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Side Effects and Return of Fertility of Hormonal and Non-Hormonal Contraceptive Acceptors in the Kassi-Kassi Health Center Work Area, Makassar City

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ABSTRACT

Side effects are a factor that can influence the choice of contraceptives. In addition to concerns about the side effects of contraceptives experienced and felt such as menstrual disorders, pelvic cramps, and excessive bleeding, the delay in the return of fertility after stopping contraception continues to be a challenge for most women and has a negative impact on the use of contraceptives. The purpose of this study was to determine the side effects and return of fertility in hormonal and non-hormonal KB acceptors in the Kassi Health Center Work Area, Makassar City. Observational analytical research with a Cross-Sectional Study design. The population of active KB participants and a sample of 79 hormonal and non-hormonal KB acceptors using the Purposive Sampling technique based on criteria that were considered in accordance with the predetermined sample criteria. Data collection was carried out by conducting interviews using questionnaires. The results of the study showed (P=0.029) on the effect side effects of menstrual disorders, (P=0.013) effect side change in body weight, (P=0.956) effect side vaginal discharge, (P=0.186) effect side Sick headache / dizziness and return of fertile period (P=0.181). There is a significant relationship effect alongside menstrual disorders and changes weight loss with type contraception used by KB acceptors in the work area Kass-kassi Community Health Center Makassar city. There is no significant relationship experience effect side vaginal discharge, pain headache / dizziness and return of fertile period with type contraception used by KB acceptors in the work area Kass- kassi Community Health Center. Conclusion: the side effects of hormonal and non-hormonal contraception vary. Pills (weight gain, headache/dizziness), injections (menstrual disorders, weight changes, vaginal discharge, and headache/dizziness), and implants (menstrual disorders, weight changes, vaginal discharge, and headache/dizziness). IUD (Menstrual Disorders, vaginal discharge).

INTRODUCTION

There are many different birth control methods that can be chosen by fertile couples according to the needs of each couple to prevent pregnancy by using various contraceptives available, both temporary and permanent. Each contraceptive method has different

effectiveness and works on different principles. (Mukanga *et al.* , 2023) , (Alfian Nisa Rokhimah, *et al.* , 2019)

Side effects are still a factor that can influence the choice of contraception. Previous research in 2021 found that side effect factors were one of the causes of PUS in choosing and using contraception in the Kassi-Kassi Health Center Work Area of Makassar City from 107 acceptors (84.3%) non-MKJP KB participants experienced side effects and were 46.129 times more likely to choose the type of contraception compared to KB acceptors who had never experienced side effects from using contraception (Masnilawati and Karuniawati, 2022) . This is in line with other studies that there is a correlation between the influence of non-material costs (experience of side effects) and the use of contraception. Users of implants and injections are more likely to stop due to side effects than users of other methods (Septalia and Puspitasari, 2017) , (Sato *et al.* , 2020) .

Hormonal contraception has been shown to be effective in preventing unwanted pregnancies. However, there are concerns regarding safety and effects. It is important to remember that hormonal contraception is a drug that can interact with the body's physiological mechanisms and metabolic changes. In addition, some individuals may be more sensitive to hormone therapy due to the risk of breast cancer and mood depression. Therefore, these risks must be carefully evaluated and known so that doctors can choose the right contraception for each woman (Genazzani *et al.* , 2023) **.**

In addition to concerns over the side effects of contraception experienced and felt such as menstrual disorders, pelvic cramps, and excessive bleeding , delayed return of fertility after stopping contraception is still a problem for most women and has a negative impact on contraceptive use (Mukanga *et al.* , 2023) . Delayed fertility after stopping contraception is still a major concern for women using contraception. Especially women who have experienced post-pill amenorrhea or failed to get pregnant on the estimated fertile period after stopping contraception. Controlling unwanted fertility with highly effective reversible contraception allows PUS to have the number of children they want. However, on the other hand, delayed or impaired contraceptive fertility can lead to dissatisfaction and decreased contraceptive use (Girum and Wasie, 2023) **.** Delayed fertility after stopping contraception is a major challenge for women who accept hormonal contraception. Delayed return of fertility after stopping hormonal contraception has a significant impact on women's health and is a reason repeatedly mentioned for not using contraception (Damtie *et al.* , 2023) **.**

This study aims to analyze the side effects and return of fertility in hormonal and non-hormonal family planning acceptors in the working area of the Kassi-Kassi Health Center in Makassar City.

