

## Knowledge, Perceptions and Attitudes towards Male Infertility: A Cross Sectional Survey in a Tertiary Institution in South- Southern Nigeria

<sup>1</sup>Ima-Abasi E. Bassey, <sup>2</sup>Edoise M. Isiwele, <sup>1</sup>Ayodele Omotoso,  
<sup>1</sup>Edem D. Ushie, <sup>2</sup>Paul D. Ekwere

<sup>1</sup>Department of Pathology, University of Calabar Teaching Hospital, Nigeria

<sup>2</sup>Department of Urology, University of Calabar Teaching Hospital, Nigeria

\*Corresponding Author: <sup>2</sup>Dr Edoise M. Isiwele

**ABSTRACT:-**The infertile couple in many parts of the world is faced with medical as well as social problems. Males account for between 40 to 50 percent of infertility. Adequate knowledge related to infertility can enhance the chances of the infertile couple achieving pregnancy. This study was carried out to assess the level of awareness and attitudes of staff of a tertiary institution in Nigeria. One hundred and forty-six staff of a University in South-southern Nigeria were surveyed using a structured questionnaire. The male to female ratio was approximately 1:1 and modal age was 21-30 years. Over 90% of the respondents had tertiary or post graduate education. Over 68% had good knowledge about what infertility is. Approximately 90% had the knowledge that males contribute significantly to the state of infertility. Those with tertiary and postgraduate education had better perception about infertility than those with secondary education ( $p < 0.05$ ). Females were found to have better knowledge than their male counterparts ( $p > 0.05$ ). Respondents with better perception about infertility were found to have a better attitude towards infertility ( $p < 0.05$ ). A significant number of respondents were found to still have misconceptions about the causes of infertility. Despite the relatively high level of knowledge exhibited by our cohort of respondents, there is still need for widespread awareness campaigns to improve knowledge, thereby improving the management of the condition.

**Keywords:-** Attitudes, Knowledge, Perception, Male Infertility

### I. INTRODUCTION

Infertility is a significant cause of social and psychological distress to affected families because of the inability to achieve the desired social role of fatherhood or motherhood.[1] In Nigeria, a significant part of the populace still regards having children as the main reason for marriage[2] which further puts the infertile couple in a difficult situation as they both are despised for having “failed” in marriage. Infertility is currently defined as the inability to achieve conception after one year of unprotected intercourse. It is found to affect 10–15% of couples causing them to seek specialist fertility care at least once during their reproductive lifetime.[3,4] Male infertility is the inability of a male to cause pregnancy in a fertile female and it has been found to account for 40–50% of infertility.[5,6] Araoye in 2003 noted the infertility rate in Africa to be between 8.6 to 21.5%.[7] In an earlier study in this centre, Ekwere et al in 2002 recorded a hospital incidence of infertility of 34 per 1000.[8] Solutions for infertility are varied, ranging from medical treatment to assisted reproductive technology techniques.[9] The chances of enhancing conception depend to a large extent on the information available to patients as this affects their perception and attitudes toward the condition. This study was carried out to assess the level of awareness of staff of a tertiary institution in South-southern Nigeria about infertility in general and male infertility specifically, as well as their attitudes toward it.

### II. SUBJECTS AND METHODS

A cross sectional study was conducted amongst teaching and non-teaching staff of the University of Calabar, South-southern Nigeria to assess their awareness of and attitudes towards infertility. A self-administered questionnaire was designed and administered to the respondents. Socio-demographic data, questions on general knowledge about infertility, aetiology of male infertility as well as attitudes and perception toward infertility were assessed. General Knowledge about infertility among respondents was assessed using 14 questionnaire items. Knowledge about aetiology was assessed with 15 items. Five and six items were used respectively to assess attitudes and practice.

