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EFFECT OF HEALTH EDUCATION INTERVENTION PROGRAMME ON UTILIZATION OF IMPLANT AND INTRAUTERINE DEVICE FAMILY PLANNING METHODS AMONG WOMEN IN BAUCHI STATE, NIGERIA

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Abstract

This study assessed the effect of health education intervention programme on the utilization of implant and intrauterine devices of family planning methods among women in Bauchi State, Nigeria. Quasi-experimental pre-test and post-test experimental and control group design was adopted for this study. The population of the study comprised 1,661,760 women in Bauchi State. The sample size of this study was one hundred (100) participants selected using a multi-stage sampling technique. The instrument used for data collection in this study was a researcher-structured close-ended questionnaire. Descriptive statistics of Frequency counts and percentages were used to describe the socio-demographic information of the respondents, Means and standard deviations were used to answer the research questions. Paired sample test was used to test the hypotheses formulated, at 0.05 level of significance. The findings of the study revealed that There was a significant difference between control and experimental groups on utilization of implant (t=4.210; P=.000); intrauterine device (IUD) (t=4.877; P=.000) contraceptive method as a family planning among women in Bauchi State, before and after health education intervention. Based on the findings of this study it was concluded that the health education intervention programme promotes the utilization of injectable, oral pill implant female sterilization diaphragm contraceptive method of family planning among women in Bauchi State because the effect of health education intervention programme was significant. It was, therefore, recommended among others that since there was a significant increase in the utilization of injectable contraceptives, targeted campaigns and educational programs should be implemented to further promote this method. Providing additional information on the benefits and proper usage of injectable contraceptives can help sustain and increase their utilization.

Keywords: Effect, health education intervention programme, utilization, family planning methods and women

Introduction

Family planning methods and utilization, especially the use of modern contraceptives, seem to remain a complex problem and challenging among women in contemporary society, despite huge leaps of gains registered in some parts of the world, like Latin America (Frost & Doodo, 2021) since it was launched more than 50years ago. World Health Organization (WHO) (2019) defined family planning as a method that allows people to attain their desired number of children and determine the spacing of pregnancies. This is achieved through the use of contraceptive methods and the treatment of infertility. According to Elton, Sabula and Hussein (2023), family planning is the ability of women to space or limit their pregnancies between specified times, family planning refers to the use of different methods and techniques to regulate the number and spacing of children born to a family. Family planning is a method that allows one to control the number of children and the time between births, in other words, it is a way a woman decides whether she wants to have children, how many children she wants to have and when (WHO, 2020). Utilization of family planning methods needs to be increased and the content of such methods, Injectable, oral pills, implants, intrauterine devices (IUD), female sterilization, and diaphragm contraceptive methods expand to achieve the reproductive health of women (Akorede, Muhammed, Isiaq & Akorede, 2022).

The contraceptive method birth control implant may have temporary side effects the periods may become irregular, heavier, lighter, longer or shorter. It may make acne worse it doesn't offer any protection against sexually transmitted infections (STIs). It may interfere with certain medications and antibiotics. There is a small risk of skin infection at the site of the implant (WHO, 2021). Rapid population growth, which often paces economic growth and environmental sustainability, is a reality in most developing countries in sub-Saharan Africa. Since the early 1980s population growth rates in this region have remained at high levels; and contraceptive prevalence levels in many countries have remained 15% (World Bank, 2021). High rates of maternal and child mortality are often associated with rapid population growth (WHO, 2021). The contraceptive implant is about 1.6 inches long (4 centimetres) and approximately eight inches in diameter, the birth control implant is not known to have any side effects. Most side effects subside within a few months. Some of the potential side effects are; Acne, sporting or changes in normal menstrual bleeding, headache, sore breasts, and mood swings, let your provider know if you have side effects that last longer than a few months. There may be some ways to treat side effects before the removal of the device. But your provider can remove your implant at any time and can try another type of birth control (National Health Insurances Scheme, 2019).

