

The Relationship Between the Use of Injectable Contraceptives and Changes in Body Weight

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Submission date: 26-07-2024; Date of received: 29-07-2024

Abstract

Background: Injectable contraception is a contraceptive method made into a liquid and injected into the body. Some contain estrogen and progesterone once a month, but some only contain progesterone every three months. The most frequent side effect of contraception is weight gain. Depo Medroxy Progesterone Acetate (DMPA) stimulates the appetite control center in the hypothalamus, which causes acceptors to overeat. Excessive weight gain causes a number of diseases, such as obesity, hypertension, diabetes, and heart disease. **Objective.** **Purpose :** this study aims to analyze the relationship between the provision of injectable contraception and weight changes in PMB "X" Cilincing District, North Jakarta. **Method :** this type of research is quantitative with a cross-sectional design. The population is all KB acceptors at PMB NY "X" Cilincing District, North Jakarta, in 2022, totaling 110 respondents, and the sample is total sampling. Data processing with SPSS using the chi-square test. **Results :** The highest age is 20-35 years old, 78 (70.9%) people; most respondents have a college education, 49 (44.5%) people; more than half of respondents are homemakers, 61 (55.5%) people; the highest parity is one person, 63 (57.3%) people, and the longest time as a KB acceptor, the most respondents are more than one year, 65 (59.1%) people. In this study, it was also reported that respondents who experienced weight gain were 89 (90.9%) people, and 87 (79.1%) used a 3-month injection KB. The results of the statistical test obtained a value of $p = 0.000$ ($p < 0.05$), which indicates a relationship between injection contraception and weight changes. **Conclusion :** There is a relationship between injection contraception and weight changes with a value of $p = 0.000$ ($p < 0.05$).

Keywords: injectable contraception, one-month injectable contraception, three-month injectable

Introduction

Contraception is a method used to prevent the meeting between mature egg cells (female cells) and sperm cells (male cells), which results in pregnancy. In using contraception, families generally have a plan or goal that they want to achieve. These goals are classified into three categories, namely delaying or preventing pregnancy, spacing pregnancies, and stopping or ending pregnancy or fertility which is included in family planning (KB) (1).

Depo Medroxy Progesterone Acetate (DMPA) injectable contraception is generally more widely chosen because it is easy to obtain and cheaper than others. In addition, injectable contraception is suitable for breastfeeding mothers. DMPA contraception will be much more effective if done regularly and according to a predetermined schedule namely it can be done every three months (2).

This type of hormonal contraceptive injection is increasingly used in Indonesia because it works effectively, and almost 63% of KB acceptors use hormonal contraception because it is practical to use, relatively cheap, and safe. Injectable contraception has the risk of side effects that are often experienced, such as menstrual disorders and weight changes; long-term use can reduce libido and bone density, but people tend to choose short-term contraception methods compared to long-term, injectable contraception is one of the short-term contraception methods that is widely used (3).

Based on the 2018 Indonesian Health Profile, the achievement of KB participants throughout Indonesia, most of the Active KB participants chose injections and pills as contraceptives, even very dominant (more than 80%) compared to other methods where injections (63.71%) and pills (17.24%). As for other types of contraceptives, IUDs were 7.4%, MOP 2.7%, MOP 0.5%, implants 7.4%, and condoms 1.2%. The highest achievement was in Bengkulu Province at 71.4%, while the lowest achievement was in Papua Province at 29.1%, while DKI Jakarta Province was 56.9% (4).

According to Fenniokha et al (2022), 61.4% of Indonesians who use contraception choose injectable contraception. There are two types of contraception options, namely 1-month Noristerat injectable contraception given 200 mg, 3-month Depo provera injectable contraception 150 mg, and Depo progestin 150 mg given once every three months. Based on the type of injectable contraception, the effect of DMPA

contraception causes weight gain because DMPA stimulates the appetite control center in the hypothalamus, which causes acceptors to eat more than usual (5).

Weight gain is mostly caused by the hormone progesterone, which facilitates the conversion of carbohydrates and sugars into fat, increasing fat under the skin. In addition, the hormone progesterone also increases appetite and decreases physical activity (6).

