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The Relationship Between the Duration of Use Of 1-Month Contraceptive Injections and the Menstrual Cycle in Long-Term Acceptors at TPMB Maya

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Abstract. *Menstrual cycle disturbances are common side effects of injectable hormonal contraception and may affect contraceptive satisfaction and continuation. This study aimed to analyze the relationship between the duration of injectable contraceptive use and menstrual cycle disturbances among injectable contraceptive acceptors. A quantitative analytic study with a cross-sectional design was conducted at TPMB Maya from September to October 2025. A total of 67 injectable contraceptive users were included using a total sampling technique. The independent variable was the duration of injectable contraceptive use, categorized as less than one year and more than one year, while the dependent variable was menstrual cycle disturbance. Data were collected using a structured questionnaire and analyzed through univariate analysis and Kendall's tau-b correlation test. The results showed that most respondents were aged 20–35 years (86.6%), had a senior high school education (55.2%), and were multiparous (77.6%). Most respondents had used injectable contraception for more than one year (82.1%), and 74.6% experienced menstrual cycle disturbances. Bivariate analysis revealed a statistically significant relationship between the duration of injectable contraceptive use and menstrual cycle disturbances ($\tau = -0.264$; $p = 0.032$). The study concludes that longer use of injectable contraception is associated with a higher occurrence of menstrual cycle disturbances, emphasizing the importance of duration-based counseling in family planning services.*

Keywords: *Duration of Use; Family Planning; Injectable Contraception; Menstrual Cycle Disturbance; Side Effects.*

1. INTRODUCTION

Injectable contraception is one of the most widely used hormonal contraceptive methods in family planning services due to its high effectiveness, simple administration, and the absence of daily compliance requirements (Sinaga, 2021). This method is commonly chosen by women of reproductive age, particularly multiparous women and those with active reproductive and social roles, as it is considered practical and easily accessible in primary healthcare facilities. However, the high utilization of injectable contraception is not always accompanied by optimal user comfort and long-term continuation, mainly because of hormonal side effects (Yanti & Lamaindi, 2021).

One of the most frequently reported side effects of injectable contraceptive use is menstrual cycle disturbance. These disturbances may present as irregular menstrual cycles, spotting, prolonged bleeding, or amenorrhea. Clinically, menstrual cycle disorders should not be regarded as trivial physiological variations, as they may affect women's comfort, generate anxiety regarding reproductive health, and influence perceptions of contraceptive safety (Sri Hadi Sulistiyaningsih & Ike Perdana, 2022). When such disturbances are not adequately

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explained or managed, they often contribute to dissatisfaction and premature discontinuation of injectable contraception.

From a reproductive physiology perspective, injectable contraceptives exert their effects primarily through synthetic progestins that suppress ovulation, inhibit gonadotropin secretion, and induce structural and functional changes in the endometrium (Adinda Raudita & Anik Purwati, 2025). Continuous exposure to progestins results in relative endometrial suppression, disrupting the normal balance between endometrial proliferation and shedding. Consequently, various forms of menstrual disturbances may occur. Importantly, the hormonal effects of injectable contraception are cumulative in nature, suggesting that the type and severity of menstrual disturbances may vary according to the duration of contraceptive use (Arnianti, 2022).

A preliminary study conducted at TPMB Maya between September and October 2025 illustrates the magnitude of this problem in clinical practice. Among 67 injectable contraceptive users, 39 women (58.21%) used one-month injectable contraception, 10 women (14.93%) used two-month injectable contraception, and 18 women (26.87%) used three-month injectable contraception. These findings indicate that one-month injectable contraception was the most commonly used method at the study site. Notably, among the 39 one-month injectable users, 28 women (71.79%) experienced irregular menstrual cycles, while only 11 women (28.21%) reported regular cycles. The fact that more than two-thirds of users in this group experienced menstrual irregularities suggests that menstrual cycle disturbance represents a substantial and clinically relevant issue rather than an incidental complaint.

The high proportion of menstrual cycle disturbances observed in the preliminary study raises important scientific questions regarding the factors contributing to this condition. One biologically plausible factor is the duration of injectable contraceptive use. Prolonged exposure to synthetic progestins is assumed to play a critical role in determining the degree of endometrial suppression and subsequent menstrual pattern alterations. Therefore, duration of use should be considered a key variable in understanding menstrual cycle disturbances among injectable contraceptive users.

Although numerous previous studies have examined the relationship between injectable contraception and menstrual disorders, several limitations remain evident. Many studies focus primarily on comparing different types of contraceptive methods or combine multiple hormonal methods within a single analysis, thereby limiting the ability to isolate the specific effect of injectable contraception (Hidayanti et al., 2024; Ruari et al., 2024). Furthermore, menstrual cycle disturbances are often treated as static outcomes without considering the

progressive nature of hormonal effects over time. These limitations indicate that the relationship between duration of injectable contraceptive use and menstrual cycle disturbances has not been fully elucidated (Natalia, 2020; Yulianti et al., 2024).

