

Original Article

Analysis of factors affecting the use of implantable contraceptives in couples of fertile age: A cross-sectional study

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Abstract

Background

The use of contraceptive implants as a long-acting contraceptive method remains low in Indonesia, including in the working area of the Muara Enim District Extension Center. Despite its high effectiveness in preventing pregnancy, several factors may influence implant adoption among women of reproductive age, such as age, knowledge, attitude, socioeconomic status, parity, and husband's support.

Objective

This study aimed to identify the factors associated with the use of contraceptive implants among reproductive-age couples in the Muara Enim District Extension Center in 2025.

Methods

This study applied a quantitative cross-sectional design involving 93 respondents selected through purposive sampling. Inclusion criteria were women of reproductive age residing in the study area and willing to participate, while exclusion criteria included serious illness and illiteracy. Data collection was conducted from May 2 to 17, 2025, using a validated structured questionnaire supported by medical record checks. Variables measured included age, knowledge, attitude, socioeconomic status, parity, and husband's support, with implant use as the dependent variable. Data analysis was performed in three stages: univariate to describe frequencies, bivariate using Chi-square tests to assess associations ($p < 0.05$), and multivariate using logistic regression to determine dominant factors. Ethical clearance was obtained, and informed consent, anonymity, and confidentiality were ensured.

Results

Age ($p=0.02$), attitude ($p=0.005$), and socioeconomic status ($p=0.02$) were significantly associated with implant use, while knowledge ($p=1.00$), parity ($p=0.90$), and husband's support ($p=0.18$) were not. Logistic regression confirmed attitude as the most dominant predictor ($p=0.003$; $OR=0.26$).

Conclusion

Age, attitude, and socioeconomic status significantly influence implant use, with attitude being the strongest determinant. Health promotion should focus on shaping positive attitudes through couple-based counseling and interpersonal education, especially for younger women and low-income groups.

Background

Controlling birth rates is one of the strategic efforts to reduce population growth and improve community quality of life (Anita, Aisyah, & Anggraini, 2024). The Family Planning (FP) program serves as the primary instrument to achieve this goal by providing various contraceptive methods (Camelia, 2020). Globally, an estimated 1.1 billion women require FP services to manage pregnancies and safeguard reproductive health (Wahyuni, 2020). In the United States, between 2017 and 2019, 65.3% of women aged 15–49 years reported using contraception (CDC, 2023). Modern contraceptive use is essential not only for preventing unintended pregnancies but also for strengthening women's roles in family planning (Harahap & Saragih, 2020).

In Indonesia, efforts to increase contraceptive participation have continued, yet the use of Long-Acting Reversible Contraceptives (LARC), including implants, remains relatively low (Heriani, 2023). Data from the Ministry of Health (2023) reported that only about 10.5% of FP participants used implants, despite their high effectiveness of up to 99% in preventing pregnancy and durability of three to five years (Ministry of Health, 2024). The low adoption of this method presents a challenge for FP program implementation, particularly in areas with high fertility rates. A deeper understanding of factors influencing implant use in the community is therefore needed (Akhmad, Saadong, Afriani, & Hidayati, 2022).

South Sumatra is one of the provinces with relatively high active FP participation, reaching

81.4% in 2021. However, implant use in this region remains very low. In Muara Enim Regency, with a total of 106,378 couples of reproductive age, 91,891 were active FP participants (86.4%). Yet, only 0.8% of them used implants in 2021. These figures highlight a gap between overall FP participation and the adoption of long-acting methods, particularly implants (South Sumatra Provincial Health Office, 2024).

Various factors are believed to influence couples' decisions in choosing implant contraception (Endarwati, 2023). One of them is age, which relates to both biological and psychological readiness to adopt specific contraceptive methods (Rosdiana, 2021). Age also reflects stages in the reproductive life cycle, where younger women may prefer short-term methods, while women with higher parity tend to consider long-term methods such as implants (Deviana, Mariyana, & Sari, 2023).

In addition to age, knowledge about contraceptive implants plays a critical role in determining utilization (Ariandini et al., 2023). Adequate knowledge increases awareness of the benefits, mechanism, and side effects of implants (Mandasari & Juniarty, 2021). Conversely, limited information or misconceptions may hinder implant use. Misinformation is often a barrier, particularly in areas with limited access to reliable health information (Rapang, 2020).

Attitude is another psychological factor influencing implant adoption. A positive attitude toward contraceptive implants, such as confidence in their safety and effectiveness, encourages use (Oktavianah, Sulistiyaningsih, & Juhariyah, 2023). Such attitudes, however, are shaped by personal experiences, social influences, and exposure to FP counseling and promotion. Targeted educational interventions can foster supportive attitudes toward long-acting contraception (Anita et al., 2024).

