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THE RELATIONSHIP BETWEEN THREE-MONTH INJECTABLE CONTRACEPTIVE USE (DMPA) AND THE OCCURRENCE OF AMENORRHEA AMONG FAMILY PLANNING ACCEPTORS

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ABSTRACT
Family planning injectable contraception is widely used but may cause menstrual disturbances such as amenorrhea. This study aimed to analyze the relationship between three-month injectable contraception (DMPA) as independent variable and the occurence of amenorrhea among family planning acceptors as dependent variable. This analytic study used a retrospective approach with purposive sampling of 30 acceptors at TPMB Jiamah, Tulungagung. Data were collected using family planning cards and checklists, then analyzed using Fisher's Exact Test. The results showed that 89.5% of DMPA users experienced amenorrhea, compared to 9.1% among combination injection users. Statistical analysis indicated a significant relationship ($p < 0.001$) with an odds ratio of 85. This finding suggests that DMPA greatly increases the likelihood of amenorrhea due to hormonal suppression of ovulation and endometrial thinning. Amenorrhea is a common physiological effect; however, proper counseling is needed to improve acceptor understanding and continuation of contraceptive use.

Keywords: Amenorrhea, Contraception, DMPA, Family Planning, Injectable

INTRODUCTION
The Family Planning (FP) program is one of the strategic efforts to reduce birth rates and improve the quality of maternal and child health. It is well recognized that hormonal contraceptives may produce side effects in individuals due to their hormonal components. Currently, the perception of family planning use has shifted toward becoming an essential need for individuals, as they have become more aware of the importance of contraception in spacing pregnancies and planning a more structured life. However, the use of contraceptives is often associated with side effects that may be undesirable for acceptors, particularly among users of hormonal methods (Kusumawati & Khulafa, 2021). One of the most commonly used methods is injectable hormonal contraception, specifically Depot Medroxyprogesterone Acetate (DMPA), which is administered every three months. This method is popular due to its high effectiveness, practicality, and a failure rate of less than 1% per year. (Fadhilah et al., 2020). This is consistent with global evidence from Centers for Disease Control and Prevention indicating that DMPA is a highly effective reversible contraceptive, with a typical-use failure rate of approximately 4% in the first year, reflecting its strong efficacy despite user-dependent administration (CDC, 2024).

In Indonesia, injectable contraception is more widely used than other methods. Data indicate that more than 48% of family planning acceptors use injectable methods. The high prevalence of this method underscores the importance of understanding its potential side effects, particularly disturbances in the menstrual cycle. (Fadhilah et al., 2020). This trend is also supported by national reports from the Ministry of Health of the Republic of Indonesia, which indicate that contraceptive use remains high among women of reproductive age, with

injectable contraception being one of the most widely used methods (Indonesia, 2023). One of the main side effects of DMPA use is changes in menstrual patterns, including amenorrhea (absence of menstruation). Amenorrhea is defined as the absence of menstruation for ≥3 consecutive months (Manek et al., 2024). Studies have shown that amenorrhea is a very common effect among DMPA users, occurring in approximately 10–30% of users within the first three months, increasing to around 50% in the first year, and reaching up to 80% with long-term use. (Villavicencio & Allen, 2016).

Other studies have also shown that the prevalence of amenorrhea among DMPA users is relatively high. A study conducted in West Sumatra reported an amenorrhea incidence of 53.1% among DMPA injectable family planning acceptors. (Fadhilah et al., 2020). Furthermore, a systematic review reported a gradual increase in the incidence of amenorrhea with longer duration of use, rising from 12% at the initiation of use to approximately 46% after 12 months. This finding indicates an association between the duration of injectable contraceptive use and changes in the menstrual cycle. (Hubacher et al., 2009).

In addition, an analytic study conducted in Indonesia found a significant association between the duration of DMPA use and the incidence of amenorrhea ($p < 0.05$), indicating that the longer the duration of use, the higher the risk of developing amenorrhea. (Manek et al., 2024). This phenomenon is supported by the mechanism of action of DMPA, which suppresses ovulation and causes endometrial thinning, thereby preventing menstruation. Clinical explanations from global and clinical guidelines indicate that progestin-only contraceptives such as DMPA suppress ovulation and induce endometrial atrophy, leading to amenorrhea (CDC, 2024). Although amenorrhea is medically harmless and often considered a normal physiological response, it may cause anxiety among acceptors, particularly due to concerns about possible pregnancy or reproductive health problems. Moreover, amenorrhea has been reported as one of the main reasons for discontinuation of DMPA use among some women (Piya-Anant et al., 1998). This is supported by global evidence from World Health Organization, which emphasizes that side effects of hormonal contraception can influence user satisfaction and continuation rates (WHO, 2025). Therefore, a comprehensive understanding of the effect of DMPA use on the incidence of amenorrhea is essential to improve acceptor satisfaction and ensure the continuation of contraceptive use.