In assessing “Knowledge”, a correct answer was assigned a score of one and an incorrect answer zero. A total score of between 1 and 5 was regarded as poor knowledge, 6-10 as fair and 11-14 as good. An “Attitude” score of < 3 was considered as negative while  $\geq 3$  was categorized as positive. A “Practice” score was categorized as either poor ( $\leq 3$ ) or good ( $> 3$ ).

Data was analyzed using Statistical Package for Social Sciences (SPSS) Version 20 IBM and test of association between categorical variables was carried out using Chi square or Fischer exact test. P-value was set at <0.05 at 95% confidence interval.

### III. RESULTS

One hundred and forty six (146) respondents were recruited into the study with a male to female ratio of approximately 1:1 and modal age distribution of 21-30 years. Over 90% of the respondents had tertiary or post graduate education and about 62% were single. (Details in Table 1)

**Table 1: Socio-Demographic Characteristics of Respondents**

Variable	Frequency (n=146)	Percentage (%)
<b>Gender</b>		
Male	75	51.4
Female	71	48.6
<b>Age group (years)</b>		
$\leq 20$	14	9.6
21-30	75	51.4
31-40	27	18.5
41-50	20	13.7
$> 50$	10	6.9
<b>Educational level</b>		
Secondary	14	9.6
Tertiary	77	52.7
Post graduate	55	37.7
<b>Marital status</b>		
Single	90	61.6
Married	56	38.4

**General knowledge about infertility and its aetiology:** Approximately 68% of the respondents had good knowledge about the definition of infertility. Knowledge about the various causes of infertility was varied, ranging from fair to good knowledge. (Details in Tables 2 and 3)

**Table 2: General Knowledge and Misconceptions about Infertility**

Questions	Yes (%)	No (%)
Infertility is the failure to achieve conception for at least 3 months despite continuous unprotected exposure to risk of pregnancy	59(40.4)	87(59.6)
Infertility is the failure to achieve conception at least 6 months despite continuous unprotected exposure to the risk of pregnancy	59(40.4)	87(59.6)
Infertility is the failure to achieve conception at least 12 months despite continuous unprotected exposure to the risk of pregnancy	99(67.8)	47(32.2)
Male infertility/sub fertility can be as a result of low sperm count	127(87.0)	19(13.0)
Male infertility/sub- fertility can be as a result of poor sperm motility	115(78.8)	31(21.2)
Male infertility/subfertility can be as a result of poor sperm morphology	75(51.4)	71(48.6)
So long as a man maintain an erection during intercourse with a woman, he is normal	47(32.2)	99(67.8)
The male partner too contribute significantly to the state of childlessness among couples	131(89.7)	15(10.3)
The female partner is always the only source of problem of childlessness in an infertile relationship	13(8.9)	133(91.)
30-50% of the burden of infertility is attributed to the male partner	79(54.1)	132(90.4)
Prompt/Early and complete treatment of sexually transmitted infections can reduce the sequelae of infertility in male by at least one third	132(90.4)	14(9.6)
Infections play a prominent role in the state of male and female infertility	138(94.5)	8(5.5)
Infertility prevention should start with community health education	134(91.8)	12(8.2)
A man is exempt from case of infertility if he had a child in the past	31(21.2)	115(78.8)

**Table 3: Knowledge of the Causes of Infertility**

Causes	Frequency	Percentage (%)
Abnormal menses (ovulatory factor)	115	78.8
Blocked tubes	128	87.7
History of infection of genital tract in female	122	83.6
History of infection of genital tract in male	123	84.2
Smoking	68	46.6
Previous use of contraceptive pills in female	117	80.1
Previous use of contraceptive in male	90	61.6
Supernatural causes	68	46.6
Black magic (witchcraft)	80	54.8
Regular exercise	20	13.7
Psychological stress	94	64.4
Being obese	76	52.1
Abnormality of sex organ	102	69.9
Tight underwear by males	73	50.0
Constant heat around genitals	85	58.2

