

Original Research

Sociodemographic Factors and Contraceptive Use Duration Prior to Discontinuation: A Cross-Sectional Study

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ABSTRACT

Background: Discontinuation of contraceptive use among women of reproductive age can hinder the attainment of the Sustainable Development Goals (SDGs). Sociodemographic factors of women may be related to the contraceptive use duration before they decide to discontinue. It can be used as a basis for formulating interventions to ensure they are on target. The aim of this research to identify and analyze association between sociodemographic factors and duration of last contraceptive use among women of reproductive-age who ever had experienced with the discontinue of their contraception. **Methods:** The study was a cross-sectional, women aged 20-49 years who ever experienced contraceptive discontinuation as population. Sampling based on purposive stratified random sampling obtained a sample of 150 people. The study was conducted in Kediri Regency which was carried out in August-September 2025. Age, education, employment status, number of children, the last contraceptive method used when discontinuing use were observed as independent variables. The duration of last contraceptive use for the dependent variable. Primary data collection used questionnaire and analyzed using the Spearman's Rho test. **Results:** Research outcomes showed that 50.0% of respondents discontinued after 1-5 years of use and 32.0% discontinued within <1 year; the most common group was 20-39 years (48.0%). A significant relationship between women's age and the duration of last contraceptive use ($p=0.007$). Contraceptive methods and number of children had no consistent association. The 3-monthly injectable, intrauterine device (IUD), implant and pills were among the most frequently used for 1-5 years before they discontinued. **Conclusions:** The correlation between women's age and duration of last contraceptive use can be used as a basis for developing interventions to extend the duration of contraceptive use through comprehensive and ongoing education or counselling about the benefits and management of side effects of contraception in younger mothers.

Keywords: Contraceptive; women; sociodemographic factors

1. INTRODUCTION

The third Sustainable Development Goal (SDG) is complied to achieve a healthy and prosperous life through reproductive health and family planning services, including ensuring universal access to contraceptive methods to

reduce the global maternal mortality.⁽¹⁻³⁾ Discontinuation of contraceptive use among reproductive-age women can hinder the achievement of this SDGs.

Analysis of Demographic and Health Survey (DHS) data shows that 38% of women with previously met modern contraceptive needs had used modern contraception but chose to stop using contraception, which is called contraceptive discontinuation. Contraceptive discontinuation has defined as starting contraceptive use and then stop because reasons despite potential of unwanted pregnancy.⁽⁴⁾ The target for the national contraceptive discontinuation rate is 7.4% in 2024, and the average discontinuation rate in East Java province is 8.1%, contraceptive discontinuation rate in Kediri Regency is still quite high, reaching 10.9% in 2022.⁽⁵⁾

The discontinuation prevalence of modern contraceptive among reproductive-age women was 35.2% (6). However, early discontinuation of long-acting reversible contraceptive (LARC) due to the desire to conceive increase with the duration of use.⁽⁷⁾ Of 1050 women, 69.8% stopped using long-term contraception before the period it was advised for, while 30.2% change from long-term contraceptive method to another contraceptive method.⁽⁸⁾ Several studies categorize contraceptive discontinuation into use for less than and more than 12 months, less than and more than 24 months.^(9,10)

Discontinuing contraceptive use is quite worrying because of the possible consequences for women's reproductive health.⁽¹¹⁾ Several studies indicate that sociodemographic characteristic predicts the likelihood of contraceptive discontinuation.^(6,12,13) Some characteristics of women include older age of women and their education, contraceptive methods used, women in rural places, their family size are the most significant factor in discontinuing contraceptives.⁽¹⁴⁾ Other predictors of contraceptive discontinuation include secondary education, women with three or more offspring, and having a paid job.⁽¹⁵⁾ Women discontinue long-term use of methods because of side effects, desire for children, and health problems.⁽¹⁶⁾ The primary factors behind halting the contraceptive use in numerous countries with low to moderate income are adverse reaction and apprehensions regarding well-being, and infrequent sexual intercourse and the aspiration to conceive are common reason among teenage females.⁽¹⁷⁾ Older women (age 35 above) were more likely to discontinue for biological/physical reasons compare to

younger women, and it could be caused the belief that younger women had less health problems dan could have a more risk to be pregnant.⁽¹²⁾

