The Use of Three-Monthly Injectable Contraceptives with the Incidence of Aminorhae and Weight Change in Family Planning Acceptors at the Birthing Practices of Midwife Wulan Mardikaningtyas

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Abstract

Hormonal contraceptives, especially injectable Depo Medroxy Progesterone Acetate (DMPA), are the most popular among family planning advocates. Although it may cause changes in weight and menstrual cycle or amenorrhea, Depo Medroxy Progesterone Acetate is effective in preventing pregnancy. The purpose of this study is to ascertain how women's weight fluctuations and the usage of injectable family planning for three months are related to amenorrhea. Cross-sectional research design and quantitative research were employed in this study. This study was carried out at Wulan Mardikaningtyas Independent Practice Midwife in May and July of 2024. There were 46 users of injectable contraceptives for three months at Wulan Mardikaningtyas Midwife Independent Practice who made up the study's population. Total sampling is the method used for sampling. gathering information with a questionnaire. employing the chi-square test in bivariate analysis of the data. According to the study's findings, women who actively used injectable Depo Medroxy Progesterone Acetate contraceptives saw a rise in amenorrhea and an increase in body weight within three months. So the conclusion of this study is that there is a relationship between the use of Depo Medroxy Progesterone Acetate injectable contraceptives for three months with the incidence of amenorrhea and weight changes in three-month injectable birth control acceptors (p-value=0.015). The importance of monitoring hormonal side effects in injectable contraceptive users, as well as providing adequate information to prospective users regarding potential changes in menstrual cycles and body weight.

Keywords: Amenorrhea, Depo Medroxy Progesterone Acetate, Hormones progesterone & estrogen, Weight Gain

INTRODUCTION

Hormonal contraceptives, especially the injectable Depo Medroxy Progesterone Acetate (DMPA), are the most popular among family planning advocates. Although it can cause changes in weight and menstrual cycles or amenorrhoea, DMPA is effective at preventing pregnancy (Mukhtar et al., 2021). Most Indonesian women choose contraceptives based on user influence and experience. The government offers a variety of contraceptive methods to improve people's welfare and slow the population growth rate. According to the 2018 Riskesdas data, 3-month injectable family planning is the most widely used hormonal contraceptive technique (42.4%) (Kusumawardani et al., 2021).

Worldwide family planning use is expected to reach 380 million couples by 2023, of which 65–75 million, primarily in poorer nations, will be utilizing hormonal contraceptives in the form of pills, injections, and implants. While no contraceptive method is suitable and effective for everyone due to differences in compatibility and Accordingly, most Indonesian women choose contraceptives based on user influence and experience. The government offers

a range of contraceptive methods, both hormonal and non-hormonal, to improve people's well-being and slow population growth (Kusumawardani et al., 2021).

The National Population and Family Planning Agency (BKKBN) was established by the Indonesian government to manage population increase and improve quality of life through family planning and population management. Family planning is a government initiative that people are increasingly realising and following by using the contraceptives provided. The use of contraceptives aims to reduce population growth, improve the quality of the population, and limit the rate of population growth. (Sulastri & Triana, 2021).

Injectable contraceptives have advantages and disadvantages. Injectable contraceptives are highly effective from the start of use and throughout the year. The 3-month injectable (DMPA) is more popular because it meets users' needs, does not require frequent health visits, has a long duration of use, low cost, and perceived user benefits (Harahap, 2023). Due to its affordability, ease of use, and effectiveness, injectable hormonal contraceptives are increasingly popular in Indonesia. The use of 3-month injectable contraceptives causes shorter menstrual duration or even no menstruation, due to the gestagen component in DMPA. The use of 3-month injectable contraceptives was significantly correlated with changes in menstrual duration and absence of menstrual blood (Kiri et al., 2022).

In addition to weight gain, many complained of menstrual disturbances due to the use of three-month injections. There is a significant relationship between duration of use and menstrual disturbances; the longer the use, the shorter the periods or even no periods. The gestagen component in DMPA causes these changes, with amenorrhoea and reduced menstrual blood volume in long-term use (Alexander & Melyani, 2019).

Research Husaidah et al., (2023), stated that there is a relationship between the use of 3-month family planning injections and amenorrhea is normal because one of the side effects of 3-month family planning injections is menstrual disorders, one of which is amenorrhea. The occurrence of amenorrhea after using 3-month family planning injections is caused by high levels of progestin which effectively inhibit the surge of Luteinizing Hormone so that ovulation does not occur and the levels of Follicle Stimulating Hormone (FSH) and Luteinizing Hormone (LH) decrease so that there is no surge of Luteinizing Hormone, this causes follicles and prevents ovulation, with no ovulation, amenorrhea occurs.