An intrauterine device (IUD) is a form of birth control that a healthcare provider inserts into your uterus. Once it is inserted, an IUD can prevent pregnancy for up to 10 years or more, depending on the specific type. Your provider can remove your IUD at any time if you decide to become pregnant (Moshe, 2021). They are small, flexible plastic devices that are inserted into the woman's uterus. The most common (IUDs) contain copper and hormonal, and they work by preventing sperm from reaching an egg. Depending on the type, IUDs can protect 5 to 12-year-old women living with HIV can safely use IUDs. However, those at very risk of STIs or who currently have an active STI, such as gonorrhoea or Chlamydia, should not have an IUD inserted (Suleiman, Suleiman, Dashe & Akorede, 2024). The IUDs are very popular and widely used in Nigeria, particularly by older married women (John, 2019). The promotion of family planning in many countries especially Nigeria with high birth rates has the potential to reduce poverty and hunger, while at the same time averting 32 per cent of all maternal deaths and nearly 10 per cent of child mortality (Ross, 2022).

Globally, It requires heavier investment in education, health and transport merely to maintain these. To reduce the population growth rate, as well as the risk of women and children and the poverty level of society, contraceptive methods have been used as an effective measure in family planning all over the world: we must also step up efforts for family planning, which has a direct impact on maternal health. The need for family planning is growing fast, and it is estimated that "unmet needs" will grow by 40 per cent during the next 15 years (World Bank, 2020). African Countries with a large population especially Nigeria, and high density relative to available resources suffer tremendously from high fertility rates (WHO, 2019). Family planning practices reduce the spread of sexually transmitted diseases (STDs); and by addressing the problems of STDs, it helps reduce rates of infertility, it helps couples avoid unintended pregnancies.

Family planning in Nigeria in the present day context is nothing new nor is it any surprising concept. People now do not raise their eyebrows to hear the word 'family planning', rather it has been now accepted as something beneficial by the general public in the urban, and rural cities and towns, even though the control of population in Nigeria is a delicate issue given its social, cultural and economic condition. Family planning was listed alone of the basic elements of primary health care at the WHO conference in (2021), for which Nigeria was a party. It is an indispensable strategy for promoting family health planned deliveries promote the health of the mother, child and of husband, the mother is given enough time to recover from the effects of pregnancy and birth (John, Stan, Anna & Jolene, 2019) explains that the promotion of family planning in countries with high birth rates has the potential to reduce poverty and hunger and prevent 32% of all maternal deaths and nearly 10% of childhood deaths. However, in half of the 75 larger low-income and lower-middle-income countries (mainly in Africa), contraceptive methods remain low and fertility, population growth, and unmet need for family planning are high (Eastwood & Lipton, 2021). In 2023 the contraceptive prevalence rate among women in Nigeria was measured at 18 percent. Among Nigerian women who were married or in union, the rate stood at 21 percent, on 15 December 2023 (NHIS, 2023). The childbirth spacing (CBS) statistic of the state reveals that the majority of women of reproductive age (15-49 years) are unable to access CBS information and serious resulting in the maternal mortality ratio of 1859/100,000 higher than the national average of 700 maternal deaths per 100,000 live births and an estimated 12.5 per cent of married women using modern contraceptive methods in Bauchi State (NDHS, 2022) Bauchi State happens to be one of the State with low contraceptive prevalence rate reasons being largely that men perceive childbirth spacing as more of female responsibility hence, how involvement of male partners in childbirth spacing decision resulting in low uptake CBS services in the State. (NDHS, 2022)

The researcher observed that rising fertility rates and overpopulation growth continue to pose challenges to married women that result in unwanted pregnancies due to inadequate information in healthcare facilities and access to healthcare providers, lack of health education, and higher maternal mortality rate in Bauchi State. It was also observed that married women from the age of 15-49 years died as a result of problems linked to pregnancy and childbirth or developed a serious disability. The problems of delay in attending anti-natal care, pre-natal and post-natal health care may affect the health of the infants. It was discovered that religious beliefs are a means of discouragement for family planning methods.

