



Association Between Menstrual Patterns and Anxiety Levels Among Three-Month Injectable Contraceptive Users at Midwifery Clinics, Banjarmasin

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ABSTRACT

Population growth remains a challenge in Indonesia. Therefore, the Family Planning (FP) program plays an important role in controlling birth rates. One of the most commonly used contraceptive methods is the three-month injectable contraceptive (DMPA) due to its effectiveness and practicality. However, the use of this contraceptive may cause side effects in the form of changes in menstrual patterns, such as amenorrhea, oligomenorrhea, polymenorrhea, and spotting, which may affect the psychological condition of acceptors, particularly anxiety levels. This study aimed to analyze the relationship between changes in menstrual patterns and anxiety levels among DMPA acceptors. This study employed a quantitative analytic method with a cross-sectional design. The study population consisted of 290 DMPA acceptors, with a sample of 74 respondents selected using purposive sampling. Data were collected through questionnaires and analyzed using the Kendall Tau test. The results showed that out of 74 respondents, 73 respondents (98.6%) experienced changes in menstrual patterns, and most respondents had mild anxiety levels (63.5%). Amenorrhea was identified as the most common menstrual pattern change experienced by respondents. In addition, most participants had used the three-month injectable contraceptive for more than 18 months, which may contribute to the occurrence of menstrual disturbances. The findings also indicated that respondents who experienced more than one type of menstrual pattern change tended to report higher anxiety levels. The Kendall Tau test showed a p-value of 0.080 ($\alpha = 0.10$) with a correlation coefficient of 0.196, indicating a statistically weak positive association. This study concludes that there is a statistically weak association between changes in menstrual patterns and anxiety levels among users of three-month injectable contraceptives.

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1. INTRODUCTION

Population growth poses significant challenges for developing countries such as Indonesia, affecting various sectors including food supply, water resources, energy availability, maternal and child health, as well as overall living standards. Managing population growth by increasing awareness and accessibility of contraceptive methods is an important approach to promote sustainable national development. Globally, nearly 1.1 billion women aged 15–49 require contraceptive methods, and many still experience unmet needs.

The Family Planning (FP) program in Indonesia continues to be developed by promoting the use of modern contraceptive methods, one of which is the three-month injectable contraceptive. This method is widely chosen due to its high effectiveness and practical use. The synthetic progestin hormone, *depot medroxyprogesterone acetate* (DMPA), contained in the three-month injectable contraceptive works by suppressing gonadotropin hormone secretion.

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This mechanism helps prevent ovulation [3], [4]. The dominance of progestin leads to thinning of the endometrial lining and instability of endometrial tissue, which triggers changes in menstrual patterns such as amenorrhea, oligomenorrhea, polymenorrhea, and spotting [5], [6].

Progestin-based hormonal contraceptives frequently cause changes in menstrual patterns. Irregularities in the menstrual cycle, such as the absence of menstruation for several months, longer or shorter cycle intervals, and light bleeding between menstrual periods, are common manifestations of these disturbances. Menstrual fluctuations are often unpredictable because the body's response to DMPA varies among individuals and is influenced by hormonal sensitivity and duration of contraceptive use [3].

The widespread use of modern contraceptives is reflected in SIGA data, which indicate that the modern contraceptive prevalence rate (mCPR) in South Kalimantan Province reached 71.75% in 2024. The area with the highest number of injectable contraceptive acceptors was recorded in Banjarmasin City. However, the number of new three-month injectable contraceptive users has declined in several locations. This situation indicates a trend in the use of three-month injectable contraceptives that requires further investigation, particularly considering the side effects experienced by users. According to a preliminary study conducted at TPMB Noradina Anggi Agustin, S.Keb., Bdn., users of the three-month injectable contraceptive most frequently reported complaints related to menstrual irregularities.

Several studies have found that a common side effect frequently experienced by users of three-month injectable contraceptives is changes in menstrual patterns. These menstrual disorders are often caused by hormonal imbalance in users of progestin-based contraceptives, including spotting, polymenorrhea, oligomenorrhea, and amenorrhea [5]. Changes in menstrual patterns may be unpredictable because the body's response to the three-month injectable contraceptive varies among individuals and is influenced by hormonal sensitivity and duration of use [6]. In addition to affecting physical health, these side effects may also affect mental well-being. Anxiety is a psychological and physiological response that arises when individuals face changes in bodily conditions that are perceived as threatening or not adequately understood. Anxiety among users of three-month injectable contraceptives is often associated with changes in menstrual patterns caused by hormonal imbalance due to contraceptive use, particularly when acceptors have not received adequate information regarding the mechanism of action and side effects of hormonal contraceptives [7].