Weight gain and the use of injectable contraceptives for three months have been linked. Using injectable contraception for three months increases the risk of weight gain by 0.167 times. This demonstrates the tendency for weight gain to occur in tandem with the duration of injectable contraceptive treatment (Farihah et al., 2023).

Long-term hormonal contraception can have negative effects on progesterone and oestrogen levels in the body. This hormonal imbalance can lead to menstrual irregularities, increased weight and appetite, and an increased risk of circulatory diseases such as hypertension, arterial disease and venous thromboembolism. As everyone reacts differently to injections of progesterone and oestrogen, side effects are not always experienced by everyone and depend on the body's absorption of the ingredients in DMPA injections (Mas'udah et al., 2021).

Injectable contraceptives are quite effective in preventing pregnancy. Every year, more and more people favour short-term over long-term contraceptive methods such as the IUD, implant, MOW and MOP. Women of childbearing age should be knowledgeable about three-month injectable birth control, including how it works and its effects (Kutlu, 2023).

Based on preliminary studies at Wulan Mardikaningtyas Midwife Birth Practices, from May to July there were 46 users of 3-month injectable family planning acceptors, Some patients complained of weight gain as much as changes in menstrual patterns of aminorrhea and the rest did not experience complaints like other contraceptive users. Those who experience weight gain on average have used this injectable contraceptive for a long period. Those who do not experience complaints are new contraceptive users or those who are still using injectable contraceptives for the first time.

Drawing from this context, the researcher intends to investigate the relationship between the use of three-month injectable contraceptives and the incidence of amenorrhea and weight change in family planning injectors in midwife Wulan Mardikaningtyas's maternity practice. The goal is to ascertain whether the use of three-month family planning injections is associated with an increased risk of amenorrhea and weight change.

METHODS

This study used quantitative research with a *cross-sectional* research design. This research was conducted at the Independent Practice of Midwife Wulan Mardikaningtyas Kartasura District, Central Java. This data collection was carried out for 3 months from May 2024 to July 2024.

The population in this study were users of three-month contraceptive injections at the Independent Midwife Practice Wulan Mardhikaningtyas. The sampling technique used the total populating technique with a total of 46 respondents who were active users of contraceptive injections for 3 months from May to July 2024. The sampling criteria in this study include active three-month injectable KB users who are over 17 years old (adults), injectable KB users

in the independent practice of midwife Wulan mardikaningtyas, and willing to fill out a questionnaire.

The independent variable in this study was 3-month injectable birth control. While the dependent variable is weight change and amenorrhoea in the independent practice of midwife Wulan Mardikaningtyas. The type of data used in this study is primary data obtained through the distribution of questionnaires. The instrument in this study used a questionnaire containing questions about changes in body weight and menstrual disorders (Aminorrhea).

Combined univariate and bivariate analyses utilizing the chi-square test and descriptive analysis were used to analyze the data. Version 20 of the Statistical Product and Service Solutions (SPSS) program was used to process data for this investigation. This study has obtained a research ethics letter from the Health Research Ethics Committee of Dr. Moewardi Surakarta Hospital with number 1.964/VIII/HREC/2024.

RESULTS

Table 1. Characteristics of respondents based on age, duration of use of 3-month injectable family planning, and latest education

Characteristics	f	%
Age		
20-33 years	32	69,6
34-45 years	14	30,4
Length of use of injectable family planning 3 month		
< 1 years	28	60,9
> 1 years	18	39,1
Education		
Junior High School	7	15,2
Senior High School	32	69,6
College	7	15,2

Based on Table 1, 46 respondents with different characteristics were obtained, namely based on age as many as 32 (69.6%) respondents aged between 20-33 years and 14 (30.4) respondents aged 34-45 years. Based on the length of use of 3-month injectable family planning, 28 (60.9%) respondents have done it for less than one year and 18 (39.1%) respondents have done it for more than one year. Based on the last education history, 7 (15.2%) respondents were junior high school graduates, 32 (69.6%) respondents were high school graduates, and 7 (15.2%) respondents were college graduates.

Table 2. Incidence of amenorrhoea among respondents

Incidence of Amenorrhoea	f	%
Amenorea	37	80,4
No Amenorrhoea	9	19,6

Based on Table 2, respondents who underwent 3-month injectable family planning based on the history of amenorrhoea were 37 (80.4%) experiencing amenorrhoea and 9 (19.6%) not experiencing amenorrhoea.

Table 3. Weight gain in respondents

Weight gain	N	%
There was an increase	35	76,1
No increase	11	23,9

Based on Table 3, respondents who underwent 3-month injectable family planning based on the history of weight gain after undergoing action with details as many as 35 (76.1%) experienced weight gain and 11 (23.9%) did not experience weight gain.