A good number of respondents in this study were found to regard infertility as a condition that requires the treatment both of the male and female partners (over 91%). Over 93% of respondents believe that both partners should share the blame and therefore both should be investigated and treated medically. (Details in Table 4)

**Table 4: Attitudes Pertaining To Infertility**

	n=146	Frequency (%)
Think fertility is a disease	Yes	87(59.6)
	No	59(40.4)
Think fertility should be treated medically	Yes	133(91.1)
	No	13(8.9)
Think if a couple conceived once they might have problem conceiving again	Yes	90(61.6)
	No	56(38.4)
Who to be blame for infertility	Husband	2(1.4)
	Wife	7(4.8)
	Both	137(93.8)
Who should be investigated first	Husband	18(12.3)
	Wife	21(14.4)
	Both	107(73.3)
General attitude	Negative	18(12.3)
	Positive	128(87.7)

Majority of the respondents had a positive perception about what the outcome of the marriage should be when there is infertility. Over 80% of the respondents felt that infertility is not enough grounds for divorce or marriage to a second wife and that adoption or use of fertility drugs should be explored. However, the attitude towards test tube baby was just fair. (Table 5)

**Table 5: Perception about Marital Outcome**

Questions	Yes (%)	No (%)
If a female cannot have a baby is that a reason for divorce	7(4.8)	139(95.2)
If a female cannot have a children do you think is a valid reason for the man to have a second marriage	20(13.7)	126(86.3)
If a man cannot have children do you think this is a ground for divorce	7(4.8)	139(95.2)
If a couple cannot have a child do you think they should adopt	127(87.0)	19(13.0)
Do you think it is socially acceptable to have a test tube baby	97(66.4)	49(33.6)
Do you think fertility drug are socially acceptable	121(82.9)	25(17.0)

Correlation statistics revealed that even though there was no statistically significant correlation between the demographic characteristics and knowledge of causes or attitudes towards infertility there was a statistically significant correlation between educational status and perception of infertility and also between perception of infertility and attitudes towards infertility. (Details in Tables 6, 7, 8 and 9)

Overall, 53.7% had good general knowledge about infertility and 67.3% had fair knowledge. Twenty four percent (24%), 65% and 11%, respectively had good, fair and poor, knowledge about the causes of infertility. 88.4% had a good perception of infertility and 11.6% had a poor perception. Over eighty seven percent (87.7%) had a positive attitude toward infertility, while 12.3% had a negative attitude.

**Table 6: Correlation between Socio-Demographic Characteristics and Knowledge of Causes of Infertility**

	Knowledge of Causes of infertility			Statistics
	Poor (=16)	Fair (n=95)	Good (n=35)	
Gender				
Male	8(10.7)	51(68.0)	16(21.3)	$\chi^2=0.664$ df=2 p=0.718
Female	8(11.3)	44(62.0)	19(26.8)	
Age group (years)				
≤20	0(0.0)	11(78.6)	3(21.4)	$\chi^2=5.762$ df=8 p=0.674
21-30	8(10.7)	50(66.7)	17(22.7)	
31-40	3(11.1)	19(70.4)	5(18.5)	
41-50	3(15.0)	10(50.0)	7(35.0)	
>50	2(20.0)	5(50.0)	3(30.0)	
Educational level				
Secondary	2(14.3)	11(78.8)	1(7.1)	$\chi^2=3.950$ df=4 p=0.413
Tertiary	6(7.8)	51(66.2)	20(26.0)	
Post graduate	8(14.5)	33(60.0)	14(25.5)	
Marital status				
Single	9(10.0)	62(68.9)	19(21.1)	$\chi^2=1.525$ df=2 p=0.467
Married	7(12.5)	33(58.9)	16(28.6)	

