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Relationship between Hormonal Contraception and Menstrual Cycle

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ABSTRACT

Background: The high rate of baby births in Indonesia increase in population each year. Family planning is a way to regulate the number of children and birth spacing between children with contraception. Injection and pill contraceptives are hormonal contraceptives. However, the use of contraceptives has an impact on weight gain, nausea, vomiting, headaches, and swollen feet. Dusun Kepuk is one of the villages in the Bangsri sub-district with the domination used of hormonal contraception compared to other methods, and the side effects of using this hormonal contraceptive method are not known. The aim of the research was to determine the relationship between the use of hormonal contraceptives and changes in the menstrual cycle in Kepuk Village, Bangsri District, Jepara Regency. **Methods:** This was non-experimental research with a cross-sectional design conducted in Kepuk Village, Bangsri District, Jepara Regency. The population in this study were acceptors who used hormonal contraception (pills and injections). The samples were taken with purposive sampling based on the inclusion and exclusion criteria. This study used a questionnaire to obtain information from respondents. The data were analyzed using the SPSS chi-square correlation test. **Results:** Most respondents with 3 months of injected contraceptives suffer a disrupted menstrual cycle, as many as 51 respondents (71.8%). The Chi-Square test result $p = 0.001$ show that there is a relationship between the use of hormonal contraceptives and the menstrual cycle. **Conclusion:** The use of hormonal contraception is associated with changes in the menstrual cycle changes in Kepuk Village, Bangsri District, Jepara Regency.

1. Introduction

The high birth rate in Indonesia causes the population to increase every year. The total population of Indonesia reached 237,641,326 people in 2010, and the results of the Population Census in September 2020 recorded 270.20 million people. With Indonesia's land area of 1.9 million km², the population density of Indonesia is 141 people per km².¹

The Indonesian government first established the family planning program with the aim of suppressing the rate of growth which increase every year. Hormonal contraception is the contraceptive that is most preferred by family planning participants

compared to the others. Based on data from the National Population and Family Planning Agency, there are around 8,500,247 couples of childbearing age who have just tried to do family planning with the following details. There are 658,632 people (7.75%) using an intrauterine device (IUD), users' women's surgery methods (MOW) 128,793 people (1.52%), men's surgery methods (MOP) 21.374 people (0.25%), condom users totaled 517,638 (6.09%), implant users 784,215 people (9.23%), injections 4,128,115 people (48.56%), pills 2,261,480 people (26.60%).^{1,2}

Based on the research that has been done shows

that the percentage of implementation of family planning programs in all health centers in Indonesia is 97.5%. Family planning is included in the mandatory health center services that should be implemented in all health centers in Indonesia. However, there are still many community health centers that do not provide family planning services, such as 18.4% in Papua, 5.8% in West Papua, and 3.1% in Maluku.² Dusun Kepuk is one of the villages in the Bangsri sub-district with the domination used of hormonal contraception compared to other methods, and the side effects of using this hormonal contraceptive method are not known.

The benefit of using contraceptives is that it can reduce the rate of population growth by forming a small family according to the level of socio-economic capability so as to create a harmonious and prosperous family. However, the use of contraceptives has an impact on weight gain, nausea, vomiting, headaches, and swollen feet. Other side effects found during menstruation are changes in menstrual cycles that are shortened or lengthened, bleeding a lot, or little or no menstruation at all.² Previous research stated that the use of contraceptives in the form of pills could affect the menstrual cycle. Based on the description above, the researcher will conduct research on the relationship between the use of hormonal contraception (pills and injections) on changes in the menstrual cycle in Kepuk Village, Bangsri District, Jepara Regency.²⁻⁴

2. Methods

This study was observational research with cross sectional design. The research was conducted in Kepuk Village, Bangsri District, Jepara Regency. The population in this study were acceptors who used hormonal contraception (pills and injections). The samples were taken with purposive sampling based on the inclusion and exclusion criteria. The inclusion

criteria were married women of productive age, using hormonal contraceptives actively, being willing to be active respondents, and being able to read and write the questionnaires.

This study used a questionnaire to obtain information from respondents, which consists of identity, kinds of contraception has been used, and the menstrual cycle changes. The researcher explains in detail the purpose and how to fill in the data and asks permission to become obedient respondents, and is asked to sign as evidence that the respondent wants to be a research sample. The data were analyzed using the SPSS chi-square correlation test. This study has received ethical clearance approval from the Health Research Ethics Committee FKIK UMY with the number 174/EC-KEPK FKIK UMY/VI/2020.

3. Results

The number of respondents who met the criteria was 71 married women, and the age range was 17-50 years (table 1). The majority of respondents are between 26-35 years old, with a total of 34 respondents or 47.9% and have elementary school education. The average number of respondents' children is 2, as much as parity. Most used hormonal contraception for more than 1 year (80.3%).

The results of the cross-tabulation in table 2 show the majority of respondents using 3-month injectable contraceptives with changes in the menstrual cycle, as many as 51 respondents (71.8%), while the results of the least cross-tabulation are pill contraceptives, with no respondents experiencing menstrual cycles. changed (0.0%).