Understanding the characteristics of reproductive-age women is crucial for designing targeted interventions. Factors that may predict contraceptive discontinuation can be identified and used as a basis for developing strategies to extend the duration of contraceptive use and reduce the risks of unintended pregnancies. Examining how sociodemographic characteristic relate to the duration of contraceptive use before they discontinued offers novel insight. This study contributes new evidence from the Indonesian context, specifically Kediri Regency, where empirical data remain scarce in the international literature. By addressing this gap, the study adds understanding how connection between the sociodemographic factors and duration of last contraceptive use in use among reproductive age-women who had experienced contraceptive discontinuation.

2. METHODS

2.1 Study Design and Setting

This study designed by a cross-sectional study to analyze association between respondent characteristics – including age, number of children, education, occupation, the last contraceptive method used when discontinuing contraceptive use and duration of contraceptive use before discontinuation. The study was conducted in Kediri Regency, August-September 2025.

2.2 Population Study and Criteria Sample

The study population consisted of reproductive-age women 20-49 years who ever had experienced the contraceptive discontinuation in Kediri Regency. Inclusion criteria included women who were still married and living in the same household, husbands work inside the city, and they will to participate. Respondents who were withdrew and not present were excluded.

2.3 Sample Size and Sampling Technique

The required sample size was calculated using Lemeshow formula for unknown population. Assuming an outcome prevalence of 10.9% and a margin of error of 5%, the calculation produced a sample size of 149.24, which was rounded up to 150 respondents to ensure adequate precision. The study population was stratified by the selected Public Health Centers (PHCs) in Kediri

Regency – which selected based on three performance indicators relative to district averages: lower-than-average modern contraceptives coverage, lower-than-average LARC (long-acting contraceptive methods) coverage, and higher-than-average contraceptive dropout rates. Samples were allocated to each stratum proportionally to the size of the target population at each PHC and individual participant within each stratum were selected by simple random sampling.

2.4 Variables

The independent variables namely: age, number of children, education, occupation, and the last contraceptive method used when discontinuing contraceptive use. The dependent variable was the duration of use last contraceptive use before discontinuing contraception.

2.5 Study Tool

Primary data were collected using a questionnaire whose validity had been measured. A short-structured questionnaire was to used basic sociodemographic information. Item included: respondents age, number of children, highest level of education and current occupation. The questionnaire also asked about the most recent contraceptive method used and duration of contraceptive use prior to discontinuation. Contraceptive use was assessed by asking respondent and they were select a list of modern methods: intrauterine device (IUD), implant 3-monthly injectable, monthly injectable, oral contraceptive pills and lactational amenorrhea methods (LAM).

2.6 Data Collection

Prior data collection, ethical approval was gained from the Research Ethics Committee of the Faculty of Medicine, Universitas Sebelas Maret of Surakarta. Participants had been given options when answering the question in the questionnaire, making this instrument very easy. Primary data was collected directly from participants. Women of reproductive age who are selected will be given an invitation; upon arrival, they will be provided with informed consent. If they agree to participate in this study, the researchers will provide a questionnaire. After an explanation on how to complete the questionnaire is given, the respondents will be allotted time to fill out the questionnaire.

2.7 Data Analysis

Data was analyzed using SPSS 22. All variables were analyzed categorically and described in the form of frequencies and percentages. Bivariate analysis aimed to evaluate the relationship between variables using Spearman's rho test, with a p -value expressed significant if it was less than 0.05.

3. RESULTS

One hundred and fifty eligible respondents were willing to participate in this research. Respondent characteristics are shown in Table 1. The results show that most respondents were aged 30-39 years (72; 48.0%), most respondents had 2 children for 70 people (70; 46.7%), and the age of the youngest child of the respondents was mostly over 5 years old (99; 66.0%). Most respondents had a high school education (87; 58.0%). Majority of respondents were housewives (127; 86.07%).

