



3-Month Injection Contraception And Obesity In Puskesmas Banding Agung

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ABSTRACT

The 3-month injectable contraception is a highly effective method of hormonal contraception that prevents pregnancy. However, some acceptors may experience side effects, such as weight gain. This research aims to determine the relationship between the duration of 3 months of injectable contraceptive use and the incidence of obesity at the Health Center of Banding Agung. The study used a correlational analytic method with a cross-sectional approach. The population consisted of all mothers who had used the 3-month injection contraception for three months, with a total of 1,250 acceptors. The sample size was 93 respondents, and measuring tools used were family planning visit books, medical records, scales, and height measuring devices (GEA brand). The study found that those who used the 3-month injection contraception for over two years had the same number of obese people, namely 74 respondents (79.6%). The Fisher's Exact test obtained a p-value of <0.001 ($\alpha = 0.05$), indicating a long-term relationship between 3-month injection contraception and obesity at the Banding Agung Inpatient Health Center. Understanding this link and providing proper services and education can help women make informed contraceptive decisions for their well-being.

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1. Introduction

3-month injectable contraception is an effective method of hormonal contraception in preventing pregnancy [1]. This method involves injecting low doses of the hormone progesterone into the body every three months, with the aim of inhibiting ovulation, thickening cervical mucus, and reducing the sperm's ability to reach the egg [1]. This method has become famous for women who want to space their pregnancies and limit the number of children [2].

Although the effectiveness of this contraceptive is excellent, some side effects are often experienced by acceptors, including weight gain [3], [4]. In general, weight gain is insignificant, varying from less than 1 to 5 kg in the first year [5], [6]. Several studies have shown that the use of 3-month injectable contraception can be associated with increased overweight in some women [3], [7]. The injected progesterone hormone can affect the body's hormonal balance and metabolism, which in turn can cause weight gain. The role of progesterone and estrogen in hormonal contraception, and the mechanisms that allow weight change to occur, are complex [3], [8].

Most of the Research on the mechanism of weight gain in contraceptive users has been carried out on 3-month injectable birth control users. A one-year follow-up study found increased leptin (an appetite-control hormone found at higher levels in obese women) in DMPA users compared to copper IUD users in those who gained more than 3 kg in weight, and this is associated with the length of use of this contraceptive [6], [9].

Among DMPA injection users, there are several explanations for weight gain, and the most common reasons described are high appetite related to increased leptin, increased serum lipids, fat mass deposition, anabolic effects, and fluid retention caused by differences in steroid and drug metabolism in the body [10]. Increased body weight over the years of contraceptive use is feared as one of the causes of the risk of obesity in 3-month injectable birth control acceptors [3]. The more extended use of injectable birth control for three months can cause excess weight gain [11].

Obesity is a complex and multifactorial disease characterized by excess body weight due to excessive body fat accumulation [12], [13]. Obesity is caused by an imbalance between the amount of energy received and the amount of energy expended so that the body weight becomes heavier than the ideal body weight due to the accumulation of fat in the body [13]. Overweight and obesity have been documented as significant risk factors for many non-communicable diseases (NCDs), including hypertension, dyslipidemia, type-2 diabetes mellitus, coronary heart disease, stroke, and certain cancers, many of which occur prematurely (between the ages of 30 and 69), and nearly three-quarters of global deaths from non-communicable diseases occur in low- and middle-income countries [13].

Based on data obtained from the Health Center of Bandung Agung, data obtained as many as 1,856 people were active family planning acceptors. One 1,592.ceptors for injection KB, 290 pills, 99 condoms, 18 IUDs, 207 implants, 6 IUDs, and 2 MOW [14]. The results of a preliminary study conducted on ten 3-month injectable family planning acceptors in the working area of the UPT Puskesmas Inpatient Agung Bandung, one of the reasons they chose progestin injection contraception was because of its affordable price and high effectiveness. Of the ten people surveyed, there were six acceptors (60%) who had gained 3 kg in 1 year of using this KB, there were two people (20%) who had gained 5 kg in weight in 2 years of use, and there were two people (20%) who experienced a weight gain of 8 kg during four years of using three months of injectable birth control.

Several similar studies have explained a relationship between the 3-month injection contraceptive use duration and weight gain in acceptors [15]–[17]. In contrast, this study aims to identify the relationship between the period of 3-month injection contraceptive use and the incidence of obesity in Health Centers of Bandung Agung. The main difference between this study and previous studies is the emphasis on the duration of 3-month injectable contraceptive use and its association with the risk of obesity that may develop in the long term. Most previous studies have tended to examine the impact of hormonal contraceptive use on body weight in the short term, whereas this study attempts to understand the implications of long duration of 3-month injectable contraceptive use which has not been revealed too much. As such, this study may provide valuable additional insights into the potential obesity risks associated with 3-month injectable contraceptives over a longer period of time.

