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Research Article

The relationship between the Use of Hormonal Contraceptives with Changes in the Menstrual Cycle and Weight Gain in Acceptors in Leuwinggung Village in 2018

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Abstract

Hormonal contraception is one of the most effective and reversible methods to prevent a conception. The use of contraception by the type/method is dominated by injection (48,56%) dan pills (26,60%) of total KB users. Nevertheless, hormonal contraception can cause side effects such as changes in the menstruation cycle changing and weight gaining. This study aimed to determine the relation of hormonal contraception with the change of the menstruation cycle in Kelurahan Leuwinggung in 2018. The study design was a correlative study with a cross-sectional approach. The samples were 44 respondents who were determined by cluster random sampling technique. The data result was analyzed by using Chi-Square method showed that there was correlation between oral contraception and changes in menstruation cycle (p -value=0,000) and weight gaining (p -value=0,007), there was correlation between injection contraception and changes in menstruation cycle (p -value=0,001) and weight gaining (p -value=0,024), and there wasn't correlation between implant contraception and changes in menstruation cycle (p -value=0,298) and weight gaining (p -value=0,495).

Keywords: Hormonal Contraception, Menstruation Cycle Changes, Weight Gaining

INTRODUCTION

Indonesia is the fourth most populous country in the world, with more than 255 million people. Fertility or birth is one of the factors that increase the population ^{1;2}. To overcome this, the Indonesian government implemented the Family Planning program, which began in 1968 with the establishment of the National Family Planning Institute, which was later changed to National Family Planning Coordinating Board, intending to realize small happy and prosperous families. One of the supports and strengthening of the acceptance of the family planning idea is contraceptive services.

Contraception is an effort to prevent pregnancy ³. Hormonal contraception is one of the most effective and reversible methods of contraception to prevent conception. Hormonal contraceptive methods are divided into 2, namely combination (containing the hormones progesterone and synthetic estrogen) and those containing only progesterone. Combined hormonal contraceptives are found in pills and injections. At the same time, hormonal contraceptives containing progesterone are found in pills, injections and implants ⁴.

The use of contraception by type of device/method in Indonesia is dominated by the use of injections (48.56%) and

pills (26.60%) of the total family planning users ⁵. Furthermore, according to West Java Province People's Welfare Indicator data, based on the tools/methods used, the most popular contraceptive is injectable hormonal contraception, which is 57.96 per cent in urban areas and 65.37 per cent in rural areas. The use of contraceptive pills is also prevalent in West Java, which can be seen from the large percentage of pill use in urban areas by 23.09 and rural areas (24.83 per cent). While other contraceptives, including implants, the percentage is below 1 per cent ⁶.

The use of hormonal contraceptives for a certain period can cause various side effects, one of which is changes in body weight. ⁷ However, the weight gain is generally not too significant. It varies from less than 1 kg to 5 kg in the first year. Most women from reproductive age couples who are acceptors of contraceptive users experience weight gain. In addition, the use of hormonal contraception also has some side effects in the form of menstrual disorders, leukorrhoea, galactorrhoea, acne, hair loss, weight changes, and changes in libido ⁸.

Side effects of menstrual disorders occur in the form of changes in the menstrual cycle, menstrual duration, menstrual frequency, spotting, and amenorrhoea ⁹. Menstrual disorders are conditions where menstruation occurs

abnormally. This situation can occur because the hormones estrogen and progesterone influence the menstrual cycle. In addition, the hormone progesterone can also stimulate the appetite control centre in the hypothalamus, causing an increase in appetite, which leads to weight gain if not controlled. While the hormone estrogen causes an increase in the number of fat deposits in the subcutaneous tissue and fat deposits in the breast and subcutaneous tissue, estrogen also causes fat deposits in the buttocks and thighs ¹⁰. The problem of this research is "Is there a relationship between the use of hormonal contraception with changes in the menstrual cycle and weight gain of acceptors in Leuwinanggung Village in 2018?, with the aim of research to determine the relationship between the use of hormonal contraceptives with changes in the menstrual cycle and weight gain of acceptors in Leuwinanggung Village.

Literature Review

Contraception comes from the word con, which means preventing or fighting, while conception is the meeting between a mature egg (female cell) and sperm cell (male cell), which results in pregnancy. Contraception aims to avoid/prevent pregnancy due to the meeting between a mature egg cell and a sperm cell ¹¹. Hormonal contraception is a contraceptive device or drug aiming to prevent pregnancy where the raw materials contain estrogen and progesterone preparations. Combined contraceptives of estrogen and progestin can be obtained in the form of pills and injections, while those containing only progestin can be obtained in pills, injections, and implants ^{4; 13; 14}.