The most frequent side effect of contraception is weight gain. The cause of weight gain is the hypothesis of experts stating that Depo Medroxyprogesterone Acetate (DMPA) stimulates the appetite control center in the hypothalamus, which causes acceptors to overeat. The occurrence of weight gain in acceptors of injectable contraception requires further research on how injectable contraception affects weight gain (7).

With a greater appetite than usual, the body will have excess nutrients from the hormone progesterone converted into fat and stored under the skin. This change in weight is due to the accumulation of excess fat resulting from the synthesis of carbohydrates into fat (8).

This study aims to determine the relationship between weight gain and the use of injectable contraception in acceptors of contraception, both 1-month and 3-month injectable contraception.

Method

This type of research uses quantitative with a cross-sectional approach. The population in this study were injectable contraceptive acceptors at PMB "X" Cilincing District, North Jakarta, in 2022. The number of samples in this study was 110 people, sampling using the total sampling technique. The inclusion criteria were 1-month and 3-month injectable contraceptive acceptors who routinely became contraceptive acceptors at PMB NY "X" Cilincing District, North Jakarta, mothers who had complete data and were recorded in the data report at PMB "X" Cilincing District, North Jakarta for the 2023 period. The exclusion criteria for injectable contraceptives included injectable contraceptive acceptors who dropped out and 2-month injectable contraceptive acceptors. The data collection tool used a questionnaire consisting of identity (name of contraceptive acceptor, age of contraceptive acceptor, husband's name, education, occupation, and number of parties), type of injectable contraceptive used, and data on

the acceptor's weight before and after using contraceptives. Data processing used SPSS with the chi-square test. This research has passed the ethics of the Faculty of Medicine and Health, Muhammadiyah University, Jakarta No. 72/PE/KE/FKK-1 UMJ/V/2023.

Results

Based on the research results, the distribution of mothers using KB according to weight gain, duration of use, age, education, occupation, and number of parties of mothers using KB at PMB NY “X” Cilincing District, North Jakarta.

Table 1
Respondent Characteristics

Variable	Frekuensi (n=110)	Persentase
Age		
< 20	5	4.5
20-35	78	70.9
>35	27	24.5
Education		
Junior High School-Secondary	20	18.2
High School		
Senior High School	41	37.3
Collage	49	44.5
Occupation		
Housewife	61	55.5
PNS	5	4.5
Private	26	23.6
Self-employed	18	16.4
Parity		
1 child	63	57.3
> 1 child	47	42.7
Duration of birth control		
< 1 year	89	90.9
1-2 years	13	11.8
Weight changes		
Increase	89	90.9
Constant	13	11.8
Decrease	8	7.3
Type of birth control Injection		
1 month	23	20.9
3 months	87	79.1
Decrease	23	20.9

The highest age was 20-35 years old, 78 (70.9%) people; most respondents had a college education, 49 (44.5%) people; more than half of the respondents were housewives, 61 (55.5%) people; the highest parity was one person, 63 (57.3%) people, and the longest time as a KB acceptor for the most respondents was more than one year, 65 (59.1%) people. This study also reported that respondents who experienced weight gain were 89 (90.9%) people and 87 (79.1%) used 3-month injection KB (table 1)

Table 1

The Relationship between Injectable Contraceptives and Weight Changes

Injectable Contraceptives	Weight Change						p-value
	Increase		Constant		Decrease		
	N	%	N	%	N	%	
KB 1 Bulan	7	18,6%	11	2,7%	5	1,7%	0,000
KB 3 Bulan	82	70,4%	2	10,3%	3	6,3%	

The results of Table 2 above show that seven people experienced an increase in 1-month injectable contraception, 11 people experienced a constant weight, and five people experienced a decrease in weight. Meanwhile, 82 people experienced an increase in 3-month injectable contraception, two people experienced a steady weight, and three people experienced a reduction in weight. The p-value = 0.000 ($p < 0.05$) indicates a relationship between injectable contraception and changes in body weight.

Discussion

The characteristics of the respondents who accept injectable contraception are mostly 20-35 years old (table 1). This age range is a healthy reproductive age and is included in the period of spacing pregnancies. This finding is in line with previous studies that at this age, contraceptive acceptors are in the phase of spacing pregnancies (Mayla, Kholisotin, and Agustin, 2019); in addition, similar findings were also obtained that the choice of injectable contraception is related to age (Wahyuni and Rosaria, 2019).

