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ASSOCIATION BETWEEN DMPA USE DURATION AND WEIGHT GAIN IN INDONESIAN CONTRACEPTIVE ACCEPTORS

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ABSTRAK : HUBUNGAN LAMA PENGGUNAAN KB SUNTIK DMPA DENGAN PENINGKATAN BERAT BADAN AKSEPTOR

Latar Belakang: Kontrasepsi suntik DMPA (Depo Medroxyprogesterone Acetate) merupakan salah satu metode keluarga berencana yang paling banyak digunakan di Indonesia. Meskipun efektif dan praktis, DMPA sering dikaitkan dengan efek samping berupa kenaikan berat badan, yang dapat memengaruhi kepatuhan dan kenyamanan pengguna.

Tujuan: Penelitian ini bertujuan untuk mengetahui hubungan antara lama penggunaan KB suntik DMPA dengan peningkatan berat badan pada akseptor di PMB Undi Astuti tahun 2025.

Metode: Penelitian ini menggunakan pendekatan kuantitatif dengan desain cross-sectional. Sampel terdiri dari 76 akseptor DMPA yang dipilih secara purposive dari total 187 pengguna yang mengalami peningkatan berat badan. Data sekunder dikumpulkan dari rekam medis dan dianalisis menggunakan uji korelasi Spearman Rank dengan tingkat signifikansi 5%.

Hasil: Mayoritas responden mengalami kenaikan berat badan sebesar 1–5 kg (76,32%), sementara 23,68% mengalami kenaikan lebih dari 5 kg. Analisis statistik menunjukkan adanya hubungan yang signifikan antara durasi penggunaan DMPA dengan peningkatan berat badan (p = 0,001).

Simpulan: Semakin lama penggunaan DMPA, semakin besar kemungkinan terjadi peningkatan berat badan. Oleh karena itu, edukasi mengenai efek samping dan pemantauan rutin berat badan penting dilakukan untuk menjaga kesehatan akseptor.

Saran: Petugas kesehatan perlu memberikan konseling yang komprehensif dan menyarankan strategi pencegahan kenaikan berat badan bagi pengguna DMPA. Penelitian lanjutan disarankan melibatkan jumlah responden yang lebih besar serta mempertimbangkan variabel gaya hidup.

Kata Kunci: DMPA, kontrasepsi suntik, peningkatan berat badan, lama penggunaan, kesehatan reproduksi.

ABSTRACT

Background: Depo Medroxyprogesterone Acetate (DMPA) injectable contraception is one of the most widely used family planning methods in Indonesia. Although effective and convenient, DMPA is frequently associated with weight gain, a side effect that may affect user compliance and satisfaction.

Objective: This study aims to examine the relationship between the duration of DMPA use and weight gain among contraceptive acceptors at PMB Undi Astuti in 2025.

Methods: A quantitative, cross-sectional research design was employed. A total of 76 DMPA users who experienced weight gain were selected purposively from 187 eligible records. Secondary data were obtained from medical files and analyzed using the Spearman rank correlation test with a 5% significance level.

Results: The majority of participants (76.32%) gained between 1 and 5 kilograms, while 23.68% experienced weight gain exceeding 5 kilograms. Statistical analysis revealed a significant relationship between the duration of DMPA use and the extent of weight gain (p = 0.001).

Conclusion: Prolonged use of DMPA increases the likelihood of weight gain. Therefore, it is essential to provide education on potential side effects and to implement regular weight monitoring to support the health of contraceptive users.

Suggestions: Healthcare providers should offer comprehensive counseling and recommend preventive strategies to manage weight gain in DMPA users. Future studies are encouraged to include larger samples and consider lifestyle-related variables.

Keywords: DMPA, injectable contraception, weight gain, duration of use, reproductive health.

INTRODUCTION

The increasing global concern regarding population growth and reproductive health has prompted many countries, including Indonesia, to implement various family planning initiatives. In this context, the use of modern contraceptive methods has become one of the key strategies for controlling fertility rates and improving maternal and child health outcomes. Among the various contraceptive options available, the 3-month injectable contraceptive, commonly known as Depo Medroxyprogesterone Acetate (DMPA), remains one of the most widely adopted methods, particularly due to its simplicity, cost-effectiveness, and high level of user compliance. According to the 2019 Indonesia Demographic and Health Survey (IDHS), approximately 63.27% of Indonesian couples of reproductive age were active users of family planning methods, with injectable contraceptives accounting for 63.7% of this group. In contrast, the utilization of long-term methods such as intrauterine devices (IUDs), implants, male sterilization (MOP), and female sterilization (MOW) remained relatively low, reflecting a continued preference for short-acting options. Similar patterns have been observed in regional data. For instance, in Central Java in 2021, injectable contraceptives represented 61.9% of all active family planning users, confirming their dominance among contraceptive methods.

