

Full Length Research Paper

Knowledge and attitude of men towards vasectomy as a family planning method in Edo State, Nigeria

*¹Onasoga, Olayinka A., ¹Edoni, Elizabeth Ekiokenigha R, ²Ekanem, Jane

¹Faculty of Nursing, Niger Delta University, Wilberforce Island, Bayelsa State, Nigeria

²Staff Nurse, National Hospital Abuja, Nigeria

Abstract

In the past, family-planning programs have focused attention primarily on women, because of the need to free women from excessive child-bearing, and to reduce maternal and infant mortality through the use of modern methods of contraception. Most of the family-planning services were offered within maternal and child health (MCH) centers, most research and information campaigns focused on women and this has reinforced the misconception that family planning is largely a woman's business, with the man playing a very peripheral role especially in a society where male supremacy and virility is very important and is marked by Procreation. Hence, this is a descriptive study designed to assess the knowledge and attitude of men towards vasectomy as a method of family planning in okada community, Edo state. Accidental sampling technique was used to select 140 married men and questionnaire was administered. However only 136 of the questionnaire was retrieved and same analyzed using both descriptive and inferential statistics with level of significance set at 5% (0.05). The study revealed that majority of the respondents was between the ages of 28 – 37 years and have at least one sexual partner. Despite the respondents' knowledge of at least one form of male family planning methods, majority 85 (62.5%) had no knowledge of vasectomy while out of the 51 (37.5%) who claimed to have knowledge, only 18 (13.2%) had high knowledge the remaining 33(24.3%) had poor few knowledge of vasectomy. Most of the respondents also showed negative attitude towards vasectomy and believed that vasectomy should not be done by men and that females should be responsible for family planning but the decision on the method to use should be demanded from them as the head of the family. Cultural acceptance 112 (82.4%), religious acceptance 98 (72.1%), ignorance 96 (70.6%) and accessibility of family planning clinic 90 (66.2%) were the major factors influencing attitude of men towards vasectomy. The study also revealed that there was no significant association between academic attainment of respondents under study and their attitude towards vasectomy [$X^2=3.534$, P-value = 0.171], as well as between marital status between and their attitude towards vasectomy [$X^2=0.436$ P-value =0.804], with $p > 0.05$; however, significant association was found between the level of knowledge of respondents under study and their attitude towards vasectomy [$X^2= 4.918$ P-value = 0.047] with $p < 0.05$. It was recommended that there is need to design effective information, education and communication strategies to reach men in every part of the federation on the need to actively participate in family planning, as well as intense value clarification and attitude transformation in order to improve men's attitudes towards vasectomy.

Keywords: Knowledge, Attitude, Men, Vasectomy.

INTRODUCTION

The process of procreation is a way for human population to be maintained and prevent extinction of mankind

universally, but this process carries high risk of morbidity and mortality rate to both mother and child when it is not checked (Onasoga, 2009). Attempts to control increase in population started from the early men. Therefore, birth control is as old as man himself. Evidence from medical history indicates that our forefathers did space their

*Corresponding Author Email: yinka_onasoga@yahoo.com

children through traditional means, this traditional methods of family planning had been handed down either verbally or in writing form, from generation to generation as far back as the Stone Age. In this modern age due to the alarming increase in the population rate, most countries polices, programmes and various methods have been propagated to check this rate of population growth to bring maintenance in the growth (Frederick, 2004).

Toure (2004) stated that family-planning programs have focused attention primarily on women, because of the need to free women from excessive child-bearing, and to reduce maternal and infant mortality through the use of modern methods of contraception. Most of the family-planning services were offered within maternal and child health (MCH) centers, most research and information campaigns focused on women and this has reinforced the belief that family planning is largely a woman's business, with the man playing a very peripheral role. International Conference on Family Planning (2009) stated that 89 percent of men approved their wives use of family planning methods but do not participate in family planning.

