

Research Article

Comparison of Weight Gain in Injectable Contraceptive 1-Month And 3-Month Acceptors at The Independent Midwife Practice Tambaksari Surabaya

Khoiriya Ardiani¹, Eko Nursucahyo², Tjatur Prijambodo³, Muhammad Anas⁴

^{1,2,3,4} Medical Faculty of University Muhammadiyah of Surabaya, Indonesia

Abstract

Introduction: Injectable contraception is the most widely used type of contraception by Indonesian mothers because of its effective way of working, practical use, and lower price. However, in the use of injectable contraception, there are side effects, one of which is weight gain. **Objective:** To find out the differences in weight gain for 1-month and 3-months of injecting contraceptive acceptors. **Method:** This was an analytical observational study with a cross-sectional design. This research was conducted at the Independent Practice Midwife of Sri Retnaningtyas, Tambaksari District, Surabaya. The total sample is 110 respondents with a consecutive sampling technique. Data collection using medical records and statistical tests using independent sample t-test. **Results:** Analyzing the weight gain in the contraceptive injection acceptor that is the average injection of 1-month experienced of 2.16 kilograms and injections of 3-months experienced of 2.95 kilograms. The results of the independent t-test with a significance value of 0.039 ($p < 0.05$). **Conclusion:** There was a significant difference in weight gain between 1-month and 3-months injective contraception acceptors, with the highest increase occurred in 3-months, injective contraceptive acceptors.

Keywords: weight, gain, hormonal, contraception, injection, 1-month, 3-months.

Correspondence: riyaardiani@gmail.com

Introduction

The high rate of population growth is now also a big problem in Indonesia. One of the strategic decisions taken by the Indonesian government to reduce the rate of population growth is the National Family Planning program which aims to ban pregnancy using contraceptive methods for pregnancy prevention and family planning^{1,2}. There are currently many methods or contraceptives available including IUD, Injections, Pills, Implants, Contraception, Body condoms³.

Based on 2014 BKKBN data in Indonesia the percentage of injectable contraception usage was 52.62%, Pill 26.63%, Condom 5.50%, IUD 6.92%, Implant 6.96%, MOW 1.28%, and MOP 0.09%⁴. Injecting contraceptives is often chosen by mothers in Indonesia because of the effective way they work and how to use them, besides that the prices are also cheaper³. Report data on the achievement of new acceptors in East Java in 2014 were Injections 58.87%, Pills 21.93%, Condoms 3.10%, IUD 8.02%, Implants 6.38%, MOW 1.64%, and MOP 0.06%⁴. This shows that if contraceptive injectors are much sought after by

acceptors. One side effect that is often complained of the use of injectable contraception is weight gain⁵.

A study conducted by Susila & Oktaviani (2015) entitled "The Relationship of Injecting contraception with the Increase in Acceptor Weight (Study in BPS Dwenti KR, Sumberejo Village, Lamongan Regency)" showed that 26 out of 28 acceptors of injecting birth control (92.9%) experienced an increase in body weight and a small portion did not experience weight gain of 2 acceptors out of 28 injecting contraceptive acceptors (7.1%). This shows the relationship of injectable contraception with the acceptor's bodyweight. Other factors that can affect weight gain such as age, mental health, heredity, food, and the environment.

To support further research and strengthen previous research researchers want to find out the extent to which the comparison of weight gain in 1-month and 3-months injectable contraception acceptors, and whether 1-month and 3-months injectable contraceptive acceptors can cause weight gain so far can be justified or not, the researcher is very interested in finding the answer by scientific proofing through a research that directly uses data and then is compared and focused to find out the extent of weight gain comparison between 1-month and 3-months injectable contraception acceptors within a certain period.

Methods

This type of research is observational analytic with cross-sectional design because this study observes weight gain simultaneously in individuals of a population at a time. The population in this study were all women who used 1-month and 3-months contraceptive injections in the January-September 2019 period in the Independent Practice Midwife of Sri Retnaningtyas, Tambaksari District, Surabaya. The inclusion criteria included patients who used 1-month and who used 3-months injection birth control, patients who used routine birth control in the period (January-September 2019), aged 20-35 years, did not use other types of birth control. The sampling technique in this study was consecutive sampling.

