ISSN 2354-7642 (Print), ISSN 2503-1856 (Online)
Jurnal Ners dan Kebidanan Indonesia
Indonesian Journal of Nursing and Midwifery
Tersedia *online* pada:
http://ejournal.almaata.ac.id/index.php/JNKI

JURNAL NERS DAN KEBIDANAN INDONESIA
INDONESIAN JOURNAL OF NURSING AND MIDWIFERY

The effect of 3 months contraceptive injection on the body mass index of women of reproductive age in the Midwifery Independent Practice of Central Jakarta

Hamidah Hamidah[1], Dina Sulviana Damayanti[1*]

[1]Department of Midwifery, Faculty of Medicine and Health University of Muhammadiyah Jakarta
Jalan Cempaka Putih Tengah I No.1 Cempaka Putih, Jakarta Pusat, DKI Jakarta
**Corresponding author* : dinasulviana@umj.ac.id

ABSTRAK

***Latar Belakang**: Peningkatan obesitas yang terjadi terkait dengan gaya hidup setiap individu seiring dengan kondisi pandemi saat ini yang membawa beberapa konsekuensi yang disebabkan oleh perubahan dari perilaku aktif menjadi perilaku santai atau sedentary. Karena efek samping kenaikan berat badan selama penggunaan kontrasepsi dan rutinitas pandemi yang mengubah aktivitas, Wanita usia subur menjadi gemuk secara berlebihan bahkan menyebabkan obesitas. Penambahan hormon estrogen dalam tubuh, peningkatan lemak dalam tubuh selain karena ketidaksesuaian antara asupan kalori dengan aktivitas sehari-hari, penimbunan lemak pada akseptor KB juga dapat disebabkan oleh efek metabolisme hormon akibat peningkatan kadar hormon. hormon estrogen dan progesteron dalam darah. Pengaruh penggunaan kontrasepsi hormonal secara tidak terduga berdampak pada kesehatan wanita usia subur, maka penting untuk mengkaji lebih kritis bagaimana pengaruh penggunaan hormonal terhadap kejadian obesitas pada wanita usia reproduksi.*
***Tujuan**: Variabel bebas dalam penelitian ini adalah kontrasepsi hormonal (DMPA) dan variabel terikatnya adalah obesitas, umur, dan lama penggunaan kontrasepsi hormonal (DMPA). Data yang terkumpul akan diuji normalitasnya terlebih dahulu untuk mengetahui apakah data tersebut berdistribusi normal atau tidak, selanjutnya akan dianalisis dengan menggunakan regresi linier sederhana. Penelitian ini diharapkan dapat memberikan referensi untuk menekan obesitas pada wanita usia reproduksi sehingga kualitas hidup dan sistem reproduksi dapat terjaga dan dapat melahirkan keturunan yang sehat.*
***Metode**: Penelitian ini dilakukan dengan metode kuantitatif dengan analisis chi-square untuk mengetahui kejadian obesitas dengan jumlah sampel 385 akseptor alat kontrasepsi di Praktek Mandiri Kebidanan Jakarta Pusat.*
***Hasil** : Hasil yang diperoleh menunjukkan bahwa tidak ada pengaruh penggunaan kontrasepsi suntik 3 bulan dengan kejadian obesitas (p-value = 0,174), dan tidak ada hubungan antara lama penggunaan kontrasepsi suntik 3 bulan dengan kejadian obesitas. (nilai p = 0,467). Namun didapatkan hasil yang signifikan antara usia dan kejadian obesitas pada akseptor kontrasepsi suntik 3 bulan (p-value = 0,013) dengan nilai = 0,05.*
***Kesimpulan**: Wanita usia subur yang menggunakan kontrasepsi suntik 3 bulan diharapkan dapat mempertahankan kualitas hidupnya dengan mencegah kenaikan berat badan yang berlebihan dengan melakukan aktivitas fisik yang dapat membakar kalori walaupun hanya dapat dilakukan di rumah atau lingkungan sekitar rumah. dan melakukan aktivitas produktif di masa pandemi COVID-19 saat ini.*

KATA KUNCI *: kontrasepsi suntik 3 bulan; kegemukan; pandemi covid-19*

ABSTRACT

***Background:** The increase of obesity occurred is related to the lifestyle of each individual along with the present pandemic condition which carries several consequences caused by change from active behavior into relaxed or sedentary behavior. Because of side effects of*

weight gain during the use of contraceptive and pandemic routines that change activities, Women of reproductive age gain fat excessively and even lead to obesity. The addition of the hormone estrogen in the body, increased fat in the body other than due to a mismatch between calorie intake and daily activities, fat accumulation in family planning acceptors can also be caused by the effects of hormone metabolism due to increased levels of the hormones estrogen and progesterone in the blood. The effect of hormonal contraceptive at the unexpeted impact on health of women of reproductive age, it is important to examine more critically how the influence of hormonal use on the incidence of obesity in women of reproductive age.