Table 4. The Relationship between the Use of Three-Monthly Injectable Contraceptives with the Incidence of Aminorhae and Weight Change in Birth Control Assistants at the Birthing Practices of Midwife Wulan Mardikaningtyas

Incidence of Amenorrhoea	Weight Gain				Total	P Value
	Increase		No Increase			
	n	%	n	%		
Amenorea	32	86,4	5	13,6	100	0,015
No Amenorea	4	44,4	5	55,6	100	

Based on Table 4. Cross tabulation data obtained respondents who experienced amenorrhoea and weight gain were 32 (86.4%) respondents and those who experienced amenorrhoea but did not experience weight gain were 4 respondents (44.4%). Meanwhile, there were 5 (13.6%) respondents who experienced amenorrhoea but no weight gain and 5 (55.6%) respondents who did not experience amenorrhoea or weight gain. The P value obtained based on is 0.015 <0.05 which indicates that there is a relationship between the use of three-monthly injectable contraceptives with the incidence of amenorrhoea and weight changes in birth control acceptors at the Midwife Wulan Mardikaningtyas Childbirth Practices.

DISCUSSION

3-Month Injectable Contraceptive Use

Based on research from Practical Midwife Wulan Mardikaningtyas, of 3-month injectable family planning users, 35 respondents (76.1%) experienced weight gain, while 11 (23.9%) did not. In addition, 37 respondents (80.4%) experienced amenorrhoea, while 9 (19.6%) did not. Of them, 28 respondents (60.9%) used this contraceptive for less than one year, while 18 (39.1%) for more than one year. DMPA injectable contraceptives contain depo medroxyprogesterone acetate (DMPA), a synthetic progestin hormone that inhibits ovulation

by suppressing the production of luteinizing hormone (LH) and thickening cervical mucus to prevent fertilisation (Faiqoh & Mahmudah, 2023).

Long-term use of hormonal contraceptives can cause an imbalance of progesterone and oestrogen, which can result in menstrual irregularities, increased weight, appetite, and risk of circulatory diseases such as hypertension, arterial disease, and venous thromboembolism. However, these side effects vary between individuals, depending on the body's absorption of the ingredients in DMPA injections (Mas'udah et al., 2021).

The data showed that 32 respondents (86.4%) experienced amenorrhoea and weight gain, while 4 respondents (44.4%) experienced amenorrhoea without weight gain. A total of 5 respondents (13.6%) experienced amenorrhoea without weight gain, and 5 respondents (55.6%) experienced neither amenorrhoea nor weight gain. The three-month injectable contraceptive use and the incidence of amenorrhea and weight change among birth control acceptors at Wulan Mardikaningtyas Practice of Midwifery are related, as indicated by the p-value of 0.015 (<0.05).

Theoretically, weight gain in combined contraceptive users is caused by fluid retention due to mineralocorticoid or renin-angiotensin-aldosterone activation, as well as increased subcutaneous fat due to oestrogen and progesterone hormones that increase appetite and food supply. Therefore, injectable contraceptive users are likely to experience increased appetite due to these hormones (Mas'udah et al., 2021).

Amenorrhoea, on the other hand, is caused by regular doses of DMPA every three months causing the body's oestrogen to work less effectively against the endometrium. As a result, the endometrium does not develop completely, which can result in disruption of the menstrual cycle (Alexander & Melyani, 2019).

Effect Of Injectable Contraceptives On Weight Change

The first year after injecting injectable contraceptives, such as *Depo Medroxyprogesterone Acetate* (DMPA), may result in weight gain of between 1 to 5 kg. Injectable contraceptives stimulate the area of the hypothalamus that controls appetite, increasing appetite in users. Progesterone increases appetite and decreases physical activity, which contributes to the accumulation of fat beneath the skin. It also facilitates the conversion of carbs and sugars into fat (Sari & Afridah, 2020).

Of the respondents who underwent 3-month injectable birth control, 35 people (76.1%) experienced weight gain, while 11 people (23.9%) did not experience weight gain. This hypothesis is supported by the results of the study of weight gain after using DMPA

contraceptives, with an average weight gain. This finding is consistent with research (Faiqoh & Mahmudah, 2023), which reported that 69.4% of DMPA injectable birth control users gained weight. In addition, studies have also shown that DMPA users have a greater chance of gaining weight as the length of use increases.

Weight gain in 3-month injectable family planning users may be due to the hormone progesterone, which increases the conversion of carbohydrates and sugars into fat, and increases appetite and decreases physical activity (Ekawati et al., 2024).

Weight gain due to injectable birth control is caused by the hormone progesterone, which promotes the conversion of sugar and carbohydrates into fat. However, weight loss is still possible through various means, such as exercising, increasing fibre consumption, reducing fat, increasing protein intake, and changing eating behaviours.