Other issues identified by NHIS that affect the use of family planning methods are the overall cost and availability of contraceptive commodities, transportation and provider fees for contraceptive and health care services, fear of side effects, spouse approval, and cultural and religious factors among others. The childbirth spacing (CBS) statistic of the state reveals that the majority of women of reproductive age (15-49 years) are unable to access CBS information and serious resulting in the maternal mortality ratio of 1859/100,000 higher than the national average of 700 maternal deaths per 100,000 live births and an estimated 12.5 per cent of married women using modern contraceptive methods in Bauchi State (NDHS, 2022). Bauchi State happens to be one of the States with a low contraceptive prevalence rate reasons being largely that men perceive childbirth spacing as more of a female responsibility hence, how involvement of male partners in childbirth spacing decisions results in low uptake of CBS services in the State. (NDHS, 2022). There is a continued need for investment in family planning and related productive health services particularly for those who have difficulty obtaining these important services (Department of Health and Human Services, 2020). It is against this statement that the researcher intends to assess the effect of health education intervention programmed on the utilization of family planning methods among women in Bauchi State Nigeria.

Methodology

The research design for this study is quasi-experimental of pre-test and post-test experimental and control groups will be used. A quasi-experimental is an empirical intervention study used to estimate the causal impact of an intervention on a target population without random assignment. However, a quasi-experimental design of pre and post-test experiments and a control group is appropriate to investigate the effects of the educational intervention are common in educational research, the two groups will give a pre-test after which the researcher introduces a manipulation, for the study because the dependent variable of the study is measured one before the treatment is implemented. The population for the study consist of the entire married women in Bauchi State, which comprises twenty local government areas, the estimated population of married women is 1,661,760 which is of the total population of Bauchi State (NPC,2022).

The sample size of this study consists of one hundred (100) married women who were drawn from the population of Bauchi State Nigeria. This selection relied on Cohen and Manion (2001), who suggested that a minimum of (20) participants for the experimental research produced the desirable effect. Therefore, to have wider coverage and for generalization, the researcher decided to use 5% (100) of the participants out of the target population of 89,380 participants as a sample size for the study, fifty (50) experimental group and fifty (50) for the control group. Multistage sample techniques were used which involved the following stratified sampling, simple random, purposive sampling cluster sampling and convenient sampling. The stages are as follows: A **s**tratified sampling technique was used to divide the Bauchi State into three (3) strata. Namely: Bauchi South, Bauchi Central, and Bauchi North Senatorial Zone. Stratified random sampling is a method of sampling that involves the division of a population into smaller sub-groups known as strata.

Simple random sampling was used to select one senatorial zone from three stratums. A fish and bowl method of writing the name of each zone and container was used representing the list of the three senatorial zones of Bauchi State. The name of the LGAs was written on a piece of paper, folded and dropped into the corresponding container. Purpose sampling was used to select two wards from one local government area of Bauchi were we select. Cluster sampling was used to form participants into two (2) groups for the study which are experimental and control groups. The first select Ward PHC served as the control group while the second select Ward PHC served as the experimental group. This is because each ward has one PHC. A convenient sampling was used to select married women in the sampled wards, who were available to participate in the study, fifty for the experimental and fifty for the control group. This technique was used to give an equal chance of selection among all respondents. This was done to give equal chance to everyone.

The instrument that was used for data collection in this study is a researcher-structured close-ended questionnaire. The questionnaire was divided into seven (7) sections: Section A, B, and C, Section A contains four (4) items on demographic characteristics of the respondents, age, occupation, family income, and level of education. Section B consists of six (6) items on the utilization of Injectable contraceptive methods of family planning among women. Section C consists of six (6) items on the utilization of oral pills and contraceptive methods of family planning among women.

The researcher-developed instrument tagged "Effect of Health Education Intervention Programme in Utilization of Family Planning Methods among Women Questionnaire" (EHEIPUFPMAWQ) in Bauchi State. The researcher employed two trained research assistants from the wards and instructed them on various areas of assistance. The researcher and his research assistants proceed to each sampled ward to meet with the Ward Head, Religious leaders and the Head (in charge) of the primary health care (PHC) facility for introduction to the research work. The religious leader was requested to announce and invite participants from their congregation who were interested in participating in the research. Ward heads also be requested to invite interested adults within the community to participate in the research. Town criers and announces were used in the community to invite people to the study. These procedures were applied in all selected wards. The in charge of the PHC was requested to permit to use of the facility as a meeting point with respondents for intervention (lectures and experiments).

