

## Determinants of Unintended Pregnancy in Central Java in 2022

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### ABSTRACT

**Background:** Unintended pregnancy presents major challenges to maternal and child health. Despite extensive family planning initiatives in Indonesia, particularly in Central Java Province, the reduction in unintended pregnancies remains limited, from 13.5% in 2017 to 11.3% in 2022. A thorough comprehension of the issue based on target characteristics is essential for crafting effective targeted programs. **Objective:** This study aims to analyze the determinants of unintended pregnancy among women of childbearing age in Central Java Province. **Methods:** This study is non-reaction research utilizing secondary data analysis from the 2022 Family Data Update in Central Java Province. The research focuses on women of childbearing age (15-49 years) who are currently pregnant. **Result:** The prevalence of unintended pregnancies among women of childbearing age in Central Java Province is 11.3%. There is a significant association between age at first marriage ( $p=0.000$ ), desired number of children ( $p=0.000$ ), employment status ( $p=0.000$ ), health insurance enrollment ( $p=0.000$ ), contraceptive use in the last 12 months ( $p=0.000$ ), maternal age ( $p=0.000$ ), and education level ( $p=0.000$ ) with unintended pregnancies. Women of childbearing age who marry before the age of 21, desire more than 2 children, are unemployed, enrolled in health insurance, have used contraception in the last 12 months, and aged over 35 are more likely to experience unintended pregnancies. **Conclusion:** the determinants of unintended pregnancies among women of childbearing age in Central Java Province include the age at first marriage, the desired number of children, employment status, health insurance enrollment, contraceptive use in the last 12 months, and maternal age.

**Keywords:** Family planning, Reproductive health, Unintended pregnancy, Women of childbearing age.

### INTRODUCTION

The Sustainable Development Goals (SDGs) is a global commitment to realize development that maintains sustainable improvement of people's economic welfare and maintains the sustainability of people's social life. Sustainable development includes efforts to maintain the quality of the environment, as well as ensuring justice and the implementation of governance that is able to maintain the improvement of the quality of life across generation (BAPPENAS, 2020b). The third agenda of the sustainable development goals is "healthy and prosperous lives" where the main issues are maternal mortality and child mortality (BAPPENAS, 2020a).

Both of the aforementioned issues continue to be urgent matters in Indonesia.

Based on the 2020 population census data, the maternal mortality rate in Indonesia is still relatively high, with 189 maternal deaths per 100,000 live births. This includes deaths occurring during pregnancy, childbirth, or the postpartum period. Likewise, the Infant Mortality Rate in Indonesia remains high, standing at 19.83 per 1000 live births (Badan Pusat Statistik, 2023).

The high maternal and child mortality rates are consequences of complications occurring during pregnancy, before delivery, during childbirth, and after delivery (World Health Organization, 2023). Complications can be anticipated if pregnant mothers and their families adequately prepare for pregnancy. Unfortunately, it is regrettable that many pregnancies are currently unintended, thereby increasing the risk of problems for both the mother and the baby. If a mother

does not plan her pregnancy, she may engage in unhealthy behaviors or delay seeking healthcare (Centers for Disease Controls and Prevention, 2023).

Unintended pregnancies can occur due to mistimed conception (when a woman does not want to become pregnant until later) or unwanted conception (when a woman does not want to become pregnant at all) (Nebraska Department of Health and Human Services, 2023). According to the Program Performance and Accountability Survey (PPAS) data, the percentage of unintended pregnancies in Indonesia increased from 14.9% in 2018 to 17.5% in 2019 (Indrayathi *et al.*, 2022). High rates of unwanted pregnancies were also observed in six provinces on the island of Java, reaching 12.8% in 2018 (Romadlona, 2023). Despite various reproductive health and family planning education programs implemented by the government, the reduction in unintended pregnancies is not significant. This is evident in Central Java Province, where more than 9,000 unintended pregnancies were reported in the year 2022, indicating the need for further measures or improvements in the effectiveness of existing programs (Perwakilan BKKBN Provinsi Jawa Tengah, 2023).

