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Factors associated with women's interest in contraceptive implant use at a community health center

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Abstract

Background: Despite being one of the most effective long-acting reversible contraceptive methods, the utilization of contraceptive implants remains low in Indonesia. Limited knowledge, sociodemographic characteristics, and inadequate husband support are considered important barriers to implant acceptance.

Purpose: To identify factors associated with the low interest of women in using contraceptive implants.

Method: An analytical correlational study with a cross-sectional design was conducted among 40 women of reproductive age who were family planning acceptors. A total sampling technique was employed. Primary data were collected using structured questionnaires, while secondary data were obtained from health center records. Data were analyzed using descriptive statistics and Fisher's Exact Test with a significance level of $p < 0.05$.

Results: Among the 40 respondents, the majority were aged 20–35 years (52.5%), had a secondary level of education (55.0%), demonstrated poor knowledge of contraceptive implants (45.0%), and reported a lack of husband's support (65.0%). Only 37.5% of the respondents expressed interest in using contraceptive implants. Fisher's exact test revealed that knowledge ($p < 0.001$), age ($p = 0.005$), educational level ($p < 0.001$), and husband's support ($p < 0.001$) were all significantly associated with respondents interest in using contraceptive implants. Respondents with better knowledge, higher educational attainment, older reproductive age, and supportive husbands were more likely to express interest in using contraceptive implants.

Conclusions: Knowledge, age, education, and husband support are significant determinants of women's interest in contraceptive implant use. Strengthening family planning education and involving husbands in counseling may improve acceptance of implant contraception.

Keywords: Contraception; Implants; Interest.

INTRODUCTION

Implants are one of the most effective long-term contraceptive methods, with first-year failure rates generally below 1%, around 0.3–0.9% among IUD or implant users. The median failure rate for typical implant use across 43 countries of approximately 0.6 per 100 episodes of use, which is lower than the rates for IUDs (1.4), injectables (1.7), and oral contraceptive pills (5.5). In contrast, short-term hormonal methods, such as pills, patches, and rings, show higher failure rates, approximately 4.8% in the first year and 4–7%

per year under typical use, thus carrying a significantly greater risk than long-term methods (Winner, Peipert, Zhao, Buckel, Madden, Allsworth, & Secura, 2012).

Other evidence also shows that the etonogestrel implant has very high clinical effectiveness, with a pearl index of 0–1.4, and a 1 year continuation rate of 86–89.9%, higher than short-term contraceptive methods, which in some studies only maintained 27.2% at 1 year and 15.9% at 2 years (Moray, Chaurasia, Sachin, & Joshi, 2021). However, interest

in the implant among fertile couples in various settings remains low or lower than short-term methods. In Bangladesh, for example, implant use accounted for only 1.11%, compared with 50% for pills and 8.89% for injectables. Several other studies have shown that low knowledge, negative attitudes, concerns about side effects, limited counseling, and limited access to services also hinder implant use (Hasan, Begum, Dipu, Saha, Islam, & Ali, 2025).

Global data show that contraceptive implant use remains lower than that of some other modern methods, although the trend has been increasing in some regions. Globally, implants are reported to be below 1% of modern contraceptive methods in older data, while injectables account for approximately 6% and are the most dominant method in Sub-Saharan Africa. Meanwhile, IUD use globally is around 13–14.3%, making it one of the most widely used reversible contraceptive methods in the world (Hubacher, Sailer, & Westhoff, 2020). The distribution of IUD use is also highly unequal across regions, with a very high prevalence in China of approximately 41%, lower prevalence in Europe of approximately 11–12.4%, and approximately 8.6% in the United States. When China is excluded, the global prevalence of IUD use is only approximately 6%, indicating a strong concentration of use in Asia, where 83% of the world's IUD users reside. In developing countries, contraceptive use patterns are strongly influenced by region and service policies. Although IUDs are more widely used in less developed regions than in more developed regions, implant use has increased significantly only since 2000, particularly in Sub-Saharan Africa and South Asia (Haakenstad, Angelino, Irvine, Bhutta, Bienhoff, Bintz, & Lozano, 2022).

