





# Factors influencing desired family size among women of childbearing age in eastern Indonesia: Evidence from the Indonesian Demographic Health Survey



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## ABSTRACT

**Background:** Globally, Indonesia is the fourth most populous country. Based on the results of the Indonesian Central Bureau of Statistics census, it is known that the population of Indonesia in 2017 was around 261 million people, with an average number of children desired by women of childbearing age in East Nusa Tenggara Province of 2.9 or around three children per woman of childbearing age.

**Objectives:** This study aimed to determine the relationship between marital status, age at first marriage, employment status, and the number of children desired.

**Methods:** This quantitative study uses a cross-sectional design and an observational analytic survey method. This study took survey data from the 2017 Indonesian Demographic and Health Survey. The study sample was women aged 15-49 years who were recorded as a selected sample in East Nusa Tenggara Province, totaling 1,929 women. Data analysis used the Chi-square test.

**Results:** The analysis showed that the p-value of marital status was 0.000, the p-value of age at first marriage was 0.000, and the p-value of employment status was 0.000, which means that there is a significant relationship between marital status, age at first marriage, and employment status with the number of children desired by women of childbearing age.

**Conclusions:** This study found that marital status, age at first marriage, and employment status were significantly associated with the number of children desired by women of childbearing age. The findings suggest the need for employment-based interventions and marriage education to reduce fertility preferences in areas with high TFR.

**Keywords:** age at first marriage, employment status, marital status, number of children desired.

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## INTRODUCTION

Globally, Indonesia is the fourth most populous country. Based on the World Populations Prospects data published by the United Nations Department of Economic and Social Affairs in November 2022, Indonesia is ranked fourth as the most populous country after China, India, and the United States. The publication shows a graph showing the ranking of the 10 most populous countries in the world in 1990, 2022, and 2050. It is known that Indonesia in 1990 and 2022 did not experience a decline in rank, which is still ranked fourth with a population of 181 million people and 275 million people. However, in 2050, it is projected that there will be a decline in rank to sixth in the world, with a total of 317 million people, and there will still be an increase in population (Sekher & Govil, 2022).

Based on the census results of the Central Statistics Agency (BPS), it is known that the population of Indonesia in 2012 was recorded at around 245 million people; in 2017, it increased to around 261 million people, and in 2020, it increased to around 270 million people, and in 2021 it also increased to around 272 million people. From the data above, Indonesia continues to experience a population increase every year. This can cause a population explosion that affects the population's quality of life, such as food and clean water needs, land availability, security, welfare, and socio-economics (Christiani, Tedjo, & Martono 2014). Population growth can be expressed as a change in the number of people in a group caused by three aspects, namely migration (population movement), mortality (death), and fertility (birth) (Amalia, Ramdhan, & Kifti 2022). According to Lawalata et al. (2022), among the three components, fertility is an indicator that significantly affects the population growth rate because fertility has a positive and linear relationship with population growth. A high fertility rate will cause the population growth rate to increase, and vice versa (Ainy, Nurrochmah, & Katmawanti 2019).

The Indonesian Demographic and Health Survey 2017 stated that the Total Fertility Rate (TFR) was 2.4 children per woman of childbearing age (WUS). This figure means that each woman in Indonesia generally gives birth to 2-3 children during her reproductive years. From the 2002-2003 SDKI to the 2012 SDKI, the Total Fertility Rate (TFR) remained unchanged at 2.6 children per WUS. In 2017, the government succeeded in reducing the Total Fertility Rate (TFR) by 0.2 children per woman (SDKI, 2018). It is known from the Central Bureau of Statistics census data in 2017 that the region with the highest TFR was in East Nusa Tenggara Province at 3.4 children per woman. This figure increased by 0.1 children per woman from the Total Fertility Rate (TFR) in NTT Province in 2012, which was 3.3 children per woman. When viewed from the 1994 to 2017 census data, the Total Fertility Rate (TFR) in NTT Province has consistently exceeded the total birth rate target in line with the provisions by the National Population and Family Planning Agency (BKKBN), which is 2.1 children per woman.

