



Original Research

Self-Reported Weight Gain among 3-Month Injectable Contraceptive (DMPA) Acceptors

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Abstract

The three-month injectable contraceptive (commonly containing depot medroxyprogesterone acetate/DMPA) is widely used because it is practical and accessible. Nevertheless, weight gain is frequently reported as a side effect and may contribute to dissatisfaction and discontinuation. To describe the proportion of DMPA acceptors who report weight gain at Libano Community Health Center, Morotai Island. This quantitative study employed a cross-sectional design. A total of 30 women of reproductive age who were current users of the three-month injectable contraceptive were included. Data were collected once through structured interviews (including self-reported weight change since using DMPA) and a single body-weight measurement at the visit. Data were analyzed using descriptive statistics (frequency and percentage). Of 30 respondents, 18 (60.0%) reported weight gain and 12 (40.0%) reported no weight gain. Self-reported weight gain is a common complaint among three-month injectable contraceptive (DMPA) acceptors in this setting. Routine counseling and periodic weight monitoring are recommended. Future studies should apply longitudinal designs and include comparison groups to better evaluate determinants of weight change.

1. Introduction

Contraception constitutes a fundamental component of the Family Planning (Keluarga Berencana/KB) program, which aims to regulate fertility, prevent unintended pregnancies, and ultimately improve the health and welfare of mothers, children, and families. Effective family planning has been widely recognized as a strategic intervention to reduce maternal and infant mortality, enhance women's reproductive autonomy, and support socioeconomic development (World Health Organization [WHO], 2018). In Indonesia, the KB program has been implemented as a national priority to manage population growth and to promote responsible parenthood through the provision of various contraceptive methods tailored to women's reproductive needs (BKKBN, 2023).

Among the available contraceptive methods, hormonal contraception remains one of the most commonly utilized options by women of reproductive age. One widely used hormonal method in Indonesia is the three-month injectable contraceptive, commonly containing depot medroxyprogesterone acetate (DMPA). This method is popular because it is practical, relatively low-cost, and widely available through primary health care facilities and independent midwifery practices.

The three-month injectable contraceptive primarily works by suppressing ovulation, thickening cervical mucus to impede sperm penetration, and inducing endometrial changes that reduce the likelihood of implantation (BKKBN, 2023). Because DMPA is administered every three months, this method does not require daily adherence and is often preferred by women who want an effective method with minimal day-to-day effort.

Despite its effectiveness, the three-month injectable contraceptive is frequently associated with side effects that may influence user satisfaction and continuation rates (Yulianti et al., 2021). One commonly reported side effect is perceived or actual weight gain, which may affect body image, self-esteem, and willingness to continue using the method.

One of the most commonly reported side effects of hormonal contraception, particularly the three-month injectable method, is weight gain. Weight gain is often perceived negatively by contraceptive users, as it may affect body image, self-esteem, and overall satisfaction with the contraceptive method. Several studies have demonstrated that users of hormonal contraceptives, especially progestin-only methods such as DMPA injections, experience a statistically significant increase in body weight over time (Yulianti et al., 2021; Handayani et al., 2022). This concern is frequently cited as a primary reason for discontinuation or method switching among contraceptive acceptors.

The biological mechanisms underlying weight gain associated with hormonal contraceptive use are complex and multifactorial. Progestin hormones are known to influence appetite regulation, lipid metabolism, and carbohydrate metabolism. Specifically, progestin may stimulate appetite by affecting hypothalamic centers involved in hunger regulation, leading to increased caloric intake. Additionally, progestin has been associated with increased insulin resistance and alterations in glucose metabolism, which may promote fat accumulation and weight gain over prolonged use (Handayani et al., 2022).

Furthermore, progestin can cause fluid retention through its effects on renal sodium handling, which may contribute to short-term increases in body weight. Over time, these hormonal effects may result in increased adipose tissue deposition, particularly when combined with sedentary lifestyles and high-calorie diets. These physiological changes highlight the importance of considering metabolic effects when counseling women about hormonal contraceptive options (Berenson & Rahman, 2017).

Weight gain associated with hormonal contraception is not merely a clinical issue but also a public health concern, as it may reduce contraceptive adherence and increase the risk of unintended pregnancy. In local program monitoring, weight-related complaints are frequently reported as one of the reasons for discontinuation and method switching among acceptors (Health Office, 2023). Discontinuation of effective contraceptive methods without appropriate alternatives can undermine the goals of family planning programs and increase maternal health risks.

