10.77	3,524
Contraceptive Use (Y1)	60	6	84	37.00	19,674
Fertility (Y2)	60	1	5	2.48	1,000
Valid N (listwise)	60				

Mode: Preference for Child Gender (X3) = 0

    Health Access (X4) = 4.00

Table 7 explains the average, maximum, minimum, and standard deviation for the variables in this study. The average monthly household income of couples in the reproductive age group in Manggis District is Rp 3,578,300 with a standard deviation of 1,697,640. The household income variable also has a minimum value of Rp 1,000,000.00 and a maximum value of Rp 7,750,000.00. The average level of education achieved by women in Manggis District is 10.77 years with a standard deviation of 3.524. The variable for women's education level has a minimum value of 4 and a maximum value of 16.

The variable of preference for the gender of children has a mode of 0, which means that the majority of respondents do not have a preference for the gender of the children born. The health access variable has a mode value of 4.00, which means that health access in Manggis District is classified as quite high. Practically, this implies that the majority of respondents are likely not experiencing difficulties with administration, distance, services, or equipment at healthcare facilities.

The average duration of contraceptive use among fertile couples in Manggis District is 37.00 months with a standard deviation of 19.674. The contraceptive use variable has a minimum value of 6 and a maximum value of 84. This means that the duration of contraceptive use among fertile couples in Manggis District is at least 6 months and at most 84 months. The average fertility rate among fertile couples in Manggis District is 2.48 children with a standard deviation of 1.000. The fertility variable has a minimum value of 1 and a maximum value of 5. This means that fertile couples in Manggis District have at least 1 child and at most 5 children.

The Influence of Household Income (X$_1$), Women's Education Level (X$_2$), Preference for Child Gender (X$_3$), and Access to Health (X$_4$) on Contraceptive Use (Y$_1$) in Manggis District

Table 6. Results of Regression Test of Household Income Variables, Women's Education Level, Preferences for Child Gender, and Health Access to Contraceptive Use

Coefficients^a					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	-17.889	8.816		-2.029	.047
Household Income (X1)	3.568	1.476	.308	2.417	.019

Women's Education Level (X2)	1.410	.701	.253	2.011	.049
Preference for Child Gender (X3)	-7.801	3.510	-.183	-2.223	.030
Health Access (X4)	8.187	2.504	.309	3.270	.002

a. Dependent Variable: Contraceptive Use (Y1)

Source: Primary Data, 2025

Structural Equation I

$$Y_1 = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$
$$Y_1 = 0{,}308 X_1 + 0{,}253 X_2 - 0{,}183 X_3 + 0{,}309 X_4$$

The results of testing the influence of household income variables on contraceptive use have a significance level of $0.019 < 0.05$ ($\alpha = 5\%$), indicating that household income has a positive and significant effect on contraceptive use. This shows that the higher the household income, the higher the contraceptive use. The coefficient value of 3.568 means that if household income increases by 1 million, contraceptive use increases by 3.568 months. These research findings are supported by a study conducted by Suryadana & Sudibia (2024), which states that household income has a positive relationship with the duration of contraceptive use. The results of this study are also supported by an in-depth interview with one of the respondents, Ni Wayan Sutami from Selumbung Village, on June 19, 2025, who stated that:

"In the past, when our economy was just enough, we didn't think about contraception because our focus was only on daily needs. However, after the birth of our second child and with improved finances, our perspective changed." We want to focus on the quality of our children's lives, which requires significant expenses, so we firmly chose to use family planning."

The results of testing the influence of the variable of women's education level on contraceptive use have a significance of $0.049 < 0.05$ ($\alpha = 5\%$), indicating that the level of women's education has a positive and significant effect on contraceptive use. This shows that the higher the level of women's education, the higher the contraceptive use. The coefficient value of 1.410 means that if the level of women's education increases by 1 year, contraceptive use increases by 1.410 months. The results of this study are also in line with the research conducted by Candamayanti and Karmini (2024) titled "Analysis of Social and Economic Factors on the Use of Contraceptive Devices Among Reproductive Age Women in South Denpasar District," which states that the variable of women's education level has a positive effect on the use of contraceptive devices. The results of this study are also supported by an in-depth interview with one of the respondents, Ni Wayan Mimin Mirayanti from Tenganan Village, on June 19, 2025, who stated:

"In the past, I didn't really understand how to space pregnancies, but after graduating from college and reading a lot, I became aware of its importance for the health of mothers and children." I became more confident in choosing the most effective contraception because I understand the benefits and risks from the information I have received."

