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Evaluation of Knowledge and Attitude to Uptake of Vasectomy among Male Health Care Workers in a Tertiary Health Facility: A Cross-sectional Study

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Abstract

Vasectomy is a safe and effective permanent male contraceptive, although its acceptance remains low in low-income countries. A cross-sectional study was conducted at the University of Ilorin Teaching Hospital, Ilorin, Nigeria, between 1st July and 31st August 2020. Participants were 247 consenting male health care workers recruited using systematic sampling based on their profession. Data collection was through a self-administered questionnaire, and analysis was performed using IBM-SSPS Version 23.0; p-value<0.05 was significant. The modal age group was 31-39 years (61.1%), 96.8% had tertiary education, 63.2% were Doctors, 21.5% were Laboratory Scientists, 12.1% Pharmacists, 1.6% Nurses, and 1.6% Physiotherapists; 68.0% had two or more children. Awareness about vasectomy was 93.5%, the commonest source of information was the health facility (55.3%), 76.5% supports the role of men in family planning while 84.0% were willing to share family planning responsibility with their partners 16.6% intend to undergo vasectomy on completion of their family size. The identified hindrances to the uptake of vasectomy were fear that it may lead to sexual dysfunction (87.0%), fear of other side effects (70.3%), irreversibility of the procedure (37.0%), cultural factors (25.0%), and concerns about possible infidelity (20.9%). Knowledge about vasectomy was negatively associated with its uptake (p<0.001). This study reports aversion to vasectomy among male health workers despite adequate awareness and Knowledge due to concerns about possible side effects, including the irreversibility of the procedure. Therefore, while advocacy for vasectomy continues, researchers should expedite actions to make reversible male contraceptives readily available.

Keywords: *Health care workers, Male contraception, Reproductive health, Vasectomy.*

Introduction

With a current world population of about 7.8 billion [1], the majority of the population growth occurs in low-income countries, especially sub-Saharan Africa [2]. Nigeria is the most populous black nation and is ranked the seventh most populated country in the world, with a population of over 200 million people [1]. The high population of Nigeria is related to its high growth rate of 2.5% per annum and fertility rate of 5.3 children per woman [3]. Over-population, however, has been associated with a reduced standard of living, unemployment, and a pervasive negative effect on the family and society [4]. Therefore, family planning remains a central tool in moderating the population growth rate with a resultant reduction in maternal morbidity and mortality [5, 6]. However, the uptake of contraception in Nigeria

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remains low [7], while previous studies have identified male involvement in contraception as an important factor in improving contraceptive uptake [8-10].

Vasectomy is a permanent method of male contraception that is effective, safe, and simple to perform [11, 12]. The American Urological Association guidelines of 2012 suggested that vasectomy is one of the most cost-effective contraceptives with an estimated cost per couple years of protection (CYP) that is less than tubal ligation [13]. Despite the various advantages of vasectomy, its Knowledge and uptake among sexually active individuals remain poor [14-16]. The 2018 Nigeria National Demographic and Health Survey (NDHS) reported that the Knowledge of vasectomy was 18.7% among married women and 38.4% for married men aged 15-49 years [3].

The global prevalence of vasectomy is 2.4% [17]; in Nigeria, a prevalence of 0.1% has been reported [18], while 1.6% of respondents accepted vasectomy for contraception [14]. Among health care workers, 41.3% of resident doctors in obstetrics and gynaecology accepted to either do vasectomy or encourage their male partners to undergo the procedure, while 5.8% reported counseling their patients on vasectomy [15]. Barriers to uptake of vasectomy include lack or inadequate Knowledge, misconceptions (such as equating vasectomy to castration, impotence, and erectile weakness), and the irreversibility of the procedure, especially in the face of the pervasive uncertainty in low-income countries [7, 9, 17]. Other barriers include poor patient counseling on vasectomy, and religious and cultural prohibitions [7, 9, 19, 20]. This study was undertaken among male hospital workers at a tertiary health facility with the aim of documenting the level of awareness and attitude to the uptake of vasectomy as a male contraceptive method.

