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Research Article

Relationship between the Use of Hormonal Contraception and Spotting Incidents in the Sonuo Village Health Center Area

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Abstract: The use of hormonal contraception is a common method used by women of childbearing age to prevent pregnancy. However, this method is often associated with side effects, one of which is spotting or light bleeding outside the menstrual cycle. This study aims to analyze the relationship between the type of hormonal contraception and the incidence of spotting in the Sonuo Village Health Center area. This study used a quantitative design with a cross-sectional approach. The sample consisted of 37 respondents selected by total sampling. Data were collected through questionnaires and analyzed using the chi-square test with the help of SPSS software. The results showed that the majority of respondents used injectable contraception (62.2%), followed by implants (24.3%) and pills (13.5%). Most injectable users experienced spotting (82.6%), while implant users more often experienced amenorrhea (77.8%). The chi-square test showed a significant relationship between the type of hormonal contraception and the incidence of spotting (p-value = 0.000). The conclusion of this study is that the type of hormonal contraception affects the incidence of spotting, where injectables cause spotting more often than other methods. Education about the side effects of hormonal contraception needs to be increased so that users can choose a method that suits their body condition.

Keywords: Hormonal Contraception, Spotting, Amenorrhea

1. Introduction

Family planning is a step to regulate the number of children born, determine the right birth spacing, and the ideal age for giving birth, by providing information, protection, and support in accordance with reproductive rights in order to achieve a healthy and prosperous family.(Revelation)et al., 2022). Contraception can be defined as an action that helps married couples to prevent unwanted pregnancies, plan desired births, regulate the spacing between pregnancies, control the time of pregnancy based on the age of the couple, and determine the number of children in the family.(Tusiyani et al., 2024). Contraceptive methods have undergone significant development. These contraceptive methods can be divided into two main categories, namely long-term contraceptive methods (Long-Term Contraceptive Method), which include intrauterine contraceptive devices (IUDs), implants, vasectomy, and tubectomy. Meanwhile, non-long-term contraceptive methods (Non-Long-Term Contraceptive Method) include injections, contraceptive pills, and condoms. In addition, there are also natural birth control methods based on the menstrual cycle(Setyorini & Lieskusumastuti, 2020).

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According to the Ministry of Health (2021), the use of contraception aims to ensure that individual reproductive rights are fulfilled, help plan families by determining the desired time and number of children, and prevent unplanned pregnancies. The use of appropriate contraceptives can also reduce the risk of maternal and infant mortality. Therefore, Family Planning (FP) services must be a priority in the health system, with the aim of increasing access and quality in accordance with the recommendations of the International Conference on Population and Development (ICPD). To achieve this goal, strengthening the management of Family Planning (FP) services is very important. This is in line with the mandate of Law Number 36 of 2009 concerning Health, which emphasizes the government's obligation to ensure the availability of medical personnel, service facilities, equipment, and medicines needed to provide safe, quality, and affordable FP services for the community.(Rajadiah et al., 2025)

Spotting is a disorder of menstrual patterns that occurs due to the influence of hormones. Spotting complaints often appear and tend to decrease over time. This condition is caused by hormonal imbalance in the body. Spotting often occurs in patients who use contraception, especially in users of 3-month injections. However, this condition is generally not a serious problem, is not dangerous, disappears quickly, and usually does not require treatment. The cause of spotting is related to the use of 3-month injections, which results in hormonal imbalance and histological changes in the endometrium(Raihana et al., 2025).Some women experience menstrual irregularities due to the use of contraceptive methods. This problem can vary from person to person. Usually, this disorder is hormonal and not experienced by everyone with the same effects. The cause may be related to hormonal incompatibility and imbalance.(Rajadiah et al., 2025). The hormones estrogen and progesterone provide feedback to the pituitary gland through the hypothalamus, which causes inhibition of follicle development and the ovulation process. Through the hypothalamus and pituitary, estrogen can inhibit the release of Follicle Stimulating Hormone (FSH), so that the development and maturation of the De Graaf Follicle does not occur. In addition, progesterone can inhibit the release of Luteinizing Hormone (LH). Estrogen also accelerates the peristalsis of the fallopian tube, so that the resulting conception cannot reach the uterus, because the endometrium is not ready to receive implantation.(Arison, 2019).