Odimegwu, (2009) opined that involving men and obtaining their support and commitment to family planning is of crucial importance in the Africa region, given their elevated position in the African society. According to IPPF (2007), most decisions that affect family life and political life are made by men. Furthermore, these men hold positions of leadership and influence the family unit right through the national level. The involvement of men in family planning would therefore not only ease the responsibility borne by women in terms of decision-making for family-planning matters, but would also accelerate the understanding and practice of family planning in general.

Ozgili et al. (2004), Sterilization is one of the most reliable methods of family planning with male sterilization the cheapest, least complicated, and most convenient modern form of contraception. According to Engender health, (2010) vasectomy has grown in popularity throughout the world since its inception in the 19th century and about 600,000 men each year choose to undergo a vasectomy in the United States alone.

George, (2010) opined that lack of knowledge of vasectomy and the poor attitudes towards it were based on myths and misconceptions regarding the procedure; "some may accept it if they understand the safety of it. Furthermore, various studies have referred to age, marriage age, number of children and religious beliefs as the related factors for selection of sterilization as a contraceptive method. Asian and African studies demonstrate that couples who choose sterilization as a contraceptive method have a positive attitude and those who do not choose it have a negative or neutral attitude toward sterilization. However, knowledge of both groups about sterility is mostly poor (Ozgili, et al 2004).

In Africa, Vasectomy acceptance is limited by several factors which include poor awareness and education, religion, culture, poverty and scarcity of skilled vasectomy providers. Furthermore, misunderstandings about vasectomy especially, fear of decreased sexual performance as a result of the procedure limit its acceptance; these factors may contribute to the report that Vasectomy is not readily acceptable as a method of fertility control in Nigeria (Mutahir, et al., 2004).

Despite the fact that male Sterilization is one of the most reliable, cheapest, least complicated, and most convenient modern methods of family planning; It has also been observed that Nigerian men seldom visit family planning clinic, least of all used vasectomy as a means of family planning methods. Hence it becomes expedient to assess the knowledge and attitude of men towards vasectomy.

Purpose of the Study

- ❖ To assess the level of knowledge of men on vasectomy as a family planning method
- ❖ To determine the attitude of men towards vasectomy
- ❖ To determine factors influencing men attitude towards vasectomy

Significance of Study

It will provide the health care professionals verifiable data on knowledge and attitude of men towards vasectomy which will in turn help to design programmes to increase knowledge and improve attitude of men towards vasectomy as a method of family planning.

This study will further help policy makers and stakeholders to plan and implement various delivery strategies to integrate men into family planning. It will enlighten and increase general public's awareness towards male involvement in family planning and motivate potential male clients to seek family planning services. All these are very crucial to reduce maternal morbidity and mortality rate, as well as ease the responsibility bore by women in terms of decision making on family planning methods.

RESEARCH METHODOLOGY

A descriptive research design was used and the study setting was Okada community in Edo State Okada is a small community in Ovia North- East local government area of Edo state with a total population of 155,344 with over 80433 males. The indigenes of the community are majorly farmers and giving birth to a lot of children to assist in the farm work is thought to be essential to

lessen farm work load; as well as increase harvest. The target populations were all married men in okada community. A sample population of 140 men was drawn out of the target population using accidental random sampling technique. Data was collected using a self developed questionnaire after an extensive literature review on vasectomy and related topics on sterilization. The questionnaire consists of 3 sections with a total of 31 items of qualitative and quantitative questions. Section A was designed to collect data on the socio-demographic characteristic of the men, Section B was designed to elicit information about the general knowledge on vasectomy, while Section C was designed to collect information about the attitude on vasectomy. Data collected was analyzed using Statistical Package for Social Science (SPSS) and results presented using descriptive statistical tools such as percentage tables, bar charts and pie charts. The Hypothesis of the research was tested using Pearson's Chi square (X^2), and the level of significant was set at 5% (0.05). Permission was sought for and obtained from the community leader. Thereafter, the respondents were briefed about the purpose of the study and their right to participate, or withdraw from the study. The respondents were informed of the benefits and reason for the research. The anonymity and confidentiality of the respondents were maintained.