Materials and Methods

Study Setting and Design

The study was a cross-sectional study conducted among hospital workers at the University of Ilorin Teaching Hospital, Ilorin, Nigeria, between 1st July and 31st August 2020.

Inclusion and Exclusion Criteria

The criteria for inclusion were male gender, being married, employment as a health care worker at the study site, and informed consent for participation. Female hospital workers, unmarried men, and non-healthcare workers were excluded from the study.

Sample Size Determination

The sample size was calculated using Slovin's formula [21]

$$n = N\ (1 + Ne^2)$$

Where:

n = Sample size.

N = Total population of married male health care workers =530.

e = Error margin / margin of error, set as 5% (0.05).

Thus, n= 530/ (1+(530*0.05*0.05) = 228.

With a provision of 10% non-response rate for the study i.e., 23, the minimum sample size was (228+23) = 251 participants, however, a total of 260 participants were recruited into the study.

Sampling Method

A total of 260 men were recruited for the study using a stratified random sampling after the initial stratification of eligible participants into five strata based on their profession (Doctors, Nurses, Pharmacists, Laboratory scientists, and Physiotherapists) The questionnaire was divided proportionately into five based on the total number of male staff in each profession in the hospital to give sub-group total of 160 for Doctors, 53 Laboratory scientists, 30

Pharmacists, 4 Nurses, and 4 Physiotherapists. This was followed by a random selection of eligible members of each professional group until the sample size was completed.

Data Collection and Analysis

The data was collected using a structured, Knowledge-based, self-administered questionnaire which consisted of information on socio-demographic characteristics, assessment of the level of participant's Knowledge of vasectomy, attitude, and determinants of the attitude to vasectomy. The study instrument was pretested among married men in the Directorate of Administration of the hospital to determine its reliability. The data was analyzed using IBM-SPSS (statistical package for social sciences) version 23.0 software. Frequencies and means were generated, and Chi-square was used to determine the association between categorical variables. The level of significance was set at a *p*-value of <0.05 at a 95% confidence interval for inferential statistics. Participants who scored ≥ 50% under questions on Knowledge were classified to have good Knowledge, while scores below 50% were classified as poor Knowledge.

Ethics

Ethical approval was obtained from the Ethical Committee of the University of Ilorin Teaching Hospital, Ilorin, Nigeria, and informed consent was obtained from each participant.

Results

A total of 260 questionnaires were administered, however, only 247 were retrieved and included in the analysis with a retrieval rate of 95%.

Table 1. Socio-demographic Characteristics of Respondents

Variables	**Frequency (%)**
Age groups	
20 – 29	24 (9.7)
30 – 39	151 (61.1)
40 – 49	54 (21.9)
≥ 50	18 (7.3)
Level of education	
Tertiary	239 (96.8)
Post tertiary	8 (3.2)
Designation	
Doctors	156 (63.2)
Laboratory scientists	53 (21.5)
Pharmacists	30 (12.1)
Nurses	4 (1.6)
Physiotherapists	4 (1.6)
Number of children	
None	47 (19.0)
1	32 (13.0)
2	77 (31.1)
3	60 (24.3)
≥4	31 (12.6)

Table 1 shows that the modal age of participants was 30-39 years (61.1%), 239 (96.8%) had tertiary education, 156 (63.2%) were doctors, while 81% had at least one child while 168 (68.0%) had two or more children.

Table 2. Evaluation of the Awareness about Vasectomy among Participants

Variables	**Frequency (%)**
Heard about vasectomy	
No	10 (4.0)
Yes	237 (96.0)
If yes, Sources of information (n=237)	
Health facility	131(55.3)
Radio/ Television	46 (19.4)
Seminar	42 (17.7)
Media	11 (4.6)
Others	7 (3.0)
Vasectomy is a permanent form of contraception	
Yes	231(93.5)
No	7 (2.8)
I don't know	9 (3.7)
Other male family planning methods*	
Use of condom	199 (86.4)
Coitus interruptus	148 (64.0)
Abstinence	122 (53.0)
Who can undergo vasectomy*	
Men who have no children	5 (2.0)
Men who have many children	139 (56.3)
Men who want to stop having children	215 (87.0)
Vasectomy is simpler / safer than bilateral tubal ligation	
Yes	196 (82.7)
No	41 (17.3)
Early resumption of sex after vasectomy	
True	143 (60.3)
False	94 (39.7)
Vasectomy affects a man's sex drive	
Yes	28 (9.7)
No	209 (90.3)
Being sterile affects patient emotionally	
Yes	126 (53.2)
No	111 (46.8)
Vasectomy is a risk factor of prostate cancer	
Yes	8 (3.3)
No	183 (77.2)
Don't know	46 (19.5)
Overall Knowledge of vasectomy	
Good	219 (88.7)
Poor	28 (11.3)