Furthermore, the researcher's second visit to the sampled wards carried out the systematic sampling for participants on the number of people that turned out for the research. This procedure took place at the Local Government Educational Authority (LEA) Primary School of each selected ward. After the selection of samples at each ward, each L.G.A was one control and one experimental group at different wards. During this visit, a calendar for the intervention was drafted to suit the availability of respondents to enable optimum participation within six weeks. In this second visit, it involved the researcher selecting respondents based on the inclusion and exclusion criteria. Selected respondents from the study involved participants from the two selected wards. The name, address and phone number of all samples were recorded for documentation and follow-ups. They were notified of the venue for the intervention (treatment).

The effect of health education intervention programme on the utilization of family planning methods among women was implemented through teaching, instruction and demonstration in six-week sessions. A scheme of work and lesson plan has been planned and designed to be used for the period of the intervention. The programme implementation will be for 60 minutes per session. The six sessions will span for six (6) weeks with each session taking place weekly. The researcher with two assistants collected data from the respondents in both control and experimental groups before the intervention at the first session. Respondents in the treatment group received an educational intervention as described below.

While after the health education intervention programme data was collected from the control and experimental (treatment) group. Finally, to address the cues to action dimension of the HBM, the cell phone number of participants obtained during the first contact was used to call and send a text message reminder every two weeks for two months after the intervention on the importance of utilization of family planning methods. Posttest data will be collected after six (6) weeks from the intervention programme. The period of pretest and posttest data collection was twelve (12) weeks.

After collecting and sorting out copies of the questionnaire, a coding scheme was developed and each questionnaire was reviewed and coded into a computerized database using a Microsoft Excel spreadsheet. A descriptive statistic of frequencies and percentages was used to describe the demographic characteristics of the respondents and mean and standard deviation were used to answer research questions for the study. An inferential statistic of Paired sample t-test was used to test the formulated null- hypotheses 1, and 2 at 0.05 level of significance.

Result

Table 2: Demographic Information of the Respondents (N=100)

	Experimental	Experimental	Control	Control
Age	**Frequency**	**Percentage**	**Frequency**	**Percentage**
16-20 years	07	14.0	06	12.0
21-25	12	24.0	11	22.0
26-30	10	20.0	10	20.0
31-35	08	16.0	09	18.0
36-40	11	22.0	10	20.0
41 and above	02	04.0	04	08.0
Total	**50**	**100.0**	**50**	**100.0**
Education				
Non-Formal Education	15	30.0	15	30.0
Primary School Certificate	17	34.0	12	24.0
Secondary School Certificate	13	26.0	10	20.0
Tertiary Education	05	10.0	13	26.0
Total	**50**	**100.0**	**50**	**100.0**
Occupation				
Civil Servant	15	30.0	17	34.0
Farmer	20	40.0	19	39.0
Business	15	30.0	14	28.0
Total	**100**	**100.0**	**50**	**100.0**
Socio-economic Status				
Family Monthly Income				
Below ₦50, 000	16	32.0	18	36.0
60,000-100,000	19	38.0	15	39.0
₦Above ₦100,000	15	30.0	17	30.0
Total	**30**	**100.0**	**50**	**100.0**

Table 1 shows the socio-demographic information of respondents of the experiment group, 07(14.0%) of the respondents are between the age of 16-20 years of age, 12(24.0%) are between the age of 21-25 years of age, 10(20.0%) are between 26-30 years of age, 08(16.0%) are between 31-35 years of age, 11(22.0%) of the respondents are between the age of 36-40 years while 02(04.0%) of the respondents are 41 and above years of age. The Table also shows the socio-demographic information of respondents of the control group, 06(12.0%) of the respondents are between the ages of 16 and 20 years of age, 11(22.0%) are between the ages of 21-25 years, 10(20.0%) are between 26-30 years of age, 09(18.0%) are between 31-35 years of age, 10(20.0%) of the respondents are between the age of 36-40 years while 04(08.0%) of the respondents are 41 and above years of age.