The results of the study in Table 1 also show that before discontinuing contraception. Majority of respondents used injectable contraception for 3 months (71; 47.3%). Regarding the duration of their last contraceptive use before discontinuing contraception, half of the respondents used it for more than 1 to 5 years (75; 50%), followed by respondents who used contraception for less than 1 year (38; 32.0%) who had decided to stop using contraception. The fewest respondents decided to stop using contraception more than 5 years after using their last contraceptive (17; 18.0%).

Based on the research results, variables related to the duration of last contraceptive use before respondents decided to stop using contraception are shown in Table 2. The women's age variable ($p = 0.007$) showed a significant relationship with the duration of contraceptive use before respondents decided to stop using contraception in the observed sample. The duration of last contraceptive use for more than 1-5 years dominated in all age groups, both in the 20-29 years age group (15; 53.6%), 30-39 years (37; 51.4%) and in the 40-49 years age group (23; 46.0%).

Based on Table 2, the variables observed in this study, the number of children, education, occupation, and the last contraceptive method used before contraceptive discontinuation, did not show significance (p -value > 0.05). Respondents with 2 children dominated the duration of last contraceptive use for more than 1-5 years (42; 60.0%). In the education group, the most respondents had a high school education with the last

Table 1. Characteristic of respondents, method and Duration of contraceptive use prior to discontinuation among reproductive-age women (N=150)

Characteristic	Level	n (%)	Other values
Age (years)	20-29	28 (18.7)	SD=6.38; Mean=35.42; Median=35.50; Min=20; Max=45
	30-39	72 (48.0)	
	40-49	50 (33.3)	
Number of Children	1	61 (40.7)	SD=0.71; Mean=1.73; Median=2.00; Min=1; Max=4
	2	70 (46.7)	
	≥3	19 (12.7)	
Education	Elementary school	5 (3.3)	-
	Junior high school	40 (26.7)	
	Senior high school	87 (58.0)	
	Diplomas/bachelor	18 (12.0)	
Occupation	Housewife	127 (86.7)	-
	Self-employed	7 (4.7)	
	Private	15 (10.0)	
	Government employee	1 (0.7)	
Contraceptive methods	1 month injection	12 (8.0)	-
	3 months injection	71 (47.3)	
	IUD	8 (5.3)	
	Implants	23 (15.3)	
	Pills	25 (16.7)	
	Condom	8 (5.3)	
	Lactational amenorrhea methods (LAM)	3 (2.0)	
Duration of using last contraception	≤1 years	48 (32.0)	-
	1<n≤5 years	75 (50.0)	
	>5 years	27 (18.0)	

duration of contraceptive use for more than 1-5 years (39; 44.8%). The group of housewives most often used the last contraceptive for more than 1-5 years (59; 46.5%).

4. DISCUSSION

Regarding the duration of the last contraceptive used before dropping out of contraception, half of the respondents used it for more than 1 to 5 years (75; 50%), followed by respondents who used contraception before 1 year (38; 32.0%) who had decided to drop out of contraception. Contraceptive use for more than 1-5 years before respondents decided to drop out was most common among respondents who used the 3-month injection contraceptive method (32; 45.1%), IUD (6; 75.0%), implant (14; 60.9%) and pill (14; 56.0%). This is inconsistent with Fente et al. (2025), where 34% of Tanzanian women had stopped using contraception within 12 months of use, in the initial phase of use when side effects were not fully understood and there had been no adaptation of the method used.⁽¹⁵⁾ Approximately 56.18% of women on reproductive period in Papua New

Guinea stopped using birth control.⁽¹⁸⁾ The duration of contraceptive use before discontinuation not only reflects the effectiveness of the method but also the support system surrounding the user. Ongoing support is beneficial for extending the duration of use and reducing the risk of discontinuation.

