Scientific Literacy and Health Behavior: A Study on Knowledge and Attitudes Towards IUD Contraception Among Reproductive-Age Women in Muara Enim District

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Abstract: The use of Intrauterine Devices (IUDs) as a method of long-term contraception remains low in several regions of Indonesia, including Muara Enim District. Understanding the determinants that influence women's interest in using IUDs is essential to improve reproductive health programs and reduce unmet contraceptive needs. This study aims to identify and analyze the determinants that influence the interest and decision to use IUD contraception among women of reproductive age in Muara Enim District, South Sumatera. A cross-sectional design was used involving 200 women of reproductive age (15–49 years), selected through stratified random sampling. Data were collected using structured questionnaires and analyzed using multivariate logistic regression to determine the most influential factors. The study found that key determinants influencing IUD use included level of knowledge about IUDs (OR = 2.35, 95% CI: 1.42–3.89), spousal support (OR = 3.10, 95% CI: 1.75–5.49), perceived side effects (OR = 0.48, 95% CI: 0.27–0.86), and access to family planning services (OR = 2.01, 95% CI: 1.10–3.66). Educational level and previous counseling experiences were also found to be associated with higher interest in using IUDs. Interest in using IUD contraception is influenced by a combination of knowledge, social support, perception of risk, and service accessibility. Public health interventions should prioritize reproductive health education, spousal involvement, and expansion of accessible and reliable family planning services to increase IUD adoption in rural districts.

Keywords: Contraception; Family planning; IUD; Muara Enim; Public health; Reproductive health; Women of reproductive age

Introduction

The use of intrauterine devices (IUDs) as a long-term contraceptive method remains low in Indonesia compared to short-term methods such as pills and injections. As the fourth most populous country in the world, Indonesia faces significant challenges in managing population growth, which reached 278.7 million in 2023 with an annual growth rate of 1.13% (Badan Pusat Statistik, 2024). In response, the government has implemented the National Family Planning Program (Program Keluarga Berencana/KB)

to help balance economic needs and population growth. However, despite the availability of various contraceptive methods, the uptake of long-acting reversible contraception (LARC), such as the IUD, remains limited (Kadir et al., 2020).

Numerous barriers hinder the widespread use of IUDs, including limited reproductive health education, persistent myths, and negative perceptions surrounding modern contraceptives. In Muara Enim District, the adoption rate of IUDs is notably low, despite the continuous implementation of family planning services. According to the Ministry of Health, only 4.39% of

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couples of reproductive age in South Sumatera used IUDs, with new users comprising just 0.55% (Kemenkes RI, 2022).

Cultural beliefs and traditional values also contribute to resistance against modern contraceptive methods. Tibaijuka et al. (2017) highlighted that some communities perceive IUDs as incompatible with local customs and religious views. Additionally, misconceptions about side effects and health risks continue to discourage women from considering IUDs (Palmeira-de-Oliveira et al., 2022; Wemrell et al., 2022).

Research also shows that a woman's level of education significantly influences her acceptance of IUDs, with those having higher education being more likely to consider them (Purnami et al., 2023). Spousal support plays a critical role in the decision to use IUDs. Emotional and practical encouragement from partners has been found to increase a woman's confidence in choosing long-term contraception (Putri et al., 2020).

Furthermore, trust in healthcare professionals and access to reliable sources of information, including health campaigns through social media, are essential factors in raising awareness and acceptance of IUDs (Rias et al., 2024; Utami, 2022).

Although several studies have examined the determinants of contraceptive choice in Indonesia, there remains a gap in localized research focusing specifically on the Muara Enim District. A comprehensive understanding of the barriers and motivators behind IUD adoption in this region is essential for designing effective public health interventions (Kadir et al., 2020).