Other important factors include socioeconomic status and parity. Families with lower socioeconomic status may face barriers in accessing healthcare services, including FP (Heriani, 2023). Although implants are often provided free of charge under government programs, constraints such as transportation, time, and access to information remain. Parity, or the number of children already born, also

affects perceptions of the need for contraception. Couples with more children are generally more open to long-acting methods to prevent further pregnancies (Mawadah & Anita, 2023).

Husband's support is another key determinant in contraceptive decision-making (Akhmad et al., 2022). In patriarchal contexts, the choice of contraceptive method is often influenced by the husband's opinion and approval. Emotional support, consent, and the husband's involvement in FP counseling enhance the likelihood of choosing long-acting methods such as implants. Therefore, FP programs should adopt approaches that involve both partners to ensure more comprehensive and effective decision-making (Endarwati, 2023). Based on this background, the present study aims to analyze the factors influencing the use of contraceptive implants among couples of reproductive age.

Methods

Study Design

This study employed a quantitative design with a cross-sectional approach, aimed at examining the relationship between risk factors and outcomes through simultaneous observation or data collection at a single point in time. This design was chosen to identify the association between several independent variables, including age, knowledge, attitude, socioeconomic status, parity, and husband's support, with the dependent variable, namely the use of contraceptive implants. The study was conducted in the working area of the Family Planning Counseling Center (Balai Penyuluh) of Muara Enim District from May 2 to May 17, 2025. The cross-sectional design was considered highly relevant for evaluating current conditions at a specific time and identifying dominant factors influencing health behavior, particularly in contraceptive method selection.

Sampling

The study population consisted of all couples of reproductive age (CRA) in the working area of the Family Planning Counseling Center of Muara Enim District in 2025, totaling 13,073 individuals. The sample size was determined using Slovin's formula with a 90% confidence level, resulting in 93 respondents. A purposive

sampling technique was applied based on inclusion and exclusion criteria. Inclusion criteria included couples of reproductive age who consented to participate and resided in the study area, while exclusion criteria comprised respondents who were ill or unable to read and write. This approach was chosen to ensure that respondents closely matched the research objectives.

Instruments

The research instrument was a structured questionnaire adapted from previous studies and tested for feasibility and validity. The questionnaire consisted of sections measuring independent variables, namely age (young vs. old), knowledge (good vs. fair), attitude (good vs. fair), socioeconomic status (below vs. above minimum wage), parity (at risk vs. not at risk), and husband's support (good vs. fair). The dependent variable, contraceptive implant use, was obtained from medical records of the Family Planning program at health centers within the coverage area of the Family Planning Counseling Center.

Data Collection

The data consisted of primary and secondary sources. Primary data were collected through questionnaires distributed to 93 respondents who met the inclusion criteria. Questionnaires were completed directly by respondents under the supervision of trained enumerators. Information collected included demographics, socioeconomic status, level of knowledge, attitudes, and perceptions of husband's support. Secondary data were obtained from the Family Planning Counseling Center of Muara Enim District and included an overview of the study area, the number of active FP participants, and reports on contraceptive method use, including implants.

Data Analysis

Data analysis was carried out in three stages: univariate, bivariate, and multivariate analysis. Univariate analysis was performed to describe the frequency distribution of each variable. Bivariate analysis used the chi-square test to examine associations between independent variables and contraceptive implant use, with statistical significance set at $p < 0.05$. Multivariate analysis was conducted using multiple logistic regression to determine the

most dominant factors influencing contraceptive implant use. Variables with $p < 0.25$ in the bivariate analysis were included in the logistic regression model. Stepwise selection procedures were applied based on significance values and changes in odds ratios to obtain the most robust final model.

Ethical Consideration

This study adhered to ethical principles in public health research. All respondents were provided with detailed information regarding the objectives, benefits, and procedures of the study through an informed consent form prior to participation. Confidentiality was maintained by assigning unique codes to each respondent, with no names or personal information disclosed in the publication of results. The researchers ensured that all data collected were used solely for scientific purposes and securely stored to prevent unauthorized access. These procedures ensured compliance with the principles of anonymity, confidentiality, and voluntary participation.

Results

From the univariate analysis, the frequency distribution of the dependent variable, namely contraceptive implant use, and the independent variables, namely age, knowledge, attitude, socioeconomic status, parity, and husband's support, was obtained as presented in Table 1.