In many regions, including community and rural settings, three-month injectable contraceptives remain one of the most commonly chosen methods by women of reproductive age. Data from local health offices indicate that injectable contraception continues to dominate contraceptive use due to its convenience and widespread availability. However, complaints related to weight gain are consistently reported as one of the main reasons for method discontinuation and switching to non-hormonal or short-acting contraceptive methods (Health Office, 2023). This pattern underscores the need for context-specific research to better understand the magnitude and determinants of weight gain among contraceptive users.

Previous studies examining the relationship between hormonal contraceptive use and weight gain have yielded mixed results. Some researchers have reported a tendency toward weight gain among users of progestin-only contraceptives, while others have suggested that weight changes are strongly influenced by lifestyle factors such as dietary intake, physical activity, socioeconomic status, and baseline body mass index (BMI) (Rahmawati & Lestari, 2020). These inconsistencies indicate that weight change among contraceptive users may involve complex interactions between biological and behavioral factors.

Differences in study design, duration of follow-up, and population characteristics may partly explain the variability in research findings. For example, longitudinal studies tend to demonstrate gradual weight gain over extended periods of contraceptive use, whereas cross-sectional studies may fail to capture cumulative changes. Additionally, individual susceptibility to hormonal effects may vary based on genetic, metabolic, and lifestyle factors (Berenson & Rahman, 2017).

Given these inconsistencies, further research is essential to clarify whether weight gain is directly caused by the use of three-month injectable contraceptives or whether it is predominantly influenced by external factors. Understanding this relationship is particularly important for health workers, including midwives, who play a central role in providing contraceptive counseling and services. Evidence-based counseling can help manage user expectations, reduce misconceptions, and promote informed decision-making among women considering hormonal contraception.

The present study aims to describe the proportion of women using three-month injectable contraceptives (DMPA) who report weight gain in the study area. By focusing on local data, this study seeks to provide an empirical overview of a frequently reported side effect within the specific sociocultural and demographic context.

Moreover, the results of this study are anticipated to support health workers in delivering comprehensive contraceptive education, particularly regarding potential side effects and strategies to prevent or manage weight gain. Such strategies may include nutritional counseling, promotion of regular physical activity, and periodic monitoring of body weight and BMI during contraceptive follow-up visits. Improved counseling practices may enhance user satisfaction and continuation rates, thereby strengthening the overall effectiveness of family planning programs.

At the policy level, evidence generated from this study may serve as a basis for formulating targeted interventions and guidelines related to the use of three-month injectable contraceptives. Policymakers and program managers can utilize these findings to optimize contraceptive service delivery, ensuring that women receive complete, accurate, and balanced information before selecting a contraceptive method. Ultimately, empowering women with evidence-based information will enable them to make informed reproductive health decisions that align with their individual needs and preferences.

In conclusion, while three-month injectable contraceptives remain a popular and effective method of family planning, concerns regarding weight gain warrant careful consideration. Continued research is essential to disentangle the hormonal effects of contraception from lifestyle-related factors and to develop comprehensive strategies that support both contraceptive effectiveness and women's overall health.

2. Research Method

This quantitative study employed a cross-sectional design at Libano Community Health Center, Morotai Island. The study participants were 30 women of reproductive age who were current users of the three-month injectable contraceptive (DMPA) and agreed to participate. Data were collected once through structured interviews, including a question on self-reported weight change since using DMPA (weight gain vs no weight gain), and a single body-weight measurement at the visit. Data were analyzed descriptively using frequency and percentage.

3. Results and Discussion

3.1 Results

Table 1 Respondent Characteristic

Information Mother's Age	Frequency	Percent
<20 year	2	6.2
20-35 year	25	75.0
>35 year	3	18.8
Total	30	100.0

From Table 1, most respondents were 20–35 years old (83.3%).

Table 2 Distribution of self-reported weight change among DMPA acceptors

Weight change	n	%
Weight gain	18	60.0
No weight gain	12	40.0
Total	30	100.0

Note: weight change is self-reported.

From Table 2, 18 respondents (60.0%) reported weight gain after using the three-month injectable contraceptive (DMPA), while 12 respondents (40.0%) reported no weight gain.