The outcome study revealed that duration of contraceptive use was 1 to <5 years is the longest duration of time in the observed population group, and is followed by contraceptive use during <1 year. Women's age showed a significant relationship with the duration of contraceptive use before respondents decided to stop using contraception ($p=0.007$). The mean age was 35.4 years (SD=6.38), the relatively small standard deviation indicated a fairly homogenous age distribution. Moreover, the similarity between the mean and median suggest a relatively balance distribution. A predictive model based on Random Forest model, achieving 68% accuracy, effectively determined the primary element influencing contraceptive discontinuation, one of the most frequently related was related to the woman's age.⁽¹⁹⁾ At a young age with a higher fertility rate, there is

Table 2. Cross-tab variables and significance values

Variables	Level	Duration of use of the last contraception			p-value
		≤1 year, n (%)	1<n≤5 years, n (%)	>5 years, n (%)	
Age (years)	20-29	13 (46.4)	15 (53.6)	0 (0.0)	0.007
	30-39	22 (30.6)	37 (51.4)	13 (18.1)	
	40-49	13 (26.0)	23 (46.0)	14 (28.1)	
Number of children	1	25 (41.0)	25 (41.0)	11 (18.0)	0.280
	2	16 (22.9)	42 (60.0)	12 (17.1)	
	≥3	7 (36.8)	8 (42.1)	4 (21.1)	
Education	Elementary school	2 (40.0)	3 (60.0)	0 (0.0)	0.372
	Junior high school	8 (20.0)	22 (55.0)	10 (25.0)	
	Senior high school	34 (39.1)	39 (44.8)	14 (16.1)	
	Diplomas/bachelor's	4 (22.2)	11 (61.1)	3 (16.7)	
Occupation	Housewife	44 (34.6)	59 (46.5)	24 (18.9)	0.423
	Self-employed	1 (14.3)	6 (85.7)	0 (0.0)	
	Private	3 (20.0)	9 (60.0)	3 (20.0)	
	Government employee	0 (0.0)	1 (100.0)	0 (0.0)	
Contraceptive methods	1 month injection	6 (50.0)	5 (41.7)	1 (8.3)	0.451
	3 months injection	22 (31.0)	32 (45.1)	17 (23.9)	
	IUD	1 (12.5)	6 (75.0)	1 (12.5)	
	Implants	3 (13.0)	14 (60.9)	6 (26.1)	
	Pills	9 (36.0)	14 (56.0)	2 (8.0)	
	Condom	4 (50.0)	4 (50.0)	0 (0.0)	
	LAM	3 (100.0)	0 (0.0)	0 (0.0)	
Total		48 (32.0)	75 (50.0)	27 (18.0)	-

a tendency to stop using contraception to plan having children.⁽¹⁵⁾ The LARC discontinuation was 29% in the first year among women aged under 25 years (OR=5.07; 95% CI: 1.1-24.8).⁽²⁰⁾ Although this is inconsistent with the study outcome by Wati et al. (2022), they stated that age didn't show any relationship with the incidence of contraceptive discontinuation,⁽²¹⁾ however at a young age with higher fertility tend to discontinue using contraception to plan to have children.⁽¹⁵⁾ Most reproductive-age women who experienced contraceptive discontinuation were aged 30-39 years (72; 48.0%), this is consistent with the results of Agbana et al (2021) in the group of reproductive-age women who experienced the most contraceptive discontinuation at the age of 30-39 years, both in the group using modern contraceptive methods (1,431; 44.3%) and in the group using traditional contraceptives (599; 45.4%),⁽²²⁾ young mothers had 30% lower odds to discontinue contraceptives because of pregnancy or method failure than adolescent mothers.⁽²³⁾ However, this is not in line with a study which showed that the most respondents who stopped using contraception were aged 20-29 years (2,208; 36.21%) and the second most respondents were aged 30-39 years

(1,663; 25.72%).⁽¹⁵⁾ A significant relationship was established between age and the experience of adverse effect ($p=0.036$), women over the age of 35 years old felt more adverse effects (52.3%) compares to their younger women, where women aged <20 years did not report experiencing any adverse effects,⁽²⁴⁾ so experience about side effects would become a reason for reproductive-age women to discontinue using contraception.

However, at an older age, while still menstruating, discontinuing contraception increases the risk of unwanted pregnancy. In older fertile women, contraception is considered less important, and this may also be associated with less frequent sexual intercourse with their partners. The decreased intention to use contraception in older women may be associate to the fact that older women might be attributed to a potential decrease in sexual activity or a reduction in the frequency of sexual encounters.⁽²⁵⁾ Women's lack of sexual activity may explain the tendency to discontinue contraception,⁽¹¹⁾ so they decide not to use contraception anymore, and they have the perception that they no longer need the contraception again.