The mechanism of action of estrogen is inhibiting ovulation, preventing implantation, accelerating gamete/ovum transport, luteolysis, thickening cervical mucus, and inhibiting sperm capacitation. Ovulation is inhibited through the influence of estrogen in the hypothalamus, resulting in the suppression of *follicle-stimulating hormone* (FSH) and *luteinizing hormone* (LH) in the pituitary gland. However, ovulation cannot always be inhibited by preparations containing the only estrogen. In addition to estrogen and progesterone, the combined type of hormonal contraceptives may also contain progestins. Progestins are synthesized similar to natural progesterone but have a different structure. Progestins differ from other hormones in their binding to estrogen and progesterone receptors, their ability to inhibit ovulation and their ability to replace progesterone and act as estrogen antagonists ¹⁵.

Some progestins directly bind to receptors (levonorgestrel, norethindrone). Some progestins must be biologically activated, for example, desogestrel which the body must metabolize into etonogestrel. Some types of contraception are as follows: a) The contraceptive pill or oral contraceptive pill is a hormonal contraceptive in the form of a drug in the form of a pill inserted by mouth (taken by mouth) and contains the hormones estrogen and or progesterone. This contraceptive pill aims to prevent pregnancy by inhibiting the release of an ovum from the ovary every month. This contraceptive will be effective and safe if used correctly and consistently ^{4; 16; 17}. The contraceptive pill itself consists of several types, including the mini pill (minipill), the combination pill or combination oral contraceptive pill, the sequential pill, once a month pill, and the morning after pill; b) Injectable contraception is a contraceptive method in the form of a liquid, which only contains progesterone, and is injected into a woman's body periodically ¹⁶. Injectable contraceptives are administered by intramuscular injection in the area of the gluteus maximus or deltoid muscles to prevent pregnancy. Pregnancy prevention is carried out through primary mechanisms by preventing ovulation by

affecting the hypothalamus and pituitary, namely reducing FSH and LH levels so that the development and maturity of the Graafian follicle do not occur. Whereas thickening of cervical mucus, and rendering the endometrium unfit for implantation of a fertilized ovum, and inhibiting ovum transport are secondary mechanisms of injectable contraception; c) Implanted contraceptives or also known as under the skin contraceptives, are contraceptive methods in the form of capsules (like matches) made of a kind of silastic rubber that is placed under the skin of the upper arm ⁴. The capsule then releases the hormone levonorgestrel at a slow and constant rate within 3 or 5 years ^{16; 18}.

Menstruation is periodic and cyclic bleeding from the uterus, accompanied by desquamation of the endometrium ¹⁹. Menstruation is a physiological change in a woman's body that occurs periodically and is influenced by reproductive hormones. Menstruation is caused by decreased estrogen and progesterone, especially progesterone, at the end of the monthly ovarian cycle ¹⁰. It can occur every month between puberty (approximately 10-11 years) and menopause. The menstrual cycle is a complex process that includes both reproductive and endocrine. The menstrual cycle is the distance between the start date of the last menstrual period and the start of the next menstruation. The day the bleeding starts is called the first day of the cycle ²⁰. Since the start of menstruation is not taken into account and the exact time of menstrual discharge from the external uterine ostium is not known, the cycle length contains an error of approximately one day. In general, menstruation will occur every 28 days. Within 4 to 7 days after the start of menstruation, bleeding will stop. During this standard period, approximately 40ml of blood and an additional 35ml of serous fluid are lost. Menstrual blood is primarily arterial blood, with only 25% of blood coming from veins.

Gonadotropin-releasing hormone (GnRH) is secreted by the hypothalamus and functions to control the ovarian and endometrial cycles. GnRH stimulates the release of FSH and LH from the anterior pituitary. Follicular growth is initiated by FSH, whereas LH stimulates further follicular development. Both the hormones FSH and LH stimulate the ovarian follicles to secrete estrogen. Androgens are produced from theca cells of developing follicles, stimulated by LH. Under the influence of FSH, androgens are used by the granulosa cells of the follicles and converted to estrogens. In the middle of the cycle, ovulation is triggered by LH and so on, causing corpus luteum formation. LH stimulates the corpus luteum to secrete estrogen, progesterone, relaxin and inhibin ^{21; 22}. Estrogen secreted by ovarian follicles has several vital roles, namely triggering and maintaining the development of female reproductive structures, secondary sex characteristics. Secondary sex characteristics include adipose tissue distribution in the breasts, abdomen, mons pubis and hips, voice changes, hip dilation and hair growth on the head and body ¹⁰. Estrogen also increases protein anabolism. In addition, estrogen can lower cholesterol levels in the blood. Estrogen levels can also inhibit the release of GnRH from the hypothalamus and the secretion of LH and FSH from the anterior pituitary.