The popularity of DMPA injections stems from several advantages: it does not require daily attention, does not interrupt sexual activity, and is considered safe for breastfeeding women. These attributes make it a convenient and attractive choice for many women, especially those with limited access to healthcare facilities. However, despite these benefits, DMPA use has been associated with a number of adverse effects that warrant careful consideration. Among the most commonly reported side effects are menstrual irregularities, mood changes, decreased libido, headaches, and, notably, weight gain. Weight gain is a frequently cited reason for dissatisfaction and discontinuation of DMPA usage. Empirical studies have found that a significant proportion of women experience weight gain during the course of DMPA administration. One study reported that up to 75% of DMPA users experienced an increase in body weight, with the average annual gain ranging between 2.3 to 2.9 kilograms. The physiological mechanisms underlying this change are multifactorial, involving hormonal alterations that stimulate appetite and modify metabolic processes. Additionally, psychological, behavioral, and genetic factors are also thought to contribute to weight fluctuations during DMPA use.

Importantly, the potential health implications of weight gain among DMPA users cannot be overlooked. Excessive or uncontrolled increases in body weight have been linked to various non-communicable diseases, including diabetes mellitus, cardiovascular disorders, and metabolic syndromes. Furthermore, such changes may adversely affect women's psychological well-being, reducing self-esteem and increasing body dissatisfaction. These issues highlight the critical role of healthcare providers, particularly midwives, in educating and counseling women about possible side effects and supporting them in selecting contraceptive methods that align with their individual needs and health profiles. Preliminary data obtained from PMB Undi Astuti, a midwifery clinic located in Banyumas Regency, indicated that out of 194 active DMPA acceptors recorded in 2024, 187 individuals had experienced weight gain. On average, the reported weight gain ranged from 3 to 4 kilograms. Additional side effects such as spotting, amenorrhea, dizziness, and elevated blood pressure were also noted among some users. This clinical observation underscores the need to investigate the relationship between the duration of DMPA use and subsequent weight gain more rigorously, particularly in localized healthcare settings where such effects are commonly encountered but underreported in academic literature. Given these considerations, this study aims to explore the correlation between the length of DMPA usage and the degree of weight gain among contraceptive acceptors at PMB Undi Astuti in the year 2025. By analyzing this relationship, the study seeks not only to enrich the current understanding of DMPA's side effects but also to provide practical insights for healthcare professionals in delivering tailored and effective contraceptive counseling.

RESEARCH METHODS

This research adopted a correlational analytic design to explore the relationship between the duration of Depo Medroxyprogesterone Acetate (DMPA) injectable contraceptive use and subsequent weight gain among users. Employing a quantitative cross-sectional approach, this study was carried out at a single point in time, allowing the collection of relevant data from multiple individuals simultaneously. This approach was chosen to identify and analyze the presence of a statistical relationship between two variables—duration of DMPA use as the independent variable, and weight

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gain as the dependent variable—within a defined population.

The setting of this study was PMB Undi Astuti, a midwifery practice located in Cindaga Village, Banyumas Regency, Central Java, Indonesia. Data collection was conducted between March and April 2025. The population targeted in this study consisted of 194 women who had used DMPA injectable contraception during the year 2024, as recorded in the clinic's medical registers. Among these, a total of 187 users were identified to have experienced an increase in body weight, making them eligible for further evaluation.

A sample size was determined based on a formula appropriate for finite populations, specifically when the population size is under 10,000 individuals. The formula used to calculate the minimum required sample size was derived from Notoatmodjo (2012). With a population size of 187 and a precision level of 0.092, the calculated minimum required sample size was 68.4. After rounding up and accounting for a 10% dropout rate, the final sample size selected for the study was 76 respondents.

To ensure the relevance and accuracy of the sample, a purposive sampling technique was employed. This non-probability sampling method was selected based on predefined inclusion and exclusion criteria, allowing the researchers to target specific individuals who met the characteristics necessary for the study. The inclusion criteria were: (1) women who had used DMPA injections consistently for at least one year during the 2024 period, and (2) individuals who experienced a measurable increase in body weight during that time. Meanwhile, respondents with a history of metabolic disorders, such as diabetes mellitus or hypothyroidism, which could independently affect weight gain, were excluded to minimize confounding effects.