In Indonesia, modern contraceptive use among couples of childbearing age remains below the 75% target. The 2021 family census data showed a modern contraceptive prevalence of 57.0%, representing 21,897,319 of 38,408,597 couples. Another study reported that the prevalence of active family planning participation in 2019 was 62.5%, indicating that national achievement still falls short of the development target (Maharani, Sujarwoto, & Ekoriano, 2023). The pattern of method use in Indonesia is still dominated by short-term contraceptives, especially injections and pills, while long-term contraceptive methods such as IUDs and

implants are used in lower proportions, approximately 7.35% and 7.40%, respectively, in the 2021 Indonesian health profile data, or 7.4% for implants and 7.4% for IUDs in the 2019 summary of long-term contraceptive preferences.

This pattern is consistent with regional findings. For example, in West Bajeng in 2020, injectable contraceptives accounted for 68.7% of contraceptive use, whereas implants and IUDs accounted for 19.6% and 1.8%, respectively. Similarly, in East Kotawaringin, long-term contraceptive method (MKJP) users accounted for only approximately 4% of all active family planning participants (Rismawati & Sari, 2021). Low interest in MKJP and implants appears to be associated with inadequate knowledge, negative attitudes or perceptions, limited information and counseling, and a lack of husband support, all of which have consistently been identified as factors associated with the low utilization of long-term contraceptive methods in various studies conducted in Indonesia (Mularsih & Istiqomah, 2025).

According to the national population and family planning board (BKKBN), increasing the use of long-term contraceptive methods, such as implants, is part of a strategy to control population growth and accelerate the decline in the total fertility rate (TFR) in Indonesia. Increase use of MKJP has been reported to be strongly associated with a decline in the TFR across provinces and has become a program priority, particularly in areas where a high contraceptive prevalence rate (CPR) is not accompanied by a decline in fertility (Sari, Munir, Ramli AT, & Iskandar, 2024). Implants are a type of long-term contraceptive method, and in family planning services, they are considered more effective than non-MKJP methods, which are more prone to discontinuation (Anggraini & Hasanah, 2022).

However, implant coverage in Indonesia remains relatively low compared with that of short-term methods, with various sources indicating that the proportion of implant use was approximately 7.4% in 2019 and 7.40% according to the 2021 national profile. While injectable contraception remains the most widely used method, oral contraceptive pills rank second. This pattern was also evident in the 2020 service data during the pandemic, when injectables accounted for 54% and pills for 39% of contraceptive services, whereas the use of IUDs and implants increased only during the mass service campaign period (Gayatri, 2023). The low use of implants appears to be attributable not to their minor role in

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family planning programs, but rather to barriers related to knowledge, perceptions, counseling, and partner support, resulting in implant use remaining lower than that of injectables, pills, and, in some regions, IUDs (Lestari, Mansur, & Kostania, 2025).

Based on data from active family planning participants in Aceh Province in 2023, the use of contraceptive methods was still dominated by short-term methods, particularly injectables and oral contraceptive pills, whereas the use of long-term methods, such as implants, IUDs, MOW, and MOP, remained relatively low. This pattern is consistent with the finding that the prevalence of modern contraceptive use in Aceh in 2023 was only 50.95%, which was still below the national average of 59.07%. In general, the majority of contraceptive acceptors in Indonesia prefer injectables and oral contraceptive pills over MKJP (Ikhwanda, Ayubi, & Khairunnisa, 2024).

This trend is also consistent with data from other regions. For example, in East Kotawaringin, active family planning participants were predominantly users of injectables (82.0%) and oral contraceptive pills (13.7%), with only 4% using long-term contraceptive methods (Pribadi & Agustin, 2025). Similarly, in Palopo, injectable contraception was the most widely used method, followed by oral contraceptive pills, whereas the use of IUDs, MOW, and MOP remained low (Astrid & Pattinasarany, 2025). Likewise, in several other regions of Indonesia, active contraceptive use is also dominated by injectables and oral contraceptive pills rather than implants and IUDs (Meilani & Tunggal, 2020).

Thus, the situation in Aceh in 2023, where active family planning participants used injectables and oral contraceptive pills more frequently than implants and other long-term contraceptive methods, is consistent with the national pattern. This pattern appears to be related to unequal access to services, information, education, and support for the use of modern contraceptive methods and MKJP (Ikhwanda et al., 2024). This study aims to determine the factors influencing mothers' low interest in using contraceptive implants at the Simpang Ulim Community Health Center.