In Indonesia, the percentage of women aged 15-49 who are married and are using contraception in 2021 reached 55.06%. In 2022, this figure increased to 55.36%, and in 2023 it rose again to 55.49%. Although the increase in the percentage of active contraception use is not very significant, it still has an impact on balance and growth in Indonesia.(Pratiwi et al., 2024).Data submitted by the Ministry of Health, in 2021, the prevalence of Fertile Age Couples (PUS) in Indonesia who participated in the Family Planning Program (KB) was 57.4%. This figure shows a decrease compared to the previous year which reached 67.6%. Of that number, 59.9% of KB participants used the injection contraceptive method. Around 15.7% of participants chose modern contraception in the form of pills or capsules, while 10% used implant contraception. KB participants who chose an intrauterine contraceptive device (IUD) were 8%. In addition, 4.2% of KB participants chose the female surgical method (MOW), 1.8% used condoms, and 0.2% chose the male surgical method (MOP). About 0.1%

of KB participants used the lactational amenorrhea method (LAM)(Puspitasari et al., 2024). North Sulawesi Province recorded an average number of contraceptive service participants per month reaching 6,972 people.(Toar & Bawiling, 2022). The high interest in the use of hormonal contraception is proportional to the number of complaints felt by users, which are caused by side effects that arise as a result of its use.(Monayo et al., 2020). Therefore, health workers or midwives are expected to increase the effectiveness of IEC (Communication, Information, and Education) regarding the impacts and side effects of using hormonal contraception to prospective acceptors. Thus, they can better understand and accept health changes that may occur during the use of certain hormonal contraceptives, and can recognize and be aware if there are potentially dangerous side effects.(Puti & Nikmah, 2021).

The results of the initial survey conducted in the Sonuo Village Health Post area showed that there were 37 mothers with spotting incidents. Considering the importance of the role and function of midwives in providing care and handling spotting problems, therefore, based on the research that has been conducted, the author intends to conduct a study entitled "The Relationship between the Use of Hormonal Birth Control and the Incident of Spotting in the Sonuo Health Post Work Area" with the aim of knowing the relationship between the use of hormonal birth control and the menstrual cycle in the Sonuo Health Post work area. Based on the description above, the researcher is interested in conducting a study entitled

2. Preliminaries or Related Work or Literature Review

Research on the relationship between hormonal contraceptive use and the incidence of spotting has been widely investigated. Hormonal contraception is one of the most popular methods of birth control among women of reproductive age due to its effectiveness in preventing pregnancy. However, this method often comes with side effects such as menstrual irregularities, including spotting (light bleeding outside the menstrual cycle). These side effects can affect user comfort and compliance with the chosen contraceptive method(Riandari et al., 2024).

Spotting occurs as a result of hormonal fluctuations, particularly in estrogen and progesterone levels, which impact the stability of the endometrial lining(Riandari et al., 2024). Hormonal imbalances are commonly observed in users of injectable and implant contraceptives, which deliver synthetic hormones continuously and in specific doses. Several studies have reported that such side effects tend to decrease over time as the body adapts to the administered hormones(Nency & ramadhan, 2023)

Other contributing factors to spotting include the duration of contraceptive use, individual physiological responses to hormones, and user knowledge about the side effects of hormonal contraceptives. The duration of use significantly affects the likelihood of spotting, which tends to occur more frequently during the first six months and decreases after a year of use. In addition, individual responses to progestin and estrogen vary and are influenced by factors such as age, parity, and stress levels(Treasure, 2023)

Education and awareness of the potential side effects of hormonal contraception are essential. Studies have shown that sufficient knowledge helps users better prepare for changes in their menstrual cycles and make more informed decisions about contraceptive choices(Ruari et al., 2024)

Physiologically, contraceptive hormones work by suppressing the hypothalamic-pituitary-ovarian axis, thereby inhibiting the secretion of FSH and LH, preventing ovulation, and causing the endometrium to remain underdeveloped. This condition makes the endometrial lining unstable and prone to either light bleeding (spotting) or amenorrhea(Megawati & Hasrida, 2025)

Therefore, this study reinforces previous findings regarding the close relationship between hormonal contraceptive types and menstrual disturbances such as spotting. It also highlights the importance of user education in understanding the potential side effects, enabling them to select the most appropriate contraceptive method based on their physiological conditions and preferences.

2.1 Factors Contributing to Spotting in Hormonal Contraceptive Users

1. Types of Contraception

   The use of hormonal contraceptives, especially injections and implants, is often associated with spotting. The progesterone hormone contained in injectable contraceptives, such as DMPA (Depot Medroxyprogesterone Acetate), can cause changes in the endometrial lining, leading to light bleeding or spotting.(Putri & Arifah, 2024). Research conducted(Revelation)et al., 2022)shows that spotting occurs more frequently at the beginning of injectable contraceptive use and tends to decrease over time.

2. Duration of Use

   The duration of hormonal contraceptive use also has a significant effect on the occurrence of spotting. Research shows that the longer the use of injectable contraceptives, the less likely spotting will occur. For example, after one year of use, many users reported that they no longer experienced spotting and tended to experience amenorrhea. The results of the study showed that spotting was more common in the first six months of use.(Revelation)et al., 2022)

3. Body's Response to Hormones

   An individual's body's response to changing hormone levels is also an important factor. Every woman reacts differently to the hormone progestin, and some may be more sensitive to hormonal imbalances that can cause spotting. Research suggests that age, reproductive status (primigravida or multigravida), and stress levels can affect the body's response to this hormone.(Alsamsiah et al., 2024).