Progesterone is secreted mainly from cells in the corpus luteum. Progesterone and estrogen assist the endometrium in the implantation of a fertilized ovum. Progesterone and estrogen also stimulate the mammary glands to secrete milk. High levels of progesterone will also inhibit the secretion of GnRH and LH ¹⁰. Progesterone in the corpus luteum produces small amounts of relaxin during each monthly cycle. Relaxin will inhibit myometrial contractions and produce a relaxing effect on the uterus. Inhibin is also secreted by the granulosa cells of the developing follicle after

ovulation, and it inhibits the secretion of FSH and LH ²². The average menstrual cycle can be divided into two cycles: the ovarian and endometrial cycles.

Menstrual Cycle Disorders: a) Polymenorrhea - In Polymenorrhea, the menstrual cycle is shorter than usual (less than 21 days). Bleeding is more or less the same as or more than normal menstruation. Polymenorrhea can be caused by hormonal disorders that cause ovulation disorders or a shortened luteal period. Other causes are ovarian congestion due to inflammation, endometriosis, and so on; b) Oligomenorrhea - Here, the menstrual cycle is longer than 35 days. If the length of the cycle is more than three months, it is called Amenorrhea. Bleeding in Oligomenorrhea is usually reduced. Oligomenorrhea and Amenorrhea often have the same basis, and the difference lies in the degree.

In most cases of Oligomenorrhea, women's health is not compromised, and fertility is quite good. The menstrual cycle usually also ovulates with a proliferative period longer than usual; c) Amenorrhea - Amenorrhea is the absence of menstruation for at least three consecutive months. It is usually distinguished between primary Amenorrhea and secondary Amenorrhea. It is called primary Amenorrhea if a woman aged 18 years and over has never been able to menstruate, while in secondary Amenorrhea, the patient has had menstruation but then no longer has menstruation. Primary Amenorrhea generally has more severe causes and is more difficult to identify, such as congenital abnormalities and genetic disorders. The presence of secondary Amenorrhea is usually caused by nutritional disorders, metabolic disorders, tumours, infectious diseases, and others ²³.

Bodyweight describes the amount of protein, fat, water, and minerals in the bones. A person's weight is strongly influenced by several factors, including age, gender, physical activity, and heredity ²⁴. Bodyweight is an anthropometric measure that gives an idea of body mass (muscle and fat). Because the body is susceptible to sudden changes in circumstances, for example, due to infection, decreased appetite and decreased amount of food consumed. So BB is a volatile anthropometric measure. Under normal circumstances where good health and a balance between intake and nutritional integrity are guaranteed, bodyweight follows age development. We recommend that there are two possibilities for BB development in abnormal conditions. Namely, it can develop faster or slower than average conditions.

RESEARCH METHOD

This research is a correlation study research that aims to determine the relationship between two or more variables in a situation or group of subjects to see whether there is a relationship between the independent and dependent variables. The approach used in this study was cross-sectional. This study analyses the effect of hormonal contraceptives on changes in menstrual cycles and weight gain in acceptors in Leuwinanggung Village in 2018. The populations in this study were all women who used hormonal contraceptives in Leuwinanggung Village. The sampling method in this study is the cluster random sampling method. The cluster random sampling method was used by randomly selecting 2 RWs in Leuwinanggung Village, then from the 2 RWs selected, 1 RT was randomly selected to be studied. The research instruments used were KB participant cards and questionnaires related to changes in the menstrual cycle of hormonal contraceptive acceptors and the increase in acceptor's weight after using hormonal contraceptives. A stepping scale was used for the bodyweight results with a 0.5

kg accuracy, tested for the calibration value. Data processing is one of the activities carried out in making reports on research results that have been carried out to be understood, analyzed according to the desired goals, and then concluded to describe the research results. The data presentation techniques used in this research are editing, coding, scoring, tabulating. The data analysis technique is used in univariate analysis and bivariate analysis.