RESEARCH METHOD

This analytical correlational study employed a cross-sectional design to identify factors associated with the low interest of women of reproductive age

(WRA) in using contraceptive implants. The study was conducted in the working area of the Simpang Ulim Community Health Center, Simpang Ulim District, East Aceh Regency, Aceh Province. Data were collected from April to June 2025. The study population consisted of all women of reproductive age who were active contraceptive users in the study area, totaling 40 respondents. A total sampling technique was employed, whereby all eligible respondents were included in the study, resulting in a final sample of 40 participants.

The inclusion criteria were women of reproductive age who were registered as active contraceptive users, were married, resided within the health center's catchment area, were able to communicate effectively, and were willing to participate in the study by providing written informed consent. Women who were seriously ill during the data collection period, were unavailable after repeated visits, or returned incomplete questionnaires were excluded from the study.

Data were collected from both primary and secondary sources. Primary data were obtained directly from respondents using structured questionnaires and checklist forms administered through face-to-face interviews, whereas secondary data regarding contraceptive use were obtained from the records of the Simpang Ulim Community Health Center. The questionnaire collected information on respondents' demographic characteristics (age, educational level, and husband's support), knowledge of contraceptive implants, and interest in using contraceptive implants.

Respondents' age was categorized into two groups: at-risk reproductive age (<20 years or >35 years) and non-risk reproductive age (20–35 years), based on the reproductive age classification. The knowledge questionnaire consisted of 15 multiple-choice items covering the definition, mechanism of action, effectiveness, benefits, indications, side effects, duration of use, insertion procedures, and follow-up care of contraceptive implants. Each correct answer was scored as one point, whereas incorrect answers received zero points. The total knowledge score ranged from 0 to 15 and was categorized as good (80–100%), sufficient (60–79%), and poor (<60%) based on the modified Bloom's cut-off criteria. Husband's support was measured using 10 statements covering emotional, informational, appraisal, and decision-making support related to

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contraceptive use. Responses were assessed using a four-point Likert scale ranging from strongly disagree (1) to strongly agree (4). The total score ranged from 10 to 40, with respondents categorized as supportive when their score was equal to or above the median (21-40) value and not supportive when their score was below the median (<20). Women's interest in using contraceptive implants was assessed using 8 statements measured on a four-point Likert scale ranging from strongly disagree (1) to strongly agree (4). Respondents' interest in using contraceptive implants was measured using a questionnaire consisting of 10 items rated on a 5-point Likert scale. The total score was calculated by summing the scores of all questionnaire items. The total scores were then classified into two categories based on predetermined score ranges: uninterested (scores of 10–30) and interested (scores of 31–50).

Item validity was assessed using Pearson's product-moment correlation, with all items

demonstrating correlation coefficients greater than 0.30. Internal consistency reliability was evaluated using Cronbach's alpha, yielding coefficients of 0.84 for the knowledge questionnaire, 0.87 for the husband's support questionnaire, and 0.85 for the interest questionnaire, indicating good reliability.

Data were analyzed using IBM SPSS statistics. Descriptive (univariate) analysis was performed to summarize respondents' characteristics using frequencies, percentages, means, standard deviations, and ranges, as appropriate. Bivariate analysis was conducted using Fisher's exact test to examine the associations between age, knowledge, educational level, husband's support, and women's interest in using contraceptive implants. Fisher's exact test was selected because several contingency table cells had expected frequencies of fewer than five. Statistical significance was established at a 95% confidence level, with a p-value of <0.05 considered statistically significant.