Table 2 shows that awareness of vasectomy was 96.0%, while the health facility was the main source of information in 55.3%. Also, 90.3% perceived that vasectomy is an effective method of contraceptive, 82.7% opined that it is safer than tubal ligation, 90.3% reported that vasectomy does not affect sexual drive, while 53.2% feel being sterile affects the man emotionally.

Table 3. Acceptance of Vasectomy as a Form of Male Contraception among Participants

Variables	Frequency (%)
Men can play a significant role in FP	
Agree	55 (22.3)
Strongly agree	189 (76.5)
Disagree	1 (0.4)
Don't know	2 (0.8)
Willing to share family planning responsibility with the partner	
Yes	208 (84.2)
No	27 (10.9)
May be	12 (4.9)
Willingness to opt for vasectomy	
Yes	41 (16.6)
No	148 (59.9)
May be	58 (23.5)
Reasons for not opting for vasectomy	
Fear of sexual dysfunction	129 (87.2)
Fear of side effects	104 (70.3)
Irreversibility of the procedure	55 (37.2)
Cultural prohibition	37 (25.0)
Fear of marital infidelity	31 (20.9)
Religion prohibition	19 (12.8)
Plan to marry another wife	11 (7.4)
Fear of unforeseen adversity in existing children	7 (4.7)
Family planning is only for women	5 (3.4)
Others	6 (4.1)

Table 3 shows acceptance of vasectomy and reasons for not opting for vasectomy. While the majority of the respondents (76.5%) strongly agree that men can play a significant role in family planning, and 84.2% were willing to share the responsibility of family planning with their partners. Only 16.6% of the respondents were willing to opt for vasectomy when they completed their family size. Fear of sexual dysfunction was the highest reason most of them were not willing to opt for vasectomy (87.2%).

Table 4. Association between Socio-demographic Characteristics and Knowledge of Vasectomy among the Respondents

Variables	Knowledge about vasectomy		χ^2	P
	Poor n=28	Good n=219		
Age group			0.912	0.823
20 – 29	4 (16.7)	20 (83.3)	-	-
30 – 39	17 (11.3)	134 (88.7)	-	-
40 – 49	5 (9.3)	49 (90.7)	-	-
≥ 50	2 (11.1)	16 (88.9)	-	-
Level of education			0.011	0.916
Tertiary	27 (11.3)	212 (88.7)	-	-
Post tertiary	1 12.5)	7 (87.5)	-	-
Designation			75.00	< 0.001
Doctors	2 (1.3)	154 (98.7)	-	-
Laboratory scientist	10 (18.9)	43 (81.1)	-	-
Pharmacist	12 (40.0)	18 (60.0)	-	-
Nurses	0 (0.0)	4 (100.0)	-	-
Physiotherapy	4 (100.0)	0 (0.0)	-	-
Number of children			34.654	< 0.001
1	3 (9.4)	29 (90.6)	-	-
2	1 (1.3)	76 (98.7)	-	-
3	15 (25.0)	45 (75.0)	-	-
≥4	9 (29.0)	22 (71.0)	-	-
None	0 (0.0)	47 (100.0)	-	-

Table 4 shows the association between socio-demographic characteristics of respondent's and Knowledge of vasectomy. There is a statistically significant finding between the designation, number of children, and Knowledge of vasectomy. Hence doctors and those with two children are likely to be more knowledgeable about vasectomy.