Based on the above description, further research is needed to examine the effect of three-month injectable contraceptive use (DMPA) on the incidence of amenorrhea, particularly among family planning acceptors at primary healthcare settings such as independent midwifery practices. This study aims to analyze the effect of three-month injectable contraceptive use (DMPA) on the occurrence of amenorrhea among family planning acceptors at TPMB Ny. Jiamah, Kedoyo Village, Sendang District, Tulungagung Regency. This study is expected to provide empirical evidence and serve as a basis for improving the quality of counseling and family planning services.

METHODS

This study employed an analytic observational design with a retrospective approach. The population consisted of all three-month injectable family planning acceptors at TPMB Ny. Jiamah, Kedoyo Village, Sendang District, Tulungagung Regency, during April 2026. A total of 30 respondents were selected using purposive sampling based on inclusion and exclusion criteria. The independent variable was the use of three-month injectable contraception, categorized into Depo Progestin and Triclovem, while the dependent variable was the occurrence of amenorrhea. Data were collected using family planning cards and checklist forms. Data analysis was performed using Fisher's Exact Test with a significance level of $\alpha = 0.05$. This study received ethical approval from the Health Research Ethics Committee of

Universitas STRADA Indonesia (No. 0523435/EC/KEPKS/I//4/2026).

RESULTS

Table 1. Characteristics of Three-Month Injectable Family Planning Acceptors

Characteristics	Category	Frequency	Percentage (%)
Age (Years)	25-30	1	3,3
	31-35	21	70
	36-40	8	26,7
	>40	0	0
Number of Children	1	0	0
	2	21	70
	3	8	26,7
	4	1	3,3
Education Level	Elementary School	0	0
	Junior High School	2	6,7
	Senior High School	23	76.7
	Higher Education	5	16,7
Occupation	Housewife	21	70
	Self-Employed	4	13,3
	Private Sector Employee	3	10
	Civil Servant/ Military / Police	2	6,7
Duration of Contraceptive Use	1-2 years	0	0
	3-4 years	4	13,3
	5-6 years	20	66,7
	>6 years	6	20
	Total	30	100

Table 1 shows that the majority of respondents were aged 31–35 years (70%), had two children (70%), had a senior high school education level (76.7%), and worked as housewives (70%). Most respondents had used three-month injectable contraception for 5–6 years (66.7%).

Table 2. Types of Three-Month Injectable Contraceptives

Types of Three-Month Injectable Contraceptives	Frequency	Percentage (%)
Depo progestin	19	63,3
Triclovem	11	36,7
Total	30	100

Table 2 indicates that most respondents used Depo Progestin injectable contraception, accounting for 19 respondents (63.3%), while 11 respondents (36.7%) used Triclovem.

Table 3. Occurrence of Amenorrhea

Occurrence of Amenorrhea	Frequency	Percentage (%)
Amenorrhea	18	60
Non-Amenorrhea	12	40
Total	30	100

Table 3 demonstrates that the majority of respondents experienced amenorrhea, with 18 respondents (60%), whereas 12 respondents (40%) did not experience amenorrhea.

Table 4. Association Between Three-Month Injectable Contraceptive Use and Amenorrhea Occurrence

Three-Month Injectable Contraceptives	Occurrence of Amenorrhea				Total	
	Amenorrhea	%	Non-Amenorrhea	%		
Depo Progestin	17	89,5	2	10,5	19	100
Triclovem	1	9,1	10	90,9	11	100

Based on the results of the bivariate analysis between the type of three-month injectable contraception and the incidence of amenorrhea among family planning acceptors at TPMB Jiamah, Kedoyo Village, Sendang District, Tulungagung Regency, it was found that the majority of respondents using Depo Progestin experienced amenorrhea, with 17 respondents (89.5%), while 2 respondents (10.5%) did not experience amenorrhea. In contrast, among Triclovem users, most did not experience amenorrhea, with 10 respondents (90.9%), and only 1 respondent (9.1%) experienced amenorrhea.

Tabel 5. Uji Fisher's Exact

Test	Value	df	Asymp. Sig (2-sided)
Pearson Chi-Square	18,947	1	0,000
Continuity Correction	15,873	1	0,000
Likelihood Ratio	21,102	1	0,000
Fisher's Exact Test			**0,000**

Based on the results of Fisher's Exact Test, a p-value of < 0.001 was obtained, indicating a statistically significant association between the use of three-month injectable contraception and the incidence of amenorrhea.

Tabel 6. Odd Ratio

Measure	Value	95% CI Lower	95% CI Upper
Odds Ratio	85,000	6,196	1166,372
Relative Risk (Amenorea)	9,816	1,523	63,259

Based on the risk analysis, the Odds Ratio (OR) was 85.000 with a 95% confidence interval (CI: 6.196–1166.372). This indicates that family planning acceptors using Depo Progestin were 85 times more likely to experience amenorrhea compared to Triclovem users. The Odds Ratio analysis demonstrated that respondents using Depo Progestin had an 85 times greater risk of experiencing amenorrhea compared to Triclovem users.

DISCUSSION

The results of this study indicate a significant association between the use of three-month injectable contraception and the incidence of amenorrhea ($p < 0.05$), with the majority of acceptors using Depo Progestin experiencing amenorrhea. The Odds Ratio (OR = 85.000) suggests that the risk of amenorrhea among Depo Progestin users is substantially higher compared to users of combination contraceptives (Triclovem).