METHODS

study is an observational analytical study using a *Cross-Sectional Study design* conducted in the working area of the Kassi-Kassi Health Center, Rappocini District, Makassar City, which began in September to December 2024. The population of this study was all active KB participants in the working area of the Kassi-Kassi Health Center, Rappocini District, Makassar City, totaling 349 acceptors. And the sample selected was hormonal and non-hormonal KB acceptors totaling 79 KB acceptors using the *Purposive Sampling technique based* on the criteria considered in accordance with criteria samples that have been determined. Inclusion criteria:

Acceptors of hormonal and non-hormonal contraception and able to read and understand Indonesian, Exclusion criteria: Health Center Officers

Data in the study related to the history of the use of contraceptive types, side effects of birth control and the length of the fertile period were obtained through interviews and using structured questionnaires that had been tested for reliability and validity to determine each question precisely that could be used in the study. Data were processed and analyzed using SPSS, with a bivariate analysis using the *Chi-square statistical test*.

RESULTS

Table 1. Respondent Characteristics (n = 79)

Respondent Characteristics		n	%
Age (Years)	20 - 29	28	35,4
	30 - 39	29	36,7
	40 - 49	21	26,6
	≥ 50	1	1,3
Education	Elementary School	12	15,2
	Junior High School	17	21,5
	Senior High School	43	54,4
	Undergraduate/College	7	8,9
Occupation	Civil Servant	2	2,5
	Private Sector Employee	2	2,5
	Housewife	75	95,0
Parity	Ideal (1–2 children)	38	48,1
	Moderate (3–4 children)	4	5,1
	High Parity (≥5 children)	37	46,8

Source: Primary Data, 2024

Table 2. Frequency Distribution of Fertility Return Time

Fertility Return Time	n	%
< 1 Year	14	17,7
1 - 2 Years	27	34,2
>2 Years	11	13,9
Fast (Unspecified)	27	34,2
Total	**79**	**100**

Source: Primary Data, 2024

Acceptors based on age, the most are KB acceptors at the age of 30-39 years 29 people (36.7%) and the least at the age of >/= 50 years 1 person (1.3%). Viewed from the education of the participants, the most were found to have high school education 43 people (54.4%), while in the occupational group there were more who were unemployed / housewives as many as 75 people (94.9%) and the number of parity of KB acceptors who were the most were in the ideal

category as many as 38 (48.1%) and the least with the sufficient category as many as 4 people (5.1%) (Table 1).

Contraceptive acceptors with the longest return to fertility were fertile immediately after stopping contraception and waiting for a fertile period of 1-2 years after stopping contraception, 27 people (34.2%) each, and the fewest waited >2 years after stopping contraception, 11 people (13.9%) (Table 2).

Table 3. Distribution of Respondents by Type, Method, and Duration of Contraceptive Use

Variables		n	%
Types of Contraception	Interruption of intercourse	2	2,5
	Implant	19	21,1
	IUD	10	12,7
	Condom	1	1,3
	MALL	1	1,3
	MOV	3	3,8
	Pill	8	10,1
	Injection	35	44,1
Contraceptive Methods	Hormonal	62	78,5
	Non-Hormonal	17	21,5
Duration of Use Contraception	< 1 Year	4	5,1
	1 - 2 Years	26	32,9
	> 2	46	62,0

Source: Primary Data, 2024

The most widely used type of contraception by KB acceptors was injections as many as 35 people (44.1%) and the least used type of contraception was condoms and LAM each 1 person (1.3%). Meanwhile, the most widely used contraceptive method by KB acceptors was hormonal contraception as many as 62 people (78.5%) and non-hormonal contraception as many as 17 people (21.5%). By showing the duration of contraception use in KB acceptors, the most was >2 years as many as 49 people (69.2%), while the least was <1 year 4 people (5.1%) (Table 3).

