ORIGINAL RESEARCH

Knowledge and perception of vasectomy among resident doctors at 5 teaching hospitals in Nigeria: A cross-sectional survey

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Abstract

Background
Vasectomy, a form of fertility control, is an elective surgical procedure performed to achieve male sterilization and pregnancy prevention. Often conducted by urologists as a day case, vasectomy is among the few contraceptive options available for men. Despite various pregnancy prevention methods, male participation in family planning is frequently overlooked, possibly due to inadequate knowledge, perceptions, or bias among health practitioners who advise clients.

Methods
This cross-sectional study was conducted among resident doctors in Nigeria.

Results
The study had 218 respondents: 169 men (77.5%) and 49 women (22.5%), with a male-to-female ratio of 3.4:1. The age range was 26 to 51 years (mean, 32.9±9.5 years). The largest proportion of participants (n=101, 46.3%) were from surgical departments. Most respondents (n=204, 93.6%) acknowledged vasectomy as a permanent contraception form, and 213 (97.7%) had heard about vasectomy. Overall, 140 respondents (64.2%) demonstrated good knowledge, particularly those working in surgical departments. A majority (n=123, 56.4%) had positive perceptions towards vasectomy, with women being 3 times less likely to have a negative perception. However, the overall acceptability rate was low, with only about 40% willing to recommend it to patients.

Conclusions
While there is a considerable level of knowledge about vasectomy among resident doctors in our setting, misconceptions persist. Acceptance and willingness to recommend vasectomy to clients are low. There is a need for strategies to correct these misconceptions to increase vasectomy utilization.

Keywords: vasectomy, contraception, sterilization, Nigeria

Introduction

Nigeria is the most populous country in Africa, with a substantial proportion of its population within the reproductive age group. Historically, discussions on reproduction, family planning, and health have predominantly focused on women. Vasectomy offers a means for men to take personal responsibility for contraception,[1] and it is considered a permanent form of contraception due to the deliberate division or disruption of the vas deferens, though it is potentially reversible.[2] Bilateral tubal ligation is more commonly accepted over vasectomy, even by healthcare providers.[3] Despite evidence showing vasectomy as safe, simple, and effective,[4] along with its feasibility in low-resource settings,[5] studies in Nigeria and across Africa report a low acceptance rate of vasectomy,[3],[6]-[8] in stark contrast to higher rates in the developed world.[9],[10]. While some attribute this to the populace's educational level,[11],[12] others dispute this claim.[13] It has also been observed that va-

sectomy is more prevalent among middle-class individuals with relatively high incomes.[14]

Misconceptions about vasectomy include negative health consequences, such as urinary incontinence, cancer, physical weakness, and weight gain, which have undeniably contributed to its low acceptance rate. Some also believe that it diminishes a man's sexual prowess, potentially leading to a complete loss of sexual function.[6],[8] A study conducted in Ghana found that approximately 39% of respondents associated vasectomy with castration and regarded it as a shameful procedure.[15] Additionally, there is a belief that vasectomy feminizes men or places them under their wives' control, leading many to reject the procedure for fear of losing authority over women.[8] However, not all perspectives towards vasectomy are negative. Men who have undergone the procedure, as well as their partners, have reported increased sexual activity, as it eliminates the fear of pregnancy and negates the need for female contraceptives and their associated issues.[16] Some view vasectomy as a commitment by men who have traditionally had a passive role in family planning.[16] Consequently, disseminating accurate information could potentially improve the acceptance rate of vasectomy. The quality of information and acceptance rate of vasectomy among healthcare workers are critical concerns. It can be presumed that a doctor who has a bias against vasectomy may, consciously or subconsciously, transmit this negative narrative to patients. If this is the case, then efforts should first be directed towards educating healthcare workers to enhance their knowledge and increase the acceptability of vasectomy. Only then can broader acceptability among the general populace be achieved. This study aimed to assess the knowledge, perceptions, and acceptance rate of vasectomy among Nigerian resident doctors.