In this study, education level did not show a significant relationship with the duration of last contraceptive use. However, most respondents had a high school education (87; 58.0%), and women with advance educational backgrounds were more probable to use contraception for longer than 1 year. Women who attained higher education were more likely to experience contraceptive discontinuation.⁽²⁶⁾ Women who went to secondary school education have about double the chance to stop the contraceptive use compared to women who never attended school.⁽²²⁾ Low-educated women were more likely to stop using contraceptive for biological reason (2.043 times) and for access reasons (1.664 times) than for psychological reason, when compares to women with higher education. Greater education correlated with improved knowledge about contraception and a preference for limiting family size.⁽¹²⁾ This makes it possible for educated women to possess enhance understanding and broader access to relevant information, so they can be more capable and prepared to make reproductive decisions, including the consequences of discontinuing contraceptive use.

This research indicate that there is no notable correlation between employment status and the duration of contraceptive use before respondents decided to discontinue using contraceptives., this aligns with the research outcomes of Wati et al. (2022), which indicate that employment status did not correlate with the incidence of discontinuing contraception.⁽²¹⁾ The majority respondents were housewives (127; 86.07%). The finding of this study consistent with Agbana et al. (2023) reported that employed and salaried women were 16% less prone to discontinue modern contraception compared to unemployed and salaried women. Employment of women also contributes to the likelihood of discontinuing contraception.⁽²²⁾ An unwanted pregnancy resulting from discontinuing contraception can be seen as a barrier to a woman's career, and taking leave during the final stages of pregnancy and postpartum can cause women losing their employment opportunities and wages.

The mean number of children was 1.73 (SD=0.71), statistical analysis showed no significant correlation with the duration of their last contraceptive use. Nonetheless, women with two children had the most number children of women who discontinue using contraception (70; 46.7%). The results of the univariate analysis of the number of children in this study are consistent with research that women with three or more children were 15% less likely to discontinue use of modern

contraceptive methods than women without children (OR=0.848; 95% CI: 0.735-0.978).⁽²⁵⁾ Women with two or more children were more likely to discontinue use of contraceptives within the first 12 months.⁽¹⁸⁾ Women who have only one child are 1.61 times more probable to stop contraceptive methods usage than women who have more than 5 children.⁽⁸⁾ The number of children is a determinant of discontinuing of long-term reversible contraception.⁽²⁷⁾ The choice to stop using contraception depends not just on how many the children a woman has but also by perceptions of family adequacy, social pressure, and access to contraceptive information. More personalized and contextual educational approaches and counselling services are essential, especially for families with two children who may feel torn between the desire for more children and the need for contraception.

The contraceptive method did not show a significant correlation with duration of contraceptive use ($p > 0.05$); however, from the research results, the 1-month injection contraceptive method was the most widely used during <1 year before deciding to stop using (6; 50.0%). This is align with research outcomes that show Long-Acting Reversible Contraceptive (LARC) users, such as IUDs and implants, are less likely to discontinue contraceptive usage than those using non-LARC contraception.^(11,28) Women with only primary education (HR=1.32; 95% CI: 1.02–1.72) and women who were not sure about their fertility intention (HR=2.11; 95% CI: 1.28–3.46) had a higher likelihood of discontinuing LARCs.⁽²⁹⁾ The variation in the length of time of contraceptive use before discontinuation likely stems from differences in contraceptive services that include comprehensive information, counselling, and education about contraception.⁽¹⁵⁾ Contraceptive services that are unable to meet the needs of their users, such as emotional and cognitive needs, especially in the initial phase of contraceptive use, will risk increasing the incidence of contraceptive discontinuation.