Table 5. Determinants of Acceptance of Vasectomy as a Form of Male Contraception

Variables	Acceptance of vasectomy		χ^2	P-value
	Yes (%)	No (%)		
Age groups			12.513	0.006
20 – 29	10 (41.7)	14 (58.3)	-	-
30 – 39	20 (13.2)	131 (86.8)	-	-
40 – 49	9 (16.7)	45 (83.3)	-	-
≥ 50	2 (11.1)	16 (88.9)	-	-
Level of education			0.100	0.751
Tertiary	40 (16.7)	199 (83.3)	-	-
Post tertiary	1 (12.)	7 (87.5)	-	-
Designation			36.272	< 0.001
Doctors	17 (10.9)	139 (89.1)	-	-
Laboratory scientist	7 (13.2)	46 (86.8)	-	-
Pharmacist	12 (40.0)	18 (60.0)	-	-

Nurses	1 (25.0)	3 (75.0)	-	-
Physiotherapy	4 (100.0)	0 (0.0)	-	-
Number of children			7.323	0.120
One	5 (15.6)	27 (84.4)	-	-
Two	6 (7.8)	71 (92.2)	-	-
Three	14 (23.3)	46 (76.7)	-	-
4 or more	7 (22.6)	24 (77.4)	-	-
None	9 (19.1)	38 (80.9))	-	-
Knowledge about vasectomy			31.182	<0.001
Poor	15 (36.6)	13 (6.3)	-	-
Good	26 (63.4)	193 (93.7	-	-

Table 5 shows the association between socio-demographic characteristics of respondents and acceptance of vasectomy. A statistical significance was seen between the age group and the designation of the respondents. Respondents with good Knowledge are not likely to opt for vasectomy as the p-value is < 0.001.

Discussion

This study shows that acceptance of vasectomy for contraception was low among the participating male health care workers. Although the awareness about vasectomy was high, only 16.6% expressed the desire to undergo the procedure on completion of their family size, whereas 84.0% were willing to share family planning responsibility with their female partners. The identified hindrances to the uptake of vasectomy were fear that it may lead to sexual dysfunction, fear of other side effects, the irreversibility of the procedure, cultural factors, concerns about possible infidelity, religious prohibition, and desire to marry another wife, and fear of unforeseen adversity in the existing.

The age of participants in this study was similar to previous reports [14, 22]; the high level of tertiary education attainment is a reflection of the study population, who were health care workers, similar to a previous report among a similar population [14]. The reported high level of awareness of vasectomy is a reflection of the study participants who were health care workers, unlike another study among non-health workers, which reported that 62.5% of the respondents were not aware of vasectomy [23]. Also, the important contribution of the health facility as the major source of information about vasectomy corroborates a report from Rwanda with 91.2% information from health facilities [24]. In addition, studies among non-health workers reported a lower level of Knowledge [24] and understanding of vasectomy as a permanent contraceptive method [22] compared to this study.

Research reports have shown that men play a significant role in family planning [9, 25], while male partner support has been shown to encourage compliance among women on contraception [10]. However, despite the high level of Knowledge and a good understanding of vasectomy, 16.6% of the respondents, compared to 1.6% in a report among non-health workers [14] intended to undergo vasectomy on completion of their desired family size. This suggests that aversion for vasectomy remains prevalent among men in low-income countries, irrespective of the level of education or Knowledge about the procedure.

The report of fear of sexual dysfunction, other side effects, irreversibility of the procedure as well as cultural and religious beliefs as the common barriers to acceptance of vasectomy is similar to reports from previous studies [23, 26, 27] in Nigeria. In a report among nursing personnel in Iran identified barriers to vasectomy were irreversibility of the procedure (62.1%), permanent infertility (56.1%), blame by relatives

and acquaintances (48.5%), and inconsistency with existing culture in the society (40.9%) [28].

Conclusion

This study concludes that there is the aversion to vasectomy as a form of male contraception among male health workers despite adequate awareness and Knowledge due to concerns about possible side effects, including the irreversibility of the procedure. Therefore, while advocacy to improve uptake of vasectomy continues, researchers should expedite actions to make reversible male contraceptives readily available to address the unmet needs.

Acknowledgment

Nil.

Conflict of Interest

All the authors of this article declare no conflict of interest in the conduct of the study.

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