Data were obtained from secondary sources, specifically the clinic's medical records, which included patient demographic details, duration of contraceptive use, and weight changes. These records were meticulously reviewed and extracted using a structured data coding sheet. All data were then processed through a series of systematic stages, including editing (to check for completeness and consistency), scoring (to categorize variable values), coding (to convert qualitative data into quantifiable formats), entry (input into statistical software), cleaning (error checking), and tabulation.

To operationalize the variables for statistical analysis, both the independent and dependent variables were clearly defined. The independent variable, duration of DMPA use, was categorized as "≤ 2 years" or "> 2 years." The dependent variable, weight gain, was also classified into two categories: "increase of 1–5 kg" and "increase of more than 5 kg." These operational definitions facilitated the transformation of continuous medical data into ordinal data, suitable for non-parametric statistical analysis.

The data analysis strategy involved both univariate and bivariate analysis. Univariate analysis aimed to provide descriptive statistics of the respondents' characteristics, such as age, parity, occupation, duration of DMPA use, and observed weight gain. Frequencies and percentages were used to summarize each variable. For bivariate analysis, the Spearman's rank-order correlation test was selected to assess the strength and direction of the relationship between duration of DMPA use and weight gain. This non-parametric test was appropriate due to the ordinal nature of the data and the absence of assumptions about normality.

Statistical significance was evaluated at a 95% confidence level ($\alpha = 0.05$). If the p-value obtained from the Spearman test was less than 0.05, the null hypothesis (which assumes no correlation) would be rejected, thereby supporting the alternative hypothesis that a significant relationship exists between the variables. The correlation coefficient (rho) was interpreted to understand the strength of the relationship, with values closer to +1 or -1 indicating stronger correlations.

This study also observed ethical standards as outlined in biomedical research ethics. Prior to data collection, permission was obtained from the Faculty of Health Sciences at Universitas Muhammadiyah Purwokerto and the management of PMB Undi Astuti. Although the research involved secondary data, all information was anonymized and handled with strict confidentiality. No identifiable personal data were disclosed, and all records were coded to ensure respondent privacy. Moreover, the research posed minimal to no risk to participants, as no direct contact or interventions were performed.

In summary, the methodological framework of this study was designed to ensure rigor, objectivity, and ethical integrity while exploring an important yet often overlooked aspect of reproductive health—namely, the physical implications of long-term hormonal contraceptive use among women in a localized healthcare context.

RESEARCH RESULT

Overview of the Research Setting

This research was conducted at PMB Undi Astuti, a midwifery practice located in Kebasen, Banyumas Regency, Central Java, during March–April 2025. The primary aim was to investigate the correlation between the duration of DMPA (Depo Medroxyprogesterone Acetate) injectable contraceptive use and weight gain among its users. The study sample consisted of 76 women who met the inclusion criteria, all of whom had used DMPA and experienced varying degrees of weight gain.

Data were obtained from secondary sources, specifically contraceptive registers and client medical cards. The data included information on age, parity, occupation, length of contraceptive use, and documented weight changes. The information was processed through coding and tabulation before being analyzed statistically.

Univariable Analysis

The univariable analysis was performed to illustrate the frequency distribution of both independent (duration of DMPA use) and dependent (weight gain) variables, as well as key demographic characteristics.

Table 1
Characteristics of DMPA Users at PMB Undi Astuti (N = 76)

Characteristic	Category	Frequency (n)	Percentage (%)
Age	≤ 35 years	52	68.42
	> 35 years	24	31.58
Parity	Primipara	20	26.32
	Multipara	56	73.68
Occupation	Employed	30	39.47
	Unemployed	46	60.53

The majority of respondents were under 35 years old and multiparous. This profile is typical of reproductive-age women who have completed childbearing and thus opt for long-term, low-maintenance contraceptive methods such as DMPA.

Table 2
Duration of DMPA Use

Duration	Frequency (n)	Percentage (%)
1–2 years	42	55.26
>2 years	34	44.74

More than half of the respondents had used DMPA for 1–2 years, which is sufficient to manifest long-term hormonal side effects.

Weight Gain Among Respondents

Weight Gain	Frequency (n)	Percentage (%)
1–5 kg	58	76.32
>5 kg	18	23.68

A significant proportion of women experienced moderate weight gain (1–5 kg), while nearly one-quarter of the participants gained more than 5 kg. These results are consistent with clinical findings that associate progestin-based injectables with weight increase.

Bivariable Analysis

To examine the correlation between duration of DMPA use and the extent of weight gain, a Spearman rank correlation test was employed. This non-parametric test is suitable for analyzing ordinal data and identifying monotonic relationships.