Methods

This was a cross-sectional study employing a voluntary response nonprobabilistic sampling technique to collect information from resident doctors across various tertiary health institutions using a pretested self-administered questionnaire with closed-ended questions. The sole inclusion criterion required respondents to be resident doctors in training. The sample size was predetermined at 250 respondents—50 resident doctors from each institution—based on the number of resident doctors available in these institutions.

A pilot study was conducted amongst a few resident doctors to gauge their opinions on vasectomy before the final distribution of the questionnaires. The questionnaire was developed from a previously validated tool.[3]

Ethics

We visited the various institutions, engaging with resident doctors to enquire about their willingness to participate in a research project on vasectomy. Informed consent was obtained prior to the administration of the questionnaires. The study was approved by the Ladoke Akintola University of Technology Teaching Hospital Research Ethics Committee (UTH/EC/2022/04//586).

Table 1. Sociodemographic characteristics (N=218)

Variable	n (%)
Age group, years)	
≤30	40 (18.3)
31-35	103 (47.2)
36-40	58 (26.6)
>40	17 (7.8)
Sex	
Men	169 (77.5)
Women	49 (22.5)
Department	
Surgery	101 (46.3)
Internal medicine	22 (10.1)
Anaesthesia	17 (7.8)
Family medicine	16 (7.3)
Laboratory medicine	31 (14.2)
Paediatrics	18 (8.3)
Radiology	13 (6.0)
Duration of practice, years[a]	
≤5	99 (45.4)
6-10	96 (44.0)
>10	23 (10.6)
Seniority	
Junior registrar	117 (53.7)
Senior registrar	101 (46.3)
Religion	
Christianity	179 (82.1)
Islam	39 (17.9)
Ever heard of vasectomy	
Yes	213 (97.7)
No	5 (2.3)

[a]The median duration of practice was 6.0 years (interquartile range, 3.0-9.0 years)

Study centres

The study institutions were UNIOSUN Teaching Hospital, Osogbo (formerly Ladoke Akintola University of Technology [LAUTECH] Teaching Hospital, Osogbo); Lagos State University Teaching Hospital (LASUTH), Ikeja, Lagos; Obafemi Awolowo University Teaching Hospital, Ile-Ife; Federal Medical Centre, Owo; and Federal Medical Centre, Bida.

Table 2. Association between overall knowledge and sociodemographic characteristics (N=218)

Variable	Knowledge level, n (%)		X^2	*P* value
	Good (n=141)	Poor (n=77)		
Age group, years				
≤30	24 (60.0)	16 (40.0)		
31-35	73 (70.9)	30 (29.1)	4.027	0.259
36-40	34 (58.4)	24 (41.4)		
>40	9 (52.9)	8 (47.1)		
Sex				
Men	110 (65.1)	59 (34.9)	0.247	0.619
Women	30 (61.2)	19 (38.8)		
Department				
Surgery	74 (73.3)	27 (26.7)		
Internal medicine	9 (40.0)	13 (59.1)		
Anaesthesia	9 (52.9)	8 (47.1)	21.851	0.001
Family medicine	5 (31.2)	11 (68.8)		
Laboratory medicine	20 (64.5)	11 (35.5)		
Paediatrics	11 (61.1)	7 (38.9)		
Radiology	12 (92.3)	1 (7.7)		
Years of practice				
≤5	61 (61.6)	38 (38.4)	3.042	0.219
6-10	67 (69.8)	29 (30.2)		
>10	12 (52.2)	11 (47.8)		
Seniority				
Junior registrar	77 (65.8)	40 (34.2)	0.278	0.598
Senior registrar	63 (62.4)	38 (37.6)		

Study design

Eighteen questions assessed knowledge, with correct answers scored as 1 and incorrect or 'not sure' responses scored as 0. A score below 50% was considered poor knowledge, while above 50% was deemed good. Eleven Likert-scale questions evaluated perception; 'strongly agree' was scored as 4, 'agree' as 3, 'indifferent' as 2, 'disagree' as 1, and 'strongly disagree' as 0. Scores for negatively structured questions were reversed. A score below 50% indicated a negative perception, and a score above 50% indicated a positive perception. Three questions determined acceptability, with overall acceptability inferred when participants agreed with all 3 questions. The questions, initially piloted, were adapted and enhanced from a previously validated tool. The questionnaire was composed solely in English, and all participants were proficient in English, negating the need for translation.