Analysis of Side Effects and Return of Fertility of KB Acceptors with Types of Contraceptives

The results of the statistical test obtained a value of (*p=0.029*) on the side effects of menstrual disorders, (*p=0.013*) on the side effects with changes in body weight, (*p=0.956*) on the side effects with vaginal discharge, and (*p=0.186*) on the side effects with headaches/dizziness with ($p<0.05$) which means that there is a significant relationship between the experience of side effects of menstrual disorders and changes in body weight in contraceptive acceptors in the working area of the Kass-Kassi Health Center, Makassar City, but there is no significant relationship between the experience of side effects of vaginal discharge and headaches/dizziness in contraceptive acceptors in the working area of the Kass-Kassi Health Center, Makassar City. And for the return of the fertile period, the results of the statistical test obtained a value of *(P=0.181)* > from the α value (0.05) which means that there is no

significant relationship between the return of the fertile period and the type of contraception used by family planning acceptors in the working area of the Kass-Kassi Community Health Center, Makassar City (Table 4).

Table 4. Relationship Between Side Effects and Return of Fertility with Type of Contraception

Variables		Contraceptive Methods				Total		*p-Value*
		Hormonal		Non-Homonal				
		n	%	n	%	n	%	
Menstrual Disorders	Yes	39	49,4	5	6,3	44	55,7	0,029
	No	23	29,1	12	15,2	35	44,3	
Vaginal discharge	Yes	21	26,6	5	6,3	26	32,9	0,956
	No	41	51,9	12	15,2	53	67,1	
Weight	Go on	45	57	7	8,9	52	65,8	0,013
	Still	11	13,9	9	11,4	20	25,3	
	Down	6	7,6	1	1,3	7	8,9	
Headache Dizziness	Yes	15	19	1	1,3	16	20,3	0,186
	No	47	59,5	16	20,3	63	79,7	
Fertile Return Time	Fast	18	22,8	9	11,4	27	34,2	0,181
	< 1 Year	13	15,5	1	1,3	14	17,7	
	1 - 2 Years	23	29,1	4	5,1	27	34,2	
	>2 Years	8	10,1	3	3,8	11	13,9	

Source: Primary Data (Processed), 2024

DISCUSSION

Hormonal contraception includes contraceptives that include estrogen and progestin hormones, as well as methods that contain only progestin. Combined hormonal contraception includes combination oral contraceptives, combination injections. Methods that contain only progestin include progestin pills, medroxyprogesterone depotacetate (DMPA), levonorgestrel and etonogestrel implants, and intrauterine methods using levonorgestrel (Adiesti and Wari, 2020). A side effect is an adverse and unwanted impact or influence that occurs as a result of a treatment or other intervention. A negative influence or impact is called a side effect when it occurs as a secondary effect of the therapeutic effect (Hadijah, Br.Ginting and Munawaroh, 2023).

Some side effects are likely to occur from the use of hormonal contraceptives, including weight gain, can control the appetite center, stimulate the hypothalamus, causing increased appetite. Other side effects such as menstrual disorders, dizziness, nausea and headaches are also caused by hormonal changes caused by hormone induction in the acceptor, menstrual cycle irregularities, metrorrhagia, menorrhagia, nausea, headache, breast tenderness, weight gain, mood swings, libido changes, acne, palpitations, hair loss, hypertension (Adiesti and Wari, 2020) **,** (Eny Puji Astuti and Putri Azzahroh, 2024)**.**

Side Effects with Menstrual Disorders

Menstrual disorders such as amenorrhea and spotting are the most common complaints felt by KB acceptors. According to research, menstrual disorders that occur are caused by injections and implants with a duration of contraceptive use for most of >2 years. And KB acceptors are aware of the abnormality of the menstrual cycle as an effect of contraceptive use.

This menstrual disorder can be caused by hormonal imbalance in the form of increased luteinizing hormone (LH) and feedback of estrogen levels that are always high so that FSH levels cannot reach their peak causing active theca cells and producing androgens in the form of androsteneidon and testosterone. This hyperandrogenic condition causes the internal environment of the follicle to be androgen dominant so that it cannot develop and eventually die. Thus, follicle growth stops so that there is no change in menstrual patterns. This occurs because of the presence of the progesterone hormone contained in it which affects the body's metabolism so that it is not uncommon for users of implants that are not suitable to experience different menstrual periods.