RESULTS

Out of the 140 questionnaires administered to respondents only 136 was retrieved and same was analysis and represented on tables and figures which are shown below and testing of hypotheses generated. Table 1 shows that majority 55 (40.4%) of the respondents were between 25 – 34years, 50(36.8%) between 15-24years , while the least 10 (7.4%), were between 45 – 54 years. Three quarter 114 (83.4%) of the respondents were Christians, 17(12.5%) Islam, while only 5(3.6%) were traditionalist. 34 (25.0%) of the respondents were of Bini, 7(5.2%) Esan , 21(15.4%) Igbo, 7(5.2%) Hausa, 36(26.5%) Yoruba while 31(22.8%) were from other tribes. Almost all the respondents have had a form of formal education 81(59.6%) had secondary education, 40(29.4%) tertiary, 14(10.3%) primary while only 1(0.7%) respondent had no form of formal education. Majority 47(34.6%) of the respondents earned an average income of below – 19,000 naira per month,41(30.2%) 20,000-39,000 naira per month,20(14.7%) 40,000-59,000 naira per month while 28(20.6%) earned above – 60,000 naira per month. 43(31.6%) were civil servants, 27(19.9%) were artisans while 66(48.5%) were students. 131(96.3%) of the respondents were married,1(0.7%) divorced while 4(2.9%) are widowers and approximately half 65 (47.8%) of the respondents have been married for at least 6-10years, 40(29.4%) for 1-5years, 20 (14.7%) for 11-15years while11 (8.1%) have been married for 16

– 20 years. 49(36.0%) had a minimum of 3 – 4 children, followed by 41(30. 2%) had 1-2 children, while 10(7.4%) had 5 children. however, 36(26.5%) did not have children.

Figure 1 show that 51.5% of the respondents knew 2 methods of male family planning (Barrier method and Withdrawal method), 41.2% knew 1 method, while only 7.4 % of the respondents knew of 3 methods which is inclusive of the surgical method.

Figure 2 shows that majority of the respondents have not previously heard of vasectomy 85 (62.5%) while 51(37.5%) have heard of vasectomy

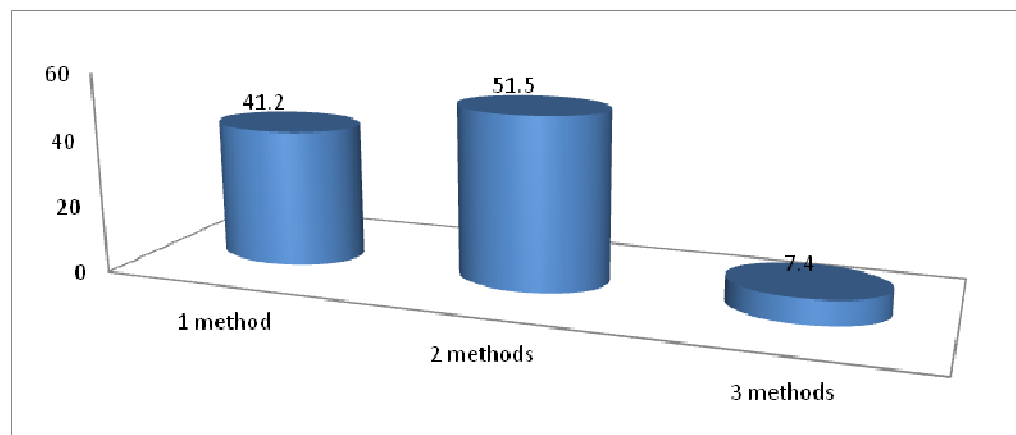
Table 2 shows that out of the 51 who have heard of vasectomy, majority 23 (45.1%) heard of it mostly from friends/partner, 11(21.6%) from literature, 13(25.5%) from the hospital, while the least 7.8% was from the mass media. 47(92.2%) of the respondents knew vasectomy to be a form of male family planning method while 4(7.8%) did not.40 (78.4%) knew vasectomy was a permanent method while 11(21.6) did not. Majority 33(64.7%) knew that Sexual urge and desire for sexual activity is not lost after vasectomy while 18(35.2) said otherwise. 7 (13.7%) of the respondents reported that after vasectomy a man still have the ability to impregnate his partner while 44 (86.2%) of them did not agree to this. Majority of the respondents 32(62.7%) knew that sperm is not ejaculated after 8 weeks of vasectomy while 19(37.3%) did not know.26 (51.0%) of the respondents opined that the tendency of having prostate cancer decreases after vasectomy while 25(49.0%) said otherwise.44 (86.3%) of the respondents knew that sexual transmitted infections cannot be prevented after vasectomy while 7(13.7%) did not.