Several studies have reported an association between changes in menstrual patterns and levels of anxiety among three-month injectable contraceptive acceptors. Menstrual problems such as spotting and amenorrhea may cause concern because these changes are often perceived as abnormal, leading to doubts about reproductive health and fertility [8]. If healthcare providers do not adequately communicate information regarding contraceptive side effects, this condition may worsen and make it difficult for users to adapt to the changes they experience [9]. Most previous studies have primarily focused on the physiological aspects of three-month injectable contraceptive use. There is still limited research that specifically examines the relationship between changes in menstrual patterns and users' anxiety levels in the context of primary midwifery care, particularly at TPMB.

The novelty of this study lies in its focus on the relationship between changes in menstrual patterns caused by the use of three-month injectable contraceptives and the occurrence of anxiety among acceptors at TPMB. This study aims to analyze the correlation between changes in menstrual patterns and the occurrence of anxiety among three-month injectable contraceptive acceptors at TPMB. It is expected that the findings of this study can serve as a basis to strengthen family planning services and counseling, particularly in addressing the psychological aspects of acceptors, so that the continuity of three-month injectable contraceptive use can be maintained.

2. RESEARCH METHOD

A quantitative approach was applied in this study using a cross-sectional design. The cross-sectional design was employed to analyze the correlation between independent and dependent variables measured at the same time without follow-up [10]. This study was conducted at TPMB Noradina Anggi Agustin, S.Keb., Bdn., located in Banjarmasin City, from November 2025 to January 2026. The study population consisted of all 290 individuals who received three-month injectable contraceptives during visits from March to August 2025. Using the Slovin formula, a total of 74 participants were selected as the study sample with a margin of error of 10%. Purposive sampling based on established inclusion and exclusion criteria was used as the sampling method.

In this study, changes in menstrual patterns among individuals using three-month injectable contraceptives were defined as the independent variable, while the occurrence of anxiety was defined as the dependent variable.

Changes in menstrual cycles, including amenorrhea, oligomenorrhea, polymenorrhea, and spotting, were used to define changes in menstrual patterns. Anxiety level was defined as an emotional response in the form of feelings of anxiety, worry, or fear experienced by acceptors as a result of changes in menstrual patterns. A questionnaire consisting of two parts, namely a menstrual pattern changes questionnaire and an anxiety level questionnaire, was used to collect data. Prior to use, all research instruments had undergone validity and reliability testing. Cronbach's Alpha was used to assess the reliability of the instruments, where a value of α greater than 0.70 indicated that the data were reliable. Meanwhile, Pearson Product Moment correlation was applied to test the validity of the data [11], [12].

The collected data were processed through coding, editing, tabulation, and scoring. Univariate and bivariate approaches were used for data analysis. Respondent characteristics, changes in menstrual patterns, and anxiety levels were described using univariate analysis in the form of frequency distributions and percentages. The Kendall Tau test was used in the bivariate analysis to determine the relationship between variations in menstrual patterns and anxiety levels. The decision-making criterion was set at a significance level of $p < 0.10$. Statistical software was used to perform the complete data analysis procedures. All ethical research guidelines were followed in this study, including obtaining informed consent from participants, ensuring their anonymity, and maintaining the confidentiality of the data collected during the study.

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1. Univariate Analysis

Based on a study involving 74 respondents regarding "The Relationship Between Changes in Menstrual Patterns and Anxiety Levels Among Three-Month Injectable Contraceptive Acceptors at TPMB Noradina Anggi Agustin, S.Keb., Bdn," the results are presented as follows:

Table 1. Distribution of Respondent Characteristics

Characteristics	Frequency	Percentage (%)
Age		
20-35 years	28	37.8
>35 years	46	62.2
Education		
Primary School	7	9.5
Junior High School	16	21.6
Senior High School	46	62.2
Higher Education	5	6.8
Higher Education		
Housewife	64	86.5
Lecturer	1	1.4
Teacher	2	2.7
Trader	5	6.8
Private Employee	2	2.7
Duration of Marriage		
<5 years	6	8.1
5-10 years	21	28.4
>10 years	47	63.5
Number of Children		
No children	1	1.4
1 child	15	20.3
2 children	31	41.9
3 children	22	29.7
4 children	3	4.1
5 children	2	2.7
Duration of Use		
6-9 months	23	31.1
12-18 months	21	28.4
>18 months	30	40.5

Number of Injections		
2-3 times	23	31.1
4-6 times	21	28.4
>6 times	30	40.5

Based on Table 1, total of 46 respondents (62.2%) were aged over 35 years. Most respondents had completed senior high school education, totaling 46 individuals (62.2%). In terms of occupation, the largest group consisted of housewives, with 64 respondents (86.5%). The duration of marriage was predominantly in the >10 years category, accounting for 47 respondents (63.5%). The most common number of children was two, reported by 31 respondents (41.9%). The majority of respondents had used the three-month injectable contraceptive for more than 18 months, totaling 30 individuals (40.5%). Similarly, the highest number of injections received by respondents was more than six times, also reported by 30 individuals (40.5%).