Currently, health workers often convey information about contraception so that respondents quickly obtain this information. The level of education of respondents in this study mainly was college, where with higher education, acceptors understand more about contraceptive information, starting from the purpose of using contraceptives, advantages, disadvantages, and effects (Mayla, Kholisotin, and Agustin, 2019). Other findings state that education is related to the choice of injectable contraception (Septianingrum, Wardani, and Kartini, 2018; Wahyuni and Rosaria, 2019).

A person's income will influence the choice of contraception. DMPA contraception is included in cheap contraception. The reason for the cost of contraception is a factor related to the choice of contraceptive method (Septalia and Puspitasari, 2017). Most respondents are housewives, so they tend to look for cheap and affordable contraception (Moloku, 2016; Puspasari et al., 2022).

Parity factor will influence someone in choosing contraception, the number of children also plays a role in choosing contraception (Puspasari et al., 2022) More than 50% of respondents are first parity, this is because most of the KB acceptors at this research location are parity one.

The duration of contraception use for most respondents is 1-2 years and statistically has a correlation with weight gain (table 2). The duration of use of 3-month injection contraception greatly affects changes in body weight; However, Irianto's theory (2014) states that 3-month injection contraception is more towards weight gain. Still, the effectiveness of the 3-month injection contraception method depends on the user, which causes 3-month injection contraception not to cause weight gain completely. Women who use 3-month injectable contraceptives (Depo Medroxy Progesterone Acetate (DMPA)), on average, experience a weight gain of 5.5 kg and an increase in body fat of 3.4% within three years of using 3-month injectable contraceptives (Zubaidah, 2021). Weight gain is the most common complaint among injectable contraceptive acceptors (Purba, 2023). Duration of use is associated with weight gain. Weight was significantly ($P < 0.05$) positively correlated with femoral neck BMD and spine BMD at each time point regardless of contraceptive method. Weight changes at 12 and 24 months were highly correlated with changes in femoral neck BMD ($P < 0.0001$) for all treatment groups. No association between weight change and spine BMD changes was seen in DMPA, OC, or control subjects at 12 or 24 months (Bonny, Secic, and B. A. Cromer, 2011). Another report stated that weight gain of more than 5% after six months of DMPA use is at risk of continued excessive weight gain. (Bonny, Secic and B. Cromer, 2011)

Hormonal contraception generally uses estrogen and progesterone hormones in its therapy. The use of estrogen and progesterone hormones will increase the amount of progesterone and estrogen hormones in the body with its androgenic effects. The progesterone hormone functions to influence appetite; excess progesterone hormone will stimulate the appetite control center in the hypothalamus, which causes acceptors to eat more than usual so that appetite will increase and result in eating more, which ultimately causes weight gain (Kunang, 2020). The presence of solid progesterone hormone, which stimulates the lateral hypothalamus, influences changes in the weight of injectable contraceptive acceptors. With a greater appetite than usual, the body will

have excess nutrients. Excess nutrients from the progesterone hormone are converted into fat and stored under the skin, and this weight change is due to the accumulation of excess fat resulting from synthesizing carbohydrates into fat (Nursamsiyah and Rohmah, 2021). According to Kurniasari et al (2020), it was revealed that 3-month injectable contraception has a greater effect on weight gain because DMPA stimulates the appetite control center in the hypothalamus, which can cause acceptors to eat more than usual, thus potentially experiencing weight gain. Weight gain is caused by the hormone progesterone facilitating the conversion of carbohydrates and sugar into fat so that fat under the skin increases; in addition, the hormone progesterone also causes increased appetite and decreases physical activity. As a result, the use of injections can cause weight gain (Kurniasari, Susilawati, and Fenniokha, 2020)

Limitation

This study did not measure eating patterns before and after using contraceptive injections

Conclusion

Respondents experienced the most weight gain from the three-month contraceptive injection, and statistically, there is a relationship between contraceptive injection and weight gain.

Ethical Considerations

The study was approved by the ethics committee of of the Faculty of Medicine and Health, Muhammadiyah University, Jakarta No. 72/PE/KE/FKK-1 UMJ/V/2023, approved 23 May 2023

Acknowledgment

We thank PMB “X” research team for their kind cooperation.

Conflict of Interest

The authors declare no conflict of interest.

Author contribution

We encourage authors to provide statements outlining their individual contributions or roles to the manuscript.

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