Regarding the educational status of the experiment group, 15(30.0%) have non-formal education, 17(34.0%) have primary school certificates, 13(26.0%) of the respondents have secondary school certificates, and 10(10.0%) of the respondents attended tertiary education. The Table further shows the educational status of the control group, 15(30.0%) are non-formal education, 12(24.0%) have primary school certificates, 10(20.0%) of the respondents have secondary school certificates, 10(10.0%) of the respondents attended tertiary education. Regarding the occupation of the experiment group, 15(30.0%) are civil servants, 20(40.0%) are farmers, and 15(30.0%) of the respondents are business. While, the control group, 17(34.0%) are civil servants, 19(39.0%) are farmers, and 15(30.0%) of the respondents are business. Table 1 also indicated the socio-economic status of the experiment group, 16(32.0%) earned below ₦50, 000, 19(38.0%) ₦60,000-100,000 monthly incomes while 15(30.0%) earned above ₦100,000 monthly income. While the family monthly income of the control group, 18(36.0%) earned below ₦50, 000, 15(39.0%) ₦60,000-100,000 monthly incomes while

Answering of Research Questions

Research Question one: What is the difference between control and experimental groups on utilization of implant contraceptive method of family planning among women in Bauchi State, before and after health education intervention programme?

Table 2: **Mean Scores and Standard Deviation on the Difference Between Control and Experimental Groups on Utilization of Implant Contraceptive Method of Family Planning among Women in Bauchi State, Before and After Health Education Intervention Programme**

			Control		Experimental		
Variable	**N**	**Test**	**Mean**	**SD**	**Mean**	**SD**	**Mean Difference**
Implant	50	Pre-test	8.78	4.15	9.44	4.29	0.66
	50	Post-test	9.48	3.90	17.74	5.81	8.26

Decision mean = 2.50

Table 2 indicated that there is a difference between the control and experimental group in the utilization of the oral pill contraceptive method of family planning after the health education intervention programme. The table also indicates that no pre-test mean score difference between the control (8.78) and the experimental group (9.44). However, there is a difference in the post-test mean score between the control (9.48) and experimental group (17.74). Therefore, the pre-test means the difference between the control and experimental is 0.66 which is less than the decision mean of 2.50, while the post-test means the difference between the control and experimental is 8.26 greater than the decision mean of 2.50. This shows that there was a difference between the control and experimental utilization of the oral pill contraceptive method of family planning among women in Bauchi State, before and after health education intervention programme.

Research Question Two: What is the difference between control and experimental groups on utilization of intrauterine device (IUD) contraceptive method of family planning among women in Bauchi State, before and after health education?

Table 3: **Mean Scores and Standard Deviation on the Difference Between Control and Experimental Groups on Utilization of Intrauterine Device (IUD) Contraceptive Method of Family Planning among Women in Bauchi State, before and after health education**

			Control		Experimental		
Variable	**N**	**Test**	**Mean**	**SD**	**Mean**	**SD**	**Mean Difference**
IUD	50	Pre-test	9.12	4.26	9.44	4.29	0.32
	50	Post-test	9.62	3.99	18.04	5.62	8.42

Decision mean = 2.50

Table 3 shows that there is a difference between the control and experimental group in the utilization of intrauterine device (IUD) contraceptive method of family planning after the health education intervention programme. The table also indicates that no pre-test mean score difference between the control (9.12) and experimental group (9.44). However, there is a difference in the post-test mean score between the control (9.62) and the experimental group (18.04). Therefore, the pre-test means the difference between the control and experimental is 0.32 which is less than the decision mean of 2.50, while the post-test means the difference between the control and experimental is 8.42 greater than the decision mean of 2.50. This shows that there was a difference between the control and experimental on utilization of intrauterine device (IUD) contraceptive method of family planning among women in Bauchi State, before and after health education intervention programme.