Table 2. Distribution of Changes in Menstrual Patterns

Changes in Menstrual Patterns	Frequency (n)	Percentage (%)
No change	1	1.4
Change occurred	73	98.6
Total	74	100%

Based on Table 2, the majority of participants experienced changes in their menstrual patterns after using the three-month injectable contraceptive, specifically 73 individuals (98.6%).

Table 3. Distribution of Types of Menstrual Pattern Changes

Types of Menstrual Pattern Changes	Frequency (f)	Percentage (%)
Amenorea	50	67.6 %
Oligomenorea	13	17.6 %
Polimenorea	12	16.2 %
Spotting	34	45.9%
Total	109	147.3 %

Based on Table 3, the most common type of menstrual pattern change experienced by respondents was amenorrhea, reported by 50 individuals (67.6%).

Table 4. Distribution of Anxiety Levels

Anxiety Levels	Frequency (n)	Percentage (%)
No anxiety	10	13.5
Mild anxiety	47	63.5
Moderate anxiety	16	21.6
Severe anxiety	1	1.4
Total	74	100%

Based on Table 4, the majority of respondents experienced mild anxiety, with 47 individuals (63.5%).

3.1.2. Bivariate Analysis

Bivariate analysis using the *Kendall Tau* test is presented in the following table:

Table 5. Association Between Changes in Menstrual Patterns and Anxiety Levels

Table 1. Association Between Changes in Menstrual Pattern and Anxiety Levels												
Variable	Anxiety Level										<i>p-value</i>	<i>Correlation coefficient (r)</i>
	No Anxiety		Mild Anxiety		Moderate Anxiety		Severe Anxiety		Total			
	n	%	n	%	n	%	n	%	n	%		
Changes in Menstrual Pattern												
No Change	1	100	0	0,0	0	0,0	0	0,0	1	100	0,080	0,196
Change occurred	9	12,3	47	64,4	16	21,9	1	1,4	73	100		
Total	10	13,5	47	63,5	16	21,6	1	1,4	74	100		

The Kendall Tau statistical test results showed a *p*-value of 0.080 ($p < 0.10$) with a correlation coefficient (*r*) of 0.196, indicating a significant relationship between changes in menstrual patterns and anxiety levels among three-month injectable contraceptive acceptors.

Table 6. Distribution of Anxiety Levels Based on Types of Menstrual Pattern Changes Among Three-Month Injectable Contraceptive Acceptors at TPMB Noradina Anggi Agustin, S.Keb., Bdn

Types of Changes	No Anxiety	Mild Anxiety	Moderate Anxiety	Severe Anxiety	Total
No change	1	0	0	0	1
Amenorea	5	20	4	0	29
Oligomenorea	2	2	0	0	4
Polimenorea	0	1	2	0	3
Spotting	0	5	1	0	6
> 1 type of change	1	20	9	1	31
Total					74

Source: Primary Data, 2026

Based on Table 6, which presents the distribution of anxiety levels according to types of menstrual pattern changes among 74 respondents, respondents with amenorrhea most frequently experienced mild anxiety (20 individuals). Among respondents with oligomenorrhea, the most common anxiety levels were no anxiety and mild anxiety, each reported by 2 individuals. Respondents with polymenorrhea most frequently experienced moderate anxiety (2 individuals). Among respondents with spotting, mild anxiety was the most common level, reported by 5 individuals. Meanwhile, respondents who experienced more than one type of menstrual pattern change most frequently reported mild anxiety, with 20 individuals.

3.2. Discussion

Based on the findings of this study, it was found that most three-month injectable contraceptive acceptors experienced changes in menstrual patterns following contraceptive use. These findings indicate that the synthetic progestin hormone contained in the three-month injectable contraceptive has a considerable effect on the reproductive system of women of reproductive age. Physiologically, depot medroxyprogesterone acetate (DMPA) works by suppressing the release of gonadotropin hormones, namely follicle-stimulating hormone (FSH) and luteinizing hormone (LH), thereby inhibiting ovulation and reducing endogenous estrogen production [3], [4]. This condition causes the endometrial lining to develop suboptimally and become less stable, which may ultimately trigger changes in menstrual patterns [13].