This study aims to identify and analyze the key determinants influencing the interest in using IUD contraception among women of reproductive age in Muara Enim District. It also seeks to propose actionable strategies that can increase IUD uptake, considering factors such as education, accessibility, family support, perception of health risks, and quality of family planning services. The findings of this research are expected to contribute to the improvement of reproductive health programs and serve as a reference for policymakers and healthcare providers in formulating evidence-based, community-centered family planning policies (Purnami et al., 2023).

The scope of this study covers women of reproductive age in four selected community health centers (puskesmas) in Muara Enim District. It explores various influencing factors such as educational level, family support, economic status, risk perception, and access to information. By identifying the main barriers and drivers of IUD use, this research aims to provide strategic insights to enhance the effectiveness of the national family planning program, improve public health outcomes, and promote sustainable population control (Kemenkes RI, 2022).

Method

This study employed a quantitative descriptive approach with a cross-sectional survey design to identify the determinants influencing interest in the use of intrauterine device (IUD) contraception among women of reproductive age. The research was conducted in the working area of Community Health Centers (Puskesmas) in Muara Enim District, South Sumatera Province, with data collection carried out from October 2024 to January 2025.

The study focused on four selected health centers based on geographic and service coverage considerations: (1) Tanjung Agung Health Center; (2) Pulau Panggung Health Center; (3) Pajar Bulan Health Center; (4) Muara Belida Health Center.

The primary data were collected using a structured questionnaire developed to assess socio-demographic characteristics, knowledge, perceptions, partner support, and access to family planning information. The questionnaire was tested for validity and reliability prior to data collection.

The sample size was determined using the Slovin formula, with a margin of error of 10%, resulting in a total of 100 respondents. The sampling technique used was purposive sampling, with inclusion criteria as follows: (1) Women of reproductive age (15–49 years). (2) Registered as active family planning (KB) participants at the selected health centers. (3) Have been exposed to or informed about IUDs. (4) Willing to participate and signed informed consent.

All data were analyzed using descriptive statistics and multivariate logistic regression to identify dominant factors influencing the interest in IUD use.

This research uses approach quantitative with the method used is design experiment quasi - experimental. Research location in the region Work Health Center Muara Enim Regency South Sumatra Province, namely by focusing on four Health Centers: Tanjung Agung Health Center, Pulau Panggung Health Center, Pajar Bulan Health Center, and Muara Belida Health Center in October 2024 - January 2025. Data used namely primary data with questionnaires.

Taking technique sample with purposive sampling which refers to the formula slovin with the amount respondents 100 respondents with criteria inclusion: PUS active KB recorded in the Record medical Health Center and willing become Respondent.

Data Analysis

Data were processed and analyzed using SPSS (Statistical Package for the Social Sciences). The analysis consisted of two main stages: (1) Univariate analysis was conducted to describe the frequency distribution and percentage of each variable, including demographic

characteristics (age, education, income), knowledge levels, perceptions, spousal support, and access to information. (2) Bivariate analysis was performed using Chi-square tests to examine the relationship between independent variables (education level, knowledge, partner support) and the dependent variable (interest in using IUDs). (3) Multivariate analysis was carried out using binary logistic regression to identify the most influential determinants of IUD usage interest, while controlling for potential confounding variables. Odds ratios (OR) with 95% confidence intervals (CI) were reported to interpret the strength and direction of associations.

This statistical approach is appropriate for a cross-sectional design with categorical outcome variables and allows for the identification of key factors that influence contraceptive decision-making among women of reproductive age.

Results and Discussion

Table 1 presents the distribution of respondents' characteristics and key determinant variables before and after IUD counseling. The data show a significant increase in interest in using IUDs, rising from 67% pre-counseling to 91% post-counseling. Interestingly, the proportion of respondents categorized as having "good" knowledge about IUDs decreased drastically from 99% to 5%, while those in the "insufficient knowledge" category rose to 95%. This anomaly likely reflects a reassessment of self-perceived knowledge after receiving more accurate information during counseling.