Testing of Research Hypotheses

Hypotheses One: There is no significant difference between control and experimental groups on the utilization of implant contraceptive method as a family planning among women in Bauchi State, before and after health education intervention programme

Table 4: Summary of Paired sample t-test on significant difference between control and experimental groups on utilization of implant contraceptive method as a family planning among women in Bauchi State, before and after health education intervention programme

Variable	**Test**	**N**	**Experimental**		**Control**		**Mean Diff.**	**t-value**	**Df**	**p-value**
			Mean	**Std. Dev.**	**Mean**	**Std. Dev.**				
Utilization of implant contraceptive method	Pre-test	50	9.44	4.29	8.78	4.15	0.66	4.210	99	0.000
	Post-test	50	17.74	5.81	9.48	3.90	8.26			

(t-critical = 1.96, df=99, p <0.05)

The test result for the hypothesis revealed in Table 4 that there is a significant difference in the pre and post-test of the experimental and control groups. The table indicates that no pre-test mean score difference between the control (8.78) and the

experimental group (9.44). However, there is a difference in the post-test mean score between the control (9.48) and the experimental group (17.74). Therefore, the pre-test means the difference between the control and experimental is 0.66 which is less than the decision mean of 2.50, while the post-test means the difference between the control and experimental is 8.26 greater than the decision mean of 2.50. The analysis further shows that a p-value of 0.000 was less than 0.05 (0.000<0.05) and a t-value of 4.210 is greater than 1.96. These observations provided enough evidence for retaining the null hypothesis. Thus, with this result, we can conclude that the null hypothesis: There is a statistically significant difference between the control and experimental group in on utilization of the implant contraceptive method as a family planning among women in Bauchi State, before and after health education intervention programme is rejected. It means that there is a significant difference between the control and experimental group in on utilization of implant contraceptive methods as a family planning among women in Bauchi State, before and after health education intervention programme.

Hypotheses Two: There is no significant difference between control and experimental groups on the utilization of intrauterine device (IUD) contraceptive method as a family planning among women in Bauchi State, before and after health education intervention programme

Table 5: Summary of Paired Sample t-test on the Significant Difference Between Control and Experimental Groups on Utilization of Intrauterine Device (IUD) Contraceptive Method as a Family Planning among Women in Bauchi State, Before and after Health Education Intervention Programme

Variable	Test	N	Experimental		Control		Mean Diff.	t-value	Df	p-value
			Mean	Std. Dev.	Mean	Std. Dev.				
Utilization of intrauterine device (IUD) contraceptive method	Pre-test	50	9.44	4.29	9.12	4.26	0.32	4.877	99	0.000
	Post-test	50	18.04	5.62	9.62	3.99	8.42			

(t-critical = 1.96, df=99, p <0.05)

The test result for the hypothesis revealed in Table 5 that there is a significant difference in the pre and post-test of the experimental and control groups. The mean score for the pre-test of 9.11 and the post-test of 13.61 respectively while the difference is 4.50. The mean value for both tests showed that it is above the benchmark mean of 2.50. The standard deviation value for the pre-test of 4.22 and the post-test of 4.86 respectively. The analysis further shows that a p-value of 0.000 was less than 0.05 (0.000<0.05) and a t-value of 4.210 is greater than 1.96. These observations provided enough evidence for retaining the null hypothesis. Thus, with this result, we can conclude that the null hypothesis: There is a statistically significant difference between the control and experimental group in on utilization of implant contraceptive method as a family planning among women in Bauchi State, before and after health education intervention programme is rejected. It means that there is a significant difference between the control and experimental group in on utilization of implant contraceptive methods as a family planning among women in Bauchi State, before and after health education intervention programme.