The side effects of Spotting, the exact cause is not yet clear, but it is suspected that the addition of progesterone causes dilation of small veins in the endometrium and these veins eventually become fragile, resulting in local bleeding (Hariati, Ekawati and Nugrawati, 2020) . The use of 3-month contraceptive injections over a longer period of time tends to have more effect on changes in progesterone because the addition results in dilation of the veins in the endometrium which eventually become fragile and cause local bleeding, accumulation occurs which causes hormones in the body to become irregular, thus affecting menstrual disorders (Lena Juliana Harahap, 2022) , (Novarianda, Akib Yuswar and Kurniawan, 2023) **.**

Side Effects with Weight Gain

The hormone progesterone facilitates the conversion of carbohydrates and sugar into fat, so that the fat under the skin increases and also causes an increase in appetite and decreases physical activity, as a result of which the use of birth control injections can cause weight gain.

From the results of the analysis of the side effects of using hormonal contraceptives (injections, pills and implants), the side effects of weight changes increased by (57%). This result is in line with a 2020 study that users of contraceptive pill acceptors experienced weight changes in the form of weight gain (Sagita, 2022) . Side effects of using contraceptive implants on weight gain (Monayo, Basir and Yusuf, 2020) , side effects of using contraceptive injections on weight gain (Rozyka Meysetri *et al.* , 2019) The risk of weight gain can be caused because the hormone progesterone facilitates the conversion of carbohydrates and sugar into fat, as a result of which fat under the skin increases, in addition the hormone progesterone also causes increased appetite and decreased physical activity, as a result of which the use of injections can cause weight gain from before (Literature, 2019) **.**

Side Effects with Vaginal Discharge

Respondents who use hormonal contraception mostly do not experience vaginal discharge, especially in users of 3-month injection and implant contraceptives. The results of the study showed that there was no significant relationship between the experience of side effects of vaginal discharge in contraceptive acceptors in the work area of the Kass-Kassi Health Center, Makassar City. This is in line with the research conducted by Tyas (2023) that most of the respondents did not experience pathological vaginal discharge (Melindra, Mariati and Savitri, 2022) , but in contrast to the research conducted by Triyanti & Oktapianti (2022) there

was a relationship between the use of hormonal contraceptives of the injection type and the occurrence of vaginal discharge in KB acceptors (Dempi Triyanti, 2022) **.**

The use of hormonal contraception does not experience pathological vaginal discharge because the body's condition can adjust the progesterone hormone contained in the 3-month hormonal contraceptive injection, implant and pill. Not all acceptors experience vaginal discharge, because the effects and drugs are not always the same in each individual and depend on the acceptor's body reaction to progesterone metabolism, on the other hand, vaginal discharge occurs more often with higher estrogen levels (Dempi Triyanti, 2022) **.**

The occurrence of fluor albus or vaginal discharge can occur from various factors ranging from the knowledge and attitudes of women, namely not maintaining vaginal hygiene, rarely changing pads during menstruation, rarely changing underwear or using damp underwear, wearing pants that are too tight, unhealthy lifestyle, very tiring physical activity, experiencing severe stress, excessive use of feminine hygiene soap, and can be caused by an unbalanced hormonal condition (Maulidiyah, 2020) **.**

KB acceptors who experience vaginal discharge, this can occur because contraception is not the only cause of pathological vaginal discharge, but many other factors such as poor personal hygiene behavior, lack of knowledge of women of childbearing age about how to care for the vagina. If the feminine area is not cleaned properly and correctly, it will facilitate the growth of fungi and bacteria in it. In addition, wearing underwear that does not absorb sweat and wearing tight pants can trigger vaginal discharge because the vaginal area will be more humid so that germs can multiply more easily (Ika Ayu Purnamasari, 2020) . Therefore, women should know how to care for the vagina properly so that their reproductive health is well maintained. Most respondents did not experience vaginal discharge. This could be due to several factors such as good vaginal hygiene, good diet, changing underwear, how to clean the vaginal area and also how to dry the vagina after defecating/urinating.

Side Effects with Headache/Dizziness

Other side effects besides menstrual disorders, weight changes and vaginal discharge, headaches/dizziness are also due to hormonal changes due to hormone induction in KB acceptors. Headaches are the result of using contraceptives containing estrogen hormones, usually occurring when estrogen hormones are in low concentrations. Usually this occurs during the pre-menstrual period. Headaches are usually accompanied by other pre-menstrual symptoms such as feeling tired easily, pain in the stomach and feeling more sensitive. (Sagita, 2022) .