Several previous studies using 2017 DHS data have indicated that demographic, socio-economic, and family factors are associated with unintended pregnancies (Wulandari and Laksono, 2021). Other sources explain that factors such as the use of modern contraceptives and the number of children are also related to this issue (Bain, Zweekhorst and Buning, 2020). However, there is still limited research on desired ideal number of children and other maternal factors. Based on the background mentioned above, this study aims to analyze the determinants of unintended pregnancies among women of childbearing age in Central Java Province using the latest relevant data. The findings of this research are expected to provide insights in determining the direction of program policies that align with the characteristics of the target population, ensuring that each pregnancy is planned and healthy, thereby minimizing the risks of maternal and child mortality.

## METHODS

This study is a non-reaction research utilizing secondary data analysis. The data source is derived from the 2022 Family Data Update of Central Java Province by the National Population and Family Planning Board. The dependent variable is "pregnancy" categorized into "intended pregnancy" and "unintended pregnancy". Independent variables involve age at first marriage, desired number of children, employment status, health insurance enrollment, contraceptive use in the last 12 months, maternal age, and education level.

The data include married women of childbearing age (15-49 years) who are currently pregnant, constituting a total of 86,135 samples. Data analysis includes descriptive analysis using frequency distribution, bivariate analysis utilizing chi-square tests to assess inter-variable relationships, and multivariate analysis using logistic regression tests. Data processing is performed using IBM SPSS version 25, with a significance level set at  $p < 0.05$  and a confidence interval of 95%.

As the study relies on secondary data analysis, ethical clearance or informed consent is not explicitly mentioned. However, official permission for data usage has been obtained from the Representative Office of the National Population and Family Planning Board in Central Java, specifically from the Data and Information division

## RESULTS AND DISCUSSION

Respondent's characteristics in Central Java are predominantly in the category of intended pregnancies (88.7%). However, the percentage of unintended pregnancies remains relatively high (11.3%). This is attributed to some respondents expressing a desire to delay having children at the time of pregnancy, while others do not want more children. Nearly half of the respondents indicated that their age at first marriage was below 21 years (42.3%), suggesting that the promotion of family planning programs advocating an ideal marriage age of 25 for men and 21 for women is not yet optimally implemented (Badan Kependudukan dan Keluarga Berencana Nasional, 2021). On the other hand, the family planning program's recommendation to have a

maximum of 2 children has been well-implemented, as evidenced by over 70% of respondents stating that their ideal number of children is a maximum of 2 (71.5%) (Arsyad *et al.*, 2021).

Furthermore, based on the frequency distribution, respondents are predominantly in the categories of

unemployed (56.4%), enrolled in health insurance (71.5%), not using contraception in the last 12 month (85.1%), being aged 35 years and below (83.7%), and having secondary level of education (67.9%). Description of respondent characteristics presented in table 1 below.

**Tabel. 1 Frequency distribution of respondent characteristics**

Background Characteristic	N	%
<b>Pregnancy</b>	<b>86,135</b>	<b>100.00</b>
Intended Pregnancy	76,374	88.7
Unintended Pregnancy	9,761	11.3
<b>Age at First Marriage</b>	<b>86,135</b>	<b>100.0</b>
<21	36,404	42.3
>= 21	49,731	57.7
<b>Desired Number of Children</b>	<b>86,135</b>	<b>100.0</b>
<= 2	61,561	71.5
> 2	24,574	28.5
<b>Employment Status</b>	<b>86,135</b>	<b>100.0</b>
Unemployed	48,571	56.4
Employed	37,564	43.6
<b>Health Insurance Enrollment</b>	<b>86,135</b>	<b>100.0</b>
Enrolled	61,598	71.5
Not Enrolled	24,537	28.5
<b>Contraceptive Use in the Last 12 Month</b>	<b>86,135</b>	<b>100.0</b>
Used	12,864	14.9
Not Used	73,271	85.1
<b>Maternal Age</b>	<b>86,135</b>	<b>100.0</b>
<=35	72,077	83.7
>35	14,058	16.3
<b>Education Level</b>	<b>86,135</b>	<b>100.0</b>
Primary Education	16,268	18.9
Secondary Education	58,494	67.9
Higher Education	11,373	13.2
<b>Total</b>	<b>86,135</b>	

After identifying the characteristics of the respondents, a Chi-square test with a significance level of  $p < 0.05$  was conducted to determine the relationship between variables such as age at first marriage, desired number of children, employment status, health insurance enrollment, contraceptive use in the last 12 months, maternal age, and educational level with pregnancy categories.