Objectives: *The independent variable in this study was hormonal contraceptive (DMPA) and the dependent variables were obesity, age, and duration of hormonal contraceptive (DMPA). The data collected will be tested for normality in advance in order to discover whether the data are normally distributed or not, then will be analyzed by using simple linear regression. This study is expected to provide a reference to suppress obesity in women of reproductive age so the quality of life and reproductive system can be maintained and can bear healthy descendants.*

Methods: *This study had been performed by a quantitative method with chi-square analysis in order to discover the occurrence of obesity with total samples of 385 acceptors of contraceptive in Midwifery Independent Practice in Central Jakarta.*

Results: *The results obtained had indicated that there was no effect on using 3 months contraceptive injection with the occurrence of obesity (p-value = 0.174), and there was no relationship between the duration of using 3 months contraceptive injection and the occurrence of obesity (p-value = 0.467). However significant results were obtained between the age and the occurrence of obesity in acceptors of 3 months contraceptive injection (p-value = 0.013) with α value = 0.05.*

Conclusions: *Women of reproductive age who use 3 months contraceptive injection were expected to be able to maintain their quality of life by preventing excessive weight gain by doing physical activities that can burn calories although it can only be done at home or environment around the house, and doing productive activities during the present COVID-19 pandemic.*

KEYWORD: *3 months contraceptive injection; obesity; covid-19 pandemic*

Article Info :
Article submitted on September 09, 2021
Article revised on November 01, 2021
Article received on December 10, 2021
DOI: http://dx.doi.org/10.21927/jnki.2021.9(4).249-255

INTRODUCTION

Contraceptive is an effort to prevent pregnancy. This effort can be temporary or permanent. Hormonal contraceptive is the contraceptive using steroid hormones (estrogen, progesterone and their derivatives) and inserted into the body in order to prevent ovulation in a woman. In pursuance of achieving this aim, hormonal contraceptive can be performed in various ways such as the use of drugs by mouth, injection, and intra-vaginal or subcutaneous implantation(1,2). Estrogen contained in hormonal contraceptive can cause water retention and edema. Estrogen will increase so it can increase fat deposit in subcutaneous tissue. And progesterone can ease the change of carbohydrate and sugar into fat, stimulate appetite, and reduce physical activity(3)clinical and therapeutic patterns of hypertension occurring in women on hormonal contraception. Patients and Methods: A retrospective study was carried out over a period of 5 years. It

involved clients on hormonal contraception who developed hypertension during follow-up at the Family Planning Unit of the Yalgado Ouedraogo Teaching Hospital in Burkina Faso. Results: The global frequency of hypertension in clients on hormonal contraception was 1.8%; it varied depending on the type of methods of contraception used; it was 4.2% for clients on oral combined pills, 1% for implant users and 0.97% for women on injectable. The mean age of patients was 35.6 ± 8.4 years. Sixty-seven patients (84.8%. If it is not controlled, the metabolism of contents of this 3 months hormonal contraceptive injection will cause obesity.

Obesity experienced by women of reproductive age can imply unhealthy conditions such as hypertension, hyperlipidemia, and diabetes in the reproductive age and can increase the risk of spontaneous abortion during pregnancy, pre-eclampsia, and gestational diabetes(4). The obesity resulted in the use of hormonal contraceptive can cause unexpected impact on the health condition of the women of reproductive age, therefore it is essential to examine more critically how the use of hormonal contraceptive affects the occurrence of obesity in women of reproductive age.

The occurrence of obesity in worldwide had reached a dangerous level that was globally experienced by 1.4 billion adults, including nearly 300 million women of reproductive age(4). According to data by Basic Health Research in 2018, the occurrence of obesity based on age in women with a Body Mass Index (BMI) >25 and occurred at the age of >18 is 32.9%, one of the factors causing obesity is hormonal contraceptive in women of reproductive age(5,6,7). By considering the effect of the obesity as a result of using 3 months contraceptive injection on the unwilling health conditions of women of reproductive age, it is essential to examine more critically how the effect of using 3 months contraceptive injection on the occurrence of obesity in women of reproductive age.

