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Assessment of vasectomy as a method of contraception among male staff of a tertiary Health Centre in North-western Nigeria.

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Article history: Received 28 August 2025, Reviewed 07 November 2025, Accepted for publication 11 December 2025

ABSTRACT

Background: Population growth exerts increasing pressure on essential resources such as water and food, with profound implications for both environmental sustainability and human welfare. These underscore the urgent need for innovative policies, sustainable resource management, and equitable development strategies. Family planning methods have traditionally focused on female methods of contraception, although, there has been an increasing advocacy for men to be actively involved in reproductive health decision-making at the family and community level. This study assessed the awareness, knowledge and acceptance of vasectomy as a method of contraception among male staff of Ahmadu Bello University Teaching Hospital, Zaria.

Methods: Cross-sectional descriptive study involving 157 randomly chosen respondents. Semi-structured interviewer-administered questionnaire was used to collect data and entered into the statistical software for social sciences (SPSS) now IBM incorporation version 25 for analysis.

Results: The average age of respondents was 39.53 ± 9.20 years, with doctors comprising the majority (66.9%). While (84.7%) demonstrated good knowledge of vasectomy, only (52.3%) were aware of the availability of vasectomy services. Overall perception of vasectomy was positive among (72.1%) of participants; only (25%) expressed willingness to adopt it as a contraceptive method. Significant association was found between the number of children and acceptance of vasectomy $\chi^2 = 21.13$, $p = 0.032$

Conclusion: The awareness and knowledge of vasectomy as a method of contraception were found to be high among respondents; however, awareness of the availability of vasectomy services and uptake of the services by male staff of Ahmadu Bello University were low.

Keywords: Family Planning, Contraception, Vasectomy.



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How to cite this article

Yakubu M, Shehu A, Abubakar AB, Ankama MA, Oyaromade A, Mohammed BA, Akogwu HS, Esekhaigbe CE. Assessment of vasectomy as a method of contraception among male staff of a tertiary Health Centre in North-western Nigeria. The Nigerian Health Journal 2025; 25(4):125 – 130. <https://doi.org/10.71637/tnhj.v26i1.1201>



INTRODUCTION

Nigeria with an estimated population of 270 million population is the seventh most populated nation in the world and the most populous in Africa, with estimates expected to reach 400 million by 2040.¹ Population, though a potential human and economic resource, could be a bottleneck if not well planned and managed, as fertility remains a major driver of population growth in Nigeria and Africa.^{1,2}

Traditionally, women have been the focus of the use of family planning methods and contraception, as women bear a disproportionate burden of health and economic consequences of child bearing.^{2,3} Also, there are a few options for male contraception, mainly withdrawal methods, male condoms, and vasectomy.^{2,3} The modern contraceptive prevalence rate (CPR) of 37.5% is mainly accounted for by female hormonal contraceptives.³ This figure is lower than that of other developing countries.^{4,6} Despite a high total demand for family planning reaching 85.5%, the use of surgical contraception remains relatively low, while previous reports have shown acceptance rates for bilateral tubal ligation (BTL) as 8% among women aged 35-44 years.^{3,5,6} National demographic health survey (NDHS), 2024³ reports a female sterilization rate of 0.2%, and a lower rate for vasectomy has been reported, making these methods less prevalent among couples in Nigeria.³ In contrast, in the United States of America, vasectomy was reported as the contraceptive of choice in one-third of all married couples, while in New Zealand, vasectomy was found to be a method of choice for one-fifth of the men surveyed.⁴ Some of the barriers towards good uptake of contraception in Nigeria include cultural values, myths and misconceptions, and low access to reproductive health services.⁵ This is further aggravated by underlying determinants such as low female literacy, poverty and lack of awareness.⁶

The advantages of vasectomy include its effectiveness, avoidance of a high rate of discontinuation, safety and convenience.^{2,6} Vasectomy allows men to take personal responsibility for contraception.⁴ It is less expensive compared to BTL and also requires less surgical skill to perform as compared to BTL.⁶ In addition, it has a failure rate of 0.01 per 100 woman-years as compared to 0.13 per 100 woman-years for BTL.² Despite these advantages, studies have found low uptake among men in Nigeria and Africa.^{2,6}

METHODOLOGY

A descriptive cross-sectional study was used to assess the acceptance of vasectomy as a method of contraception among male staff of Ahmadu Bello University Teaching Hospital Zaria, Kaduna State, North-western Nigeria.

Study Area: The study area is Ahmadu Bello University Teaching Hospital, Zaria, Sabon Gari local government area of Kaduna State, North-west Nigeria: the hospital is located in Shika, about 17Km from Zaria on the Kaduna to Gusau Road, the hospital provides specialist care, training and research, among the services provided are reproductive health services, including uptake of modern contraceptive methods and surgical contraception (BTL and Vasectomy), in addition to community outreach programmes where reproductive health services are delivered to the people at their doorstep.