The bivariate analysis results reveal a significant correlation between unintended pregnancies and all independent variables among women of reproductive age in Central Java Province. Specifically, the age at first marriage variable is linked to unintended pregnancies ( $p=0,000$ ). Women marrying at the age of 21 and above exhibit a lower likelihood of experiencing unintended pregnancies compared to those marrying at less than 21 years old. This pattern is

consistent with findings from a study in Oromia, Ethiopia, suggesting that negotiation power dynamics play a role. Women marrying at a younger age are more likely to be influenced by their husbands, their husbands' families, and societal norms, potentially contributing to a lower inclination to seek reproductive health services for preventing unintended pregnancies. Moreover, it may be explained by the general lack of knowledge about contraceptive use among women at this age, coupled with potential hesitancy to access reproductive health services at a younger age (Merga *et al.*, 2021). In line with research in East Java Province, it is found that the younger the age at first marriage, the higher the chances of becoming pregnant and giving birth. This, of course, increases the risk of unintended pregnancies. Furthermore, the study explains that an increase in the age at first marriage will reduce the risk of unintended pregnancies (Lutfiya *et al.*, 2022).



The variable of desired number of children is significantly associated with pregnancy categories. Women of reproductive age who desire more than 2 children are more likely to experience unintended pregnancies compared to those who desire a maximum of 2 children ( $p=0,000$ ). Consistent with previous research in Indonesia, it is explained that an increased desire for more children and the actual number of children desired elevate the risk of unintended pregnancies (Junadi, Eryando and Hartanto, 2018). This contradicts findings in Jimma Town, which indicate that a lower desire for children increases the risk of unintended pregnancies (Beyene, 2019). Essentially, if women aim for a smaller number of children, subsequent pregnancies are more likely to be unintended as they have

already reached their ideal number of children. However, women desiring more children often face limitations in reproductive health knowledge and contraceptive awareness, making it challenging to plan pregnancies effectively. Additionally, women aspiring for larger families tend to reside in rural areas, which pose limitations on healthcare and contraceptive access, thereby increasing the likelihood of unintended pregnancies (Ahinkorah *et al.*, 2020).

The distribution of pregnancy categories in women from couples of childbearing age in Central Java Province based on the characteristics of respondents listed in the following Table 2.

Table. 2 Percentage of Unintended Pregnancies by Respondent Characteristics.

Respondent Characteristics	Pregnancy				p-Value
	Intended		Unintended		
	N	%	N	%	
Age at First Marriage	76,374	88.7%	9,761	11.3%	0.000
<21	32,059	88.1%	4,345	11.9%	
>= 21	44,315	89.1%	5,416	10.9%	
Desired Number of Children	76,374	88.7%	9,761	11.3%	0.000
<=2	56,005	91.0%	5,556	9.0%	
> 2	20,369	82.9%	4,205	17.1%	
Employment Status	76,374	88.7%	9,761	11.3%	0.000
Unemployed	42,660	87.8%	5,911	12.2%	
Employed	33,714	89.8%	3,850	10.2%	
Health Insurance Enrollment	76,374	88.7%	9,761	11.3%	0.000
Enrolled	54,434	88.4%	7,164	11.6%	
Not Enrolled	21,940	89.4%	2,597	10.6%	
Contraceptive Use in the Last 12 Month	76,374	88.7%	9,761	11.3%	0.000
Used	10,343	80.4%	2,521	19.6%	
Not Used	66,031	90.1%	7,240	9.9%	
Maternal Age	76,374	88.7%	9,761	11.3%	0.000
<=35	65,033	90.2%	7,044	9.8%	
>35	11,341	80.7%	2,717	19.3%	
Education Level	76,374	88.7%	9,761	11.3%	0.000
Primary Education	14,097	86.7%	2,171	13.3%	
Secondary Education	52,094	89.1%	6,400	10.9%	
Higher Education	10,183	89.5%	1,190	10.5%	
Total	86,135				