**Table 7: Correlation between Socio-Demographic Characteristics and Attitude toward Infertility**

	Attitude toward infertility		Statistics
	Negative(n=18)	Positive (n=128)	
Gender			
Male	9(12.0)	66(88.0)	$\chi^2=0.015$ df=1 p=0.901
Female	9(12.7)	62(87.3)	
Age group (years)			
≤20	1(7.1)	13(92.9)	$\chi^2=0.638$ df=4 p=0.959
21-30	10(13.3)	65(86.7)	
31-40	3(11.1)	24(88.9)	
41-50	3(15.0)	17(85.0)	

>50	1(10.0)	9(90.0)	
Educational level			$\chi^2=2.069$
Secondary	3(21.4)	11(78.9)	df=2
Tertiary	7(9.1)	70(90.9)	p=0.355
Post graduate	8(14.5)	47(85.5)	
Marital status			$\chi^2=2.569$
Single	8(8.9)	82(91.1)	df=1
Married	10(17.9)	46(82.1)	p=0.109

No statistically significant correlation between the attitude of the respondents toward infertility and their social-demographic characteristics was found.

**Table 8: Correlation between Socio-Demographic Characteristics and Perception of Infertility**

	Perception of infertility		Statistics
	Poor (n=17)	Good (n=129)	
Gender			$\chi^2=0.143$
Male	8(10.7)	67(89.3)	df=1
Female	9(12.7)	62(87.3)	p=0.705
Age group (years)			$\chi^2=2.410$
≤20	1(7.1)	13(92.9)	df=4
21-30	9(12.0)	66(88.0)	p=0.661
31-40	5(18.5)	22(81.5)	
41-50	1(5.0)	19(95.0)	
>50	1(10.0)	9(90.0)	
Educational level			$\chi^2=9.023$
Secondary	5(35.7)	9(64.3)	df=2
Tertiary	8(10.4)	69(89.6)	p=0.011*
Post graduate	4(7.3)	51(92.7)	
Marital status			$\chi^2=0.616$
Single	9(10.0)	81(90.0)	df=1
Married	8(14.3)	48(85.7)	p=0.432

There is a statistically significant relationship between the perception of the respondents and their education level. Chi square ( $\chi^2$ ) (2, N = 146) = 9.023,  $p = <0.011$ , 132(90.41%) had higher education which influences their perception toward infertility.

**Table 9: Correlation between Perception and Attitudes towards Infertility**

	Attitude toward infertility		Statistics
	Negative(n=18)	Positive (n=128)	
Perception			$\chi^2=29.360$
Poor	9(52.9)	8(47.1)	df=1
Good	9(7.0)	120(93.0)	p<0.001*

There is a statistically significant correlation between the attitude of the participants and their perception towards infertility. Chi square ( $\chi^2$ ) (1, N = 146) = 29.360,  $p = <0.001$

#### IV. DISCUSSION

This study was carried out to assess the knowledge, perception and attitudes of University staff towards infertility and being that a University is a citadel of knowledge; the expectation was that most participants would be very knowledgeable concerning issues of infertility. The study was however very revealing. Approximately 68% of the respondents had good knowledge about the definition of infertility. Knowledge about the various causes of infertility was varied. Over 87% of patients had knowledge about the role of sperm count in fertility however less people knew about the role of sperm motility (78%) and even less knew about its morphology being important (51%). Even though approximately 90% believe that males contribute significantly to the state of infertility, as high as 31% still believe that attaining an erection could be equated with being fertile. In many communities in the past, every case of infertility was attributed to the woman and she was subjected to incessant investigations both medical and traditional. Apparently this notion has changed significantly with the above noted result. Over 90% of respondents believe that infections of the genital tract play a major role in the development of infertility and that early treatment would prevent against such sequelae. In a similar study carried out in Pakistan by Ali et al only 25.0% of the participants correctly recognized that infertility is diagnosed usually after at least one year of regular unprotected sex.[10] In addition, only 40% of them knew that