The results of this study can make an important contribution to the development of theories about the role of hormones with the incidence of obesity in 3-month injectable birth control acceptors. The results of this study may also help in the development of more detailed clinical guidelines for the management of women using 3-month injectable contraceptives. This could include weight monitoring and alternative contraceptive options if the risk of obesity is identified.

2. Methods

This study uses a correlational analytic design approach cross-sectional. Data was collected at the Appeals Agung Inpatient Health Center, Ogan Komering Ulu Selatan District, South Sumatra Province. The population in this study were all 1,250 acceptors of 3-month injection family planning. The sample size was determined using the Slovin formula, and the sample selection was carried out by purposive sampling technique with inclusion criteria, namely mothers who had used 3-month injectable birth

control for at least one year, did not have chronic diseases, and were willing to be research respondents. The number of samples used was 93 respondents.

Data collection on the duration of the 3-month birth control injection was carried out using a family planning card owned by the mother and matched with medical record data at the Puskesmas. For obesity incidence, data was collected by measuring body mass index by measuring weight and height using a scale plus a height meter. The GEA brand has been routinely re-calibrated.

One of the techniques used in data analysis is analyzing data distribution. Bivariate analysis was performed on the variable length of use and the incidence of obesity using the Chi-Square test. However, the SPSS analysis results with the test Who squares show that there is one cell with an expected value of less than 5, so it is necessary to carry out a further correlation test with Fisher's Exact Test.

3. Results and Analysis

Data on the frequency distribution of 3-month injectable birth control use and the incidence of obesity

Table 1. Frequency distribution of 3-month injection contraceptive use and the incidence of obesity

Data	Frequency	Percentage (%)
Length of Use		
≤ 2 Years	19	20,4
> 2 Years	74	79,6
Obesity Incidence		
Not obese (BMI=18- 26.9)	19	20,4
Obesity (BMI= ≥ 27)	74	79,6

Table 1 shows that more than half of the respondents, namely 74 people (79.6%), have used 3-month injectable birth control for over two years. And half of the respondents, namely 74 people (79.6%), were obese (BMI = ≥ 27). Analysis of data on the use of 3-month injectable birth control and the incidence of obesity

Table 2. Analysis of the duration of 3-month injection contraceptive use and the incidence of obesity

Length of use	Obesity Incidence				Total	%	P value
	Not obese (BMI=18-26.9)		Obesity (IMT=≥ 27)				
	f	%	f	%			
≤ 2 years	10	52,6	9	47,4	19	100	< 0,001
>2 years	9	12,2	65	87,8	74	100	

In Table 2. Shows that more than half of the respondents, namely ten people (52.6%) who used KB injections ≤ 2 years, were not obese, while almost all respondents, namely 65 people (87.8%), had used KB injections three months > 2 years of obesity. Test results Fisher's Exact Test gets p-value = <0.001 < α (0.05), indicating that Ha is accepted and means that there is a relationship between the duration of 3 months of injection contraceptive use and the incidence of obesity at the Health Center of Bandung Agung.

Duration of Use of Injectable Contraception 3 Months

Based on the research results, it is known that more acceptors have used 3-month injection KB for more than two years. The results of this study are in line with Pramudita (2019), who in his Research showed that 56% of respondents had used injection birth control for >5 years [18]. Suciana's study (2018)

showed that the duration of DMPA contraception use was 3-18 months, and the period of service was > 18 months, namely 39 people (50%) each [15]. In Rahayu's Research (2017), it was shown that 74 respondents, the results of respondents experienced an increase in body weight after two years of using DMPA injection contraception, namely 43 respondents (58.1%) [19].

Several factors can affect the duration of using three-month injection birth control, three-month injection birth control is known as a very effective method of contraception if used correctly; user satisfaction with the effectiveness of injecting birth control can also affect the duration of use, the level of tolerance for side effects experienced, and plans for future pregnancies can also affect the period of using 3-month injectable birth control [18], [20].

Acceptors of 3-month injection KB at the UPT Puskesmas Banding Agung who have used this KB for more than two years said that the main reason for using this KB for a long time was because of the ease of getting this contraception, practically one injection every three months, and the price is relatively low—fairly high effectiveness.

Incidence of obesity in users of 3-month injectable contraception

Based on the research results, it is known that more acceptors have obesity BMI status. The most common side effect of using 3-month injection contraception is weight problems [11]. The results of this study are in line with Suciana's (2018) in her Research, which found that 20.5% of DMPA contraceptive acceptors with a duration of DMPA use of 3-18 months were obese, while 59% of acceptors using DMPA contraception >18 months were obese [15]. Similarly, Sims' study (2020) showed that of the 240 women included in the study, 3.3% had a thin BMI, 30.8% had a normal BMI, 23.3% were overweight, 15% were class I obese, 9, 6% class II obesity and 17.9% class III obesity; 87.9% [3].