Total Fertility Rate (TFR) is the impact of the number of children desired by couples of childbearing age. The more children desired, the higher the Total Fertility Rate (TFR). Many couples of childbearing age continue to have children until they reach the desired or planned family size (Handayani & Rusyda, 2020). Data from the 2017 IDHS showed that the average number of children desired by women of childbearing age in East Nusa Tenggara Province was 2.9, or about three children per WUS (Nurteta, 2020). This is reinforced by the percentage of children that women of childbearing age in East Nusa Tenggara Province in 2017, namely 36.8%

of WUS have > two children, 29.1% of WUS have 1-2 children, and 34.1% of WUS do not, and/or have not had children (SDKI, 2018). This contradicts the BKKBN target for the number of children desired by couples of childbearing age, which is the same as the total birth rate target of 2.1 children per woman. Thus, the number of children desired by women of childbearing age in East Nusa Tenggara Province in 2017 is still far above the BKKBN target.

The direction of government policy related to the problem of the high number of children desired by women of childbearing age, such as in East Nusa Tenggara Province, is stated in the Strategic Plan of the National Population and Family Planning Agency (BKKBN) for 2020-2024. The life cycle approach based on a family life plan is a human development policy implemented based on an inclusive life cycle approach. This policy begins with planning the pre-family stage, designing the desire to have children, including the number of children desired, and a series of pregnancies that affect the child's growth and development process. Fulfilling basic services such as the *Bangga Kencana* Program can also help reduce the number of children desired by couples of childbearing age. In this regard, the *Bangga Kencana* Program ensures that couples or individuals can access information on family planning and reproductive health and family planning services to plan the spacing and timing of pregnancies. That way, couples of childbearing age can more easily determine the number of children they want by considering other life needs based on information that the government has explained.

The success of government policies to reduce the number of children desired by couples of childbearing age needs to be supported by individual factors. Couples of childbearing age can have children if they have entered marriage. Based on Law Number 16 of 2019 Article 7 paragraph (1), marriage is only permitted if both parties are at least 19 years old, with proposed changes from the National Population and Family Planning Agency (BKKBN) in Article 7 of 2019 paragraph (1), namely marriage can be carried out if both parties have reached the age of 25 years and 21 years (RI, 2019). This age is considered capable of reducing the impact of many child and maternal deaths, as well as the poor quality of child and maternal health. This is evidenced by the findings of *Suryana & Nurwati's research (2020)*, which found that girls aged 10-14 years are at five times greater risk of death, aged 15-19 years are at twice the risk of death during pregnancy or childbirth than women aged 20-24 years. *Aulya et al. (2021)* also stated that women who are well-aged for pregnancy range from 20 to 35 years. This is because women aged 20-35 years have reproductive organs that have adequately functioned perfectly, in contrast to those under 20 years who have not functioned perfectly and those over 40 years who experience a decrease in the reproductive system functionally to 10%.

It is known from the census data of the Central Bureau of Statistics of East Nusa Tenggara Province in 2017 that the percentage of the population of women of childbearing age who are married is 52.42%; unmarried status is 35.94%; living divorce status is 2.29%; death divorce status is 9.35%; and ever married status at the age of > 21 years is 54.45%. However, it turns out that women in East Nusa Tenggara Province aged  $\leq$  16 years by 6.67%, 17-18 years by 15.45%, and 19-20 years by 23.42% have also been married (Statistics, 2017). So, it can be seen from this data that many women in East Nusa Tenggara Province have understood the age limit for women to marry according to the latest BKKBN provisions in 2021. However, it is undeniable that there are still some underage women who marry early. This impacts the opportunity for women to have more children in the future.