Study Population: The population for this study were male staff of Ahmadu Bello University Teaching Hospital, Zaria, who have been on the payroll of the hospital for at least six months before the commencement of data collection for this study.

Sample Size Determination: The sample size was calculated using the Cochran formula for a descriptive cross-sectional study involving a single proportion as shown below:

Where n = Sample size

P = proportion of men with knowledge of vasectomy from previous study ⁵

found as 90%, $= 0.9$, $q = 1-p = 0.1 = 0.9$, d = margin of error = 5% = 0.05

$n = 138$

Using a 10% non-response rate, $n = 152$

Sampling Technique: A sample frame of 1092 male staff eligible to be part of the study from all cadres, departments, and units of the hospital was prepared. Each person on the list was given a unique number to coincide with his/her name eg.0001,0002,003....1,092.

From the table of random numbers, 152 unique numbers with no duplicates, were matched to their corresponding persons (0001,0002....1,092) on the sample frame. A random sample of 152 respondents thus gotten from the process outlined consist of 102 doctors, 12 male nurses, 1 pharmacist, 3 physiotherapists, 11 medical laboratory staff, 3 radiographers, 15 administrative staffs and 5 security men of the hospital. This process ensured equal chance

of selection, fairness and transparency in the process of selection of the respondents.

Instrument for Data Collection: The instrument for data collection was an interviewer-administered semi-structured questionnaire adapted based on the objectives of the study and mounted on a mobile Android ODK V1.72. It comprises different sections to assess the respondents' socio-demographic characteristics, awareness and knowledge of vasectomy, determinants and perception of vasectomy as a method of contraception, together making 27 questions that will take 10 to 15 minutes to administer.

Method of Data Analysis: Data was collected from respondents, cleaned and checked before being imputed into SPSS version 25 for Analysis. Summaries were presented using frequency tables and Charts for categorical data, while quantitative variables were summarized using mean, median and standard deviation where applicable.

The associations between dependent and independent variables were checked using bivariate and multivariate variables as appropriate, with the chi-square test used to test the presence or absence of association between variables. The results were interpreted at a level of significance of $p < 0.05$.

Scoring System: Each right question was scored 1, and wrong was 0; the sum of the scores below 50% was graded as Poor knowledge, 50% to 70% Fair and more than 70% as Good knowledge. This scoring system was also applied to perception as done in previous studies^{2,5}.

Ethical Consideration: The research was undertaken after applying for and getting approval from the ethics

committee of the Department of Community Medicine, Ahmadu Bello University, Zaria. Informed consent to conduct the study was also sought from the respondents before commencement of data collection, in addition to an assurance of confidentiality.

RESULTS

Of the 157 respondents, Majority 131 (83.4%) were between 30 to 49 years of age, while 27 (17.2%) were less than 30 years, those between 50-69 years were 26 (16.6%). Furthermore, 118 (75.1%) were currently married, with 121 (77.1%) being of the Islamic religion, 114 (72.6%) have a monthly income greater than 1 million naira, while 23 (14.7%) had a monthly income less than 500,000 naira. The majority, 131 (83.4%), said they have not completed their family size. Those with less than four kids were 106 (67.5%), while those with 5-9 children were 40 (26.8%), see Table 1. From Table 2, Majority of the respondents, 132 (84.10%), were aware of vasectomy as a method of contraception, however, only 69 (52.3%) of the respondents were aware of availability of vasectomy services in the facility. Health professionals were the major source of information (96.8%), followed by the internet (64.4%), and radio was the least, with 31.8%. With regards to general knowledge of Vasectomy, 111(69.6%) of respondents have good knowledge and 33(25%) of the respondents were willing to have a vasectomy in the future.

There was a significant association between the number of children and acceptance of vasectomy $\chi^2 = 21.13$, $p = 0.032$ with no significant association between religion ($p = 0.716$), Completion of family size ($p = 0.063$) and acceptance of vasectomy.

Table 1: Socio-demographic characteristics of respondents

Variable	Freq	Percent
Age		
< 29	27	17.2
30-49	104	66.2
50-70	26	16.6
Marital Status		
Married	118	75.1
Single	23	14.6
Divorced	8	5.1
Widowed	4	2.6
Religion		
Islam	121	77.1
Christianity	36	22.9
Profession		
Doctor	105	66.9
Administration	17	10.8

Variable	Freq	Percent
Nurse	11	7
Laboratory scientist	9	5.7
Security Staff	7	4.5
Radiographer	6	3.8
Pharmacist	1	0.6
Income (Naira)		
>1,000,000	114	72.6
500,000 - 1000,000	17	10.8
<500,000	23	14.7
*No of Children		
0-4	106	67.5
5-9	40	26.8
≥10	9	5.7
Completion of family size		
No	131	83.4
Yes	26	16.6

* $p < 0.05$

Table 2: Awareness and knowledge of vasectomy services among male staff of Ahmadu Bello University Teaching Hospital, Zaria