Data analysis

The collated data were analysed using SPSS Statistics for Windows, version 25 (IBM Corp., Armonk, NY, USA). Variables were evaluated using frequencies and standard deviation. The associations between categorical variables were evaluated using the chi-square and Fischer's exact tests, as appropriate. Charts were used for data presentation where suitable. Binary logistic regression identified independent predictors of knowledge, perceptions, and acceptance. A *P* value <0.05 was considered statistically significant.

Results

The total number of respondents was 218 (out of 250 potential participants, yielding a response rate of 87.2%), comprising 169 men (77.5%) and 49 women (22.5%), for a male-to-female ratio of 3.4:1. The age range was 26 to 51 years (mean,

Table 3. Acceptance of vasectomy (N=218)

Variable	n (%)
Vasectomy should be offered to men who have reached certain age or have a certain number of children	
Yes	106 (48.6)
No	58 (26.6)
Not sure	54 (24.8)
Would recommend vasectomy to patients	
Yes	88 (40.4)
No	59 (27.1)
Not sure	71 (32.6)
Would consider undergoing vasectomy or recommend it to spouse	
Yes	43 (19.7)
No	108 (49.5)
Not sure	67 (30.7)

32.9±9.5 years). Surgical departments had the highest number of respondents (n=101, 46.3%), with many having practised for over 5 years (n=119, 54.6%). There were 117 junior registrars (53.7%) and 101 senior registrars (46.3%). Almost all respondents had heard of vasectomy (n=213, 97.7%) (Table 1). Regarding the adequacy of knowledge on vasectomy, 140 participants (64.2%) had good knowledge. There was a significant association between the knowledge and the department of the respondents (*P*=0.001) (Table 2).

Perception towards vasectomy

One hundred twenty-three respondents (56.4%) had a positive perception, while 95 respondents (43.6%) held a negative perception.

Acceptance of vasectomy

Eighty-eight respondents (40.4%) indicated that they would recommend vasectomy to a patient, 59 (27.1%) indicated that they would not, and 71 (32.6%) were unsure. Forty-three respondents (19.7%) would consider undergoing vasectomy or recommending it to their spouse, while 108 (49.5%) indicated that they would not (Table 3). Overall, 29 respondents (13.3%) expressed acceptance of vasectomy, whereas 189 participants (86.7%) did not accept it.

Based on binary logistic regression, participants working in other departments were more than twice as likely to have poor knowledge (*P*=0.001) and a negative perception (*P*=0.037) about vasectomy compared with those working in surgical departments. Additionally, being male was an independent predictor of having a negative perception, while females had approximately 3 times lower odds of holding a negative perception of vasectomy (*P*=0.015) (Table 4).

Discussion

This study was designed to explore the knowledge, perceptions, and acceptance of vasectomy among resident doctors in Nigeria.

The findings suggest that knowledge of vasectomy is variable, even among doctors who are at the forefront of providing accurate information about the procedure. The overall knowledge was good, as noted in a previous study among Nigerian health workers,[3] yet there was a significant difference in knowledge level between residents in the surgical departments and other departments. This may have been attributable to the surgical nature of vasectomy and the consequent exposure of surgical residents to relevant information during their training. While the majority acknowledged it as a form of permanent contraception, a considerable proportion were uncertain or unaware of whether semen is ejaculated after vasectomy. Additionally, many incorrectly believed vasectomy to be immediately effective after the procedure, or they were unsure of its effectiveness. The majority also erroneously thought the procedure to be 100% effective, which is concerning given the weight patients place on information communicated by healthcare workers. Studies have shown that vasectomy carries a small risk of failure.[17] When healthcare workers themselves are misinformed, it compels community members to rely on myths and misinformation.