In Table 1, the frequency distribution shows that implant contraceptive use was higher at 48 respondents (51.6%) compared to other contraceptive methods at 45 respondents (48.4%). Older respondents accounted for 50 (53.8%), which was higher than younger respondents at 43 (46.2%). Good knowledge was reported by 51 respondents (54.8%), higher than fair knowledge at 42 (45.2%). A good attitude was found in 58 respondents (62.4%), higher than fair attitude at 35 (37.6%). Respondents with an income at or above the minimum wage (UMK) totaled 74 (79.6%), which was higher than those below UMK at 19 (20.4%). Non-risk parity was reported by 80 respondents (86.0%), higher than risk parity at 13 (14.0%). Good husband's support was observed in 59 respondents (63.4%), which was higher than fair support at 34 (36.6%).

To determine the relationship between respondent characteristics and contraceptive implant use, bivariate analysis was conducted on six independent variables: age, knowledge, attitude, socioeconomic status, parity, and

husband's support. The results are presented in Table 2, which shows the frequency distribution of implant and other contraceptive use across each variable category, along with p-values obtained from the Chi-Square test.

Table 1. The frequency distribution of respondents based on contraceptive implant use among family planning participants

Variables	Frequency (n)	Percentage (%)
Contraceptive Implant Use		
Implant	48	51,6
Other contraceptive methods	45	48,4
Age		
Older	50	52,8
Younger	43	46,2
Knowledge		
Good	51	54,8
Fair	42	45,2
Attitude		
Good	58	62,4
Fair	35	37,6
Socioeconomic Status		
At/above minimum wage	74	79,6
Below minimum wage	19	20,4
Parity		
Not at risk	80	86
At risk	13	14
Husband's Support		
Good	59	63,4
Fair	34	36,6
Total	93	100

Table 2. Analysis of Factors Affecting Implant Contraceptive Use among Couples of Reproductive Age

Variables	Contraceptive Implant Use				Total	PValue
	Implant		Other			
	n	%	n	%		
Age						
Older	20	40,0	30	60,0	50	0,02
Younger	28	65,1	15	34,9	43	
Knowledge						
Good	26	51,0	25	49,0	51	1,00
Fair	22	52,0	20	47,6	42	
Attitude						
Good	37	63,8	21	36,2	21	0,005
Fair	11	31,4	24	68,6	58	
Socioeconomic Status						
At/above minimum wage	43	58,1	31	41,9	74	0,02
Below minimum wage	5	26,3	14	73,3	19	
Parity						
Not at risk	42	52,5	38	47,5	80	0,90
At risk	6	46,6	7	53,8	13	
Husband's Support						
Good	34	57,6	25	42,4	59	0,18
Fair	14	41,2	20	58,8	34	

There was a significant association between age ($p = 0.02$), attitude ($p = 0.005$), and socioeconomic status ($p = 0.02$) with contraceptive implant use. Younger respondents, those with a positive attitude, and those with income at or above the minimum wage (UMK) were more likely to use implants. In contrast, knowledge ($p = 1.00$), parity ($p = 0.90$), and husband's support ($p = 0.18$) showed no significant association.

Following the bivariate analysis, variables with p -values < 0.25 were included in the multivariate analysis using multiple logistic regression. The purpose of this analysis was to determine which variables most strongly influenced implant contraceptive use. The final results of the logistic regression model are presented in Table 3.

Table 3. Final Multiple Logistic Regression Model of Independent Variables Associated with Contraceptive Implant Use

Variable	<i>p</i> Value	OR	95,0% C.I.for EXP(B)	
			Lower	Upper
Attitude	0,003	0,26	0,10	0,63

Based on the results of multiple logistic regression analysis, only the attitude variable was found to significantly influence contraceptive implant use ($p = 0.003$). The Odds Ratio (OR) of 0.26 with a 95% confidence interval of 0.10–0.63 indicates that respondents with a fair attitude were 74% less likely to use implants compared to those with a positive attitude. Since the OR was below 1 and the confidence interval did not cross 1, attitude can be considered a protective factor as well as the most dominant variable in this model. This finding highlights the importance of fostering positive attitudes toward implant contraception to increase its adoption in the community.

Discussion

The use of contraceptive implants among couples of reproductive age is influenced by various factors, one of which is age. Statistical analysis showed a significant association between age and implant use, with younger respondents being more likely to use implants than older respondents (Mody et al., 2020). This finding is consistent with theories suggesting that younger women are generally more open to modern contraceptive methods and more motivated to delay pregnancy, while older women tend to consider short-term methods or discontinuing contraception altogether (Ciangura & Bachelot, 2021). The researchers assumed that older women were more likely to rely on past experiences to select methods they perceived as more convenient, whereas younger

women were more proactive in seeking long-term solutions for birth regulation (Dixon, Reynolds-Wright, & Cameron, 2022).