Table 3 above shows the Chi-Square test value of 0.001 (<0.05), which indicates that there is a relationship between hormonal contraceptives (pills and injections) and menstrual cycle disorders in Kepuk Village, Bangsri District, Jepara Regency.

Table 1. Subject characteristics

Characteristics	Total	Percentage
Age (years old)		
17-25	15	21.1
26-35	34	47.9
36-45	19	26.8
> 45	3	4.2
Education		
Primary school	33	46.5
Junior high school	30	42.3
College	8	11.3
Number of children		
1	24	33.8
2	34	47.9
3	11	15.5
4	2	2.8
Parity		
1	23	32.4
2	36	50.7
3	10	14.1
4	2	2.8
Contraceptive duration		
< 1 year	14	19.7
≥ 1 year	57	80.3

Table 2. Contraception hormonal and menstrual cycle changes

		Menstrual cycle changes					
		Not changes		Changes		Total	
		F	%	F	%	F	%
Contraception	Pill	5	7,0	0	0,0	5	7,0
	Injection	15	21,1	51	71,8	66	93,0
	Total	20	28,2	51	71,8	71	100,0

Table 3. Chi-Square test

Variable	Significant (p-value)
Contraception and Menstrual Cycle Changes	0,001

4. Discussion

The research was conducted in Kepuk Village, Bangsri District, Jepara Regency, namely about the use of hormonal contraceptives (pills and injections) in the menstrual cycle. The most widely used contraceptive method is the 3-month injection category. The factor for choosing DMPA injectable contraceptives is influenced by the level of knowledge

about family planning because people who have high knowledge affect rationality in deciding the use of family planning, and also the price is lower, effective, and the duration of use is longer than other hormones. Family plan. 3-month injectable hormonal contraceptives are said to be cheap because of the long duration of use and do not require monthly visits such as 1-month injections, and only need to remember the

schedule of injections 4 times a year. Another factor that influences the decision to use 3-month injectable contraceptives is the husband and wife relationship because DMPA injectable contraceptives do not affect activities during sexual intercourse. The choice of injectable contraceptive method is influenced by the number of children and age because the older a person is, the greater the feeling of not being pregnant anymore and preferring appropriate and effective contraception. The results of the study are in line with this study that the use of injectable contraceptives is more desirable because it is cheap, effective, and has a longer duration of use.⁵⁻⁸

Respondents indicated that they experienced more changes in the menstrual cycle and menstruation within a span of 2-3 months, and at the first injection of KB, the respondents experienced watery menstrual blood. One of the side effects of using injectable hormonal contraceptives is a change in the menstrual cycle, and usually, the menstrual cycle will return to normal after stopping use for approximately 3-6 months. Another side effect that can occur due to the use of injectable contraceptives is the absence of menstruation for at least three months (amenorrhea), and spotting bleeding may occur. Usually, the menstrual cycle is caused by the production of the hormone estrogen in the body that is sufficient. Everyone has a different influence on the work of the hormone estrogen in the body, so everyone's menstrual cycle is different. Other factors that influence changes in the menstrual cycle in the use of hormonal contraceptive injection acceptors are psychological conditions, physical activity, age, and comorbidities. Some menstrual disorders also cause abdominal pain during menstruation, late menstruation or irregular menstruation, and long menstruation. This result is in line with research that shows that respondents experience menstrual cycle disorders more often due to discontinuation of injecting contraceptive use. Research suggests that the use of oral contraceptives reduces the length and flow of menstruation. This is caused by the thin lining of the endometrium in women taking oral

contraceptives.⁸⁻¹⁰

Similar to previous studies, the injectable hormonal contraceptive method provides a greater change in the menstrual cycle than the pill type, so it is considered a risk factor for irregular vaginal bleeding patterns^{8,11}. People who use injectable contraceptives for 3 months have greater menstrual cycle irregularities than other contraceptives. The use of injectable contraceptives for 3 months is likely to experience interference 15.4 or 1/0.065 times greater than the use of injectable contraceptives for 1 month. This is obtained from the results of a statistical analysis of respondents who use injectable contraceptives. The use of monthly contraceptives will change the schedule of the menstrual cycle for the first 3 months so that the monthly bleeding pattern is irregular, while the use of injectable contraceptives for 3 months mostly does not experience menstruation after use. Amenorrhea is a menstrual disorder caused by the suppression of LH by progesterone in the DMPA component, which can cause the endometrium to become more atrophic and shallower with inactive glands.¹² Sustained amenorrhea causes changes in the menstrual cycle that cause some women to stop using injectable contraceptives, but many women accept the state of amenorrhea even though amenorrhea caused by progesterone administration is not known to be harmful. In addition to changes in the menstrual cycle in women, the use of injectable contraceptives, especially DMPA, can cause weight gain. Other studies have also stated that the use of pill-type hormonal contraceptives has fewer negative side effects than injectable hormonal contraceptives.^{11,13} As a result of the side effects associated with hormonal contraception, one-third of women discontinue this method.^{9,13-15}

The limitations of this study are the delay in sampling and the limited number of samples due to the current COVID-19 pandemic.

5. Conclusion

The use of hormonal contraception is associated with changes in the menstrual cycle in women of

childbearing age in Kepuk Village, Bangsri District, Jepara Regency.

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