Furthermore, a majority of participants (56.4%) held a positive perception of vasectomy. However, some respondents harboured negative perceptions, ranging from beliefs that it decreases sexual drive to it affecting erectile function. These misconceptions were more prevalent among residents in nonsurgical departments and among men, while women were 3 times less likely to have a negative perception of vasectomy. Previous research in Nigeria has identified ignorance among men as a primary reason for low vasectomy acceptance,[18] whereas Tijani et al.[19] found that married men in Lagos had better knowledge and acceptance of vasectomy than married women.

The reasonable level of knowledge among the majority of respondents did not translate into acceptability of vasectomy as a method of contraception. About 27% of participants indicated that they would not recommend vasectomy to patients, and 33% were unsure about recommending it. Only 43% of respondents would consider undergoing the procedure or recommending it to their spouse. There is a documented low acceptance rate of vasectomy in Nigeria. A prior study of Nigerian health workers established that although they had adequate knowledge about vasectomy, their disposition towards its use was poor.[3] Regrettably, nearly a decade later, attitudes appear unchanged. Fears based on misconceptions about vasectomy persist, including fears of the operation, adverse side effects, ineffectiveness, diminished libido, and the unknown.[6] This contrasts with findings from Brazil (an upper middle-income country), for instance, where 1 in every 10 doctors had undergone vasectomy.[20] Varying rates of vasectomy have been reported for high-income countries, such as New Zealand[9] and the United States.[10] It can be inferred that the low acceptance level of vasectomy in our community may be largely due to a failure among healthcare workers to convey correct information free of misconceptions and biases, along with an unwillingness to recommend the procedure to patients.

Table 4. Binary logistic regression analysis showing independent predictors of poor knowledge, negative perception, and nonacceptability

Variable	Knowledge		Perception		Acceptability	
	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value
Age group, years						
≤30	Reference	Reference	Reference	Reference	Reference	Reference
31-35	0.636 (0.28-1.45)	0.284	0.469 (0.21-1.07)	0.071	0.533 (0.16-1.82	0.315
36-40	1.044 (0.40-2.76)	0.930	1.129 (0.43-2.99)	0.808	0.870 (0.19-3.96)	0.857
>40	1.394 (0.35-5.50)	0.635	0.806 (0.21-3.18)	0.758	0.939 (0.12-7.6)	0.953
Sex						
Men	Reference	Reference	Reference	Reference	Reference	Reference
Women	0.920 (0.43-1.96)	0.830	0.371 (0.17-0.82)	0.015	0.709 (0.24-2.10)	0.535
Department						
Surgery	Reference	Reference	Reference	Reference	Reference	Reference
Other	2.414 (1.24-4.69)	0.009	2.007 (1.04-3.86)	0.037	1.812 (0.71-4.6)	0.212
Years of practice						
≤5	Reference	Reference	Reference	Reference	Reference	Reference
6-10	0.574 (0.27-1.21)	0.144	0.412 (0.20-1.87)	0.119	0.541 (0.20-1.48)	0.230
>10	1.25 (0.42-3.73)	0.692	1.012 (0.34-3.05)	0.984	0.246 (0.06-1.06)	0.059
Seniority						
Junior registrar	Reference	Reference	Reference	Reference	Reference	Reference
Senior registrar	0.978 (0.45-2.15)	0.692	0.971 (0.44-2.1)	0.942	1.955 (0.68-5.59)	0.211

Other department was an independent predictor of poor knowledge about vasectomy; *female sex* and *other department* were independent predictors of a negative perception towards vasectomy.

Limitations

The sample size in this study was modest, and our findings may not fully represent the views of all resident doctors in Nigeria, which is acknowledged as a limitation of this study.

Conclusions

The acceptability rate of vasectomy among respondents was low despite seemingly adequate knowledge about the procedure. This discrepancy underscores the need for a concerted effort towards the training and retraining of health workers to instil correct knowledge and foster positive perceptions of vasectomy. Initiatives could include revising the medical curriculum at the undergraduate level to encompass more precise information about vasectomy and to purposefully discuss vasectomy as an option with couples during family planning counselling. Such measures are anticipated to dispel myths, alleviate fears, and enhance the acceptance of vasectomy.

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