both male and female are equally responsible in cases of infertility. This is quite poor compared with the level of general knowledge of our cohort regarding infertility. As regards the causes of infertility an average of over 80% correctly identified causes like blocked tubes, irregular menses and previous genital tract infection both in males and females. Surprisingly, over 63% thought that smoking was not a cause of infertility and 80% felt oral contraceptive pills were a cause. This same kind of picture was seen in the Pakistani study where 76% did not associate smoking with infertility and 61% felt oral contraceptive pills were a cause.[10] There is a notion held by many Nigerians about spiritual causes or witchcraft being responsible for infertility and this was vivid in our study because as high as 47% and 55% of our cohort believed that supernatural causes and witchcraft could be responsible for infertility respectively. A study carried out on College students in Grenada revealed that 31.6% of male and 40.8% of female students believed that voodoo could be responsible for infertility[11]. This indicates that despite having tertiary and post graduate education, a significant part of our community still has some wrong notions and misconceptions concerning the causes of infertility. This may suggest that education has not been able to erase the traditional beliefs that most people have been born into. A global study carried out in 2006 on 17,500 respondents showed that worldwide there was poor knowledge regarding physiology of reproduction and infertility.[12]

With regards to perceptions toward infertility 40% felt it is not a disease, over 91% felt the condition should be treated medically while over 73% felt that both partners should undergo treatment at the same time. Over 95% of patients do not see infertility (whether male or female) as enough grounds for divorce. Eighty seven percent (87%) and 66.4% of respondents respectively felt adoption and test tube babies were an acceptable option. These have been contentious issues amongst the Nigerian population. A study by Nobody and Isahin Sokoto revealed that only 27.2% of an infertile population of women studied were willing to accept adoption as an alternative.[13] Nguetack and colleagues found that 77% of the participants in their study in Doula, Cameroon had good attitudes towards adoption.[9] A lot of fears and misconceptions about adoption of a child whose biological parents are unidentified still exist. Many Nigerians assume that an adopted child could be the child of a drug addict, criminal convict, mentally retarded or prostitute and could turn out the same way in future.[14] This makes it an unpopular alternative for a good number of people.

Correlation of sociodemographic findings with knowledge of causes of infertility revealed that slightly more females exhibited good knowledge better than the males. Several studies have shown that women tend to have a better health-seeking behavior than men[15–17] and this study has further demonstrated it. In addition, the pressure put on women who are infertile by the society is usually more than that on the males and this may be a reason why women generally seek more knowledge about infertility than their male counterparts. Tertiary and post graduate education did not show much difference as about 26% of each exhibited good knowledge, while only 7% of those with secondary education had good knowledge about infertility. These findings were however not statistically significant. Over 78% of respondents with secondary, 90.9% of those with tertiary and 85.5% of those with postgraduate education had a positive attitude towards infertility ( $P>0.05$ ). The finding that 64.3% of those with secondary, 89.6% of those with tertiary and 92.7% of those with postgraduate education had good perception of infertility was found to be statistically significant. Interestingly, it was found out that more singles had better knowledge, perception and attitudes towards infertility than the married participants though not statistically significant. Married couples were found to have better health seeking attitudes than singles in a study done by Lee Iannotti and colleagues.(18) The reason for this particular finding is not readily available. Our study revealed that 93% of respondents with good perception of infertility had a positive attitude towards infertility and this finding was statistically significant.

## **V. CONCLUSION**

Our cohort of patients was found to exhibit better knowledge, perception and attitudes towards infertility than what was recorded in many similar studies. This is understandably so because of the level of education of many of the participants. Surprisingly however, many misconceptions and wrong beliefs are still being held on to by many of them. Therefore it is pertinent that widespread campaigns need to be organized by government as well as by non-governmental organizations to enlighten the public with the aim of correcting these beliefs so that better management of infertility can be achieved.

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**\*Corresponding Author: <sup>2</sup>Dr Edoise M. Isiwele,**  
**<sup>2</sup>Department of Urology, University of Calabar Teaching Hospital, Nigeria**