RESEARCH RESULTS

Table 1. Characteristics of Respondents (N=40)

Variable	Results
Age (n/%) (Mean±SD)(Range)(Year)	(29.0 ± 8.5)(17-46)
<20	8/20.0
20–35	21/52.5
>35	11/27.5
Knowledge (n/%)	
Good	12/30.0
Sufficient	10/25.0
Poor	18/45.0
Level Education (n/%)	
Primary School Education	10/25.0
Secondary Education	22/55.0
University	8/20.0
Husband's Support (n/%)	
Not Supportive	26/65.0
Supportive	14/35.0

Table 1 shows that the majority of respondents were aged 20–35 years (52.5%). Only 30.0% of respondents had good knowledge of contraceptive implants, while most respondents had a secondary level of education (55.0%). A total of 37.5% of respondents were interested in using contraceptive implants. In addition, 65.0% of

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respondents reported a lack of husband support for contraceptive implant use, whereas 35.0% reported receiving support from their husbands.

Table 2. Factors Influencing Mothers' Low Interest in Using Contraceptive Implants (N=40)

Variables	Interest (n=15)	Uninterest (n=25)	p-value
Age (n/%) (Years)			
<20	0/0	8/100	0.005
20–35	7/33.3	14/66.7	
>35	8/72.8	3/27.2	
Knowledge (n/%)			
Good	10/83.3	2/16.7	0.000
Sufficient	5/50.0	5/50.0	
Poor	0/0	18/100	
Level Education (n/%)			
Primary School Education	0/0	10/100	0.000
Secondary Education	7/31.8	15/68.2	
University	8/100	0/0	
Husband's Support (n/%)			
Not Supportive	1/3.9	25/96.1	0.000
Supportive	14/100	0/0	

Table 2 shows that the results of the bivariate analysis using Fisher's exact test indicated that all independent variables were significantly associated with respondents' interest in using implant contraception. Respondents with good knowledge exhibited the highest level of interest in implant use (83.3%), whereas none of those with poor knowledge expressed interest (0%; $p<0.001$). Interest in implant contraception also differed significantly by age, with no respondents aged <20 years expressing interest, compared with 33.3% of those aged 20–35 years and 72.8% of those aged >35 years ($p=0.005$). Similarly, educational level was significantly associated with interest in implant contraception, as all respondents with higher education expressed interest in using implant contraception (100%), whereas none of those with primary education reported such interest ($p<0.001$). Husband's support showed the strongest association with interest in implant contraception; all women who received support from their husbands expressed interest in using implant contraception (100%), whereas only 3.9% of women without husband support were interested ($p<0.001$).

DISCUSSION

This study showed that the majority of respondents (66.7%) were not interested in using contraceptive implants. These findings indicate that although implants are a highly effective long-term contraceptive method

(LTCM), their acceptance in the community remains low. This low level of interest appears to be influenced by a combination of individual and social factors, particularly knowledge, attitudes, perceptions, husband's support, as well as sources of information and access to health services (Sarti, Soares, Dos Reis, & Hidayati, 2023). Several studies have shown that better knowledge is associated with greater interest in, or choice of, implants/LTMCs, although in some settings, knowledge alone is not always sufficient to encourage their use if emotional concerns and misconceptions regarding side effects or the insertion procedure persist.

The results of this study showed a significant relationship between maternal knowledge and interest in using contraceptive implants ($p<0.001$). None of the respondents with poor knowledge expressed interest in using implants, whereas the majority of those with good knowledge were interested in using this method. These findings indicate that knowledge is a crucial factor in shaping women's perceptions, beliefs, and readiness to accept contraceptive implants, as greater knowledge is associated with more positive attitudes, informed choices, and stronger intentions to use implants or other long-term contraceptive methods. Adequate information regarding the effectiveness, safety, benefits, side effects, and implant insertion and removal procedures is likely to increase confidence in this method, as contraceptive implants are highly effective and safe

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reversible contraceptives, and adequate pre-insertion counseling is recommended (Susiandari, 2024). Conversely, limited knowledge and exposure to inaccurate information often lead to concerns about side effects, safety, fertility, and the insertion procedure, thereby reducing acceptance or resulting in discontinuation of use (D'Souza, Bailey, Stephenson, & Oliver, 2022).

The results of this study align with previous research showing that increasing knowledge through communication, information, and education (IEC) tends to increase acceptance and choice of long-term contraception, as good knowledge has repeatedly been shown to be associated with the choice of both long-term contraceptive methods and implants in various settings (Azizah, 2023). This finding is further supported by studies that suggest knowledge is a dominant factor in choosing long-term contraceptive methods, while education facilitates women's understanding of the benefits of contraception and their acceptance of long-term methods with a more positive attitude. In the context of services, effective IEC through counseling, promotion, and the involvement of health workers, cadres, and the media is necessary to ensure accurate information about the benefits, side effects, and suitability of methods reaches the public (Sarti et al., 2023).