The results of testing the influence of the child gender preference variable on contraceptive use have a significance level of 0.030 < 0.05 (α = 5%), indicating that child gender preference has a negative and significant effect on contraceptive use. This shows that couples of childbearing age who have a preference for the gender of their children have a shorter duration of contraceptive use compared to those who do not have a preference for the gender of their children. The results of this study are also in line with the research conducted by (Pitaloka & Sudibia, 2024) titled "Analysis of The Influence of Social and Economic Factors on The Use of Contraception and Fertility in Kuta District," which states that gender preference has a negative and significant impact on the use of contraceptives. The results of this study are also supported by an in-depth interview with one of the respondents, Ni Nengah Sri Muliasih, on June 19, 2025, from Sengkidu Village, who stated:

"I know contraception is important, but it feels incomplete if we don't have a son." So, we don't want to use contraception yet, who knows, maybe later we can have a boy.

The results of testing the influence of the health access variable on contraceptive use have a significance of 0.002 < 0.05 (α = 5%), indicating that health access has a positive and significant effect on contraceptive use. This shows that the higher the health access, the higher the contraceptive use. The coefficient value of 8.187 means that if health access increases by 1 point, contraceptive use increases by 8.187 months. The positive and significant influence of health access on contraceptive use is supported by the research conducted by Agushybana et al. (2022) titled "The Impact of Information Sources and Access to Health Facilities on the Continuity of Contraceptive Use," which states that access to health services affects the continuity of contraceptive use in the community. Individuals who visit family planning services tend to use contraception more consistently compared to those who do not visit these services. The results of this study are also supported by an in-depth interview with one of the respondents, Ni Nengah Juliantari, on June 19, 2025, from Sengkidu Village, who stated:

"With easily accessible healthcare facilities and clear information about various contraceptive methods, I feel more confident in making the right decisions for my reproductive health."

The Influence of Household Income (X₁), Women's Education Level (X₂), Preferences for Child Gender (X₃), Health Access (X₄), and Contraceptive Use (Y₁) on Fertility (Y₂)

In the second structural test, the aim is to determine the influence of the variables: household income (X_1), women's education level (X_2), preference for child gender (X_3), access to healthcare (X_4), and contraceptive use (Y_1) on fertility (Y_2).

Table 7. Results of Regression Test of Household Income Variables, Women's Education Level, Preferences for Child Gender, Health Access, and Contraceptive Use on Fertility

	Coefficientsª				
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	4.516	.360		12.561	<,001
Household Income (X1)	-.125	.061	-.213	-2.054	.045
Women's Education Level (X2)	-0.59	.029	-.209	-2,077	.043
Preference for Child Gender (X3)	.811	.144	.375	5.625	<,001
Health Access (X4)	-.219	108	-.163	-2.035	.047
Contraceptive Use (Y1)	-.011	.005	-.215	-2.062	.044

a. Dependent Variable: Fertility (Y2)

Source: Primary Data, 2025

Structural Equation II

$$Y_2 = \beta_5 X_1 + \beta_6 X_2 + \beta_7 X_3 + \beta_8 X_4 + \beta_9 Y_1$$
$$Y_2 = -0,213 X_1 - 0,209 X_2 + 0,375 X_3 + 0,163 X_4 - 0,215 Y_1$$

The results of the test on the influence of household income variables on fertility have a significance level of 0.045 < 0.05 (α = 5%), indicating that household income has a negative and significant effect on fertility. This shows that the higher the household income of couples of childbearing age, the lower the fertility rate. The coefficient value of -0.125 means that if household income increases by 1 million, fertility decreases by 0.125 people. This research supports the study conducted by Pranata and Sudibia (2021) titled "The Influence of Socio-Economic and Demographic Factors on Fertility Rates in West Denpasar," which states that family income has a negative and significant effect on the number of live births. This statement indicates that increased income will correlate with their ability to improve the quality of their children. If parents' income increases, they are more likely to spend more on the best healthcare and education for their child, which causes them to think twice about having more children,

thus leading to a decline in fertility rates. This research is also supported by an in-depth interview with one of the respondents, Ni Komang Suarjani from Antiga Village, on June 20, 2025, who stated:

"*With a modest income, we think twice about adding to the family.*" *The rising cost of living makes us prefer to postpone having children.*"

The results of the test on the influence of the variable of women's education level on fertility have a significance of 0.043 < 0.05 (α = 5%), indicating that the level of women's education has a negative and significant effect on fertility. This indicates that the higher the education level a woman attains, the more it will reduce fertility. The coefficient value of -0.059 means that if a woman's education level increases by 1 year, fertility decreases by 0.059 people. The negative and significant impact of women's education level on fertility is supported by the research conducted by Prayogi & Sudibia (2022) titled "Analysis of Factors Influencing the Age at First Marriage and Fertility in Negara District," which shows that women's education has a negative and significant direction on fertility. This study is also supported by an in-depth interview with one of the respondents, I Gusti Ayu Adi Setianingsih from Antiga Kelod Village on June 20, 2025, who stated:

"*For me, the education I pursued has opened many horizons, not only in terms of career but also about the importance of quality of life. With higher education, I feel more prepared to give the best to the one child I have, in terms of education, health, and attention. Having many children might make it difficult for me to focus on quality.*"

The results of testing the influence of the child gender preference variable on fertility have a significance level of 0.000 < 0.05 (α = 5%), indicating that child gender preference has a positive and significant effect on contraceptive use. This shows that couples of childbearing age who have a preference for the gender of their children have a higher number of children born than those who do not have a preference for the gender of their children. The negative and significant influence of child gender preference on fertility is supported by the research conducted by Manuaba and Marhaeni (2023) titled "Determinants of Fertility Among Formal Sector Female Workers in South Denpasar District," which states that child gender preference has a positive and significant effect on fertility in South Denpasar District. This research is also supported by an in-depth interview with one of the respondents, Ni Luh Sari from Manggis Village, on June 20, 2025, who stated:

"*My husband really wants to have a son. Even though we already have three daughters, we still hope to have a son, so we haven't thought about permanent contraception yet. It feels incomplete if there isn't a boy in the house.*"

The results of testing the influence of the health access variable on fertility have a significance level of 0.047 < 0.05 (α = 5%), indicating that health access has a negative and significant impact on fertility. This shows that the higher the health access, the more it will reduce fertility. The coefficient value of -0.219 means that if health access

increases by 1 point, fertility decreases by 0.219 people. The negative and significant influence of women's education level on fertility is supported by the research conducted by Saskara & Pratiwi (2021) titled "The Influence of Contraceptive Use, Household Expenditure, and Health Access on Births in Indonesia." This study states that the variable of basic health facilities has a negative impact on the birth rate, meaning that if health facilities decrease, the birth rate increases. This research is also supported by an in-depth interview with one of the respondents, Ni Nengah Juliantari from Ngis Village, on June 20, 2025, who stated:

"I actually want to limit the number of children, but it's very difficult." The health center or midwife is very far from home, requiring a long journey. As a result, I can't regularly get contraceptive injections or consultations. Even if I wanted to get an IUD, I'm afraid the process would be difficult because it's far away. So, in the end, the children just keep coming."

The Role of Contraceptive Use (Y_1) in Mediating the Influence of Household Income (X_1), Women's Education Level (X_2), Preference for Child Gender (X_3), and Health Access (X_4) on Fertility (Y_2)

Based on the path analysis calculations using SPSS, the significant values obtained are as follows.

- Analysis of Household Income (X_1), Women's Education Level (X_2), Preference for Child Gender (X_3), and Health Access (X_4) on Contraceptive Use (Y_1)

    X_1 : Sig. = 0.019 (<0.05) → Significant

    X_2 : Sig. = 0.049 (<0.05) → Significant

    X_3 :Sig. = 0.030 (<0.05) → Significant

    X_4 : Sig. = 0.002 (<0.05) → Significant

- The Influence of Household Income (X_1), Women's Education Level (X_2), Preferences for Child Gender (X_3), Health Access (X_4), and Contraceptive Use (Y_1) on Fertility (Y_2)

    X_1 : Sig. = 0.045 (<0.05) → Significant

    X_2 : Sig. = 0.043 (<0.05) → Significant

    X_3 : Sig. = 0.000 (<0.05) → Significant

    X_4 : Sig. = 0.047 (<0.05) → Significant

    Y_1 : Sig. = 0.044 (<0.05) → Significant

Criteria that must be met for Mediation (full or partial)

- Line X→Y_1 (line 'a')

    X_1 to Y_1 : Sig. = 0.019 (<0.05) → Significant

    X_2 to Y_1 : Sig. = 0.049 (<0.05) → Significant

    X_3 to Y_1 : Sig. = 0.030 (<0.05) → Significant

    X_4 to Y_1 : Sig. = 0.002 (<0.05) → Significant

    All of these 'a' paths are significant. (Criteria met)

- Y_1 Line→Y_2

Y_1 to Y_2 : Sig. = 0.044 (<0.05) → Significant

This path 'b' is significant. (Criteria met)

- Line X→Y_2

    X_1 to Y_2 : Sig. = 0.045 (<0.05) → Significant

    X_2 to Y_2 : Sig. = 0.043 (<0.05) → Significant

    X_3 to Y_2 : Sig. = 0.000 (<0.05) → Significant

    X_4 to Y_2 : Sig. = 0.047 (<0.05) → Significant

All of these direct paths 'c'' are significant. (Criteria met)

Based on the results of the regression analysis that has been conducted, it was found that household income (X_1), women's education level (X_2), preference for child gender (X_3), and access to healthcare (X_4) individually have a significant influence on the use of contraception (Y_1) as a mediating variable. Furthermore, the use of contraception (Y_1) also proved to have a significant influence on fertility (Y_2). Additionally, testing the direct influence of exogenous variables on fertility after controlling for the mediating variable shows that all paths X_1, X_2, X_3, and X_4 to Y_2 remain significant. Such a condition can be interpreted as an indication of partial mediation. This research is supported by a study conducted by (Sudibia, 2023) titled "The Influence of Competence and Organizational Justice on the Performance of Family Planning Counselors (PKB) in Bali Province with Organizational Citizenship Behavior (OCB) as a Mediating Variable," which states that OCB provides a partial mediating effect on the indirect influence of competence on PKB performance.