The most commonly used long-term contraceptive is the implant, which is around 82%, and around 61% of implant use is stopped within 36 months, with the primary reasons for stopping being the desire to have a baby and adverse effects,⁽²⁹⁾ the reported side effects included menstrual irregularities, discomfort in the arm and weight gain due to the use of the single rod subdermal implant which contains progestogen.⁽³⁰⁾ Early contraceptive implant removal was 53% (n=210; 95% CI: 48-58%), early implant removal for less than 2 years, associated with side effect problems, implant intended

for career advance dan women's intention to remove it within 2 years, this decision resulting in method wastage and burden health resource, also increases the risk of unintended pregnancy.⁽¹⁰⁾ Women who wanted additional children were five times more likely to stop using LARCs against to women who did not want any more children (AOR=5.3; 95% CI: 1.13-24.81).⁽³¹⁾ The average duration of use of contraceptive implants that required removal was 7.5+3.4 months, with a minimum duration of only 1 week after implant insertion due to fatigue.⁽³²⁾ Two-rod implants have an effective lifespan of 3 years and can be continued by removing and inserting two rods new with the same 3-year lifespan.⁽³³⁾

Women using the contraceptive pill, IUD, male condom, and periodic abstinence methods discontinue use because they desire pregnancy, a valid reason acceptable as long as they have a plan dan really want to have baby through a pregnancy.⁽²²⁾ The desiring of to be pregnant and specific side effects of the method are common explanations for discontinuing contraception or switching methods.⁽⁸⁾ Women who discontinue use of implants, injections, and pills due to negative effects and health concerns.⁽²²⁾ Discontinuing contraceptive use reflects the dynamic needs and perceptions of contraceptive users regarding their chosen method. The decision to discontinue is part of a personal adaptation and evaluation process regarding comfort, readiness, and reproductive goals.

The condom method is used equally during <1 year (4; 50.0%) and more than 1-5 years before respondents decided to drop out (4; 50.0%). Its consistent with research outcomes that indicate that compared to implant users, women who use pills, injections, and women whose partners use condoms are more likely to stop using contraception.⁽¹¹⁾ Injectable contraception is a short-term contraceptive and does not require medical intervention for discontinuation like IUDs and implants. This possibility makes it easier to discontinue injectable contraception.⁽¹⁸⁾ Discontinuing long-term contraception requires medical intervention, so when they see a medical professional, they will receive counselling and management of side effects, which will allow for longer-term use.

Lactational Amenorrhea Methods (LAM) as contraceptive methods which used during <1 year before deciding to stop using (3; 100.0%), this is in line with LAM which is a modern temporary method through breastfeeding, that is only effective as long as the baby is less than 6 months old with exclusively breastfeeding,

and the women has not experienced menstruation in the postpartum period.^(34,35) This is in contrast to research that stated that as many as 733 breastfeeding mothers with children under 24 months, out of 5,599 mothers, stopped their contraceptive method.⁽¹¹⁾ LAM users within a maximum of 6 months must immediately replace with other modern contraceptive methods that are more effective to prevent unwanted pregnancies, especially if the woman has experienced menstruation again after the postpartum period or if other requirements for LAM contraceptive use cannot be met.

A limitation of this study is that not all respondent characteristics were included as variables for observation and analysis. This study was conducted within a single district, meaning other regions may not have the same characteristics as Kediri Regency.

5. CONCLUSION

The results of the study showed that maternal age had a significant relationship with duration of contraceptive use before discontinuing contraception. The duration of contraceptive use before they discontinued, not only reflects the effectiveness of the method but also the support system surrounding the women then they used contraceptives. Ongoing support is beneficial for extending the duration of use and reducing the risk of discontinuation.

This finding can be used for developing comprehensive counselling education based on women's age and needs in using sustainable contraception for family planning. Extending the duration of contraceptive use through comprehensive and ongoing education or counselling about the contraceptive benefits, how to use contraception correctly and properly, management of side effects of contraception in younger mothers must be developed and evaluated to improve continuation rates.

Ethical Approval

This research has obtained Research Ethics approval from the Research Ethics Committee of the Faculty of Medicine, Universitas Sebelas Maret of Surakarta. It has been declared ethically approved under number 243/UN27.06.11/KEP/EC/2024.

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Competing Interests

All the authors declare that there are no conflicts of interest.

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Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

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