Based on these research gaps and the findings of the preliminary study at TPMB Maya, further investigation is warranted to specifically analyze the relationship between duration of injectable contraceptive use and menstrual cycle disturbances. Such research is essential to provide more precise empirical evidence regarding the impact of prolonged injectable contraceptive use on menstrual patterns and to support evidence-based improvements in family planning counseling and services.

The research question of this study is whether there is an association between the duration of injectable contraceptive use and menstrual cycle disturbances among injectable contraceptive users. Accordingly, the objective of this study is to analyze the relationship between the duration of injectable contraceptive use and the occurrence of menstrual cycle disturbances among injectable contraceptive acceptors.

2. RESEARCH METHOD

This study employed a quantitative analytic design with a cross-sectional approach. The research was conducted at TPMB Maya during September–October 2025. The study population consisted of all injectable contraceptive users who received family planning services at the study site during the study period. A total of 67 respondents were included using a total sampling technique, in which all eligible participants meeting the inclusion criteria were selected as study subjects.

The independent variable in this study was the duration of injectable contraceptive use, categorized into less than one year and more than one year. The dependent variable was menstrual cycle disturbance, classified as either present or absent based on respondents' self-reported menstrual patterns. Data were collected using a structured questionnaire and medical record review to obtain information on contraceptive type, duration of use, and menstrual cycle regularity.

Data analysis consisted of univariate and bivariate analyses using SPSS software. Univariate analysis was conducted to describe the distribution of respondents' characteristics and study variables. Bivariate analysis was performed to examine the relationship between the duration of injectable contraceptive use and menstrual cycle disturbances using Kendall's tau-b correlation test, with a significance level set at $p < 0.05$.

3. RESULTS AND DISCUSSION

Univariate Analyze

Univariate analysis was conducted to describe respondents' characteristics and the distribution of study variables, including age, education level, parity, type of injectable contraception, duration of injectable contraceptive use, and menstrual cycle disturbances among injectable contraceptive users.

Table 1. Distribution of Respondents by Age.

Age	Frequency (n)	Percentage (%)
20–35 years	58	86.6
>35 years	9	13.4
Total	67	100.0

Table 1 shows that most respondents were aged 20–35 years. This indicates that injectable contraceptive users were predominantly women of active reproductive age, who physiologically remain susceptible to hormonal influences affecting menstrual cycle regularity.

Table 2. Distribution of Respondents by Education Level.

Education Level	Frequency (n)	Percentage (%)
Primary School	10	14.9
Junior High School	14	20.9
Senior High School	37	55.2
Higher Education	6	9.0
Total	67	100.0

Table 2 indicates that the majority of respondents had a senior high school education. This distribution suggests that most respondents had a moderate level of education, which generally allows adequate understanding of health information, including information related to hormonal contraceptive side effects.

Table 3. Distribution of Respondents by Parity.

Parity	Frequency (n)	Percentage (%)
Primiparous	15	22.4
Multiparous	52	77.6
Total	67	100.0

Table 3 shows that most respondents were multiparous. This finding reflects that injectable contraceptive users were largely women who had previous childbirth experience and used contraception primarily for birth spacing or limiting future pregnancies.

Table 4. Distribution of Respondents by Type of Injectable Contraception.

Type of Injectable Contraception	Frequency (n)	Percentage (%)
One-month injection	39	58.2
Two-month injection	10	14.9
Three-month injection	18	26.9
Total	67	100.0

Table 4 shows that one-month injectable contraception was the most commonly used method among respondents. The predominance of one-month injections suggests a preference for contraceptive methods that allow more frequent monitoring, despite the potential for hormonal side effects.

Table 5. Distribution of Respondents by Duration of Injectable Contraceptive Use.

Duration of Use	Frequency (n)	Percentage (%)
<1 year	12	17.9
>1 year	55	82.1
Total	67	100.0

Table 5 shows that most respondents had used injectable contraception for more than one year. The dominance of long-term use indicates prolonged exposure to synthetic hormones, which may influence menstrual cycle patterns.

Table 6. Distribution of Respondents by Menstrual Cycle Disturbances.

Menstrual Cycle Disturbance	Frequency (n)	Percentage (%)
Yes	50	74.6
No	17	25.4
Total	67	100.0

Table 6 shows that the majority of respondents experienced menstrual cycle disturbances. The high proportion of menstrual irregularities indicates that changes in menstrual patterns are a prominent condition among injectable contraceptive users and warrant further analysis at the bivariate level.

Bivariate Analyze

Bivariate analysis was conducted to examine the relationship between the duration of injectable contraceptive use and menstrual cycle disturbances among injectable contraceptive users. Because both variables were ordinal and did not meet the assumptions for parametric testing, the Kendall's tau-b correlation test was applied.

Table 7. Relationship between Duration of Injectable Contraceptive Use and Menstrual Cycle Disturbances.

Variables	Kendall's tau-b (τ)	p-value	N
Duration of injectable contraceptive use – Menstrual cycle disturbance	-0.264	0.032	67

Table 7 shows a Kendall's tau-b correlation coefficient of -0.264 with a p-value of 0.032. The p-value is lower than the significance level of 0.05, indicating a statistically significant relationship between the duration of injectable contraceptive use and menstrual cycle disturbances.