These partial mediation findings can be explained in depth through the intermediate variables theory framework by Kingsley Davis and Judith Blake (1956). This theory states that socio-economic factors (such as income and education) do not directly affect fertility, but rather through a series of intermediate variables. In the context of this research, the use of contraception (Y_1) is one of the most crucial intermediary variables. Socioeconomic factors (X_1, X_2, X_3, and X_4) influence couples' decisions to use contraception, which then directly reduces the fertility rate (Y_2). This explains why the indirect path (X → Y_1 → Y_2) has proven to be significant.

From an economic perspective, the microeconomic theory of household fertility explains why factors such as household income (X_1) and women's education level (X_2) drive the use of contraception. This theory views children as consumer goods that have costs and benefits. The higher the income and education, the greater the parents' aspirations for the quality of their children (education, health) also increase. To maximize investment in child quality, couples will rationally limit the quantity of children by effectively using contraception (Y1).

Analysis of Respondents Desire to Increase the Number of Children in the Future

The analysis regarding the respondents' desire to add more children in the future shows a very clear trend. Based on Table 10 obtained from the results of

interviews with respondents, it was found that the majority of respondents, amounting to 45 people or 75.0 percent, stated that they do not want to have more children. Meanwhile, the remaining 15 people or 25.0 percent of respondents still have the desire to have children in the future.

Table 8. Distribution of Respondent Couples of Reproductive Age in Manggis District According to Their Desire to Increase the Number of Children in the Future

No	Desire to Increase the Number of Children in the Future	Number of Respondents	Percentage %
1	Yes	15	25,0
2	No	45	75,0
	Total	**60**	**100,0**

Source: Primary Data, 2025

The dominance of respondents who do not want to have more children reflects a shift in social paradigms and rational economic considerations. The cost of raising children in the modern era, including education, health, and nutrition, has become a primary consideration, in line with the fertility economics theory that prioritizes the quality over the quantity of children. Limiting the number of children is considered a strategy to allocate resources for the future of the child and the well-being of the family. Additionally, this also indicates the success of Family Planning (KB) programs and the increase in women's education levels, which broaden awareness about reproductive health and career planning, encouraging decisions to have smaller and more planned families.

Although 25 percent of respondents still want to have more children, this desire is likely driven by specific factors such as gender preference for children. This group may be couples whose child composition does not yet meet their expectations (for example, not having a son or daughter), which supports the argument that gender preference still significantly drives fertility in some communities. Overall, the data confirms a strong shift towards the paradigm of planned small families, in line with population development goals and current economic realities, although the desire to have more children still exists for cultural or personal reasons.

CONCLUSION

1) Household income, women's education level, and access to health have a positive effect on the use of contraception among fertile couples in Manggis District.
2) Preference for child gender has a negative effect on contraceptive use among fertile couples in Manggis District.
3) Household income, women's education level, access to health, and use of contraception have a negative effect on fertility in fertile couples in Manggis District.

4) Preference for child gender has a positive effect on fertility in fertile couples in Manggis District.
5) Contraceptive use mediates the influence of household income, women's education level, preference for child gender, and health access on fertility in fertile couples in Manggis District.
6) The majority of couples of childbearing age choose not to have more children in the future.

SUGGESTIONS

Based on the research findings, it is recommended that local governments, particularly Karangasem Regency and Manggis District, continue to enhance programs aimed at increasing household income and women's education, as both have been proven to have a positive impact on contraceptive use and a negative impact on fertility. Improving access and the quality of healthcare services is also crucial, given its positive influence on contraceptive use and negative impact on fertility. Regarding Bali Governor's Instruction Number 1545 of 2019 concerning Family Planning for Balinese Citizens, its implementation needs to be accompanied by in-depth education about quality family planning, so that the preference for the sex of the child, which still influences fertility, does not hinder the program's goals. For society, it's important to be more proactive in seeking information and utilizing family planning facilities for optimal family planning, as well as considering economic and educational factors when deciding on the number of children to improve the quality of life. Finally, for future researchers, it is recommended to expand the scope of the study to other regions and consider additional variables (e.g., deep cultural factors) for a more comprehensive analysis.

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