RESULT AND DISCUSSION

This study aims to determine the relationship between the use of hormonal contraception on changes in the menstrual cycle and weight gain in acceptors in Leuwinanggung Village in 2018. The study sample was 44 hormonal contraceptive acceptors who met the inclusion criteria.

Table 1: Frequency distribution of hormonal contraceptive acceptors based on age in Leuwinanggung Village in 2018

Age	f	%
20-30 year	18	40,9
31-40 year	19	43,2
>40 year	7	15,9
Total	44	100,0

Table 1 shows that the acceptors' age distribution is grouped into three categories, namely the age of 20-30 years as many as 18 respondents or 40.9%, age 31-40 years as many as 19 respondents or 43.9%, and age >40 years as many seven respondents or 15.9%.

Table 2: Frequency Distribution of Hormonal Contraception Acceptor Respondents Based on Education in Leuwinanggung Village in 2018

Education	f	%
Primary School	10	22,7
Junior High School	18	40,9
Senior High School	16	36,4
Total	44	100,0

Based on Table 2, it is found that the distribution of the education level of the acceptors is ten respondents or 22.7% elementary school, 18 respondents or 40.9% junior high school, and 16 respondents or 36.4% high school.

Table 3: Frequency distribution of hormonal contraceptive acceptors based on occupation in Leuwinanggung Village in 2018

Working Status	f	%
Work	11	25
Unemployment	33	75
Total	44	100,0

Based on Table 3, it is found that the respondents' occupations distribution is as many as 11 respondents or 25% working, and as many as 33 respondents or 75% not working.

Table 4: Distribution of Hormonal Contraceptive Acceptors by Type of Contraception in Leuwinanggung Village in 2018

Types of Contraception	f	%
Pill	11	25
Inject	31	70,5
Implant	2	4,5
Total	44	100,0

Table 4 shows that the distribution of contraception acceptors are pills as many as 11 respondents (25%), injections as 31 respondents (70.5%), and implants as many as two respondents (4.5%).

Table 5: Frequency Distribution of Acceptors of Hormonal Contraceptives Based on Changes in the Menstrual Cycle in Leuwinanggung Village in 2018

Menstrual Cycle Changes	f	%
Experiencing	29	65,9
Not Experiencing	15	34,1
Total	44	100,0

Based on Table 5, it was found that the distribution of changes in the menstrual cycle experienced by the acceptors was 29 respondents or 65.9% experiencing changes in the menstrual cycle, and 15 respondents or 34.1%, did not experience changes in the menstrual cycle.

Table 6: Frequency Distribution of Hormonal Contraceptive Acceptors Respondents Based on Types of Changes in the Menstrual Cycle in Leuwinanggung Village in 2018

Menstrual Cycle Changes	f	%
Nothing	15	34,1
Polymenorrhea	7	15,9
Oligomenorrhea	8	18,2
Amenorrhea	14	31,8
Total	44	100,0

Table 6 shows that the changes in the menstrual cycle distribution experienced by the acceptors were no change in the menstrual cycle as many as 15 respondents (34.1%), Polymenorrhea as many as seven respondents (15.9%), Oligomenorrhea as many as eight respondents (18.2%) and Amenorrhea as many as 14 respondents (31.8%).

Table 7: Frequency Distribution of Hormonal Contraception Acceptor Respondents Based on Weight Gain in Leuwinanggung Village in 2018

Body Weight Gain	f	%
Experiencing	36	81,8
Not Experiencing	8	18,2
Total	44	100,0

Based on Table 7, it is found that the distribution of weight gain experienced by acceptors is 36 respondents or 81.8% weight gain, and eight respondents or 18.2%, did not experience weight gain.

Table 8: Frequency distribution of hormonal contraceptive acceptors based on the rate of weight gain in Leuwinanggung Village in 2018

Body Weight Gain	f	%
<2 kg	7	19,4
2-3 kg	6	16,7
>3 kg	23	63,9
Total	36	100,0

Based on Table 8, it is found that the distribution of weight gain experienced by acceptors, an increase of <2 kg by seven respondents or 19.4%, an increase of 2-3 kg by six respondents or 16.7% and an increase of >3 kg by 23 respondents or 63.9%.