MATERIALS AND METHODS

This study had been performed by a quantitative method with the chi-square analysis and the aim to discover the occurrence of obesity in the acceptors of 3 months contraceptive injection. The samples in this study used total sampling by taking data all acceptors of 3 months contraceptive injection at 3 Midwifery Independent Practices in Central Jakarta who visited from January to November 2020. The inclusion criteria in this study were acceptors of contraceptive with age > 15 years to 49 years and having used 3 months contraceptive injection for at least 6 months. Data analysis had been performed by the chi-square analysis with SPSS statistics.

RESULTS AND DISCUSSION

The results from univariate analysis in table 1 indicate that the percentage of the acceptors of 3 months hormonal contraceptive injection experiencing obesity is 26.4%, the percentage of the acceptors of 3 months hormonal contraceptive injection who are 20-35 years old is 71.9%. Based on data on the duration of 3 months hormonal contraceptive injection, the highest range was found on the duration of 0-3 year(s) in the amount of 63.9%.

Table 1. Obesity frequency, age, and duration of 3 months contraceptive injection

Variables	Amount (n)	Percentage (%)
Obesity		
Thin	109	16.7
Normal	55	8.4
Fat	49	7.5
Obesity	172	26.4
Age		
20 – 35 Years	277	71.9
> 35 Years	108	28.1
Duration		
0 – 3 Year(s)	246	63.9
4 – 6 Years	87	22.6
7 – 9 Years	52	13.5

The bivariate analysis had been performed in order to discover how far the effect of obesity on acceptors of 3 months contraceptive injection, age and duration of 3 months contraceptive injection, this analysis had been performed by the chi-square analysis with the following results:

The results of analysis in table 4.4 indicate a p-value of 0.174, which means that there is no effect of the use of hormonal contraceptive, either 1 month contraceptive injection or 3 months contraceptive injection, on the occurrence of obesity. The OR value of 0.3 means that there is only a small possibility of obesity occurred by using 1 month contraceptive injection or 3 months contraceptive injection. Therefore it can be concluded that there is no relationship between the use of hormonal contraceptive (2 months injection) and the occurrence of obesity.

The results of analysis on relationship between the occurrence of obesity and the acceptors of 3 months hormonal contraceptive injection had indicated that women with age of 20-35 years of 72.6% do not experience obesity and women with age of >35 years of 27.4% experience obesity. Statistical test had indicated the p-value of 0.038, which means that there is a significant relationship between age and obesity, and the OR value of 1.5 (p-value 0.038), which means that age has a 1.5 chance of causing the occurrence of obesity in acceptors of 3 months hormonal contraceptive injection.

The results of analysis on relationship between the obesity and the duration had indicated that in the use of 3 months hormonal contraceptive injections for 0-3 year(s), the amount experiencing obesity is 69.8%, for 4-6 years, the amount experiencing obesity is 19.8%, and for 7-9 years, the amount experiencing obesity is 10.4%. In this analysis, the OR value is 0.7, which means that there is no relationship between the occurrence of obesity and the duration of the use of 3 months hormonal contraceptive injection.

DISCUSSION

3 Months Contraceptive Injection and Obesity

Obesity is a complex disorder of appetite and energy metabolism which is controlled by several specific biological factors. Genetic factors are found to be influential in the development of this disease. Physiologically, obesity is defined as the condition with abnormal or excessive fat in adipose tissue that can disrupt health (8,9). In addition to genetic factors, obesity can also be caused by environmental factors, socioeconomic factors, psychological factors, and lifestyle factors such as getting energy that exceeds energy spending (overeating, few activities), lack of physical activities, and excessive nutrition on children (10).

The results of this study indicated that there is no relationship between the use of 3

Table 2. Effect of obesity on acceptors of 3 months contraceptive injection, age, and duration