In addition to the above factors, several factors can affect women's chances of having children. One of them is marital status. In line with [Santoso's \(2016\)](#) explanation that marriage is a social institution for society, generally, marriage is considered the only lawful way to unite a woman and a man, having a husband and wife relationship. Then, the decision to determine the number of children is a choice that is influenced by several indicators, one of which is the age of the wife's first marriage ([Oktriyanto, Puspitawati, & Muflikhati 2015](#)). Meanwhile, according to [Rahman & Syakur \(2018\)](#), the number of children born is affected by the family income, employment status, and education level of both husband and wife.

This study provides the first evidence on the determinants of fertility preferences in NTT, the region with the highest TFR in Indonesia, using the under-explored 2017 IDHS data.

## **METHODS**

### **Study Design and Participants**

This study used a quantitative and cross-sectional design through observational analytic survey method, which aims to determine the relationship between risk factors (independent) and disease incidence (dependent) through data observation conducted simultaneously. This study used three independent variables and one dependent variable. The independent variables used were (1) marital status with three categories: unmarried, married + cohabiting, and divorced + widowed + separated; (2) age at first marriage with two categories: < 21 years and  $\geq$  21 years; (3) and employment status with two categories: not working and working. Meanwhile, the dependent variable was the number of children desired by women of childbearing age with three categories: not wanting to have children, wanting to have 1-2 children, and wanting to have > two children. The data for this study were sourced from the 2017 Indonesian Demographic and Health Survey (IDHS) - Women of Childbearing Age data from The Demographic and Health Surveys Program. The population used in this study was all women of childbearing age (WUS) or women aged 15-49 years in East Nusa Tenggara Province recorded in the 2017 IDHS, which amounted to 2,223 women. Sampling using purposive sampling techniques adjusted the inclusion and exclusion criteria of the study. The inclusion criteria for this study were all women aged 15-49 years (WUS) in East Nusa Tenggara Province in 2017. The exclusion criteria were all women aged 15-49 years (WUS) in East Nusa Tenggara Province in 2017 who did not provide clear answers to research variable questions or belonged to a sample group with non-numeric response answers (missing data). The sample was selected to ensure representation of women with diverse marital and employment statuses. Thus, a total of 1,929 WUS were selected as the research sample.

### **Ethical approval statement**

This study used secondary data from The Demographic and Health Surveys (DHS) Program in 2017, which is officially available and freely accessible. Since it did not involve human subjects directly and did not collect primary data, this study did not require ethical approval from the research ethics committee. The researcher ensured that all research procedures were conducted according to the ethical principles of scientific research.

### **Research Instruments**

The instrument in this study is a secondary data set obtained from the 2017 Indonesian Demographic and Health Survey (IDHS), specifically the respondent section of women of childbearing age (15-49 years) in East Nusa Tenggara Province. The IDHS questionnaire has been internationally validated with Cronbach's  $\alpha > 0.7$  for fertility variables. The SDKI data is part of the Demographic and Health Surveys (DHS) Program, available online at <https://dhsprogram.com>. The variables in the SDKI data have been developed and tested for validity and reliability by the survey organizers using international standards. In this study, researchers used codified survey data, including:

1. Marital status (unmarried, married/cohabiting, divorced/separated),
2. Age at first marriage ( $< 21$  years and  $\geq 21$  years),
3. Employment status (working or not working), and
4. Number of children desired (do not want children, 1-2 children,  $> 2$  children).

Data were collected by the SDKI team through structured interviews using a standardized DHS questionnaire adapted to the local context.