4. User Education and Knowledge

   Education about the side effects of hormonal contraceptives is essential to help users understand what they can expect from using this method. A good understanding of potential side effects, such as spotting, can help users be better prepared for changes in their menstrual cycle and make informed decisions about continuing to use contraception.(Alsamsiah et al., 2024)

2.2 Analysis of the Relationship between Types of Hormonal Contraception and Spotting Incidence

To analyze the relationship between the type of hormonal contraception and the occurrence of spotting, this study used the chi-square statistical test. The results of the analysis showed that the type of contraception used had a significant relationship with the occurrence of spotting, as evidenced by the p-value = 0.000.

The results showed that users of contraceptive pills did not experience spotting, while users of injectable contraceptives tended to experience spotting more often (82.6%) and a small portion experienced amenorrhea (17.4%). On the other hand, the majority of implant users experienced amenorrhea (77.8%), and a small portion experienced spotting (22.2%). These findings indicate that injectable contraceptives have a greater influence on spotting compared to other contraceptive methods.

Physiologically, injectable contraception is a hormonal contraceptive method that can stimulate the ovaries to produce estrogen and progesterone. Both of these hormones function to prevent ovulation, which can change the normal menstrual pattern to amenorrhea, menorrhagia, or cause spotting, and result in a delay in the return of fertility after discontinuation of use. The impact of untreated menstrual cycle irregularities can cause psychological risks, especially if associated with heavy bleeding, which can also interfere with daily activities.(Nasution et al., 2023).

In other hormonal contraception, other menstrual disorders that can occur due to the use of contraceptive implants are spotting, which generally occurs in the first 3-6 months. The cause of spotting is the dilation of small veins in the endometrium, which eventually makes the veins fragile and causes local bleeding. If the gestagen effect is lacking, the stability of the stroma will decrease, which ultimately causes bleeding.(Amran, 2019).

3. Proposed Method

This study used a quantitative research design with a cross-sectional approach conducted in the Sonuo Poskesdes area. The population in this study were women of childbearing age (WUS) who used hormonal contraception. The research sample consisted of 37 respondents selected using the total sampling technique. Data were collected through questionnaires and analyzed using SPSS 16 software. Data analysis included descriptive statistical tests to see the frequency and percentage distribution, as well as the chi-square test to determine the relationship between the type of hormonal contraception and the incidence of spotting.

4. Results and Discussion

4.1 Distribution of Respondents Chalralcharacteristics

Table 1. Age Frequency Distribution

Age	Frequency	Percentage (%)
<20 years	3	12%
20-35 years	20	80%
>35 years	2	8%
Totalll	25	100%

Based on Table 1, it can be seen that the majority of respondents are in the 20–35 year age range, totaling 20 individuals (80%). This is a productive age for women, especially in relation to reproduction and child-rearing. Meanwhile, respondents under 20 years old accounted for only 3 individuals (12%), and those over 35 years old were 2 individuals (8%).

Table 2. Frequency Distribution of Gravida

pregnancy	Frequency	Percentage (%)
Primigravida	19	51.4%
Multigravida	18	48.6%
Total	37	100%

Based on Table 2, most respondents were primigravida, totaling 19 individuals (51.4%), indicating this is their first pregnancy. The remaining 18 respondents (48.6%) are multigravida, meaning they have experienced more than one pregnancy. This shows a relatively balanced distribution between first-time mothers and those with prior pregnancy experience.

Table 3. Frequency Distribution of Education Level

Level of education	Frequency	Percentage (%)
JUNIOR HIGH SCHOOL	10	27%
SENIOR HIGH SCHOOL	24	64.9%
PT	3	8.1%
Total	37	100%

Based on Table 3, most respondents had completed senior high school, with 24 individuals (64.9%). This is followed by those with a junior high school education, totaling 10 individuals (27%). Only a small portion of respondents, 3 individuals (8.1%), have a higher education level (university/college). Educational background may influence respondents' awareness and decision-making regarding contraceptive use.

Table 4. Frequency Distribution of Hormonal Contraceptive Devices

Hormonal Alkon	Frequency	Percentage (%)
Pill	5	13.5%
Inject	23	62.2%
Implant	9	24.3%
Total	37	100%

Based on Table 4, the majority of respondents use injectable hormonal contraceptives, totaling 23 individuals (62.2%). This is followed by implant users with 9 individuals (24.3%), and the smallest group is pill users, with only 5 individuals (13.5%). These findings indicate that injectables are the most preferred type of hormonal contraception among the respondents.