Table 3

Table 4
Bivariate Analysis: Duration of DMPA Use and Weight Gain

Duration	1–5 kg (n/%)	>5 kg (n/%)	Total (n/%)	r	p-value
1–2 years	38 (50.00%)	4 (5.26%)	42 (55.26%)	0.370	0.001
>2 years	20 (26.32%)	14 (18.42%)	34 (44.74%)		

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The correlation coefficient (rho) obtained from Spearman's analysis was 0.370, indicating a moderate positive correlation between duration of DMPA use and weight gain. The p-value of 0.001 confirms that this relationship is statistically significant ($p < 0.05$).

DISCUSSION

The results of this study demonstrate a notable association between extended DMPA use and the tendency to gain more body weight. These findings align with previous research suggesting that the synthetic progestin in DMPA interacts with the hypothalamus, stimulating appetite and slowing energy expenditure. Additionally, the hormonal changes can lead to increased lipid storage and water retention, both of which contribute to higher body weight over time.

Women who had used DMPA for more than two years were significantly more likely to experience weight gain exceeding 5 kilograms. This suggests a dose-duration effect, where prolonged exposure to medroxyprogesterone leads to cumulative metabolic changes. Supporting this interpretation, Hartanto (2015) and Saifuddin (2014) have both emphasized the hormonal impact of long-term contraceptive injections on appetite regulation and lipid metabolism.

The role of sociodemographic factors such as age and employment status may also be relevant. Women under 35 are more likely to be in their most active reproductive years, during which hormonal balance is especially susceptible to external manipulation. Unemployed respondents, who comprised 60.53% of the sample, may also have limited physical activity levels, which could exacerbate weight gain trends.

The implications of this study are significant for clinical practice. Given that weight gain is a common reason for discontinuation of DMPA, midwives and healthcare providers must offer clear information during contraceptive counseling sessions. They should also incorporate weight monitoring protocols and provide nutritional guidance to help users mitigate the risk of excessive weight gain.

The limitations of this study include its reliance on secondary data and the absence of lifestyle variables such as diet, exercise, and psychological stress, which could influence body weight. Moreover, because the study design is cross-sectional, it captures correlation rather than causality. Future longitudinal studies could offer more conclusive insights into the temporal relationship between hormonal contraceptive use and body weight fluctuations.

CONCLUSION

This study provides compelling evidence of a statistically significant relationship between the duration of Depo Medroxyprogesterone Acetate (DMPA) use and weight gain among contraceptive users at PMB Undi Astuti. The findings reveal that prolonged DMPA use, particularly beyond two years, is associated with a higher likelihood of substantial weight gain exceeding 5 kilograms. While the majority of users experienced a moderate increase in body weight, a notable proportion reported more significant gains, raising concerns about the long-term metabolic consequences of hormonal contraceptive use. The observed weight changes are likely the result of complex, interrelated mechanisms involving hormonal influences primarily progesterone on appetite regulation, lipid metabolism, and water retention. In addition to these physiological factors, sociodemographic characteristics such as parity, employment status, and lifestyle habits may also contribute to variations in individual responses. These findings underscore the need for health practitioners, especially midwives and primary care providers, to incorporate anticipatory guidance into contraceptive counseling. Women considering or currently using DMPA should be adequately informed of potential weight-related side effects and supported with regular monitoring and interventions such as nutritional counseling and physical activity promotion. Further longitudinal and multidisciplinary studies are encouraged to explore the broader health implications of long-term DMPA use and identify effective strategies for mitigating adverse outcomes.

SUGGESTION

The findings of this study hold practical significance for various stakeholders. For midwifery practices such as PMB Undi Astuti, the results may serve as a valuable resource in guiding midwives to deliver more comprehensive counseling to women who choose progestin-based injectable contraception. By communicating the potential side effect of weight gain in a clear and evidence-based manner, healthcare providers can support contraceptive users in making more informed and balanced decisions regarding their reproductive health. From a broader community perspective, these insights are equally relevant. It is essential that not only the acceptors themselves but also their families and community health volunteers (cadres) develop a deeper understanding of injectable

contraceptives and their possible side effects, particularly those related to changes in body weight. Users are encouraged to engage in regular weight monitoring as a preventive strategy against obesity. For those who have already experienced significant weight gain, it is advisable to adopt healthier behaviors such as increasing physical activity and following a calorie-controlled diet to manage and reduce excessive body weight. In addition, this research may contribute meaningfully to the academic literature and serve as a reference point for future investigations. Subsequent researchers are encouraged to build upon these findings by expanding the sample size and exploring additional variables that may influence weight gain among DMPA users. Such efforts could lead to a more nuanced and comprehensive understanding of the physiological and behavioral dimensions of hormonal contraceptive use.

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