



## THE RELATIONSHIP BETWEEN THE USE OF HORMONAL CONTRACEPTIVES AND CHANGES IN MENSTRUAL PATTERNS IN HORMONAL BIRTH CONTROL ACCEPTORS

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**Abstract:** The program Keluarga Berencana (KB) is one of the Indonesian government's efforts to overcome the problem of population growth among NKKBS families. Hormonal contraceptives are the most popular/most widely used by PUS because they are the easiest to reach and easy to use and they are not embarrassed when they are installed. Unfortunately, this use often causes side effects, namely those who experience menstrual pattern disorders 65.8% while those who do not experience menstrual disorders 34.2%. (Sinaga Asnita et al, 2023). The problems that often arise are caused by 3-month injectable contraceptives, namely 60% amenorrhea, 20% oligomenorrhea, and 20% polymenorrhea. (Kurniawati Indra et al., 2023). The purpose of this study is to determine the relationship between the use of hormonal contraceptives and the incidence of changes in menstrual patterns. This research was conducted on October 1 - 31, 2024 at PMB K, Purwodadi Village, Kediri Regency. The technical analytical research design is retrospective. Sampling was done using the Quota Sampling technique. The number of samples was 48 respondents according to the inclusion and exclusion criteria. Hormonal contraceptive independent variable. Dependent variable changes in menstrual patterns in hormonal birth control acceptors. Data collection using KB cards and checklists was analyzed by chi-square test. The results of the chi-square sig.

## INTRODUCTION

The program Keluarga Berencana (KB) is an effort by the Indonesian government to overcome the problem of population growth, by mobilizing the community, gathering, and inviting all potential people to actively participate in institutionalizing and cultivating the Norma Keluarga Kecil Bahagia Sejahtera (NKKBS) to improve the quality of Indonesian human resources (Wiknjosastro, 2002; BKKN, 2012). Hormonal birth control is a contraception containing hormones where the composition, levels, and types have been adjusted to the hormones in the female body (Prawirohardjo, 2020 (Muljanto, 2020). Micro, Small, and Medium Enterprises (MSMEs) are essential in increasing a country's Gross Domestic Product (GDP), especially Indonesia, amidst the changes in the Industrial Era 4.0 (Amri, 2020).

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The selection of birth control based on BKKBN data in 2022 in Indonesia shows that most acceptors choose to use injections by 61.9%, followed by pills by 13.5% and implants by 2.72%. (Ministry of Health of the Republic of Indonesia: 2022). Meanwhile, in 2023, 35.3% will be injected, 13.2% will be pills, and 2.53% will be implanted. The data shows a decrease in the use of hormonal birth control by PUS (Ministry of Health of the Republic of Indonesia: 2023). Furthermore, hormonal birth control acceptors who experienced menstrual pattern disorders were 65.8% while those who did not experience menstrual disorders were 34.2%. (Sinaga Asnita et al, 2023). Permasalahan yang sering muncul disebabkan oleh alat kontrasepsi suntik 3 bulanan, yaitu 60% amenore, 20% oligomenore, dan 20% polimenore. (Kurniawati indra dkk, 2023). The Sambi Health Center of Kediri Regency oversees 11 PMBs, all of which have a large number of birth control acceptors, both hormonal and non-hormonal birth control. Of the 11 PMBs, PMB Purwodadi has the highest number of birth control acceptors compared to others, namely 210 (30.25%) acceptors of non-hormonal birth control and 484 (69.75%) acceptor hormonal birth control (Puskesmas Sambi, 2024).

The cause of changes in menstrual patterns in the use of hormonal birth control is because high levels of progesterone affect the work of the hypothalamus and pituitary so that FSH levels are low, then the maturation of primordial follicles cannot become de-graaf follicles, in addition to progesterone inhibits the production of LH, so ovulation does not occur (this is like the luteal phase during pregnancy where there is no ovulation). Lack of estrogen levels causes the endometrium not to proliferate and become thick. This often causes changes in menstrual patterns. In the short term, spotting often occurs, in the medium and long term it will cause weight gain, nausea, depression, and changes in menstrual patterns, namely poly menarche, oligo menores, and amenorrhea (Prawirohardjo, 2020; Rustam Muctar, 2002).

Handling the problem of Hormonal Birth Control side effects is easy as long as the acceptor complies with the Konseling, Informasi, Edukasi (KIE) that has been carried out with the counselor or health worker who has provided the service. Clients must understand the side effects that occur, especially changes in menstrual patterns, namely light bleeding is often found, especially in the first year. This is natural because the use of hormonal birth control recommends consulting complaints that arise. Advise clients to avoid prolonged stress, exercise regularly, and maintain a healthy diet. And if there is bleeding that continues with the use of birth control implants, immediately consult a health worker. The use of hormonal birth control should be replaced with a non-hormonal contraceptive device for a maximum of 3 years, to avoid complications that can occur in hormonal acceptors. Considering the above background, the researcher is interested in conducting a study on "the relationship between the use of hormonal contraceptives and changes in menstrual patterns in hormonal birth control acceptors in PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024".