The negative correlation coefficient indicates an inverse relationship between the two variables, meaning that longer duration of injectable contraceptive use is associated with a higher occurrence of menstrual cycle disturbances. Although the strength of the correlation is categorized as weak, the finding demonstrates a meaningful association between prolonged exposure to injectable contraceptive hormones and changes in menstrual cycle regularity.

These results suggest that duration of injectable contraceptive use plays an important role in the occurrence of menstrual cycle disturbances among contraceptive users and should be considered in family planning counseling and follow-up services.

Discussion

The findings of this study indicate that menstrual cycle disturbances are highly prevalent among injectable contraceptive users. Univariate analysis showed that 74.6% of respondents experienced menstrual irregularities, while bivariate analysis demonstrated a statistically significant relationship between the duration of injectable contraceptive use and menstrual cycle disturbances ($\tau = -0.264$; $p = 0.032$). Although the strength of the correlation was weak, the association remains clinically relevant given the high proportion of affected users.

From a biological perspective, these findings are consistent with the mechanism of action of injectable hormonal contraceptives. Injectable contraceptives primarily contain synthetic progestins that suppress ovulation, inhibit gonadotropin release, and induce endometrial thinning. Continuous exposure to progestins disrupts the normal cyclical regeneration and shedding of the endometrium, leading to irregular bleeding patterns or amenorrhea. Agung et al., (2025) explained that prolonged progestin exposure causes endometrial atrophy, which is frequently manifested as menstrual irregularities, particularly in long-term users of injectable contraception.

The significant association between duration of use and menstrual cycle disturbance found in this study supports the concept that hormonal effects of injectable contraception are cumulative. Users who are exposed to synthetic hormones for a longer period may experience progressive suppression of endometrial activity, increasing the likelihood of menstrual irregularities. Similar findings were reported by Sepsi Pathona (2021), who observed that women using injectable contraception for more than one year had a higher incidence of menstrual disorders compared to those with shorter durations of use.

Several previous studies conducted in Indonesia have also reported comparable results. A study by Pawiyarni (2022) found a significant relationship between long-term use of three-

month injectable contraception and menstrual cycle disturbances, particularly amenorrhea and irregular bleeding. Another study by Asyaul Wasiah et al., (2025) reported that duration of injectable contraceptive use was significantly associated with changes in menstrual patterns, emphasizing that menstrual disturbances tend to increase with prolonged hormonal exposure. These findings reinforce the current study's results and suggest that duration of use is an important determinant of menstrual cycle changes among injectable contraceptive users.

In addition, the high proportion of respondents in this study who were multiparous and within the active reproductive age group may contribute to the observed findings. Multiparous women are more likely to use injectable contraception for birth spacing or limiting pregnancies over extended periods, increasing cumulative hormonal exposure. According to Setyorini & Lieskusumastuti (2020), multiparous women often prefer injectable methods due to their convenience and effectiveness, despite being informed of potential side effects such as menstrual irregularities.

The weak correlation coefficient observed in this study indicates that, although duration of use is significantly associated with menstrual cycle disturbances, other factors may also influence menstrual patterns. Factors such as individual hormonal sensitivity, nutritional status, stress, body mass index, and type of injectable contraception (one-month versus three-month formulations) may contribute to variability in menstrual responses. This finding is consistent with research by Maulani Ramadhan & Olivia Nency (2023), who emphasized that menstrual bleeding patterns among hormonal contraceptive users are influenced by both pharmacological and individual physiological factors.

From a clinical and public health perspective, the results of this study highlight the importance of comprehensive counseling in family planning services. Menstrual cycle disturbances should not be presented merely as "normal" side effects without adequate explanation. Instead, counseling should include clear information regarding the likelihood of menstrual changes based on the duration of injectable contraceptive use. As suggested by Nasution et al. (2023), appropriate counseling can reduce anxiety, improve user satisfaction, and prevent premature discontinuation of contraception.

Overall, the findings of this study are in line with existing theoretical frameworks and empirical evidence, confirming that longer duration of injectable contraceptive use is associated with a higher occurrence of menstrual cycle disturbances. These results underscore the need for healthcare providers to consider duration-based counseling strategies and individualized follow-up for injectable contraceptive users.

4. CONCLUSION

This study demonstrates that menstrual cycle disturbances are common among injectable contraceptive users. Most respondents experienced menstrual irregularities, and the bivariate analysis revealed a statistically significant association between the duration of injectable contraceptive use and menstrual cycle disturbances. Although the strength of the association was weak, the findings indicate that longer duration of injectable contraceptive use is related to a higher occurrence of menstrual cycle disturbances.

These results suggest that the duration of injectable contraceptive use is an important factor that should be considered in family planning services. Healthcare providers are encouraged to deliver comprehensive and duration-based counseling regarding potential menstrual changes to improve user understanding, satisfaction, and continuity of injectable contraceptive use.

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The heading should not be given a number and should instead be considered as a subsubsection heading.

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