Figure 3 shows that majority 85 (62.5%) of the respondents had no knowledge of vasectomy, 33(24.3%) had a low level of knowledge while 18 (13.2%) had high level of knowledge.

Table 3 shows that most 66(48.5%) of the respondents strongly agree that vasectomy to any man is castration and should not be done, 21(15.4%) agreed, 17(12.8 %) disagree while 32(23.5) strongly disagreed. Majority of the respondents 70(51.5%) strongly agreed that permanent sterilization is for females,31(22.8%) agreed, 11(8.1%) disagreed while 24(17.7%) strongly disagreed. 24(17.7%) believe that vasectomy will increase promiscuity among men, 58(42.7%) agreed, while 54(39.7%) disagreed . 38(27.9%) of the respondents strongly agreed to the use of vasectomy as a method of family planning, 45(33.1%) agreed , 39(28.7%) disagreed to this while 14(10.3%) strongly disagreed. 66(44.1%) strongly agreed that it's the man's role to take decisions in the family, 22(16.2%) agreed, 17(12.5%) disagreed while 31(22.8) strongly disagreed. Vasectomy is effective and should be advocated for family planning by the respondents was strongly agreed by 70(51.5%),42(30.9%) agreed, 17(12.5%) disagreed while 7(5.2%) strongly disagreed.49(36.0%) strongly

Table 1. Distribution of Socio- demographic characteristics of respondents (n-136)

Characteristics	Frequency	Percentage (%)	
Age	15-24years	50	36.8
	25-34years	55	40.4
	35-44years	21	15.4
	45-54years	10	7.4
Religion	Christianity	114	83.8
	Islam	17	12.5
	Traditionalist	5	3.6
Ethnicity	Bini	34	25.0
	Esan	7	5.2
	Yoruba	36	26.5
	Igbo	21	15.4
	Hausa	7	5.2
	Specify	31	22.8
Academic Attainment	Primary education	14	10.3
	Secondary education	81	59.6
	Tertiary education	40	29.4
	No education	1	0.7
Occupation	Civil servant	43	31.6
	Artisan	27	19.9
	Student	66	48.5
Average income per month	Below-19,000	47	34.6
	20,000-39,000	41	30.2
	40,000-59,000	20	14.7
	Above-60,000	28	20.6
Marital status	Married	131	96.3
	Divorced	1	0.7
	Widower	4	2.9
If married, for how long	1-5years	40	29.4
	6-10years	65	47.8
	11-15years	20	14.7
	16-20years	11	8.1
Number of children	None	36	26.5
	1-2 children	41	30.2
	3-4 children	49	36.0
	5-above	10	7.4