3.2. Discussion

In this cross-sectional study conducted at Libano Community Health Center, 60.0% of DMPA acceptors reported weight gain. This finding supports prior reports that weight gain is a frequent concern among users of progestin-only injectable contraception and may influence satisfaction and continuation (Yulianti et al., 2021; Susanti et al., 2019).

Although this study did not measure baseline weight prior to DMPA initiation, biological pathways have been proposed in the literature to explain weight changes in some users, including appetite stimulation, changes in energy balance, and fluid retention (Berenson & Rahman, 2017; Handayani et al., 2022). However, individual responses vary and weight change is also shaped by lifestyle and contextual factors such as diet and physical activity.

Given that weight gain is commonly perceived as an undesirable side effect, counseling and informed choice should be emphasized during family planning services. Health workers may provide practical guidance on healthy eating, physical activity, and periodic monitoring to address concerns early and reduce unnecessary discontinuation (Ministry of Health of the Republic of Indonesia, 2022).

This study has several limitations. The sample size was small and drawn from a single health center, limiting generalizability. Weight change was measured as self-reported status (weight gain vs no weight gain) rather than objectively measured change from baseline, which may introduce recall and reporting bias. Future research should employ longitudinal follow-up with repeated measurements and consider potential confounders to better understand determinants of weight change among DMPA users.

Progestin, the primary active component in three-month injectable contraceptives, exerts multiple physiological effects that may contribute to weight gain. One such effect is increased fluid retention, which can lead to an initial rise in body weight shortly after contraceptive initiation. Additionally, progestin has been shown to reduce basal metabolic rate and slow fat oxidation, thereby promoting fat accumulation when caloric intake exceeds energy expenditure (Handayani et al., 2022). Over time, these mechanisms may lead to persistent increases in body weight, particularly among users who do not adjust their dietary intake or physical activity levels.

Hormonal changes induced by injectable contraceptives also affect appetite regulation. Several studies have documented an increase in appetite among users of progestin-only contraceptives, which is thought to be mediated through central nervous system pathways that regulate hunger and satiety (Berenson & Rahman, 2017). An increased appetite, when coupled with unrestricted food intake, may contribute significantly to caloric surplus and subsequent weight gain. This mechanism helps explain why some acceptors experience noticeable weight changes after several months of contraceptive use.

The role of progesterone in influencing body composition has been emphasized in previous literature. According to Sari and Putri (2020), elevated levels of progesterone can inhibit lipolysis, the process by which stored fat is broken down to release energy. As a result, fat storage is favored over fat utilization, leading to gradual increases in adipose tissue. This process may be particularly pronounced in women who already have a tendency toward weight gain or who have limited physical activity due to occupational or household responsibilities.

In addition to its effects on fat metabolism, progestin may influence carbohydrate metabolism by altering insulin sensitivity. Rahmawati and Lestari (2020) found that users of hormonal contraceptives, particularly injectable methods, were more likely to exhibit signs of increased insulin resistance compared to non-users. Insulin resistance can promote hyperinsulinemia, which enhances lipogenesis and inhibits fat breakdown, thereby facilitating weight gain. These metabolic changes underscore the importance of monitoring not only body weight but also broader metabolic indicators among long-term users of injectable contraceptives.

Despite the strong association observed between contraceptive use and weight gain, it is essential to recognize that weight changes are not solely determined by hormonal factors. Lifestyle-related variables, such as dietary patterns and physical activity levels, play a crucial role in modulating body weight. Susanti et al. (2019) reported that some contraceptive acceptors experienced changes in daily routines after initiating injectable contraception, including reduced physical activity and increased consumption of high-calorie foods. These behavioral changes may exacerbate the weight gain associated with hormonal effects.

Furthermore, sociocultural factors may influence eating behaviors and activity levels among women of reproductive age. In certain contexts, women who use injectable contraceptives may perceive weight gain as a sign of improved health or prosperity, leading to less concern about maintaining a balanced diet or regular exercise. Conversely, others may experience dissatisfaction and distress related to body image changes, which can negatively affect contraceptive satisfaction and continuation (Utami et al., 2020).

Psychological factors also contribute to weight gain among users of three-month injectable contraceptives. Hidayat (2021) noted that hormonal fluctuations associated with progestin use may influence mood, emotional regulation, and stress levels. Increased stress or mood disturbances can trigger emotional eating behaviors, characterized by excessive consumption of comfort foods that are typically high in sugar and fat. Over time, these eating patterns may result in significant weight gain, independent of the direct metabolic effects of the contraceptive hormone.