Perceptions of health risk shifted notably: respondents in the "medium" risk category dropped from 94% to just 2%, while the "high" risk perception category increased to 98%. Similarly, sources of information shifted from predominantly electronic media (94%) to non-electronic (98%), such as printed materials and direct counseling. Spousal support for IUD use also increased from 66% to 87%, while economic status remained relatively stable, with most respondents continuing to fall below the regional minimum wage (<UMP).

These changes suggest that the IUD counseling intervention had a positive impact on improving understanding, altering perceptions, and strengthening support systems around contraceptive decision-making.

Table 1. Frequency Distribution of Determinants of IUD Use before and After Counseling

Variable	Pre (N)	Pre (%)	Post (N)	Post (%)
Interest in Using IUDs				
Not Interested	33	33.0	9	9.0
Interested	67	67.0	91	91.0
Mother Knowledge				
Not Enough	1	1.0	95	95.0
Good	99	99.0	5	5.0
Perception Health Risk				
Low	0			
Medium	94	94	2	2.0
High	6	6	98	98.0
Source of Information				
Electronic	94	94	2	2.0
Non Electronic	6	6	98	98.0
Husband Support				
Does not support	34	34.0	13	13.0
Support	66	66.0	87	87.0
Economic Status				
< UMP	66	66.0	69	69.0
> UMP	34	34.0	31	31.0

Table 2. Kolmogorov–Smirnov Normality Test Results

Variable	N	Pre P Value	Post P Value	Conclusion
Intereset in Using IUDs	100	0.000	0.000	Not Normally Distributed
Mother Knowledge	100	0.000	0.000	Not Normally Distributed
Perception Health Risk	100	0.000	0.000	Not Normally Distributed
Source Information	100	0.000	0.000	Not Normally Distributed
Husband Support	100	0.000	0.000	Not Normally Distributed
Economic Status	100	0.000	0.000	Not Normally Distributed

Prior to conducting bivariate analysis, a normality test was performed to determine the appropriate statistical method. The Kolmogorov–Smirnov test was applied to all determinant variables both in the pre-test

and post-test datasets. As presented in Table 2, the p-values for all variables—interest in using IUDs, knowledge, perception of health risks, source of information, husband support, and economic status—were below the significance level of 0.05 ($p < 0.05$). These results indicate that the data for each variable are not normally distributed, thus justifying the use of non-parametric tests, specifically the Wilcoxon Signed-Rank Test, for further analysis.

Given that the normality test results (Table 2) showed all variables were not normally distributed ($p < 0.05$), the Wilcoxon Signed-Rank Test was used for further analysis. Table 3 indicates that four out of five factors—knowledge ($p = 0.000$), perception of health risk ($p = 0.000$), source of information ($p = 0.000$), and economic status ($p = 0.000$)—had a statistically significant influence on interest in using IUDs post-counseling. However, husband support ($p = 0.855$) did not show a significant impact post-intervention.

Table 3. Wilcoxon Test Results for Determinants Influencing IUD Interest

Determinant Factors	Z Value	Asymp Sig (2-tailed)	Significance
Mother Knowledge	-8.484	0.000	Significant
Perception Health Risk	-8.189	0.000	Significant
Source Information	-8.926	0.000	Significant
Husband Support	-0.182	0.855	Not Significant
Economic Status	-6.89	0.000	Significant

Discussion

The use of contraception is a strategic component of Indonesia's national family planning program aimed at controlling population growth and improving public health and economic welfare. In Muara Enim Regency, the intrauterine device (IUD) remains one of the recommended long-acting reversible contraceptive (LARC) methods. However, its acceptance continues to face challenges due to social, psychological, and economic factors among women of reproductive age (Kementerian Kesehatan RI, 2022; BKKBN, 2021). Findings from this study are in line with previous research in Central Java and West Sumatra that reported similarly low uptake of IUDs, largely influenced by lack of knowledge, fear of side effects, and myths surrounding its use (Sari et al., 2024; Ulfah et al., 2025; Velinda et al., 2022).