## RESEARCH METHODS

This study uses an analytical design with a retrospective approach. The researcher wants to conduct a study with the title: the relationship between the use of hormonal contraceptives and changes in menstrual patterns in hormonal birth control acceptors at PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024. An independent variable is the use of hormonal contraceptives with an operational definition, namely: a woman who uses pills, injections, and implants. The indicators assessed are identifying the use of hormonal birth control pills, injections, and implants. The measuring tool for the birth control card use a nominal scale with the code: score 1: injectable birth control, score 2: pill birth control, and score 3: implant birth control.

As for the dependent variable, it is a change in menstrual patterns in hormonal birth control acceptors. The operational definition is abnormal or abnormal changes in menstrual patterns in hormonal birth control acceptors. The indicator is to identify changes in menstrual patterns in hormonal birth control acceptors including Polymenorea, Oligomenorrhea, Ameroia, Hypermenorrhea, Hypomenorrea, and Metroragia. In using a checklist measuring tool with score criteria, the score is 1: Yes has a change in menstrual patterns, and a score of 0: There is no change in menstrual patterns.

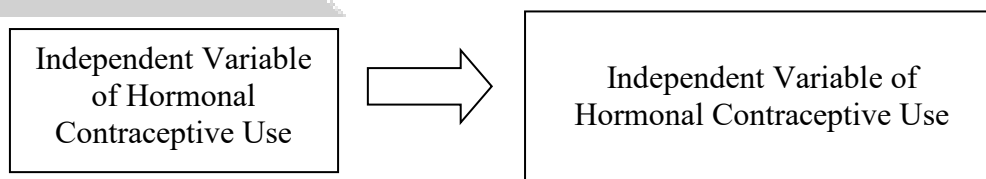


Figure 2. Research framework

Based on the background of the problem, the working hypothesis as a guideline for analysis is:

- H0: There is no relationship between the use of hormonal contraceptives and changes in menstrual patterns in hormonal birth control acceptors at PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024.
- H1: There is a relationship between the use of hormonal contraceptives and changes in menstrual patterns in hormonal birth control acceptors in PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024.

This research step is to obtain a permit from the Head of the D3 Midwifery Study Program, Tulungagung University, and then ask for research approval from the Head of PMB Kanti Widiastutik. After getting a permit, the researcher begins to carry out the research, by giving informed consent to the respondents to sign and they have the right to approve or refuse. Data collection in this study was carried out using family planning card instruments and checklists.

The subjects in this study are all hormonal birth control acceptors in PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024. In this study, the sample was all hormonal birth control acceptors in PMB K who met the inclusion and exclusion criteria totaling 48 respondents. The Inclusion criteria, namely those who are willing to be respondents, and the exclusion criteria: are those who have mental disorders, respondents who are not at home at the time of the study, and who are uncooperative. The sample size used for the subject is less than 100, it is better to take all so that the research is a population study. However, if the number of subjects is large, it can be taken between 10-15% or 20-25% or more (Arikunto, 2012). The sample size is 10% of the population, with the following calculation:  $10/100 \times 484 = 48.4$ . So the sample size obtained was 48 respondents. The sampling technique is Quota sampling, which is a technique to determine a sample of the population that has certain characteristics to the desired number (quota). The data instrument was examined directly on the birth control card and

checklist using the Guttman scale with an assessment interpretation if there is a change in menstrual patterns, the value is 1 and if there is no change in menstrual patterns, the value is 0. The research was carried out at PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency, the implementation time is October 1-31, 2024.

The researcher received a recommendation from the Head of the D3 Midwifery Study Program, at Tulungagung University and a request for permission from the Head of PMB Kanti Widiastutik. After obtaining consent, the research was conducted by emphasizing ethical issues which include: Informed consent (Consent sheet to be a respondent), anonymity (Anonymous), and confidentiality (Confidential). Basic data processing using: editing, coding, scoring, and tabulating. The statistical test technique was selected based on the purpose of the test, namely the relationship (correlation) and the scale of the data on the use of hormonal contraceptives, namely the nominal and the incidence of changes in menstrual patterns was nominal. Based on this scale, the test used by Chi-Square.