Table 9: Distribution of the Relationship between Pill Contraception Use with Changes in the Menstrual Cycle in Leuwinanggung Village in 2018

Contraceptive Pill	Menstrual Cycle Changes				Number	p-score	OR (95%CI)
	Experiencing		Not experiencing				
	n	%	n	%			
Use	2	18,2	9	81,8	11	100	0,000 0,049
Do not use	27	81,8	6	18,2	33	100	
Total	29	65,9	15	34,1	44	100	

Based on table 9, it is known that respondents who use oral contraceptives and do not experience changes in their menstrual cycle (81.8%) are higher than respondents who experience changes in their menstrual cycles (18.2%), while respondents who do not use oral contraceptives and experience changes in their cycles. Menstruation (81.8%) was higher than those who did not experience changes in the menstrual cycle (18.2%). The results of the Chi-Square Test statistical analysis obtained p-value = 0.000 and OR = 0.049. These results indicate a significant relationship between the variables of the use of contraceptive pills with changes in the menstrual cycle, and respondents who use the hormonal contraceptive pill are likely to experience changes in the menstrual cycle 0.049 times greater than those who use contraception other than the pill.

Table 10: Distribution of the Relationship between the Use of Injectable Contraceptives with Changes in the Menstrual Cycle in Leuwinanggung Village in 2018

Injectable Contraception	Menstrual Cycle Changes				Number		p-score	OR (95%CI)
	Experiencing		Not Experiencing					
	n	%	n	%	n	%		
Use	25	80,6	6	19,4	31	100	0,001	9,375
Do not use	4	30,8	9	69,2	13	100		
Total	29	65,9	15	34,1	44	100		

Based on table 10, it is known that respondents who used injectable contraception and experienced changes in their menstrual cycle (80.6%) were higher than respondents who did not experience changes in their menstrual cycle (19.4%), while respondents who did not use injectable contraception and did not experience any changes. The menstrual cycle (69.2%) was higher than those who experienced changes in the menstrual cycle (30.8%). The results of statistical analysis of the Chi-Square Test obtained p-value = 0.001 and OR = 9.375. These results indicate a significant relationship between the use of injectable contraceptives and changes in the menstrual cycle. Furthermore, respondents who use injectable hormonal contraception are likely to experience changes in the menstrual cycle 9.375 times greater than those who use contraception other than injections.

Table 11: Distribution of the Relationship between the Use of Implanted Contraceptives with Changes in the Menstrual Cycle in Leuwinanggung Village in 2018

Implant Contraceptive	Menstrual Cycle Changes				number		p-score
	Experiencing		Not Experiencing				
	n	%	n	%	n	%	
Use	2	100,0	0	0,0	2	100	0,001
Do not use	27	64,3	15	35,7	42	100	
Total	29	65,9	15	34,1	44	100	

Based on table 11, it is known that all respondents who use implanted contraception experience changes in their menstrual cycle by 100%, while respondents who do not use implant contraception and experience changes in menstrual cycles (64.3%) are higher than those who do not experience changes in menstrual cycles (35, 7%). The results of the Chi-Square Test statistical analysis obtained p-value = 0.298. These results indicate no significant relationship between the use of implant contraceptives and changes in the menstrual cycle.

Table 12: Distribution of the Relationship between the Use of Pill Contraception and Weight Gain in Leuwinanggung Village in 2018

Contraceptive Pill	Body Weight Gain				Number		p-score	OR (95%CI)
	Experiencing		Not Experiencing					
	n	%	n	%	n	%		
Use	6	54,5	5	45,5	11	100	0,001	0,120
Do not use	30	90,0	3	9,1	33	100		
Total	36	81,8	8	18,2	44	100		

Based on table 4.12, it is known that respondents who did not use pill contraception and experienced weight gain (90.9%) were higher than those who used pill contraception and experienced weight gain (54.5%). Furthermore, respondents who used oral contraceptives but did not gain weight were higher (45.5%) than respondents who did not use oral contraceptives and did not gain weight (9.1%). The results of the Chi-Square Test statistical analysis obtained p-value = 0.007 and OR 0.120. These results indicate a significant relationship between contraceptive pills and changes in weight gain, and respondents who use hormonal contraception pills are likely to experience an increase of 0.120 times greater than those who use contraception other than the pill.