Knowledge was identified as a significant determinant. Interestingly, before counseling, some women with "limited" knowledge expressed greater interest in using IUDs, potentially due to peer recommendations or pragmatic need rather than comprehension of the method. Similar patterns were observed by Putri et al. (2020), where firsthand community influence occasionally outweighed formal education. On the other hand, women categorized as having "good" knowledge were sometimes hesitant—often influenced by misinformation or negative past experiences. Post-counseling, interest significantly increased among the limited-knowledge group, affirming the importance of structured education in transforming attitudes and correcting misconceptions (Kartikawati et al., 2020; Robinet et al., 2023).

Health risk perception also emerged as a determinant. This study found that women with heightened risk awareness were more likely to be receptive to IUDs. These findings mirror those of Mahmudah et al. (2023), who reported that risk perception significantly motivated women to consider long-term contraception. Risk framing has been shown to positively influence preventive health behavior, especially when paired with trust in healthcare providers (Alspaugh et al., 2020; Tibaijuka et al., 2017). Counseling in this study succeeded in increasing risk awareness, especially among those who initially underestimated the consequences of unintended pregnancy.

Another critical factor was the source of information. Before the intervention, non-electronic media such as printed materials and direct health counseling were more effective than digital sources. This aligns with a study by Hapsari et al. (2023), which found that in rural areas, personal interaction and printed health materials had higher engagement and comprehension rates. Post-intervention, the interest in IUDs grew more significantly among women who received non-electronic forms of information, reinforcing the value of culturally appropriate and accessible health communication (Sari et al., 2024).

While many studies emphasize the importance of husband support in family planning, this research revealed that it did not significantly affect IUD interest post-counseling. This finding contrasts with earlier studies by Puspitasari et al. (2025), which showed that spousal approval strongly predicted contraceptive uptake. However, the current result aligns with Novita et al. (2022), who found that targeted education increased women's reproductive autonomy, reducing their reliance on spousal consent in decision-making. It suggests a shift in power dynamics and highlights the importance of strengthening women's agency through informed counseling.

Finally, economic status was found to be a significant determinant. Consistent with Anitasari et al.

(2021) and Dewi et al. (2019), women from lower-income households viewed IUDs as a more practical solution due to their cost-effectiveness. Following counseling, interest increased across income groups, indicating that educational interventions can bridge socioeconomic gaps. Nevertheless, equitable access to services and targeted support for economically disadvantaged groups remains essential to ensure comprehensive coverage (Khizar et al., 2024).

Conclusion

The conclusion of this study indicates that determinant factors such as knowledge, perception of health risks, source of information, and economic status have a significant influence on women's interest in using IUD contraception, both before and after counseling interventions, with a p-value of 0.000 (< α 0.05). Meanwhile, the support of husbands did not have a significant effect, as reflected by a p-value of 0.855 (> α 0.05). These findings suggest that improving individual awareness and access to accurate information plays a more decisive role than interpersonal support in shaping contraceptive choices. Therefore, it is recommended that the Muara Enim District Health Office strengthen its community-based education programs, utilizing trained health workers equipped with persuasive communication skills and context-appropriate informational materials. Moreover, future extension efforts should involve male partners in the counseling process to foster joint decision-making and enhance shared understanding of the benefits of IUD contraception. For future research, deeper investigation is needed on interventions that promote male involvement and assess how economic conditions influence long-term adherence to IUD use. Such studies could contribute to developing more comprehensive, inclusive, and sustainable family planning strategies tailored to the needs of rural communities.

Author Contributions
R, A, I.Y & K.A., contributed to study conception and design, data collection, analysis and interpretation of results, draft manuscript preparation, reviewed the results and approved the final version of the manuscript. L.A, M.P.S, Y.A & Y.J., contributed to data collection, analysis and interpretation of results, draft manuscript preparation, reviewed the results and approved the final version of the manuscript.

Conflicts of Interest
The authors declare that there is no conflict of interest regarding the publication of this article.

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