Variables	Obesity								Total		OR (95% CI)	p-Value
	Thin		Normal		Fat		Obesity					
	N	%	N	%	N	%	N	%	N	%		
3 months contraceptive injection	109	16.7	55	8.4	49	7.5	172	26.4	385	100	0.3 (0.2-1)	0.174
20–35 years old	94	86.2	36	65.4	22	44.9	125	72.6	277	100	1.5 (1.2-1.9)	0.038
> 35 years old	15	13.8	19	34.6	27	55.1	47	27.4	108	100		
Duration												
0–3 Year(s)	58	53.2	42	73.4	26	53.1	120	69.8	246	100	0.7 (0.3-1.4)	0.467
4–6 Years	29	26.6	8	14.5	16	32.6	34	19.8	87	100		
7–9 Years	22	20.2	5	12.1	7	14.3	18	10.4	52	100		

months hormonal contraceptive injection and the occurrence of obesity with p-value = 0.174. These results are in accordance with the study conducted by Mulyaningsih (2016) stating that there is no significant relationship between hormonal contraceptive and obesity as proven by the Spearman Rank correlation test result of 0.897 (significant value/P-value), and the correlation value of -0.013 (11). Weight gain can be caused by the hormone progesterone which stimulates the lateral hypothalamus causing the change from carbohydrates and sugars into fat, therefore fat in the body will become fatty and there will be an increase in body weight (12). However in this study, the results obtained contradict this theory.

Age and Obesity

Along with getting older, the body metabolic process will tend to decrease which will cause decrease of muscle function and increase of body fat level (13). If it is not balanced with a healthy lifestyle such as diet and physical activities, there will be an accumulation of fat, especially fat in the abdomen which will increase the risk of abdominal obesity (14). Several previous studies had indicated consistent results where there is a significant relationship between the age and the occurrence of obesity, the potency of obesity is higher at older ages (15,16).

In this study, the relationship between age and obesity had indicated the result of the analysis of p-value = 0.038, which means that there is a significant relationship between age and obesity. This result is in accordance with the study conducted by Ainia (2018) stating that there is variable significance value (p-value) of 0.013 on the increase of the LiLA size of contraceptive acceptors with reproductive age at the Surabaya Pacarkeling Public Health Center (17). LILA is one of the anthropometric parameters that can be used to indicate the risk of obesity by examining Body Mass Index (BMI) and Waist to Hip Ratio.

Basically, not all metabolisms of each individual are the same. This can cause obesity if the storage of energy and fat is excessive. These differences in metabolism have the same aim to maintain an adequate energy supply for the human body (11). Although researcher had taken several criteria to make all respondents homogeneous, the factor of differences in metabolism of each individual can distinguish the results of screening because it cannot be screened by researcher.

Duration and Obesity

The results of analysis in this study indicated that there was no relationship between the occurrence of obesity and the duration of 3 months hormonal contraceptive injection (p-value = 0.467). These results are in accordance with the study conducted by Nuryanti (2017) stating that based on the results of spearman's rho test, there is no relationship between the duration of using the 3 months contraceptive injection (DMPA) with the Sig value (2-tailed) of 0.837 (>0.05) (18). It is same with the results of the study conducted by Andina (2017) stating that Fisher's exact test value of 0.052 (p-value > **α**) was obtained by this analysis, it is expected to occur due to weight gain in respondents but BMI has not reached the obesity value (19).

There are many factors affecting, therefore the duration of using the 3 months contraceptive injection had no relationship with Body Mass Index (BMI) as an indicator of obesity. Body Mass Index, especially body weight, can be affected by physical activity, psychology and food consumption patterns. A housewife has duties that require energy and physical exercise. In addition, people food patterns also affect it such as frequency and type of food consumed. People in urban areas tend to be busy and prefer to consume fast food because it is more practical. Although they realize that the caloric value contained in fast food is very high and the

excess calories in the body will be converted and stored into body fat (9,18,20).

CONCLUSION AND RECOMMENDATION

The results of this study indicated that there is no effect found from the use of 3 months Contraceptive injection on obesity, as well as the duration of 3 months Contraceptive injection had no significant effect on the occurrence of obesity. Obesity can be affected by several uncontrolled bias factors in this study, such as physical activities and food consumption patterns that can affect obesity. And the present pandemic condition causing change from active behavior into relaxed or sedentary behavior can cause significant weight gain.

However this study indicated that there is a relationship between age and obesity in acceptors of 3 months contraceptive injection. Most acceptors of 3 months contraceptive injection found in this study were 20-35 years old. Along with getting older, the body metabolic process will tend to decrease which will cause decrease of muscle function and increase of body fat level. Therefore it is expected that women of reproductive age using 3 months contraceptive injection can maintain their quality of life by preventing excessive weight gain by doing physical activities that can burn calories although it can only be done at home or environment around the house, and doing productive activities during the present COVID-19 pandemic.