Variable	Freq	Percent
Awareness of Vasectomy		
Yes	132	84.10
No	35	15.9
Awareness of vasectomy services in facility		
Yes	69	52.3
No	63	47.7
General Knowledge		
Good	111	69.6
Poor	21	30.4
Acceptance of Vasectomy		
Yes	33	25

DISCUSSION

This research revealed a high level of awareness of vasectomy and good knowledge of vasectomy as a method of contraception among male staff of Ahmadu Bello University Teaching Hospital, Zaria. However, awareness of the availability of vasectomy services was low; furthermore, willingness to accept vasectomy as a method of contraception was found to be even lower. Majority of the men studied were between 30-49 years, with a mean age of 39.53 ± 9.20 standard deviation, which corresponds to findings in previous studies.⁶ Majority of them (75.1%) were currently in a marriage relationship, as found in other studies.^{7,8} Medical doctors constitute the majority of the profession, also in agreement with studies done in Ghana.⁵ This is in contrast to other studies where women attending antenatal clinics were the respondents in Jos, Ilorin and India, respectively.^{2,7,8} While most of the respondents were Christians in the previous studies, this study found Islam to be the major religion of the respondents. This is not surprising as this study was done in the Northern part of Nigeria with a large population of Muslims. Earlier studies on Vasectomy amongst health care workers and those amongst antenatal attendees in India⁸ have reported high levels of awareness and knowledge.^{5,8} However, this is not the same in Nigeria, where studies reported low levels of awareness and knowledge.^{2,6,9-11} This is in keeping with the lower literacy rate amongst Women in Nigeria, NDHS 2023.¹² The awareness level of vasectomy in this study was high, which is similar to the 53.8% reported in Ilorin.⁷

No	99	75
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Table 3: Relationship between Socio-demographic characteristics and acceptance of Vasectomy

Variable	Freq	Percent	p-value
No of Children			0.032
0-4	106	67.5	
5-9	40	26.8	
≥10	9	5.7	
Completion of Family size			0.063
No	131	83.4	
Yes	26	16.6	
Religion			0.716
Islam	121	77.1	
Christianity	36	22.9	

However, the awareness level is higher than that found in Jos (24.5%)² and Uyo (11.5%).¹⁰ The high level of awareness and knowledge found in this study could be a result of this study being facility-based, with respondents mainly from a social group with a higher level of education, similar to a study amongst Nigerian gynecologists in training.⁵ The perception of respondents was found to be good with a perception score of 72.1%, which agrees with other facility-based studies from Port Harcourt, Rivers State⁶ and Uyo, Akwa Ibom State.¹⁰ A study conducted in Jos found that (89.75%) of respondents expressed approval for male contraception, while only 10.25% disapproved.² However, when specifically asked about vasectomy, a high proportion (81.25%) of the respondents voiced disapproval, with more Christians willing to consider the procedure.² This finding is not surprising, as culture and belief systems have been found to influence contraceptive usage, similarly, a proportion of respondents (16.5%) perceived vasectomy as a cause of weakness for men and that it could lead to poor work output. In addition, the respondents in this study believed that vasectomy is an act against God and should never be allowed by the Community.^{6,11} About one-fourth of the respondents showed willingness to accept vasectomy, showing a statistically significant difference ($p=0.032$, $\chi^2=21.1314$) with the number of children; however, none of the men ever had a vasectomy done, which corresponds with NDHS 2023¹² findings of negligible use of vasectomy as a method of contraception in Nigeria, and Africa. In contrast, 40.1% of the male population in New Zealand were found to be willing to accept vasectomy as a

method of contraception,⁴ the odds are more in support that belief systems could be an underlying determinant for the poor acceptance of vasectomy. Other studies^{2,7} have found a statistically significant association between profession and willingness to accept vasectomy; in this current study, however, no such relationship was found.

The reasons given by respondents for poor uptake of vasectomy in this current study include Irreversibility, personal beliefs, fear of surgery and its outcome and indifference to family planning, as found in previous studies.^{2,6-11} The impact of belief systems on contraception generally and vasectomy in particular needs more exploration, as the Contraceptive prevalence rate for modern methods has only made modest changeover a decade despite huge investment by government and development partners.³

CONCLUSION

Although general awareness and knowledge of vasectomy as a contraceptive method were high, the study revealed limited awareness of its availability within tertiary health facilities. Additionally, the willingness to undergo the procedure remained low, highlighting the urgent need to enhance public awareness about the accessibility of vasectomy services. Key barriers to acceptance included concerns about the procedure's irreversibility, cultural and religious beliefs, and fear of surgery and its potential outcomes

DECLARATION

Authors contribution: *Conceptualization:* Musa Yakubu, Muazu Adamu Ankama, Charles Ehiabhi Esekhaigbe

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Conflict of Interest: The authors declare no conflict of interest

Funding: Self-funded

Acknowledgement: All staff of Ahmadu Bello University Zaria who participated in this research for their support and consent towards the conduct of the study.

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