**Figure 1.** Respondent's knowledge on methods of family planning used by men (n- 136)

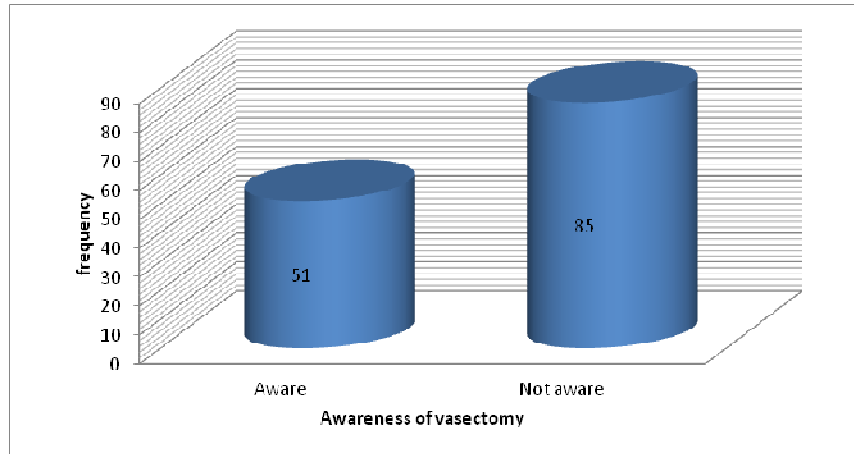


Figure 2. Respondent's awareness on vasectomy (n- 136)

Table 2. Respondents' General Knowledge on vasectomy (n-51)

Characteristics		Frequency	Percentage (%)
Where did you first learn of vasectomy?	Hospital	13	25.5
	Mass media	4	7.8
	Literature	11	21.6
	Friends/ partner	23	45.1
Is vasectomy a form of family planning method?	Yes	47	92.2
	No	4	7.8
What type of family planning method is vasectomy?	Permanent	40	78.4
	Temporary	11	21.6
After a vasectomy procedure a man loses his sexual urge and desire for sexual activity?	Yes	33	64.7
	No	18	35.2
After a vasectomy a man is able to impregnate his partner?	Yes	7	13.7
	No	44	86.3
Sperm is ejaculation during sexual intercourse even 8 weeks after a vasectomy?	Yes	19	37.3
	No	32	62.7
The tendency for prostate cancer increases in men who have had vasectomy?	Yes	25	49.0
	No	26	51.0
Vasectomy prevents sexually transmitted infections?	Yes	7	13.7
	No	44	86.3

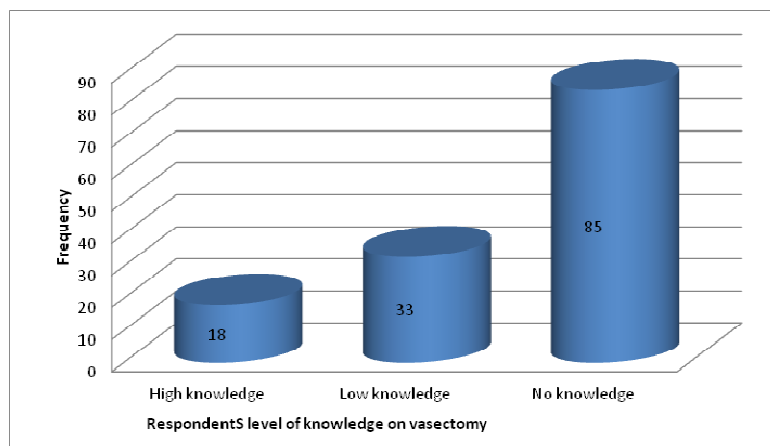


Figure 3. Level of knowledge of respondent on vasectomy as a male family planning method (n-136).