There is no significant relationship between the experience of side effects of headaches/dizziness in contraceptive acceptors in the work area of the Kass-Kassi Health Center, Makassar City, this is in line with the 2020 study that there was an insignificant effect between headaches in KB acceptors in the Pengambiran Ampalu Nan XX Village, Pengambiran Padang Health Center Work Area and the use of KB (Rozyka Meysetri *et al.* , 2019) in contrast to the 2022 study that the cause of dizziness is usually associated with the body's reaction to progesterone (Sagita, 2022)

This dizziness/headache is caused by the influence of the hormone estrogen on the blood vessels of the brain which causes narrowing and hypertrophy of the arteriodes. Every month, women will experience changes in the hormonal cycle where there has been an increase in the hormone estrogen in the blood, if this happens continuously every month then this is a trigger for dizziness/headache. Headaches/dizziness often accompany With the body's

response when the hormones progesterone and estrogen are pressed on the brain nerves, causing dizziness/headaches, but this does not happen continuously but only occurs at the beginning of injectable contraception (Monayo, Basir and Yusuf, 2020) . In line with this study, the results of the interview found that respondents with side effects of dizziness/headaches were felt only at the beginning of contraceptive use and would go away on their own.

Fertile time

A wide range of effective and safe modern reversible contraceptives are available in the world today. Despite advances in contraceptive technology and organized international efforts over the past few decades, concerns of women using reversible contraceptives regarding the timing of return of fertility remain unanswered (Girum and Wasie, 2023) . Contraceptive methods have a significant impact on women's lives in their efforts to control their reproduction and fertility, the effectiveness of contraceptive methods is highly valued. However, some women believe that hormonal methods and long-term contraception inhibit fertility long after treatment ends (Johansson *et al.* , 2023) **.**

Delayed return of fertility after discontinuation of contraception is a major challenge for women using hormonal contraception. Delayed return of fertility after discontinuation of hormonal contraception has significant impacts on women's health. It is a frequently cited reason for not using contraception. It leads to early discontinuation of contraceptive methods and dissatisfaction with family planning services. Delayed return of fertility after discontinuation of hormonal contraception has also been associated with stigma and discrimination, isolation, intimate partner violence, and mental health disorders. (Damtie *et al.* , 2023) .

Women who stopped contraception became pregnant within the first 12 months. The return of fertility in the first year did not differ significantly between hormonal methods and IUD users. Similarly, the type of progesterone in contraception and the duration of oral contraceptive use did not significantly affect the return of fertility after stopping contraception, the proportion of fertility returning in women after stopping hormonal contraceptive methods was high (Girum and Wasie, 2023) **,** (Damtie *et al.* , 2023) **.**

Pregnancy rates of 86.1% to 92.3% after IUD discontinuation are comparable to users of natural methods and non-users. These findings also indicate that fertility returns quickly after IUD discontinuation. The type and duration of IUD use did not affect pregnancy rates after discontinuation. The return of fertility after discontinuation of contraception was not affected by contraceptive use, type of contraception, duration of use and type of progesterone. However, the effect of parity on the return of pregnancy after discontinuation of contraception cannot be concluded. Therefore, it is important to provide counseling to women that previous contraceptive use, regardless of duration and type, does not have a negative impact on subsequent fertility, so that they can choose and use the desired duration (Girum and Wasie, 2023) **.**

Counseling for KB acceptors who experience side effects and concerns about the delay in returning fertility after stopping hormonal contraception is very important. Handling of side effects can be anticipated with other contraceptive methods of choice. With a counseling approach and handling side effects, it is hoped that it can increase acceptor satisfaction, avoid confusion among KB users and the sustainability of contraceptive use.

CONCLUSION

The side effects of using hormonal and non-hormonal contraceptives in the working area of Kassi Health Center, Makassar City are different. Pills (weight gain, headaches/dizziness), injections (menstrual disorders, weight changes, vaginal discharge, and headaches/dizziness), and implants (menstrual disorders, weight changes, vaginal discharge, and headaches/dizziness). IUD (Menstrual Disorders, vaginal discharge). However, the percentage of side effects of using hormonal contraceptives, pills, injections and implants, the largest respondents experienced menstrual disorders and weight gain. Counseling for KB acceptors who experience side effects and concerns about the delay in returning fertility after stopping hormonal contraception is very important.

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