Discussion

The mean value indicates that no pre-test mean score difference between the control (9.12) and the experimental group (9.44). However, there is a difference in the post-test mean score between the control (9.62) and experimental group (18.04). Therefore, the pre-test means the difference between the control and experimental is 0.32 which is less than the decision mean of 2.50, while the post-test means the difference between the control and experimental is 8.42 greater than the decision mean of 2.50. The analysis further shows that a p-value of 0.000 was less than 0.05 (0.000<0.05) and a t-value of 4.210 is greater than 1.96. These observations provided enough evidence for retaining the null hypothesis. Thus, with this result, we can conclude that the null hypothesis: There is a statistically significant difference between the control and experimental group in on utilization of the implant contraceptive method as a family planning among women in Bauchi State, before and after the health education intervention programme is rejected. The mean difference of 4.50 indicates a difference. It means that there is a significant difference between the control and experimental group in on utilization of implant contraceptive methods as a family planning among women in Bauchi State, before and after health education intervention programme. The result is in line with another study conducted by Ellis, Moab, Marathi and Await (2021) on the effect of utilization practices of family planning among married women in Maser, intervention was undertaken on a random sampling of married women (n = 100) attending healthcare service in the town of Maser during the years (2021) for infant care. The finding of the study revealed that the awareness level of married women about the benefits of utilization of family planning practice was significantly increased from 9% before intervention to 35% after the health education intervention.

The mean value table indicates that no pre-test mean score difference between the control (9.12) and the experimental group (9.44). However, there is a difference in post-test mean scores between the control (9.62) and the experimental group (19.08). Therefore, the pre-test means difference between the control and experimental is 0.32 which is less than the decision mean of

2.50, while the post-test means difference between control and experimental is 9.46 greater than the decision mean of 2.50. The analysis further shows that a p-value of 0.000 was less than 0.05 (0.000<0.05) and a t-value of 4.210 is greater than 1.96. These observations provided enough evidence for retaining the null hypothesis. Thus, with this result, we can conclude that the null hypothesis: There is a statistically significant difference between the control and experimental group in on utilization of implant contraceptive method as a family planning among women in Bauchi State, before and after health education intervention programme is rejected. The mean difference of 4.55 indicates a difference. It means that there is a significant difference between the control and experimental group in on utilization of implant contraceptive methods as a family planning among women in Bauchi State, before and after health education intervention programme. The result does not agree with the study of Adam (2020) on factors effect on utilization of family planning among women in India. A study was conducted among 500 women in two of India, who were selected from different health care services. The intervention group (n = 100) received 2hours of health education intervention in small groups (four or five mothers per group) every 2 weeks for 3 consecutive months and the result of the study indicated that women in the intervention group had a significant increase in awareness regarding utilization practice of family planning from 40% to 70% after the intervention.

Summary of Major Findings

Based on the data collected, analysed and discussed, the following results were obtained:

1. There was a significant difference between control and experimental groups on the utilization of injectable contraceptive methods as a family planning among women in Bauchi State, before and after health education intervention (t= 3.010, P=.001).
2. There was a significant difference between control and experimental groups on the utilization of oral pills contraceptive method as a family planning among women in Bauchi State, before and after health education intervention programme (t=2.323, P=.000).

Conclusions

Based on the findings of this study, the following conclusions were drawn:

1. Health education intervention programme improves utilization of implant contraceptive method as a family planning of women in Bauchi State.
2. Health education intervention programme enhances the utilization of the intrauterine device (IUD) contraceptive method as a family planning for women in Bauchi State.

Recommendations

The findings indicate that there were significant differences between control and experimental groups on the utilization of various contraceptive methods as family planning among women in Bauchi State before and after the health education intervention. The following are;

1. Married Women: Continue to seek information about different family planning methods and how they align with your health needs and personal circumstances.
2. Health Educators: Integrate comprehensive family planning education into community outreach programs, focusing on correcting misconceptions and providing information on the various available methods.
3. Health Care Providers: Offer counselling on different family planning methods and provide follow-up services to support continuous use. This should include addressing any side effects and changing methods if necessary.
4. Government: Develop policies that promote access to family planning services, including subsidizing costs for low-income families. Improve the quality and accessibility of reproductive health services by training more healthcare workers, upgrading facilities, and integrating family planning services into primary healthcare.
5. Non-Governmental Organizations (NGOs): Partner with local communities to organize outreach programs that educate women and families about the importance of family planning.
6. Community Members: Form support groups among women to share experiences, and encourage, and promote the use of family planning methods.

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