Table 3. Male's Attitude towards Vasectomy (n-136)

Characteristics		Frequency	Percentage (%)
Vasectomy is castration and should not be done?	Strongly agree	66	48.5
	Agree	21	15.4
	Disagree	17	12.5
	Strongly disagree	32	23.5
It's preferable that permanent sterilization should be only for females?	Strongly agree	70	51.5
	Agree	31	22.8
	Disagree	11	8.1
	Strongly disagree	24	17.7
Vasectomy makes men more promiscuous?	Strongly agree	24	17.7
	Agree	58	42.7
	Disagree	54	39.7
	Strongly disagree	-	-
I approve the use of vasectomy as a method of family planning?	Strongly agree	38	27.9
	Agree	14	10.3
	Disagree	39	28.7
	Strongly disagree	45	33.1
Men should be primarily responsible for decision making on family planning methods to utilize?	Strongly agree	66	44.1
	Agree	22	16.2
	Disagree	17	12.5
	Strongly disagree	31	22.8
Vasectomy is an effective form of family planning method?	Strongly agree	70	51.5
	Agree	42	30.9
	Disagree	17	12.5
	Strongly disagree	7	5.2
Men should take part in family planning?	Strongly agree	59	43.4
	Agree	63	46.3
	Disagree	14	10.3
	Strongly disagree	-	-
It's against my cultural belief for a man to practice vasectomy?	Strongly agree	31	22.8
	Agree	28	20.6
	Disagree	35	25.7
	Strongly disagree	42	30.9
It's against my religious belief for a man to practice vasectomy?	Strongly agree	31	22.8
	Agree	24	17.7
	Disagree	35	25.7
	Strongly disagree	45	33.1

agreed that vasectomy should be advocated as a permanent method of family planning, 45(33.1%) agreed, 31(22.8%) disagreed while 11(8.1%) strongly disagreed to this. 59(43.4%) strongly agreed that men should take part in family planning, 63(46.3%) agreed, while 14(10.3%) disagreed. 42(30.9%) of the respondents cultural belief strongly disagreed to the practice of vasectomy, 35(25.7%) disagreed, 31(22.8%) strongly agreed while 28(20.6%) agreed. 31(22.8%) strongly agreed religious belief is hindering the practice of vasectomy, 24(17.7%) agreed, 35(25.7%) disagreed while 45(33.1%) strongly disagreed to this.

Figure 4 shows that majority 111(82%) of the

respondent have negative attitude towards vasectomy while 25 (18%) have positive attitude towards vasectomy. The below table 4 shows that cultural acceptance 112(82.4%), religious acceptance 98(72.1%), ignorance 96 (70.6%), and accessibility of family planning clinic 90 (66.2%) were the major factors influencing attitude of men towards vasectomy.

Table 5 shows that there was no significant association between academic attainment of respondents under study and their attitude towards vasectomy as well as between marital status between and their attitude towards vasectomy with $p > 0.05$ however, significant association was found between the level of knowledge of

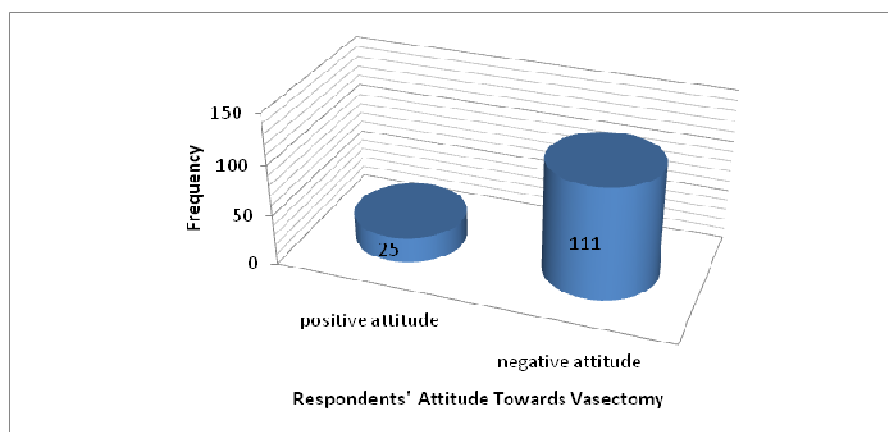


Figure 4. Respondent's attitude level towards vasectomy

Table 4. Factors that influence attitude towards vasectomy (n=136)