## RESULTS AND DISCUSSION

The results of the study through the collection of hormonal acceptor birth control card data and a checklist of changes in menstrual patterns from the hormonal birth control acceptor, which was carried out on October 1-31, 2024 at PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency, were presented based on the objectives of the study, including identifying the use of hormonal contraceptives, changes in menstrual patterns and the relationship between the use of hormonal contraceptives and changes in menstrual patterns in hormonal birth control acceptors.

1. The results of data processing and data analysis of this research are as follows:

Table 1. Distribution of respondents based on the use of hormonal contraceptives in PMB K in Purwodadi Village, Kediri Regency in 2024

Types of Hormonal Contraceptives	Number of Users	Percentage
Suntik	19	39,7
Pil	14	29,2
Implan	15	31,1

The results of the study in Table 2 were obtained from a total of 48 respondents, almost half of whom used injectable hormonal contraceptives, namely 19 respondents (39.7%).

Table 2. Distribution of respondents based on the incidence of changes in menstrual patterns in the use of hormonal contraceptives in PMB K, Purwodadi Village, Kediri Regency in 2024

Changes in Menstrual Patterns	Sum	Percentage
Ya	29	60,3
Tidak	19	39,7
Jumlah	48	100

The results of the research in Table 3 were obtained from a total of 48 respondents, most of whom experienced changes in menstrual patterns, namely 29 respondents (60.3%).

Table 3. Cross-tabulation of the relationship between the use of hormonal contraceptives and changes in menstrual patterns in PMB K, Purwodadi Village, Kediri Regency in 2024

Hormonal Contraceptives	Changes in menstrual patterns				Total	
	Yes		Not		Jml	%
	Jml	%	Jml	%		
Suntik	13	27,1	6	12,6	19	39,7
Pil	8	16,6	6	12,6	14	29,2
Implan	8	16,6	7	14,5	15	31,1
Jumlah	29	60,3	19	39,7	48	100

The conclusion of the calculation of the chi-square test in a temporal manner was obtained as follows:  $X^2 \text{ count } (8.26) > X^2 \text{ table } (5.99)$ . The results of the study in Table 3 were obtained from a total of 48 respondents, almost half of the respondents used injectable hormonal contraceptives and experienced changes in menstrual patterns, namely 13 respondents (27.1%). Based on the Chi-Square test, it was found that with a significance of 0.05 with a p-value is smaller ( $0.018 < 0.05$ ), so  $H_0$  is rejected and  $H_1$  is accepted, which means that there is a relationship between the use of hormonal contraceptives and changes in menstrual patterns in hormonal birth control acceptors in PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024.

## 2. The discussion in this study is as follows

- a. Identifying the use of hormonal birth control in PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024.



The results of the study were obtained from a total of 48 respondents, almost half of whom used injectable hormonal contraceptives, namely 19 respondents (39.7%). The choice of injectable birth control is half of the respondents, because most PUS, especially prospective birth control acceptors, think that the use of injectable contraception is cheaper, most often used, and easier to use, PUS are not afraid / embarrassed by the way it is used. Feeling comfortable because it can be used every month or can choose to return once every 3 months according to the needs and desires of the acceptor, although it is not effective if used in the long term and there are side effects that are not a problem for injectable birth control acceptors.

- b. Identifying the incidence of menstrual pattern changes in hormonal birth control acceptors in PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024.

The use of hormonal birth control from a total of 48 respondents, most of the respondents experienced changes in menstrual patterns, namely 29 respondents (60.3%). Hormonal birth control side effects can generally be divided into 2 groups, namely mild side effects and severe side effects. Mild side effects are weight gain, nausea, depression, and changes in menstrual patterns. Severe side effects in the form of thromboembolism (Prawirohardjo, 2020; Rustam muchtar 2002).

Changes in menstrual patterns are the occurrence of menstruation or menstruation is a complex hormonal stimulus that comes from the hypothalamic-ovarian axis chain (: 398). The influence of hormones on hormonal birth control containing progesterone can suppress follicle growth, ovulation inhibition, suppress luteal activity, inhibit the cyclic release of Follicle Stimulating Hormone (FSH) and Luteinizing Hormone (LH) so that it also suppresses ovum development (Manuaba, 2005; Prawirohardjo, 2020). Side effects of changes in menstrual patterns often occur in the use of the hormone progesterone contained in the contraception because the spike in the height of this hormone will affect the work of the hypothalamus and pituitary which reduces FSH levels so that follicular maturation is inhibited, and LH production is suppressed, so unovulation or no ovulation occurs. In addition, the hormone progesterone will cause the cervical mucus to thicken and the pH in the cervix to turn acidic, causing the movement of sperm to be disrupted towards the uterus and fallopian tubes, ultimately preventing conception. Because the corpus luteum does not become an albican corpus, the condition of the endometrium is made to remain in the luteal phase, the condition of the uterus remains in thick proliferation and there is no

normal secretion process, therefore the things that have been described above can cause side effects of changes in menstrual patterns, both spotting, amenorrhea, polymenore, oligomenorrhea, etc. This must be understood by the acceptor of hormonal birth control users so that they do not think about it and cause prolonged stress which can lead to more chaotic hormone levels in the blood and cause more severe side effects that occur.