REFERENCES

1. Manuaba. I.A.C. Ilmu Kebidanan, Penyakit Kandungan Dan Keluarga Berencana. Jakarta: EGC; 2012.
2. Setyawati A. No Title. Jakarta: Salemba Medika; 2011.
3. Zamané H, Millogo G, Ouédraogo CM, Sawadogo YA, Nongkouni E, Kiemtoré S, et al. Hormonal Contraception and Hypertension at the Department of Obstetrics and Gynecology, Yalgado Ouédraogo Teaching Hospital: Epidemiological, Clinical and Therapeutic Patterns. Open J Obstet Gynecol. 2016;06(06):379–84.
4. Robinson JA, Burke AE. Obesity and hormonal contraceptive efficacy. Women's Heal. 2013;9(5):453–66.
5. Nirwana, Hasyifah M. Pengaruh penggunaan kontrasepsi hormonal terhadap perubahan berat badan akseptor KB di RSIA Pertiwi Makassar. J from e-library STIKES Nani Hasanudin. 2012;
6. Andriani M. Pengantar gizi masyarakat. Jakarta: Penerbit Kencana; 2012.
7. Kementerian Kesehatan RI Badan Penelitian dan Pengembangan. Hasil Utama Riset Kesehatan Dasar. Kementrian Kesehat Republik Indones [Internet]. 2018;1–100. Tersedia pada: http://www.depkes.go.id/resources/download/info-terkini/hasil-riskesdas-2018.pdf
8. Lm L, Bernholc A, Hubacher D, Stuart G, Haam VV. Immediate postpartum insertion of intrauterine device for contraception (Review). 2015;(6).
9. Sudargo, T., Freitag, H., Kusmayanti, N. A., & Rosiyani F. No Title. Yogyakarta: Pola makan dan obesitas; 2018.
10. Cunningham, F., Leveno, K., Bloom, S., Spong, C. Y., & Dashe J. Williams obstetrics. 24e ed. Mcgraw-hill; 2014.
11. Mulyaningsih REM, Sudrajat FB. Hubungan Penggunaan Kb Hormonal Dengan Kejadian Obesitas Correlation Between Hormonal Contraception Usage With Incidence of Obesity in Productive Age Women on Kejaksan Primary Health Care Working Area Cirebon City. 2017;
12. M.Muzakkir. Panduan Lengkap Kebidanan dan Keperawatan. Jakarta: Merkid Press; 2009.
13. Novitasary MD. Hubungan Antara Aktivitas Fisik Dengan Obesitas Pada Wanita Usia

Subur Peserta Jamkesmas Di Puskesmas Wawonasa Kecamatan Singkil Manado. J e-Biomedik. 2014;1(2):1040–6.
14. Nurrahmawati F, Fatmaningrum W. Hubungan Usia, Stres, dan Asupan Zat Gizi Makro dengan Kejadian Obesitas Abdominal pada Ibu Rumah Tangga di Kelurahan Sidotopo, Surabaya. Amerta Nutr. 2018;2(3):254.
15. Sharma SK, Sangrulkar T V., Brahmankar TR, G.R. V. Study of overweight and obesity and its risk factors among adults in an adopted urban slum area of Government Medical College, Miraj. Int J Community Med Public Heal. 2017;4(5):1744.
16. Haregu TN, Oti S, Egondi T, Kyobutungi C. Measurement of overweight and obesity an urban slum setting in sub-Saharan Africa: A comparison of four anthropometric indices. BMC Obes [Internet]. 2016;3(1):1–8. Tersedia pada: http://dx.doi.org/10.1186/s40608-016-0126-0
17. Ainia OAC, Notobroto HB. Demographic Factor on WUS related to Nutritional Status based on LiLA at Pacarkeling Local Government Clinic 2017. Biometrics Demogr J. 2018;7(2):105–12.
18. Nuryanti S, Yulifah R, Susmini S. Hubungan Lama Pemakaian KB Suntik 3 Bulan Depo Medroxy Progesteron Acetate (DMPA) dengan Indeks Massa Tubuh (IMT) di BPS Tutik Prasetyo Joyo Grand Malang. Nurs News J Ilm Mhs Keperawatan [Internet]. 2017;2(5):12–34. Tersedia pada: https://publikasi.unitri.ac.id/index.php/fikes/article/view/141
19. Citra Idzni Andina FC N. Hubungan Lama Pemakaian Kontrasepsi Injeksi Dmpa Dengan Kejadian Obesitas Di Wilayah Kerja Bpm Musripah Jakarta (Doctoral dissertation, Universitas Airlangga). repository.unair.ac.id. 2017;549:40–2.
20. Hastuti P. Genetika Obesitas. Yogyakarta: UGM Press; 2019.