Characteristic		Frequency	Percentage
Accessibility of family planning clinic where vasectomy is done	Yes	90	66.2
	No	46	33.8
Ignorance	Yes	96	70.6
	No	40	29.4
Language barrier	Yes	44	32.4
	No	92	67.6
Cultural factor	Yes	112	82.4
	No	24	17.6
Religious belief	Yes	98	72.1
	No	38	27.9
Finance	Yes	103	44.9
	No	33	55.1

Table 5. Research hypotheses testing

Variables		Attitude towards vasectomy		Pearson chi-square X^2 (p-value)	Df	Remark
		Positive attitude	Negative attitude			
Academic attainment	Primary	2	12	3.534 (0.171)	2	No significant association
	Secondary	18	63			
	Tertiary	5	35			
Marital status	Married	24	107	0.436 (0.804)	2	No significant association
	divorce	-	1			
	widower	1	3			
Level of knowledge on vasectomy	High level	10	8	4.918 (0.047)	2	significant association
	Low level	6	27			
	No knowledge	9	76			

respondents under study and their attitude towards vasectomy with $p < 0.05$.

DISCUSSION OF RESULTS

The study revealed that majority of the respondents were

between the ages of 28 – 37 years, this indicates that most of the respondents were in their prime. Majority of the respondents have at least one sexual partner, therefore could unintentionally impregnate their partner if family planning methods are not utilized either by the male or female. Majority of the respondents were Christians and Yoruba predominated the study despite

the fact that it was carried out in Edo state. According to the field survey (2010) majority of the respondents had secondary education and has an average income of 600 - 1000naira per day. Majority of the respondents had 4 children and this was in line with national population policy saying that every family should have a maximum of 4 children. The issue of ideal family size emerges as a response to conflict relationship between population growth and means of subsistence (Zick & Xiang ,2004. According to International Family Planning Perspective (IFPP) 2003, Ideal Family Size (IFS) is seen as a way of ensuring and maintaining a good standard of living in the societies as well as in the family.

The finding showed that majority had prior knowledge of at least one form of family planning methods for men which were mostly condom (barrier method) and abstinence while only a few knew about vasectomy. According to International Family Planning Perspective (IFPP) (2007) the knowledge of contraceptive is widely spread in every part of the country (Nigeria) and men and women knew at least one modern method in most developing countries, yet women carry the burden of responsibility on contraceptive use often with little or no support and sometimes with great resistance from their male partners. Therefore, for any population control activity to be effective there is a need to address family life and sexual behaviour of men to accepting various methods of contraceptive and utilization.

Despite their knowledge of at least one form of male family planning methods, majority of the respondents had no knowledge of vasectomy while few who claimed to have knowledge had poor knowledge of vasectomy. This may be attributed to their source of information which was mostly from friends and partners and the fact that men do not attend family planning clinic where this issue is mostly discussed. Most of the respondents also showed negative attitude towards vasectomy as most of them strongly agreed that vasectomy should not be done by men and that females should be responsible for family planning method utilization preferably though the decision on the method to be utilized should be demanded from them since they are the head of the family. This corroborates statement of the International Conference on Family Planning (2009) that 89 percent of men approved their wives to use of family planning methods but do not participate in family planning.

Cultural acceptance, religious acceptance, ignorance and accessibility of family planning clinic were the major factors influencing attitude of men towards vasectomy. This implies that cultural and religious believe of the respondents have a major role in their acceptance and practice of vasectomy being the norms and values instilled in the through the society, as many societies believe it's a woman's place to plan for and take care of the family, therefore it should also be her duty to take adequate measures to prevent pregnancies.