Table 13: Distribution of the Relationship between the Use of Injectable Contraceptives with Weight Gain in Leuwinanggung Village in 2018

Injectable Contraception	Body Weight Gain				Number		p-score	OR (95%CI)
	Experiencing		Not Experiencing					
	n	%	n	%	n	%		
Use	28	90,3	3	9,7	31	100	0,024	5,833
Do not use	308	61,5	5	38,5	13	100		
Total	36	81,8	8	18,2	44	100		

Based on table 13, it is known that respondents who use injectable contraception and gain weight (90.3%) are higher than those who do not use injectable contraception and experience weight gain (61.5%). Furthermore, respondents who did not use injectable contraception and did not gain weight were higher (38.5%) than respondents who did not gain weight (9.7%). The results of the Chi-Square Test statistical analysis obtained p-value = 0.024 and OR = 5.833. These results indicate that there is a significant relationship between the use of injectable contraceptives and weight gain. Furthermore, respondents who used injectable hormonal contraception were 5.833 times more likely to gain weight than those who used contraception other than injections.

Table 14: Distribution of Implant Contraceptive Use with Weight Gain in Leuwinanggung Village in 2018

Injectable Contraception	Body Weight Gain				Number		p-score
	Experiencing		Not Experiencing				
	n	%	n	%	n	%	
Use	2	100,0	0	0,0	2	100	0,495
Do not use	34	81,0	8	19,0	42	100	
Total	36	81,8	8	18,2	44	100	

Based on table 12, it is known that all respondents who used implant contraceptives experienced a weight gain of 100%. Furthermore, respondents who did not use implant contraception and experienced weight gain (81%) were higher than respondents who did not use implant contraception and did not gain weight (19%). The results of the Chi-Square Test statistical analysis obtained p-value = 0.495. These results indicate that there is no significant relationship between the use of implant contraceptives and weight gain.

Distribution of hormonal contraceptive acceptor respondents in the Leuwinanggung village in 2018 - Based on distribution table 1, above shows that the distribution of the most significant proportion of respondents is in the age of 31-40 years, namely 43.2%. According to Hartanto, at that age is the phase of spacing out pregnancies²⁵. Based on distribution table 2 above, most of the respondents' education graduated from junior high school, namely 40.9%. The higher a person's level of education, the broader his horizons will be to receive information that is useful for him. Knowledge gained by a person about contraceptive methods impacts the choice of the type of contraception. Some acceptors can accept changes in menstruation from the type of contraception chosen, but those who cannot accept changes in acceptors will choose other contraception²⁶.

Based on distribution table 3 above, the type of work most respondents (75%) are not working or as housewives. It shows that more women who do not work outside the home and participate in family planning programs will improve their families' quality. Respondents, who are mostly housewives, have unlimited time to perform family planning services²⁷. Based on distribution table 4 above, the most widely used type of contraception (70.5%) was injectable contraception. It is following the 2012 SKDI, which states that injectable contraception is the most widely used type of contraception. The advantages of injectable contraceptives are very high effectiveness and more practical use²⁸.

Based on distribution table 5 above also shows that 65.9% of

respondents experienced changes in their menstrual cycle during contraception. Changes in the menstrual cycle are the main side effects most often experienced by hormonal contraceptive acceptors²⁹. Furthermore, based on distribution table 6, it can be seen that the type of change in the menstrual cycle experienced by 31.8% of respondents was a change in the menstrual cycle in the form of Amenorrhea. Amenorrhea that occurs can be caused by the action of the hormone progesterone, which causes atrophy. Based on distribution table 7 above, while using contraception, 81.8% of respondents experienced weight gain. According to Afni, weight gain is also a side effect of using hormonal contraception. In his study, 16.6% of respondents experienced weight gain³⁰. Based on distribution table 8, it can also be seen that 52.3% of respondents experienced weight gain of > 3 kg. Weight gain generally varies but is not too large, ranging up to 5 kg.

The relationship between the use of contraceptive pills and changes in the menstrual cycle - Pill contraception is a method of contraception in the form of pills containing the hormones estrogen and or progesterone and is used orally or taken by mouth. Side effects that often occur due to oral contraceptives include menstrual disorders in spotting, Amenorrhea, and irregular menstruation (Polymenorrhea, Oligomenorrhea) [4; 16]. It is caused due to hormonal imbalance from the use of the contraceptive pill. The results of statistical analysis using the Chi-square test, it was concluded that the p-value = 0.007. Means p-value <0.05, so

the null hypothesis (H_0) is rejected and (H_a) is accepted. It can be concluded that there is a significant relationship between oral contraceptives and changes in the menstrual cycle. Statistical results show that respondents who do not use oral contraceptives almost experience changes in their menstrual cycle. It can happen because the respondent uses other contraceptives that contain only the hormone progesterone.