### Data Analysis

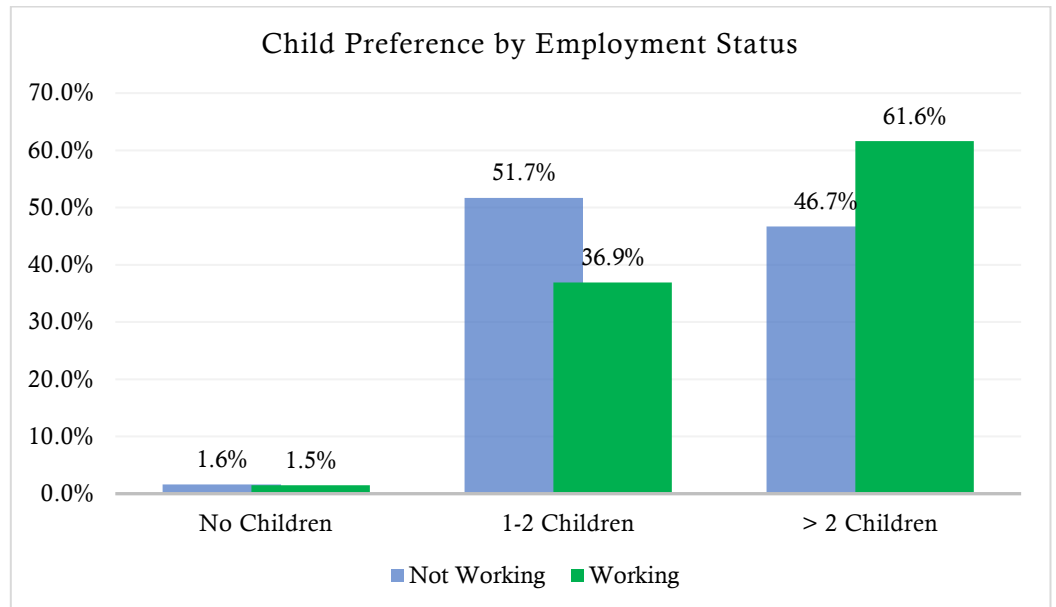
The Chi-Square test, a key statistical analysis component, was used to determine the relationship between the research variables. At the Chi-Square test stage, categories with equivalent operational definitions were combined to meet the Chi-Square assumption value. This value ensures no cells have an expected frequency  $\leq 5$  (for  $2 \times 2$  tables) and/or no cells have an expected frequency  $\leq 5$  more than 20% of the number of cells studied (for  $2 \times k$  tables). If the results of combining categories still do not meet the Chi-Square assumption value, the Fisher Exact test (for  $2 \times 2$  tables) or Kolmogorov-Smirnov test (for  $2 \times k$  tables) can be performed.

## RESULTS

The findings of this study are presented in [Table 1](#), which shows the frequency and percentage distribution of marital status, age at first marriage, and employment status of 1,929 women of childbearing age in East Nusa Tenggara Province in 2017.

**Table 1.** Frequency Distribution

Variable	Frequency	Percentage (%)
<b>Marital status</b>		
Unmarried	577	29,9
Married + cohabiting	1.257	65,2
Living divorce + death divorce + separated	95	4,9
<b>Age at first marriage</b>		
$< 21$ years	609	31,6
$\geq 21$ years	743	38,5
<b>Employment status</b>		
Not working	882	45,7
Working	1.047	54,3
<b>Number of children wanted</b>		
Do not want to have children	30	1,6
1-2 children	842	43,6
$> 2$ children	1.057	54,8



**Figure 1.** Child Preference by Employment Status

Table 1 shows that married + cohabiting status is the marital status of most respondents, namely 1,257 (65.2%). Meanwhile, the number of unmarried respondents was 577 (29.9%), and the number of respondents with divorce + death + separation status was 95 (4.9%). In the first marriage age variable, it is known that 743 respondents (38.5%) got married at the age of  $\geq 21$  years. Meanwhile, the number of respondents with the age of first marriage  $< 21$  years was 609 (31.6%). The employment status variable shows that as many as 1,047 respondents (54.3%) have jobs. At the same time, the number of respondents who did not work was 882 respondents (45.7%). On the variable of the number of children desired, it is known that as many as 1,057 respondents (54.8%) want children as much as  $> 2$  children. While the research sample of 842 respondents (43.6%) wanted 1-2 children, and 30 other respondents (1.6%) did not want to have children.