- c. Identifying the relationship between the use of hormonal birth control and changes in menstrual patterns in PMB K, Purwodadi Village, Kediri Regency in 2024.

he calculation of the chi-square test in a manual manner was obtained:  $X^2$  count (8.26) >  $X^2$  table (5.99). So the results of a total of 48 respondents were almost half of the respondents using injectable hormonal birth control and experiencing changes in menstrual patterns, namely 13 respondents (27.1%). Based on the Chi-Square test, with a significance of 0.05 and the p-value is smaller ( $0.018 < 0.05$ ), so  $H_0$  is rejected and  $H_1$  is accepted, which means that there is a relationship between the use of hormonal contraceptives and changes in menstrual patterns in hormonal birth control acceptors in PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024.

Hormonal contraceptive users can experience changes in menstrual patterns due to the presence of the hormone progesterone contained in it which can change the menstrual cycle. The hormone progesterone can suppress follicle growth, ovulation inhibition, suppress luteal activity and inhibit the release of FSH. The absence or reduction of FSH can inhibit the growth of follicles so that the ovulation process will not occur. And the corpus luteum does not become an albican corpus, so the condition of the endometrium is made to remain in the luteal phase, then the condition of the uterus remains in thick proliferation and there is no normal secretion process, therefore the things that have been described above can cause side effects of changes in menstrual patterns, both spotting, amenorrhea, polymenore, oligomenorrhea, etc.

Factors that affect the use of contraception: Number of population, composition of the population by gender, age. Another illustration of the age structure of the population is the comparison between the number of people in the reproductive age economically (15 – 64 years) and the number of people who are not yet or are no longer productive (0 – 14 years old and 65 years and above). Reproductive age will greatly affect the rate of population growth if it is not treated in terms of contraceptive selection. The level of education also plays a very important role in terms of population



growth. Low levels of education are more likely to choose contraception, which is widely chosen by the public due to a lack of knowledge and information about contraceptives. They are only fixated and interested in one type of contraceptive.

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At the age of 20-35 years a woman is in the productive period so that there can be changes in the menstrual cycle, besides that at that age there can be a surge of hormones that affect menstrual patterns. The age of 20-35 years is included in the productive age and at that age it is suspected that they are still sensitive to hormonal changes so that menstrual pattern changes occur more often, besides that at that age a person's menstrual pattern is mostly unstable. Lack of experience in using contraception is also experienced by many women aged 20-35 years so most of them do not understand the impact of a contraception.

## CONCLUSIONS AND RECOMMENDATION

The use of hormonal birth control from a total of 48 respondents was almost half of the respondents using injectable hormonal birth control, which was 19 respondents (39.7%). There were changes in menstrual patterns from a total of 48 respondents, most of whom experienced changes in menstrual patterns, namely 29 respondents (60.3%). Of a total of 48 respondents, almost half of the respondents used injectable hormonal contraceptives and experienced changes in menstrual patterns, namely 13 respondents (27.1%). Based on the Chi-Square test, it was found that with a significance of 0.05 with a p-value is smaller ( $0.018 < 0.05$ ), so  $H_0$  is rejected and  $H_1$  is accepted, which means that there is a relationship between the use of hormonal contraceptives and changes in menstrual patterns in hormonal birth control acceptors in PMB K, Purwodadi Village, Ringinrejo District, Kediri Regency in 2024.

Advice for hormonal birth control users can better understand the advantages and disadvantages of using hormonal contraceptives so that the acceptor understands the choice of contraceptive that he has used and seeks more information about the contraceptive to be used. If you have become a hormonal birth control acceptor, please really understand how hormonal birth control works. Because it is related to the side effects that occur and complications that

may be present when using hormonal birth control. By suggesting avoiding prolonged stress, exercising regularly, and maintaining a healthy diet and adequate nutritional intake.

Advice for health workers/health workers and educational institutions is to do the right counseling for KBhormonal acceptor users, considering the risk of side effects and complications caused so that they do not harm the client and make the client smarter and understand the hormonal alkon used. For educational institutions, create graduates who are good at communicating well with clients and introduce and emphasize the importance of family planning counseling for clients, both prospective acceptors and family planning acceptors.

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