Physiologically, these findings can be explained by the mechanism of action of progesterone in Depot Medroxyprogesterone Acetate (DMPA), which suppresses the hypothalamic–pituitary–ovarian axis. Recent open-access studies have shown that DMPA use significantly reduces reproductive hormone levels, including luteinizing hormone (LH), follicle-stimulating hormone (FSH), and estradiol, thereby inhibiting ovulation and causing

endometrial thinning. This condition directly contributes to the occurrence of amenorrhea. (Bick et al., 2026).

In addition, changes in menstrual patterns among DMPA users are progressive in nature. Longitudinal studies have shown that prolonged use of DMPA leads to an increasing incidence of amenorrhea over time, due to the sustained hormonal suppression effect on the endometrium. This finding is consistent with the results of the present study, in which the majority of Depo Progestin users experienced amenorrhea.

Furthermore, these findings are in line with previous studies conducted in Indonesia, which reported a significant association between the duration of DMPA use and the incidence of amenorrhea ($p = 0.001$). The study concluded that the longer the duration of DMPA injectable contraceptive use, the greater the likelihood of experiencing menstrual disturbances, including amenorrhea. (Manek et al., 2024).

Other studies have also reported that the majority of DMPA injectable contraceptive acceptors experience changes in their menstrual cycle, with amenorrhea being the primary side effect of hormonal contraception. In some cases, amenorrhea occurs in the majority of DMPA users after long-term use. (Wenang & Noviana, 2017). Compared to combination contraceptives such as Triclovem, the differences observed in this study can be explained by the presence of estrogen. Combination contraceptives tend to maintain endometrial stability, resulting in more regular menstrual cycles and a lower incidence of amenorrhea. This is supported by open-access studies indicating that combination contraceptives have a lower rate of amenorrhea compared to progestin-only contraceptives, due to the role of estrogen in maintaining menstrual bleeding patterns (Gallo et al., 2008). From a clinical perspective, amenorrhea among DMPA users is a physiological and non-harmful effect. However, this condition often causes anxiety among family planning acceptors, particularly due to concerns about possible pregnancy. In midwifery practice, this presents a challenge as it may affect adherence and the continuation of contraceptive use.

In the researchers' opinion, the high incidence of amenorrhea among Depo Progestin users observed in this study is not solely influenced by hormonal factors, but may also be affected by the duration of use, individual characteristics (such as nutritional status and age), and the level of acceptors' understanding of contraceptive side effects. The very high Odds Ratio indicates a strong association; however, the wide confidence interval suggests the need for studies with larger sample sizes to improve the precision of the estimate.

Furthermore, the researchers argue that amenorrhea should not always be viewed as a negative side effect, but may instead be considered beneficial for some acceptors due to reduced discomfort associated with menstruation. Therefore, appropriate educational and counseling approaches are essential to improve acceptors' acceptance of this condition.

These findings are further supported by global clinical evidence indicating that amenorrhea is a common and expected outcome among users of progestin-only injectable contraceptives such as DMPA. According to World Health Organization, menstrual changes—including reduced bleeding and amenorrhea—are part of the normal physiological response to hormonal contraceptive use and do not indicate underlying pathology (WHO, 2025). In addition, clinical guidance from Centers for Disease Control and Prevention emphasizes that DMPA works by suppressing ovulation and altering the endometrium, resulting in changes in bleeding patterns, including amenorrhea. These effects are reversible and generally not harmful, but they require adequate counseling to ensure user understanding and continuation (CDC, 2024). From an evidence-based perspective, a study by Polis et al. (2021) reported that menstrual disturbances, particularly amenorrhea, are among the most frequently reported side effects of hormonal contraception and are strongly associated with discontinuation when not adequately explained to users (Kim et al., 2021). Moreover, research suggests that individual

variability plays a significant role in the occurrence of amenorrhea among DMPA users. Factors such as age, body mass index (BMI), duration of use, and individual hormonal response may influence menstrual changes (Gulmezogluc, 2021).

These findings strengthen the argument that the high incidence of amenorrhea observed in this study is multifactorial, involving pharmacological mechanisms, duration of use, and individual characteristics. Therefore, healthcare providers, particularly midwives, play a crucial role in delivering effective counseling to improve acceptor understanding, reduce anxiety, and enhance satisfaction with contraceptive use.

From a public health perspective, improving counseling quality has been shown to increase contraceptive continuation rates. Clear communication regarding expected side effects, including amenorrhea, can help align user expectations with clinical outcomes and reduce unnecessary discontinuation World Health Organization.

This study had several limitations, including the relatively small sample size and the use of a single healthcare setting, which may limit the generalizability of the findings. Future studies with larger populations and multicenter designs are recommended

CONCLUSION

The use of three-month injectable contraception, particularly Depo Progestin, was significantly associated with the occurrence of amenorrhea among family planning acceptors. DMPA users had a substantially higher risk of experiencing amenorrhea compared to Triclovem users. These findings highlight the importance of comprehensive counseling regarding potential menstrual changes to improve contraceptive continuation and acceptor satisfaction.

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