Figure 1 shows the preference for several children by employment status. It can be seen that the proportion of individuals who do not want children is very small and almost equal between those who are not working (1.6%) and those who are working (1.5%). However, there is a notable difference in the preference for the number of children between the two groups. Individuals who are not working tend to prefer having 1-2 children (51.7%) compared to working (36.9%). In contrast, working individuals prefer having more than two children (61.6%) compared to those not working (46.7%). This difference may reflect that working individuals feel more financially and socially prepared to have more children, whereas those not working may consider limited resources in planning the desired number of children.

Table 2 shows the results of the correlation analysis using the Chi-Square test between marital status, age at first marriage, employment status, and the number of children desired by women of childbearing age.

Based on Table 2, the section on marital status variables with the number of children desired by WUS shows that out of 1,929 respondents, 842 respondents (67.0%) with married + cohabiting status wanted to have  $> 2$  children, 394 respondents (68.3%) with unmarried status wanted to have 1-2 children, and 55 respondents (57.9%) with divorce + death + separation status wanted to have  $> 2$  children. The significance value of the Chi-Square test on marital status was 0.000

<0.050. This means that marital status has a significant relationship with the number of children desired by women of childbearing age. In the variable part of the age of first marriage with the number of children desired by WUS, it is known that out of 1,352 respondents who have married, 472 respondents (63.5%) with the age of first marriage  $\geq 21$  years want to have > two children and 425 respondents (69.8%) with the age of first marriage < 21 years want to have > two children. The significance of the Kolmogorov-Smirnov test on age at first marriage was  $0.000 < 0.050$ .

**Table 2.** Chi-Square Test Results

Variabel	Number of Children Desired			p
	Do not want to have children	1-2 children	> 2 children	
	f (%)	f (%)	f (%)	
<b>Marital status</b>				
Unmarried	23 (4,0)	394 (68,3)	160 (27,7)	0,000
Married + cohabiting	4 (0,3)	411 (32,7)	842 (67,0)	
Living divorce + death divorce + separated	3 (3,2)	37 (38,9)	55 (57,9)	
<b>Age at first marriage</b>				
< 21 years	3 (0,5)	181 (29,7)	425 (69,8)	0,000*
$\geq 21$ years	4 (0,5)	267 (35,9)	472 (63,5)	
<b>Employment status</b>				
Not working	14 (1,6)	456 (51,7)	412 (46,7)	0,000
Working	16 (1,5)	386 (36,9)	645 (61,6)	

\*Kolmogorov-Smirnov test significance value

This means that age at first marriage is significantly related to the number of children desired by women of childbearing age. In the variable section of employment status with the number of children desired by WUS, it is known that out of 1,929 respondents, 645 respondents (61.6%) with working status want to have > two children, and 456 respondents (51.7%) with non-working status want to have 1-2 children. The significance value of the Chi-Square test on employment status was  $0.000 < 0.050$ . This means that employment status has a significant relationship with the number of children desired by women of childbearing age.

## DISCUSSION

### The Relationship between Marital Status and the Number of Children Desired by Women of Childbearing Age

A country's fertility rate is influenced by several variables, one of which is marital status. Marital status itself is a demographic factor that affects fertilization. Nowadays, women want fewer children because the budget for caring for children is increasing (Oktriyanto et al., 2019). This is in line with the results of a study by Oktriyanto, Puspitawati, & Muflikhati (2015), which stated that changes in the value of children have taken place so that the number of children desired by families have decreased, whether in urban or rural areas.