The variable of employment status is significantly associated with unintended pregnancies ( $p=0,000$ ). Women who are unemployed tend to have a higher likelihood of experiencing unintended pregnancies compared to employed women. This aligns with research in North Sumatra, which indicates that unemployed wives are 1.674 times more likely to experience unintended pregnancies than employed wives (Hutasoit *et al.*, 2023).

The statement explains that women with employment access are more likely to access pregnancy prevention efforts, including information and contraceptive tools. Additionally, employment provides higher financial opportunities and is indirectly related to better pregnancy planning and increased access to prevent pregnancies. Consistent findings come from Iran, where research shows a high prevalence of unintended pregnancies



among unemployed women (Almasi-Hashiani *et al.*, 2019). Similarly, studies in South Africa demonstrate a similar trend, as financial limitations for unemployed women lead to economic instability and difficulties in supporting their families (Haffejee *et al.*, 2017). Moreover, unemployed women are less likely to use contraceptives regularly, resulting in higher contraceptive failure rates.

The health insurance enrollment variable is significantly associated with unintended pregnancies ( $p=0,000$ ). Women of childbearing age with health insurance tend to have a higher likelihood of experiencing unintended pregnancies compared to those without health insurance. This contrasts with research in Ghana, which indicates that the likelihood of unintended pregnancies is lower for women enrolled to health insurance compared to those not enrolled (Oyediran and Davis, 2023). But we have similar finding in Mississippi, where a majority of women enrolled to public health insurance report their pregnancies as unintended because, in reality, they intended to delay pregnancy (Center for Mississippi Health policy, 2018). Indonesia implements a national health insurance system as a publicly oriented health insurance. However, it is regrettable that family planning services (contraception) are not explicitly excluded, even though contraceptive commodities are not comprehensively covered in reimbursements to first or second-level health facilities. Coordination between local governments and national health insurance providers has not been effectively established, resulting in high national health insurance coverage but also a high unmet need for contraception (Teplitskaya, Ross and Dutta, 2018). Consequently, it is not surprising that unintended pregnancies remain prevalent.

The variable of contraceptive use in the past 12 months is significantly associated with unintended pregnancy ( $p=0,000$ ). Women of childbearing age who did not use contraception in the last 12 months tend to have a lower likelihood of experiencing unintended pregnancies compared to those who have used contraception. This tends to be ironic considering that contraceptive use is a step towards family planning. However the same result had been found in DHS analysis in Indonesia where contraceptive use has a

significant relationship with unintended pregnancy (Luthfina, 2021). This result also aligns with research in Australia, indicating that women using contraception, especially oral contraceptives, have a higher tendency for unintended pregnancies. The reason behind this is that contraceptive methods relying on user accuracy are more susceptible to failures. On one hand, users may feel secure having used contraception, but on the other hand, improper usage such as irregular consumption of contraceptive pills carries a higher risk of failure. In contrast, individuals not using contraceptives tend to employ other methods more cautiously, such as withdrawal or calendar-based methods (Coombe *et al.*, 2016).

The maternal age variable is significantly associated with unintended pregnancies ( $p=0,000$ ). Women aged more than 35 years are more likely to experience unintended pregnancies compared to those aged 35 or below. This aligns with previous research using DHS (Luthfina, 2021) and PPAS data (Sihite and Simbolon, 2023), indicating that mothers aged 35 and below have a lower tendency to experience unintended pregnancies compared to those above the age of 35. Similarly, studies in India have shown a higher prevalence of unintended pregnancies in women aged more than 35 (Dutta, Shekhar and Prashad, 2015). Women above the age of 35 face higher health risks during pregnancy, such as the risk of premature birth, genetic issues in the fetus, and other complications (Garcia, Walker and Thorntom, 2022). Consequently, many women in this age group may avoid pregnancy due to concerns about these health risks. However, women aged 35 and above are also more susceptible to changes in menstrual cycles and irregular ovulation. This can lead to difficulties in identifying fertile periods and challenges in choosing suitable contraceptive methods, thereby increasing the risk of unintended pregnancies (Merck Serono, 2017).