Effect of Injectable Contraceptives on Amenorrhoea

Based on the results of the study, it was found that respondents who underwent 3-month injectable family planning based on the history of amenorrhoea were 37 (80.4%) experiencing amenorrhoea and 9 (19.6%) not experiencing amenorrhoea in the Independent Practice of Midwife Wulan Mardikaningtyas.

This is in accordance with the research (Yusmiati et al., 2023) showed a significant relationship (p-value 0.000) between the menstrual cycle of family planning acceptors and the use of DMPA injectable family planning. Based on the researcher's hypothesis, women who use 3-month injectable birth control are more at risk of menstrual disorders due to hormonal changes with age and instability of reproductive hormone levels.

Amenorrhoea is a disorder that occurs when a woman does not experience menstruation, either for three consecutive cycles or if menstruation has not started until the age of fifteen. This condition can also be caused by the use of injectable contraceptives, such as *Cyclofem* and *Depo Medroxyprogesterone Acetate* (DMPA) (Rahayu & Munjidah, 2020).

An imbalance of FSH or LH can cause progesterone and oestrogen levels to become abnormal, resulting in menstrual problems such as irregular menstrual cycles, prolonged or unusual bleeding. Other possible side effects include nausea, vomiting, dizziness, and abdominal discomfort. These can all be side effects of using injectable contraceptives. (Alexander & Melyani, 2019).

The Relationship between the Use of 3-Monthly Injectable Contraceptives and the Incidence of Amenorrhea and Weight Changes in Family Planning Acceptors

Various programs have been carried out by the government to suppress the population growth rate. One of these programs is the socialization of the family planning program. Family planning is a program created to reduce or minimize population growth. In addition to controlling population growth, the family planning program itself has many positive effects on health and society, including reducing the maternal mortality ratio, improving women's health, reducing HIV transmission and increasing child survival. (Rohanah et al., 2023).

Long-term use of family planning injections for three months can also result in menstrual disorders in users older than one year; initial symptoms include irregular spotting, heavy bleeding, bleeding outside the menstrual cycle, and after more than a year, amenorrhea. Long-term use of family planning can also cause vaginal dryness, decreased libido, emotional disturbances, headaches, nevus, and acne (Sinaga, 2021).

The results of this study are in line with research Anggeriani et al., (2023), demonstrates the correlation between the menstrual cycle of family planning acceptors at PMB Yosephine Palembang and the utilization of 3-month injection family planning. This is because a large percentage of injectable family planning users have been using it for more than a year, indicating that interest in this form of contraception is far higher than that of other forms. The number of respondents who experienced amenorrhea in this study was due to the side effects of using 3-month injection contraception and the influence of the hormone progesterone.

There is a relationship between the use of injectable family planning contraceptives and menstrual cycle disorders in injectable family planning users in Eris village (Limpele et al., 2020). Using injectable contraception for more than 1 year has a 5.3 times greater chance of experiencing menstrual disorders compared to respondents who use contraception for less than 1 year. The side effects of 3-month injectable contraception are disruption of the menstrual cycle, shortening or lengthening, heavy or light bleeding, irregular bleeding, and no menstruation at all (Arum, 2019).

The use of 3-month injectable contraception has a fairly high relationship to weight gain in injectable family planning acceptors (Handayani et al., 2019). The use of family planning, especially hormonal family planning, can increase body weight, this is because of the estrogen and progesterone hormone content in hormonal contraception. Progesterone can stimulate increased appetite, so hormonal contraception can cause weight gain (Rahmawaty et al., 2024; Aziz et al., 2020).

Factors that affect changes in the weight of injectable family planning acceptors are the presence of strong progesterone hormones that stimulate the appetite hormone in the hypothalamus. With a greater appetite than usual, the body will have excess nutrients. Excess nutrients are converted into fat by the progesterone hormone and stored under the skin. This weight change is due to the accumulation of excess fat resulting from the synthesis of carbohydrates into fat (Pratiwi et al., 2023; Fenniokha et al., 2022).

CONCLUSIONS

The results of this study indicate a significant relationship between the use of three-month injectable contraceptives and the incidence of amenorrhea and weight changes in family planning acceptors. These findings emphasize the importance of health workers providing comprehensive counseling to new users regarding potential side effects, including menstrual cycle disorders and weight changes that may occur due to the use of this contraceptive. Health institutions and practitioners are expected to ensure that prospective users receive adequate information so that they can make more informed decisions regarding their choice of contraception. In addition, this study serves as a basis for further research, especially in examining the long-term impact of injectable contraceptives and developing strategies to reduce side effects, in order to improve the family planning experience for women.

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