The independent variables in this study were the category of contraceptive contraception (1-month and 3-months contraceptive injection) and the dependent variable is weight gain. Data analysis using univariate and bivariate analysis. The univariate analysis assesses the distribution or normality of data from each variable, both the independent variable and the dependent variable. This data analysis technique uses a simple statistical calculation that is presentation or proportion. Bivariate analysis, to test the average difference. In this study using the t-test that is an independent sample t-test. The number of samples is calculated using the cross-sectional formula, the results are:

$$= \frac{n [(Z_{1-\alpha/2}\sqrt{2\bar{P}(1-\bar{P})} + Z_{1-\beta}\sqrt{P_1(1-P_1) + P_2(1-P_2)})]^2}{(P_1 - P_2)^2}$$

$Z \frac{1}{2} \alpha$: 1,64 at the level of trust 90%

$Z \beta$: 0,84 at the level of strength 80%

P_1 : Estimated outcome probability in the population 1 = 55,4% (Sri Retnaningtyas, 2019, not publish)

P_2 : Estimated outcome probability in the population 2 = 31,8% (Sri Retnaningtyas, 2019, not publish)

\bar{P} : $(P_1 + P_2)/2 = 0,436$; n : 53

The number of samples needed for each group is a minimum of 53

Result and Discussion

The data in this study are secondary data from the medical record of the Independent Practice Midwife of Sri Retnaningtyas during the period January to September 2019. The number of samples used in this study was 110 respondents divided into 2 groups, namely 1-month and 3-months injectable contraception every 55 respondents. The characteristics of 1-month and 3-months injectable contraceptive acceptors can be determined based on age and initial and final body weight. Descriptive the characteristics of 1-month and 3-months injectable contraceptive acceptors can be seen in the following table 1:

Table 1 Characteristic 1-month and 3-months Injectable Contraceptive Acceptor

Characteristic	Means \pm SD	Minimum	Maximum
Injectable Contraception 1-month Acceptor			
Age (years)	31,1 \pm 3,29	22	35
First BW (kg)	58,9 \pm 8,48	44,00	79,00
Final BW (kg)	61,1 \pm 8,32	45,80	80,80
Injectable Contraception 3-months Acceptor			
Age (years)	30,8 \pm 4,00	21	35
First BW (kg)	57,4 \pm 8,96	40	75,60
Final BW (kg)	60,4 \pm 9,17	43,70	79,00

BW: bodyweight

It describes that the average age of 1-month injectable contraceptive acceptors is 31,1 \pm 3,29 years. Besides that, the youngest respondent has the age of 22 years and the oldest has the age of 35 years. The initial body weight of 1-month injectable contraception acceptors has an average of 58,9 \pm 8,48 kilograms. While the final bodyweight of 1-month injectable contraceptive acceptors has an average of 61,1 \pm 8,32 kilograms. This shows that

there is an increase in the average body weight of 1-month injectable contraceptive acceptors in the period January to September 2019 at table 1 upside.

At table 1 bottom side, It can be seen that the average age of 3-months injectable contraceptive acceptors is 30,8 \pm 4,00 years. The youngest respondent has 21 years old and the oldest was 35 years old. The first bodyweight of 3-months

injectable contraceptive acceptors has an average of $57,4 \pm 8,96$ kilograms, and the final body weight of 3-months injectable contraceptive acceptors has an average of $60,4 \pm 9,17$ kilograms. This shows that there is an increase in the average body weight of 3-months injectable contraceptive acceptors in that period. According to table 1, it is known that both injectable contraceptives, 1-month, and 3-months have the same effect to increase bodyweight.

The Weight Gain of 1-month and 3-months Injectable Contraceptive Acceptor

Before conducting a bivariate analysis, a normality test for distribution is performed on each data to determine the appropriate analysis method. The normality test is carried out with the Shapiro Wilk test with the following results as listed in table 2:

Table 2 Normality Test of Bodyweight of 1-month and 3-months Injectable Contraceptive Acceptor

Bodyweight	Shapiro Wilk	<i>p</i>	Distribution
Injectable Contraception 1-month Acceptor			
First	0,963	0,086	Normal
Final	0,974	0,270	Normal
Injectable Contraception 3-months Acceptor			
First	0,982	0,590	Normal
Final	0,978	0,397	Normal

The result of the Shapiro Wilk test can be seen in table 2 that the significant value in both data for 1-month injectable contraceptive acceptors is 0.086 ($p > 0.05$) for the first bodyweight and 0,270 ($p > 0.05$) for final bodyweight. This shows that both data regarding initial body weight and final bodyweight for injectable contraceptive acceptors for 1-month were normally distributed.

At the below position of table 2, it is known that the significant value for 3-months injectable contraceptive acceptors in both data is 0,982 ($p > 0.05$) for first bodyweight and 0,978 ($p > 0.05$) for final bodyweight. This shows that both the data regarding the first and final body weight of respondents with a 3-months injectable contraceptive acceptor were normally distributed.

So that the bivariate analysis regarding weight gain for injectable contraceptive acceptor 1-month and 3-months were analyzed by paired t-test.