In bivariate analysis using the chi-square test, the education level variable shows a significant relationship with pregnancy categories ( $p=0,000$ ). The prevalence of unintended pregnancies is higher in women with a primary education level compared to those with secondary and higher education levels. This aligns



with research in the United States, indicating that lower maternal education increases the risk of unintended pregnancies (Van Arnam *et al.*, 2020). It is logical to assume that with higher levels of education, there is an increase in awareness of reproductive health. Moreover, as educational attainment rises, there is an increase in communication between spouses regarding pregnancy, awareness of long-term family planning, and the likelihood of receiving sufficient Antenatal Care (ANC) (Alene *et al.*, 2020).

However, after conducting multivariate analysis with logistic regression, the association between education level and unintended pregnancies becomes statistically insignificant, with p-values of 0.149 for primary education, 0.893 for secondary education, and 0.120 for higher education. Consequently, the education level variable is excluded from the model, and the final model is presented in Table 3 below.

**Table. 3 Determinants of Unintended Pregnancy in Central Java.**

The Characteristics of Respondent	Unintended Pregnancy			
	B	OR	p-Value	(95%CI)
Age at First Marriage				
<21	Reference			
>= 21	-0.055	0.947	0.014	0.906-0.989
Desired Number of Children				
<= 2	Reference			
> 2	0.550	1.734	0.000	1.657-1.815
Employment Status				
Unemployed	Reference			
Employed	-0.217	0.805	0.000	0.770-0.841
Health Insurance Enrollment				
Enrolled	Reference			
Not Enrolled	-0.126	0.881	0.000	0.840-0.925
Contraceptive Use in the Last 12 Month				
Used	Reference			
Not Used	-0.734	0.480	0.000	0.456-0.505
Maternal Age				
<=35	Reference			
>35	0.619	1.858	0.000	1.765-1.956
Constant	-1.626	0.197	0.000	

The results of the multivariate analysis reveal that getting married at the age of 21 and above, being employed, not enrolled to health insurance, and not using contraception in the last 12 months are protective factors against unintended pregnancies among reproductive age in Central Java Province. On the other hand, women desiring more than 2 children and those aged over 35 are identified as factors increasing the risk of unintended pregnancies.

The highlight characteristic in Central Java Province is contraceptive use. According to the performance report of the National Population and Family Planning Agency of Central Java Province for the year 2022, the prevalence of modern contraceptive use stands at 65.05% (Perwakilan BKKBN Provinsi Jawa Tengah, 2020). However, it is noteworthy that the most widely used contraceptive method in Central Java is short-term

methods, which have a relatively higher failure rate, contributing to a significant incidence of unintended pregnancies. Despite achieving a relatively high prevalence of modern contraceptive use, addressing the issue of unintended pregnancies may require a focus on improving the effectiveness and accessibility of contraceptive methods, along with comprehensive family planning education and services.

## CONCLUSION

This research indicates that the determinants of unintended pregnancies among women of childbearing age in Central Java Province include the age at first marriage, desired number of children, employment status, health insurance coverage, contraceptive use in the last 12 months, and maternal age. The findings can serve as valuable input for formulating policy directions at both the regional and

national levels. There is a need for strengthened health promotion in reproductive health, family planning programs, and the promotion ideal age of marriage, particularly for women at high risk of unintended pregnancies. Efforts should be directed towards enhancing women's access and understanding of suitable contraceptive methods, ensuring their proper and effective use, and achieving more optimal integration between national health insurance programs and family planning initiatives. Additionally, there is a call for an improvement in the quality and availability of employment opportunities for women, coupled with increased access to education. Through this comprehensive approach, it is anticipated that family quality and well-being will improve, contributing to the attainment of the Sustainable Development Goals (SDGs), especially SDG 3 on Health and Well-being.

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