Women with a positive view of marriage readiness generally want fewer children than those with the opposite view. Meanwhile, women who have a negative view of children tend to have many children. The pessimistic view here is seeing children as a guarantee for parents in old age plus the circulating paper, namely "many children, many sustenances," that it encourages having many children (Pratama, Trisnaningsih, & Zulkarnain 2017). Meanwhile, a study by Handayani, Supinganto,

& Setyawati (2021) states that most women aged 16-24 who are not married tend to desire to have children with a range of less than two. The higher the woman's age, the smaller the perception of the number of children desired. This is due to several factors, including exposure to information related to GenRe (Generasi beRencana), location of residence such as rural or urban, and family culture towards preferences for the number of children (Handayani & Rusyda, 2020). Genre (Generasi beRencana) is a program owned by BKKBN that is implemented through an adolescent approach and an approach to families who have adolescent children/siblings by conveying information related to reproductive health, skills and life skills, counseling services, and referral to Triad KRR (Sexuality, HIV / AIDS, Drugs) to achieve a happy and prosperous small family (Yulianti, 2017).

From the findings of this study, most women of childbearing age want to have more than two children. This could be due to the declining coverage of active and new family planning participants in East Nusa Tenggara Province. According to data from the East Nusa Tenggara Provincial Health Office 2019-2023, active family planning participants in East Nusa Tenggara Province during the period 2013 to 2017 experienced a downward trend. This significant decline occurred from 57.19% in 2016 to 32.51% in 2017. The decreasing awareness and understanding of women of childbearing age to actively use family planning can be concluded. This, of course, can lead to an increase in population if women of childbearing age do not participate in family planning.

According to research by Gusman, Notoatmodjo, & Aprilia (2021), the cause of women of childbearing age who choose not to use contraceptives is that the couple still wants to have more than two children. This is because they think that at their age, it is still possible to have children and are also highly educated. It can be concluded that the two-children-enough program has not been able to fully influence the views of the East Nusa Tenggara population regarding the desire to have only two children (Handayani & Rusyda, 2020).

### **The Relationship between Age of First Marriage and the Number of Children Desired by Women of Fertile Age**

The findings of this study are not in line with the research of Lestari, Musa, & Roy (2018), which proves that the age of first marriage is not significantly related to fertility, where the age of first marriage is greater than or equal to 18 years has a tendency to have five or more children born, compared to women of childbearing age who have the first age of marriage less than 18 years. Likewise, research by Prayanti et al. (2021) states that the age of first marriage (UKP) has no significant effect on fertility levels, which should have an impact on the birth rate and determine the high and low fertility (Susanti, Gayatri, & Ismail, 2021).

The findings of this study are similar to the research of Yuniarti & Setiowati (2015), who state that age at first marriage (UKP) is significantly related to fertility. On the other hand, fertility impacts the number of children desired by couples of childbearing age (Yuniarti & Setiowati, 2015). Age at first marriage is related to the number of children desired. Socioeconomic aspects such as husband's education and occupation, economic status, respondent's education, employment status of WUS, cultural aspects such as region and area of residence, and demographic aspects such as age at first marriage are related to the period of marriage to the desire to give birth to the first child for women in Bangladesh (Rahman, Mustafi, & Azad 2013).



Age at first marriage and contraceptive use also influence the desired number of children (Ariho, Kabagenyi, and Nzabona 2018; Haq, Alam, and Methun 2019). However, it should be noted that women who have a good age for pregnancy range from 20-35 years. This is because women aged 20-35 years have reproductive organs that have adequately functioned perfectly, in contrast to ages under 20 years who have not functioned perfectly and ages over 40 years who experience a decrease in the reproductive system functionally to 10% (Aulya et al., 2021). According to Pranata (2015), the success of households in giving birth to children depends on how capable the wife is, which is limited to the age of women who give birth to children (fertile age), which ranges from 15 to 49 years. Women who marry at a mature age have far superior fertility than women at risk. Therefore, the age of first marriage is strongly related to fertility, where fertility impacts the number or number of children desired or requested. One of the indicators used as a basis to control the level of fertility is the age of first marriage or UKP (Priohutomo, 2018). A low UKP will affect the increase in the number of births. The younger the UKP, the more opportunities there are to increase the number of births due to the longer reproductive age of women (Sudibia, Dewi, & Rimbawan 2015).