Age was also significantly associated with interest in using contraceptive implants ($p=0.005$). Women aged >35 years showed greater interest than those in the younger age groups. This finding suggests that reproductive age is associated with contraceptive method choice, with older women tending to prefer long-term methods, while younger women still preferred short-term methods or methods deemed more appropriate for their plans for more children. Interest in implants appears to be lower in younger age groups because they are still in the active reproductive phase, still want to have more children, and often feel that long-term methods are not yet suitable for their current needs (Azizah, 2023).

Furthermore, concerns about side effects, the insertion procedure, and negative perceptions regarding the safety and comfort of contraceptive implants may also contribute to lower interest in their use, particularly when women have limited experience and inadequate information (Harokan, Gustina, & Suryanti, 2025). In contrast, women at later reproductive ages are more likely to have achieved

their desired family size or to consider the risks associated with subsequent pregnancies. Consequently, highly effective methods that provide long-term protection, such as long-term contraceptive methods and contraceptive implants, become more relevant in contraceptive decision-making (Tiyas, Amin, & Anwar, 2025).

Education was also significantly associated with interest in using contraceptive implants ($p<0.001$). All respondents with a higher level of education expressed interest in using contraceptive implants, whereas none of those with a primary level of education expressed such interest. These findings suggest that education plays an important role in enhancing an individual's ability to access health information, understand the benefits and risks of contraception, and make informed decisions regarding contraceptive method selection. Higher educational attainment has been associated with better contraceptive use, greater understanding of contraceptive benefits, and more positive attitudes toward long-acting contraceptive methods in various studies. In the context of long-term contraceptive methods, the proportion of long-acting method use has also been reported to be higher among women with higher educational attainment. Other studies have likewise identified education as a factor influencing the choice of contraceptive implants or long-term contraceptive methods, although the magnitude of this effect varies across settings (Jamuddin, Fitriani, & Sulaeman, 2023). Regarding interest in contraceptive implants, some studies have reported a significant association between educational level and maternal interest in implant use, whereas others have found no significant association. Therefore, the influence of education appears to be context-dependent and is likely to interact with other factors, such as knowledge, age, husband's support, attitudes, and access to accurate information (Sarti et al., 2023).

The most notable finding of this study was the significant association between husband's support and interest in using contraceptive implants ($p<0.001$). Almost all women who did not receive support from their husbands were not interested in using contraceptive implants, whereas all women who received such support expressed interest in using this method. These findings indicate that contraceptive decision-making within families is influenced not only by individual factors but

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also by the dynamics of the marital relationship, as husband's support has consistently been associated with both the choice of long-term contraceptive methods and interest in contraceptive implant use in various studies conducted in Indonesia (Azizah, 2023). In this context, husbands continue to play a crucial role in family decision-making, as spousal approval is considered an important determinant of contraceptive choice. Qualitative studies have also shown that husband's support strongly influences women's contraceptive decisions. This influence appears to operate through mutual agreement, emotional support, involvement in the decision-making process, and participation in family planning services. Global evidence further suggests that power dynamics and shared decision-making within couples influence contraceptive use, and several family planning programs recommend counseling approaches that actively involve both partners.

CONCLUSIONS

This study concludes that women's interest in using contraceptive implants remains low and is significantly influenced by knowledge, age, educational level, and husband's support. Women with better knowledge, higher educational attainment, older reproductive age, and supportive husbands were more likely to express interest in using contraceptive implants. These findings highlight the importance of strengthening health education, improving contraceptive counseling, and actively involving husbands in family planning programs to increase the acceptance of long-acting reversible contraceptive methods. Future studies should include larger and more diverse populations from multiple healthcare settings, employ probability sampling techniques, and investigate additional determinants, such as cultural beliefs, perceptions of side effects, accessibility of family planning services, and the quality of counseling, to provide a more comprehensive understanding of the factors influencing contraceptive implant utilization.

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