Finally, there was no significant association between

academic attainment of respondents under study and their attitude towards vasectomy as well as between marital status between and their attitude towards vasectomy with $p > 0.05$ however, significant association was found between the level of knowledge of respondents under study and their attitude towards vasectomy with $p < 0.05$.

CONCLUSION

Family planning does more than help women and couples limit their family size: It safeguards individual health and rights, preserves natural resources, and can improve the economic outlook for families and communities. The study revealed that respondents had a low knowledge and negative attitude towards vasectomy as a male family planning method, preferring that family planning measures should be left as the responsibility of females in the family and community at large with Culture, religion, and ignorance been the factors influencing these negative attitude towards vasectomy.

RECOMMENDATIONS

- Health education programmes and counseling to greatly improve vasectomy uptake and intensive effort to involve men in reproductive health schemes in such a way as to make them active stakeholders, more supportive of vasectomy as a family planning method.
- There is need for intense value clarification and attitude transformation through lectures, seminars and workshop in order to improve men's attitudes towards vasectomy.
- There is need to design effective information, education and communication strategies to reach men in every part of the federation on the need to actively participate in family planning and the impact of small family size on the individual, family and society at large.
- The public should be enlightened on male family planning services through the mass media and religious institution as they are the largest means of disseminating information.

REFERENCES

- Bunce A, Guest G, Searing H, Frajzyngier V, Riwa P, Kanama J, Achwal I (2007). Factors Affecting Vasectomy Acceptability in Tanzania. *International Family Planning Perspectives*. 33(1):13-21.
- Engender health (2010). Advancing family planning. <http://www.engenderhealth.org/our-work/family-planning/index.php>. Accessed on 20/08/2010
- Engender health (2010). Vasectomy. <http://www.engenderhealth.org/owr-work/family-planning/vasectomy.php>. Accessed. 20/08/2010
- Family Health International (2010). Male sterilization. <http://www.fhi.org/en/topics/male-steril.htm>. Accessed 23/06/2010

- Frederick T (2004). Population, Family Planning, and the Future of Africa. World watch institute. 17(5).
- George S (2010). Vasectomy becoming popular discussion. [http://www.thecitizen.co.tz / e:/ vasectomy becoming popular discussion. htm](http://www.thecitizen.co.tz/e/vasectomy_becoming_popular_discussion.htm) Accessed 20/08/2010
- International Conference on Family Planning (2009). Men's Roles in Family Planning
- Male Health Center (2006). Vasectomy. http://www.malehealthcenter.com/c_vasectomy.html. Accessed on 12/08/2010
- Moon A (2009). Family Planning Methods for Men. [http://www.ehow.com/way_5218175_ family- planning-methods-men.html](http://www.ehow.com/way_5218175_family_planning-methods-men.html). Accessed 12/09/2010
- Mutihir JT Innocent AO, Ujah (2004). Acceptability of Vasectomy in Jos, Northern Nigeria. *Trop. J. Obstetr. Gynaecol* 21(1):56–57
- National Health Services (2010). Vasectomy
- Nigeria Demography and Health Survey [NDHS] (2003). National Population
- Odimegwu CO (2009). Family planning attitudes and use in Nigeria: A factor analysis *International Family Planning Perspectives*, 25(2): 86-91
- Onasoga OA (2009). Trends of neonatal morbidity and mortality in Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria. M.Sc. Thesis submitted to department of nursing, University of Ibandan. Nigeria
- Oredo LGA (2006). Oredo Local Government Area census. <http://www.en.wikipedia.org/wiki/Oredo>. Accessed on 27/08/2010
- Ozgoli G, Ahmadi M, Goli S, Baghdan A (2004) Comparison of knowledge, attitude and other related factors to sterilization between sterilization method users and contraceptive methods users in Hamedan city in 2003, *Journal of Reproduction and Infertility*, 5(3):259-267
- Zick CD, Xiang N (2004). Assessing the Correlates of Desired Family Size