On the other hand, almost all respondents who used oral contraceptives did not experience changes in their menstrual cycle. It happens because the acceptors prefer to use a combination pill which has advantages such as making the menstrual cycle more regular, not interfering with sexual intercourse, and pain during menstruation ³¹. The advantage of the pill that keeps the menstrual cycle regular makes the pill contraceptive a choice for acceptors in choosing the type of contraception. The results of this study are in line with research conducted by Faridah (2005), which concluded that there is a significant relationship between the use of contraceptive pills and injections with menstrual disorders in Gentian Village, Susukan District, Serang Regency ³².

The relationship between the use of injectable contraceptives and changes in the menstrual cycle - Injectable contraception is a method of contraception that has a long (long-acting) power, does not require daily use or every time you have sex [4; 14]. Injectable contraceptives are administered by periodic intramuscular injection in the gluteus maximus or deltoid muscles ¹³. The results of statistical analysis using the Chi-square test, it was concluded that the p-value = 0.024. Means p-value <0.05, so the null hypothesis (H_0) is rejected and (H_a) is accepted. It can be concluded that there is a significant relationship between injectable contraceptives and changes in the menstrual cycle. Statistical results show that respondents who use injectable contraceptives experience more changes in their menstrual cycle.

It can happen because the injectable contraceptive used by the respondents is Depo Medroxi Progesterone Acetate (DMPA) injectable contraceptive, which only contains progesterone. On the other hand, respondents who did not use injectable contraceptives did not experience changes in the menstrual cycle compared to those who experienced changes in the menstrual cycle. The results of this study are in line with research conducted by Nursaidah (2018), which concluded that injectable contraceptive acceptors experienced many changes in the menstrual cycle. It is because injectable contraceptives that only contain the hormone progesterone can cause changes in the menstrual cycle. Furthermore, the higher incidence of Amenorrhea compared to other types of cyclical changes is due to the hormone progesterone suppressing LH so that the endometrium becomes shallower and regresses so that the glands become inactive ³³.

The relationship between the use of implant contraceptives and changes in the menstrual cycle - Implant contraceptives are contraceptives in the form of rods or silastic capsules containing the hormone progesterone, which are carried out by inserting a silastic rod or capsule under the skin through a single incision, in the form of a fan ³⁴. The results of statistical analysis using the Chi-square test, it was concluded that the p-value = 0.495. It means that p-value > 0.05 so that the null hypothesis (H_0) is accepted and (H_a) is rejected. It was concluded that there was no significant relationship between implant contraceptives and changes in the menstrual cycle. Statistical results showed that respondents who did not use implanted. Contraception experienced more changes in their menstrual cycle than

those who did not. On the other hand, respondents who used implant contraceptives all experienced changes in their menstrual cycle. It can happen because the implant is a contraceptive that only contains progestin with a long duration of action. However, the dose is low because the hormone release is carried out periodically so that implant acceptors often experience changes in the menstrual cycle, which varies with each use depending on the duration of use.

The relationship between pill contraceptive use and weight gain - Based on the results of statistical analysis using the Chi-square test, it was concluded that the p-value = 0.007. Means p-value <0.05, so the null hypothesis (H_0) is rejected and (H_a) is accepted. It shows that there is a significant relationship between the use of oral contraceptives and weight gain among pill contraceptive users in Leuwinanggung Village. Statistical results show that almost all of the respondents who used oral contraceptives experienced weight gain. However, respondents who did not use oral contraceptives also tended to gain weight because respondents who did not use oral contraceptives used contraceptives containing high progestins. The results of this study are in line with the opinion of Hartanto (2004), which states that when taking pills, most of the acceptors experience changes in body weight due to the strong anabolic effect of progestins, which can affect appetite to increase and estrogen, which increases the amount of subcutaneous fat deposits, especially in the hips skin, thighs and breasts ³¹. So, the work accumulation of the two hormones can increase the weight of the contraceptive pill acceptor.

However, the effect of this weight gain can generally only be seen after the acceptors routinely use the contraceptive pill for an extended period. According to the inclusion criteria in this study, the acceptors who can become respondents have used oral contraceptives regularly for >1 year. This study is in line with research conducted by Tukiman et al. that weight gain in oral contraceptives can occur in the routine use of contraceptive pills, and the increase varies between 1-5 kg ³⁵.