The characteristics of respondents in this study were predominantly women aged over 35 years, with a secondary level of education, working as housewives, having been married for more than ten years, and using the three-month injectable contraceptive for a relatively long duration. These characteristics reflect a group of women of reproductive age with substantial reproductive experience and a tendency to prefer contraceptive methods that are practical and effective for long-term use. Age and duration of contraceptive use play a role in the body's physiological response to exposure to synthetic progestin hormones, where three-month injectable contraceptive acceptors may

experience altered endometrial stability and changes in menstrual patterns [5]. In addition, extensive reproductive experience is not always accompanied by adequate understanding of the mechanism of action and side effects of hormonal contraceptives. As a result, the menstrual changes experienced may still lead to negative perceptions if not supported by adequate education and counseling.

The changes in menstrual patterns identified in this study included amenorrhea, oligomenorrhea, polymenorrhea, and spotting. The variation in these changes indicates that the body's response to hormonal contraceptive use is individual and influenced by hormonal sensitivity, physiological conditions, and the duration of exposure to progestin hormones [5]. Amenorrhea was the most commonly experienced menstrual pattern change among respondents. This finding is consistent with existing theory, which states that amenorrhea is one of the most common side effects among DMPA injectable contraceptive users due to the suppression of LH and GnRH hormones, resulting in endometrial atrophy and the absence of menstrual shedding [14], [15].

The high incidence of amenorrhea in this study is also associated with the duration of three-month injectable contraceptive use and the number of injections received by respondents. Most respondents had used the injectable contraceptive for more than 18 months and had received more than six injections. Repeated and continuous exposure to DMPA hormones over a long period can enhance the suppression of ovulation and accelerate endometrial thinning, thereby increasing the risk of menstrual disturbances [16], [17]. These findings are consistent with previous studies that reported a significant relationship between the duration of DMPA injectable contraceptive use and the occurrence of amenorrhea and irregular bleeding among family planning acceptors [6].

In addition to amenorrhea, respondents also experienced spotting, oligomenorrhea, and polymenorrhea. Spotting among DMPA injectable contraceptive users may occur due to instability in endometrial vascularization influenced by the dominance of progestin hormones and low estrogen levels, causing endometrial blood vessels to become fragile and prone to light bleeding [18], [19]. Meanwhile, oligomenorrhea and polymenorrhea may result from disruptions in the balance of estrogen and progesterone hormones, which play a role in follicular maturation and the regulation of menstrual cycle stability [14], [20].

Changes in menstrual patterns experienced by acceptors not only have physiological effects but also impact psychological conditions. The study findings indicate that most respondents experienced mild anxiety. This anxiety represents a psychological response to bodily changes perceived as unusual, particularly changes in menstrual function related to perceptions of reproductive health. Irregular or absent menstruation is often perceived as a sign of health problems or a threat to fertility, especially when acceptors do not have adequate understanding of the mechanism of action of hormonal contraceptives [7].

The significant relationship between changes in menstrual patterns and anxiety levels among three-month injectable contraceptive acceptors was demonstrated in the bivariate analysis results, although the strength of the relationship was weak and positive. This finding indicates that the more pronounced the menstrual pattern changes experienced, the higher the tendency for anxiety to occur. These results are consistent with previous studies which reported that the side effects of injectable contraceptives, particularly amenorrhea and spotting, are associated with increased anxiety levels among family planning acceptors, especially when these changes persist for a prolonged period and are not accompanied by adequate understanding [8], [9].

The predominance of mild anxiety among respondents is related to the role of counseling in family planning services, which helps acceptors understand menstrual pattern changes as the most common side effect of three-month injectable contraceptive use and generally not harmful [3]. Appropriate education can reduce negative perceptions of bodily changes and assist acceptors in psychologically adapting to the side effects of hormonal contraceptives. Therefore, these findings indicate that menstrual pattern changes resulting from the use of three-month injectable contraceptives have important implications not only for physiological aspects but also for the psychological well-being of acceptors. The role of healthcare providers, particularly midwives, is essential not only in the provision of contraceptives but also in delivering comprehensive and continuous counseling. Counseling tailored to the characteristics of acceptors is expected to improve understanding, prevent negative perceptions, and minimize anxiety during the use of three-month injectable contraceptives [21].

4. CONCLUSION

Based on the findings of this study, it can be concluded that there is a statistically weak association between changes in menstrual patterns and anxiety levels among users of three-month injectable contraceptives at midwifery clinics in Banjarmasin. The analysis showed a p-value of 0.080 ($\alpha = 0.10$) with a correlation coefficient (r) of 0.196. These findings indicate that more pronounced changes in menstrual patterns are associated with higher levels of anxiety.

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