Table 5. Frequency Distribution of Spotting Events

Hormonal Alkon	Frequency	Percentage (%)
Normal	5	13.5%
Spotting	21	56.8%
Amenorrhea	11	29.7%
Total	37	100%

Based on Table 5, the most commonly experienced menstrual irregularity is spotting, which occurred in 21 individuals (56.8%). This was followed by amenorrhea in 11 individuals (29.7%), while only 5 individuals (13.5%) experienced normal menstruation. This suggests that menstrual disturbances are common among hormonal contraceptive users, with spotting being the most frequent.

Table 6. Relationship between Type of Hormonal Contraceptive Device and Spotting Incidence

Types of Hormonal Alkon	Spotting Events						Total	P value
	Normal		Spotting		Amenorrhea			
	n	%	n	%	n	%		
Pill	5	100%	0	0%	0	0%	100%	.000
Inject	0	0%	19	82.6%	4	17.4%	100%	
Implant	0	0%	2	22.2%	7	77.8%	100%	
Total	5	13.5%	21	56.8%	11	29.7%	100%	

Based on Table 6, it can be observed that all pill users (5 individuals or 100%) experienced normal menstruation and did not report any spotting or amenorrhea. In contrast, a large majority of injectable contraceptive users (19 out of 23, or 82.6%) experienced spotting, while 4 individuals (17.4%) experienced amenorrhea. None experienced normal cycles. Among implant users, the majority (7 out of 9, or 77.8%) experienced amenorrhea, and only 2 individuals (22.2%) reported spotting. None had normal cycles. The results of the chi-square statistical test showed a p-value of 0.000 ($p < 0.05$), indicating a statistically significant relationship between the type of hormonal contraceptive used and the incidence of spotting.

5. Comparison

The results of this study, which showed a statistically significant relationship between the type of hormonal contraception and the incidence of spotting (p-value = 0.000), are consistent with several previous studies that examined the same phenomenon. This reinforces the idea that the type of hormonal contraceptive used can greatly influence menstrual patterns, including the occurrence of spotting and amenorrhea.

Research by(Winarti & Azizah, 2024)Similarly found that spotting was most prevalent among new users of injectable contraceptives, especially during the first three to six months of use. This early-onset spotting is primarily due to the hormonal adjustments in the endometrium, particularly in response to the depot medroxyprogesterone acetate (DMPA) commonly found in 3-month injections.

In addition,(Ambarita & Butarbutar, 2022)highlighted that implant users often experience menstrual changes such as spotting and amenorrhea due to the continuous and low-dose release of progestins, which disrupts the stability of endometrial tissue. This study found that It was reported that the majority of implant users experienced menstrual disorders, with 53.6% experiencing amenorrhea and 32.1% experiencing polymenorrhea. These disorders are associated with an imbalance between estrogen and progesterone, influenced by the progestin hormone released by the implant, which disrupts the stability of the endometrium.

From a physiological standpoint,(Prosfera et al., 2024)explained that hormonal contraceptives alter the hypothalamic-pituitary-ovarian axis. Estrogen and progesterone released or simulated by hormonal contraception suppress the secretion of FSH and LH, thereby inhibiting follicle development and ovulation. This disruption can alter the endometrial environment, leading to either amenorrhea or irregular bleeding such as spotting. The mechanism described in their study is in line with the clinical manifestations observed in this research, particularly among injectable and implant users.

This comparative analysis across literature shows that the current findings are not isolated but part of a broader pattern supported by physiological theory and empirical data. The consistent trend across studies enhances the credibility and generalizability of this research. It also underscores the importance of tailored contraceptive counseling, where individual characteristics and tolerance for menstrual side effects should guide method selection.

6. Conclusions

Based on the results of the research that has been conducted, it can be concluded that there is a significant relationship between the use of hormonal contraceptives and the occurrence of spotting. Users of injectable contraceptives tend to experience spotting more often than users of other contraceptive methods, while users of implants experience amenorrhea more often. Users of contraceptive pills do not experience spotting or amenorrhea, making this method more stable in maintaining the menstrual cycle. The results of the statistical test showed a p-value = 0.000, which means that the type of hormonal contraceptive has a significant effect on the possibility of spotting. Therefore, in choosing a contraceptive method, it is important to consider not only its effectiveness in preventing pregnancy, but also the potential side effects that may arise. To reduce the impact of spotting on users of hormonal contraceptives, better education is needed regarding the side effects of each contraceptive method. Health workers must provide clear information regarding the risks of spotting and amenorrhea, so that users can make the right decisions according to their body condition. Thus, it is hoped that the level of user satisfaction with the chosen contraceptive method can increase, and the occurrence of unwanted side effects can be minimized.

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