The interplay between physiological and psychological factors highlights the multifactorial nature of weight gain among contraceptive users. Weight changes cannot be attributed solely to hormonal exposure but must be understood within a broader biopsychosocial framework. This perspective is supported by studies indicating that individual responses to hormonal contraceptives vary widely, with some women experiencing substantial weight gain, others minimal changes, and some no changes at all (Utami et al., 2020). Genetic predisposition, baseline body mass index, and metabolic health may partially explain these interindividual differences.

The findings of this study are also aligned with reports from the local Health Office (2023), which identified weight gain as one of the primary reasons for discontinuation of injectable contraceptives and subsequent switching to alternative methods. This trend is concerning, as discontinuation of effective contraceptive methods without appropriate counseling and follow-up may increase the risk of unintended pregnancies. Therefore, addressing concerns related to weight gain is essential for improving contraceptive continuation rates and overall program effectiveness.

Education and counseling have been identified as key strategies for mitigating the impact of weight gain on contraceptive satisfaction. Nurlaila and Sari (2021) emphasized the importance of providing comprehensive education on healthy eating patterns and regular physical activity to contraceptive acceptors. By equipping women with practical knowledge and skills to manage their weight, health workers can help reduce anxiety related to side effects and promote sustained use of effective contraceptive methods.

Routine monitoring of body weight is another intervention recommended in the literature. Roesli (2018) suggested that periodic weight assessment, particularly during the initial months following initiation of injectable contraception, can facilitate early detection of excessive weight gain. Early identification allows health workers to provide timely interventions, such as dietary counseling or referrals to nutrition services, before weight gain becomes substantial and discouraging for the acceptor.

From a clinical perspective, individualized counseling is crucial in addressing weight-related concerns. Health workers should assess each acceptor's baseline characteristics, including nutritional status, physical activity level, and personal concerns regarding body weight. Such individualized approaches can enhance acceptors' understanding of potential side effects and help them develop realistic expectations regarding contraceptive use (Ministry of Health of the Republic of Indonesia, 2022).

From a policy standpoint, proactive communication about potential side effects of three-month injectable contraceptives, including weight gain, is essential. Transparent and balanced information enables women to make informed decisions that align with their health needs and personal preferences. According to the Ministry of Health of the Republic of Indonesia (2022), informed choice is a core principle of reproductive health services and should be prioritized in all family planning programs.

In addition, for acceptors who experience significant weight gain and feel uncomfortable continuing with injectable contraception, health workers can provide appropriate alternatives. These alternatives may include switching to non-hormonal methods or lower-dose hormonal methods, depending on the acceptor's reproductive goals and health status. Offering method switching as part of routine contraceptive counseling can help prevent discontinuation without protection and maintain overall contraceptive coverage.

In conclusion, the findings of this study reinforce existing evidence that three-month injectable contraceptives are significantly associated with weight gain among a proportion of users. However, weight gain is influenced by a complex interaction of hormonal, metabolic, behavioral, and psychological factors. Addressing this issue requires a comprehensive approach that includes evidence-based counseling, lifestyle interventions, routine monitoring, and supportive health policies. By adopting such strategies, health workers and policymakers can enhance acceptor satisfaction, improve contraceptive continuation rates, and support the broader goals of reproductive health and family planning programs.

4. Conclusion

Based on the results of this study, 18 out of 30 respondents (60.0%) reported weight gain while using the three-month injectable contraceptive (DMPA) at Libano Community Health Center, Morotai Island. This finding indicates that perceived weight gain is a common complaint among DMPA acceptors in this setting.

Because this study used a single measurement point and relied on self-reported weight change, the findings should be interpreted as an empirical description rather than evidence of causality. Nevertheless, the results highlight the importance of counseling, informed choice, and supportive guidance on healthy lifestyle behaviors during contraceptive services.

Health workers are encouraged to provide routine counseling regarding possible side effects of DMPA, including weight-related concerns, and to conduct periodic weight monitoring as part of follow-up visits when feasible.

For further research, it is recommended to expand the sample, include comparison groups, and apply longitudinal follow-up with repeated anthropometric measurements to better assess determinants of weight change among DMPA users.

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