Unlike age, knowledge did not show a significant association with implant use. This suggests that higher levels of knowledge do not necessarily translate into the adoption of long-acting contraceptive methods. This may be attributed to persistent negative perceptions, such as concerns about side effects or the insertion procedure, despite the information received (Dixon et al., 2022). The researchers assumed that although respondents may have been exposed to information through counseling or media, emotional factors and fear remained barriers to decision-making. This finding highlights that education alone is insufficient; empathetic approaches and stronger interpersonal communication are needed to address concerns and misconceptions (Brunie et al., 2022).

Attitude, on the other hand, was found to be significantly associated with implant use. Attitudes are shaped by knowledge, experience, and social influences, including partners and healthcare providers. A positive attitude plays an essential role in the decision to use implants (Congy, Bouyer, & de La Rochebrochard, 2023). The researchers assumed that positive attitudes were fostered by social support, educational attainment, and positive past experiences with contraception. Therefore, fostering positive attitudes through interactive and participatory

health promotion is strongly recommended (Martin et al., 2024).

Socioeconomic status was also significantly associated with implant use. Respondents with income at or above the minimum wage were more likely to use implants compared to those below the minimum wage. This reinforces the understanding that economic status influences access to healthcare services, including family planning (Turner et al., 2021). Higher income enables greater access to comprehensive services, better understanding of procedures, and more effective education from healthcare providers. The researchers assumed that most residents of Muara Enim had incomes consistent with the minimum wage, allowing them to consider implant use as a more effective and efficient family planning method (Rodrigues-Martins, Lebre, Santos, & Braga, 2020).

Parity, however, did not show a significant association with implant use. While parity, which reflects the number of live births, is expected to influence contraceptive choice (Ariyo et al., 2021), decisions regarding implant use were not solely determined by the number of children. This could be attributed to personal preferences, discomfort with the method, or practical reasons such as work schedules (Brunie et al., 2021). The researchers assumed that although most respondents were in the non-risk parity group, not all recognized the importance of implant use as a means of preventing unintended pregnancies.

Similarly, husband's support was not significantly associated with implant use. Although spousal support is often regarded as an important factor in reproductive decision-making, in this study many respondents chose to use implants even without explicit approval or involvement from their husbands (Ventura et al., 2021). The researchers assumed that low male participation in family planning counseling and the perception that contraception is solely the wife's responsibility may explain why husband's support was less influential. Consequently, family planning programs should actively involve both partners to ensure more

comprehensive decision-making (Bello, Xu, Salas, Kelly, & Grucza, 2024).

Multivariate analysis indicated that among all variables analyzed, attitude was the most dominant factor influencing implant use. Attitude emerged as a strong predictor of the likelihood of using implants. When all variables were tested simultaneously, only attitude consistently demonstrated a significant effect. The researchers assumed that positive attitudes reflect women's acceptance of long-acting contraceptive benefits, trust in healthcare providers, and readiness to undergo implant procedures. Thus, building and strengthening positive attitudes should be a primary strategy to increase implant uptake (Tadele & Berhanu, 2021).

Overall, the findings of this study underscore the importance of a comprehensive and holistic approach to promoting implant use. Although knowledge did not show a direct effect, it remains a foundation for shaping attitudes and behavior. Factors such as age, socioeconomic status, and particularly attitude were shown to play substantial roles in contraceptive decision-making. Greater involvement of partners, continuous education, and community-based approaches are necessary to overcome psychological and social barriers. These findings are expected to inform the Family Planning Counseling Center in Muara Enim District in designing more effective, targeted, and culturally responsive interventions.

Conclusion and Recommendation

Based on the findings, it can be concluded that there was a significant association between age, attitude, and socioeconomic status with contraceptive implant use among couples of reproductive age at the Family Planning Counseling Center in Muara Enim District in 2025. Younger respondents, those with a positive attitude, and those with income at or above the minimum wage were more likely to use contraceptive implants. In contrast, no significant associations were found between knowledge, parity, and husband's support with implant use. Multivariate analysis identified attitude as the most dominant factor influencing

implant use, with respondents who had a positive attitude being nearly four times more likely to adopt the method compared to those with a less favorable attitude. This suggests that the decision to use contraception is shaped not only by information but also by individual attitudes, perceptions, and readiness toward long-term methods.

Efforts to improve health promotion should therefore focus not only on disseminating information but also on fostering positive attitudes toward contraceptive implants. Family Planning Counseling Centers and healthcare providers are expected to play a more active role in delivering interpersonal education that directly involves couples, particularly among younger populations and those with lower socioeconomic status. Furthermore, psychosocial interventions such as empathy-based counseling may serve as effective approaches to overcome doubts and negative perceptions regarding long-acting contraceptives. Moving forward, local governments should strengthen cross-sectoral support to ensure equitable and sustainable access to family planning services, including implants.

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Declaration of conflict of interest

The authors declare no competing interests.

Declaration on the Use of AI

No AI tools were used in the preparation of this manuscript.

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