Based on table 3, it can be seen that the average first bodyweight of 1-month injectable contraceptive acceptors is $58,94 \pm 8,48$ kilogram and final body weight of $61,10 \pm 8,32$ kilogram so that the average weight gain that occurs in 1-month injectable contraceptive acceptors is 2.16 kilogram. The results of the analysis by paired t-test obtained a significance value of 0,000 ($p < 0.05$). This shows a significant increase in first to final bodyweight for 1-month injectable contraceptive acceptors.

The result is on that table 3, also can be seen that the average first bodyweight of 3-months injectable

contraceptive acceptors is $57,43 \pm 8,96$ kilogram and final body weight of $60,38 \pm 9,17$ kilogram so that the average weight gain that occurs in 3-months injectable contraceptive acceptors is 2.95 kilogram The results of the analysis by paired t-test

obtained a significance value of 0,000 ($p < 0.05$). This shows a significant increase in first to final bodyweight for 3-months injectable contraceptive acceptors.

Table 3 A paired t-test of Bodyweight of 1-month and 3-months Injectable Contraceptive Acceptor

Bodyweight	Means \pm SD	<i>t</i>	<i>p</i>
Injectable Contraception 1-month Acceptor			
First	$58,94 \pm 8,48$	-7,940	0,000
Final	$61,10 \pm 8,32$		
Injectable Contraception 3-months Acceptor			
First	$57,43 \pm 8,96$	-11,261	0,000
Final	$60,38 \pm 9,17$		

Comparison of The Weight Gain of Injectable Contraceptive Acceptor 1-month to 3-months

Table 4 Independent t-test of Weight Gain of 1-month to 3-months Acceptor

Weight Gain	Means \pm SD	<i>t</i>	<i>p</i>
1-month Acceptor	$2,16 \pm 2,02$	-2,090	0,039
3-months Acceptor	$2,95 \pm 1,94$		

At table 4 above, it points out that the average weight gain of a 1-month injectable contraceptive acceptor is 2.16 kilogram with a standard deviation of 2.02 kilogram. While the average weight gain of the 3-months injectable contraceptive acceptor was 2.95 kilograms with a standard deviation of 1.94 kilograms. So that the increase in injectable contraceptive acceptor bodyweight 3-months was higher than the increase in 1-month injectable contraceptive acceptor bodyweight. This was also shown by the results of the independent t-test with a significance value of 0.039 ($p < 0.05$) which showed a significant difference in weight gain between 1-month and 3-months injectable contraceptive acceptors.

This is consistent with the theory that is said by Saifuddin (2003)⁷ where the composition of each injectable contraception shows that the content of the hormone progesterone in 1-month injectable contraception is only 25 mg depo medroxyprogesterone acetate while the content of the hormone progestin in 3-months contraceptive injecting is 150 mg Depo Medroxyprogesterone Acetate⁸.

Mansjoer in 2003 in Wahyuningsih and Putri (2015) also suggested that a factor influencing the change in body weight for injectable contraceptive acceptors was the presence of a strong progesterone hormone that stimulated the appetite

hormone in the hypothalamus. With the appetite more than usual, the body will excess nutrients. Excess nutrients by the hormone progesterone are converted to fat and stored under the skin. This change in body weight is due to the accumulation of excess fat resulting from synthesis from carbohydrates to fat⁸.

The results of this study are in line with the results of a study conducted by Wahyuningsih (2015)⁸ regarding a comparative study of weight gain at 1-month and 3-months injectable contraceptive acceptors at the Griya Husada Karanganyar Clinic. In this study, it was found that the results of the analysis of the Mann Whitney test showed that the significance value was 0,000 ($p < 0,05$), which indicates that H_0 was rejected and H_a was accepted, which means there was a difference in weight gain for injectable contraceptive acceptors 1-month and 3-months. Where this is in accordance with the theory that the use of both injectable contraceptive monthly and 3-months have major side effects, namely changes in body weight⁸.

A study reported weight gain in 3-months injectable birth control acceptors of more than 2.3 kilograms in the first year and subsequently increased gradually to reach 7.5 kilograms for six years. While the use of a 1-month injectable contraceptive, bodyweight increased by an average of 2 to 3 kilograms in the first year of use and continued to increase during the second year⁹.

Weight gain also depends on hormonal conditions, age, psychology, psychological, heredity, food, and

physical environment of each individual. In this study, researchers did not examine further about other factors of weight gain⁹. This is because in this study more focused on weight gain due to the side effects of hormonal birth control use, namely the injectable contraceptive of 1-month and 3-months.

Conclusion

The conclusions obtained in this study are as follows: first, there is a significant increase in initial bodyweight and final bodyweight for 1-month and 3-months contraception acceptors; and the en 1-month and 3-months injectable contraception acceptors, with the highest increase occurring at 3-months injectable contraception acceptors.

Acknowledgment

Thank you to Midwife Sri Retnaningtyas, Tambaksari District Surabaya for providing the opportunity to conduct research in her private practice

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