### **Relationship between Employment Status and the Number of Children Desired by Women of Childbearing Age**

Employment status also affects the number of children desired by women of childbearing age. The role of women in the realm of work has had a significant impact on family peace, especially for the lower middle class in meeting their daily needs. This is evidenced by the increasing number of female workers employed in formal or informal divisions (Setyawati & Abdullah, 2020). When women of childbearing age start working, the time to care for children decreases, affecting the number of children expected.

A study by Saraswati & Dewi (2019) states that the informal sector female workforce has a higher average fertility rate than women in the formal sector. In contrast, the formal division has a lower average fertility rate than women workers in the informal sector. Women who work in the informal sector tend to have more time to take care of the household and family, which leads to a higher likelihood of having more children than women who work in the formal sector. This concludes that women working in the informal sector have more desire to have a large number of children than women in the formal sector.

Meanwhile, according to Rahman & Syakur (2018), the number of children born is affected by employment status, family income level, and the education level of both husband and wife. In Indonesia, women work before marriage, and after marriage, having children under five, they leave the world of work (Putranto, 2018). The presence of children in the household reduces their enthusiasm when working. Working status also indicates that they have a significant income compared to individuals who do not have a job. Women with working status will take part in supporting family income.

Based on the study's results, it is known that working and non-working women tend to want to have many children. This is similar to the study of Padyamanti (2015), which states the possibility that women who work will be more able to meet the nutrition and needs of children and mothers when they are pregnant, which later risks giving birth to many children (Putri & Yasa, 2015). When women's income increases, the number of children they desire increases (Hadiyanto, 2017). In

addition, today, women's role in development causes them to work often to support their income or career. The development of technology has also resulted in women being able to work anywhere, including at home. With this technology, women can care for children and households while working (Putri & Yasa, 2015).

The findings in this study have important implications for policymakers, particularly BKKBN and the local government of East Nusa Tenggara Province. The results show that marital status, age at first marriage, and employment status are significantly associated with the desired number of children, suggesting that the policy intervention approach should be multidimensional. Programs such as GenRe and Bangsa Kencana need to focus more on vulnerable groups, such as young women who married early and the unemployed, to raise awareness about the importance of family planning and the ideal number of children. In addition, ongoing education on reproductive health and contraceptive use needs to be expanded so that preferences for the number of children can be more in line with the national target of two children.

### **Limitations of the study**

However, this study has several limitations. First, the data used is secondary and limited to 2017, so it does not represent the latest dynamics, especially after the COVID-19 pandemic, which may affect people's perceptions and socioeconomic conditions. Second, the variables studied only include three factors, whereas the number of children desired can also be influenced by other variables such as education level, family income, cultural values, and access to health services. Thirdly, the cross-sectional method limits researchers from seeing the causal relationship in depth. Therefore, further studies are recommended to use a longitudinal approach and expand the scope of variables better to understand the determinants of the desired number of children.

## **CONCLUSIONS**

The study found that marital status, age at first marriage, and employment status had a significant relationship with the number of children desired by women of childbearing age. Suggestions for the BKKBN of East Nusa Tenggara Province to improve the quality of the GenRe (Generasi beRencana) program, which consists of providing Information and Counseling Center (PIK) facilities, organizing the Bina Keluarga Remaja (BKR) community, empowering human resources (training, socialization, workshops), and partnerships with government and non-governmental organizations on family planning and pre-marriage to reduce the number of desires to have children and can achieve the ideal child target of two children per woman of childbearing age. In future studies, there will be an expansion of the discussion of the number of children desired by women of childbearing age in each category and can add other factors that can influence the number of children desired by women of childbearing age.

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## DATA AVAILABILITY

The data used in this study comes from the 2017 Indonesian Demographic and Health Survey (IDHS) conducted by The Demographic and Health Surveys Program. The data is open and can be accessed by the public through the official website <https://dhsprogram.com> after user registration.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest in the conduct of this research or in the process of writing and publishing this scientific article.

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