Weight gain in acceptors is caused by the hormone progesterone, which stimulates the appetite control center in the hypothalamus, causing acceptors to eat more than usual [3]. Injecting birth control acceptors who experience weight gain admit that their appetite has increased [21]. At the same time, the fulfillment of nutrients that are not balanced with the use of energy for activities supports fat accumulation and weight gain [7].

The occurrence of obesity in injectable KB acceptors can allow for side effects from the 3-month injectable contraceptive content, which has an impact on increasing appetite, ultimately affecting weight gain. Besides that, it is also due to heredity and reduced physical activity, so an accumulation of fat can cause the acceptor to experience obesity.

Old Relationship of 3 Months Injectable Contraceptive Use with Obesity Incidence

This study's results found a significant relationship between the duration of DMPA use and the incidence of obesity. This finding aligns with several previous studies, which also showed a connection between progesterone contraception (such as DMPA) and increased body weight and risk of obesity.

This Research is in line with Suciana (2018), who found that the longer women use progesterone contraception with a duration of use of more than 18 months, the higher the percentage of women who are obese [15]. It has been suggested that using progesterone contraception for an extended period may be a factor in gaining body weight and developing obesity. This study's results support previous studies' findings, which state that the progestin hormone in DMPA can affect appetite and body metabolism, which in turn causes fat accumulation and increased body weight [10], [22].

Another study by Sims (2020) also found that women who started using DMPA earlier experienced significant weight gain over time, regardless of the initial body mass index value [3]. These findings suggest that the weight gain effect of DMPA may last with duration of use and may occur in women with different initial BMIs [3], [8]. In a similar study, Hadina (2019) suggested that DMPA contraception had a robust positive relationship with increased body weight, as measured by the rise in BMI [23]. These results indicate that the use of DMPA contraception has the potential to cause weight gain in women who use it [6], [24].

In addition, a literature study conducted by Shokoufeh (2019) also revealed that DMPA is associated with weight gain and an increase in body fat mass [25]. This effect is probably caused by changes in the progestin hormone in the body, which can affect metabolic processes and fat

accumulation [7], [22]. The results of this study add support to previous findings, which state that there is a relationship between progesterone contraception and weight gain.

The 3-month injection contraception has more effect on weight gain because progesterone stimulates the hypothalamus appetite control center which produces the hypothalamus appetite control center which can cause acceptors to eat more than usual, thus potentially experiencing weight gain [2], [3]. Weight gain is caused by the hormone progesterone making it easier to convert carbohydrates and sugar into fat so that the fat under the skin increases; besides that, the hormone progesterone also causes an increase in appetite and reduces physical activity. As a result, using injections can cause weight gain [2], [10], [24].

Although this study and several supporting studies have indicated that there is a relationship between the duration of 3-month injection contraceptive use and the incidence of obesity, it should be remembered that this relationship is not always consistent and can be influenced by other factors such as lifestyle, diet, and genetic factor. However, these findings provide essential information for awareness and monitoring of 3-month injectable contraceptive acceptors. Health professionals in the UPT Work Area of the Bandung Agung Inpatient Health Center and other places must provide comprehensive information to women regarding side effects and the potential for weight gain due to 3-month injectable contraception. In addition, acceptors also need to discuss their health conditions and personal needs with health professionals to choose the most suitable contraceptive method for them.

4. Conclusion

The results showed a relationship between the duration of 3 months of injectable contraception use and the incidence of obesity in women of childbearing age in the Working Area of the UPT Inpatient Health Center of Bandung Agung. The longer the use of injectable contraception for three months, the higher the risk of obesity experienced by acceptors. This study supports previous findings that 3-month injectable contraceptives containing the hormone progestin can cause weight gain in some women.

This study's results support the theory that using 3-month injectable contraception with the hormone progestin can affect the body's metabolism and appetite. The progestin hormone in contraception can trigger changes in the appetite control center in the hypothalamus, which causes acceptors to tend to eat more and be at risk of experiencing weight gain. These implications are consistent with previous findings regarding the adverse effects of hormonal contraceptives on body weight.

The results of this study have important implications for midwifery and reproductive health services. Health professionals, especially midwives and health workers who provide contraceptive services, must provide comprehensive and accurate information about the side effects of using the 3-month injectable contraceptive, including the potential for weight gain.

The limitation of this study is that it only focused on one study site which may not reflect the variation of the population at large. In addition, this study used an observational approach, making it difficult to establish a definitive cause-and-effect relationship. Suggestions for future researchers include expanding the scope of the study to include various locations and a larger population, as well as conducting experimental studies to more deeply examine the causal relationship between 3-month injectable contraceptives and obesity risk. In addition, future research could consider other factors that may influence this relationship, such as genetics, diet and lifestyle.

In addition, contraceptive acceptors must be actively involved in discussions with health professionals regarding the contraceptive options that best suit their needs and conditions. 3-month injection contraception can be an effective option for preventing pregnancy. Still, it needs to be balanced with understanding the risks of side effects, including the potential for weight gain.

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