The relationship between injection contraceptive use and weight gain - Based on the results of statistical analysis using the Chi-square test, it was concluded that the p-value = 0.001. Means p-value <0.05, so the null hypothesis (H_0) is rejected and (H_a) is accepted. It shows that there is a significant relationship between the use of injectable contraceptives and weight gain in injection contraceptive users in Leuwinanggung Village. Statistical results show that almost all of the respondents who used injectable contraceptives gained weight. The hormone progesterone in injectable contraceptives stimulates the appetite control centre in the hypothalamus ^{10; 31}. It causes the acceptor's appetite to increase and result in eating more than usual. It is also associated with a signal from glucocorticoid-like activity that signals fat cells to retain as much fat as possible. The weight gain obtained has varying values. It is because many other factors that affect body weight were not observed in this study. Other factors such as genetics, type of work, daily activities or activities, food consumption patterns, and so on also affect a person's weight. It is in line with research conducted by Pratiwi et al. that the weight gain that occurs in the first six months is about 1-2 kg. Then, an increase that varies up to 5 kg in the first year increases to 11 kg after the first year ⁴.

The relationship between implant contraceptive use and weight gain - Based on the results of statistical analysis using the Chi-square test, it was concluded that the p-value =

0.495. It means that p -value > 0.05 so that the null hypothesis (H_0) is accepted and (H_a) is rejected. It shows that there is no significant relationship between the use of implant contraceptives and weight gain in implant contraceptive users in Leuwinanggung Village. Implanted contraceptives use a gradual hormone release mechanism of 80 g LNG daily for the first 6-18 months, decreasing to 30 g and will continue for at least three years³⁶. It causes weight gain in implant contraceptive acceptors generally only occurs in the first year of use⁷. Furthermore, the weight gain that occurs is also generally not much. The weight gain experienced by implant contraceptive acceptors was only about 1.7 kg³⁷. Although implant contraceptives generally only causes weight gain in the first year of use, without being followed by regular diet and exercise settings, implant contraceptive acceptors can also experience weight gain. It can happen because the implant contraceptive still releases the hormones it contains, even in small quantities. This study is in line with research conducted by Wahyuni that there is no relationship between the use of hormonal contraception and weight gain in acceptors.

CONCLUSION

Based on the results of research and discussion on the relationship between the use of hormonal contraceptives with changes in the menstrual cycle and weight gain in the Leuwinanggung Village, it can be concluded as follows: a) The characteristics of the hormonal contraceptive acceptor respondents in Leuwinanggung Village in 2018 were primarily women aged 31-40 years. As many as 19 respondents (43.2%), junior high school education as many as 18 respondents (40.9%), and not working as many as 33 respondents (75%); b) Contraceptives that are widely used by hormonal contraceptive acceptors in Leuwinanggung Village in 2018 are injectable contraceptives of 70.5%; c) Changes in the menstrual cycle in hormonal contraceptive acceptors in Leuwinanggung Village in 2018 which occurred the most were Amenorrhea, which was 31.8%; d) The increase in body weight in hormonal contraceptive acceptors in Leuwinanggung Village in 2018 which occurred the most was an increase of >3 kg, which was 52.3%; e) There is a significant relationship between the type of hormonal contraceptive pill and changes in the menstrual cycle of hormonal contraceptive acceptors in Leuwinanggung Village in 2018 (p -value = 0.000 OR = 0.049); f) There is a significant relationship between the type of injectable hormonal contraception and changes in the menstrual cycle of hormonal contraceptive acceptors in Leuwinanggung Village in 2018 (p -value = 0.001, OR = 9.375); g) There is no significant relationship between the type of implanted hormonal contraceptives and changes in the menstrual cycle of hormonal contraceptive acceptors in Leuwinanggung Village in 2018 (p -value > 0.05 the number of respondents is only 2); h) There is a significant relationship between the type of hormonal contraceptive pill and weight gain in hormonal contraceptive acceptors in Leuwinanggung Village in 2018 (p -value = 0.007, OR = 0.120); i) There is a significant relationship between the type of injectable hormonal contraception and weight gain of hormonal contraceptive acceptors in Leuwinanggung Village in 2018 (p -value 0.024, OR= 5.833); and j) There is no significant relationship between the type of hormonal contraceptive implant and weight gain in hormonal contraceptive acceptors in Leuwinanggung Village in 2018 (p -value > 0.05 , the number of respondents is only 2).

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