Original Research Article

TESTICULAR SELF-EXAMINATION AND TESTICULAR CANCER: AN ASSESSMENT OF KNOWLEDGE AND PRACTICE AMONG NIGERIAN MALE NON-HEALTH UNDERGRADUATES.

Abstract

Purpose

Testicular cancer (TC) is a malignant tumour of the testes that commonly affects young men in their second and third decades of life. Regular testicular self-examination (TSE) results in early detection and treatment of TC. This study was conducted to assess the knowledge and practice of TC and TSE among male undergraduates.

Materials and methods

This research was a descriptive cross-sectional study conducted at a higher institution in Edo state. The research population consisted of non-medical students of the institution selected by convenient sampling techniques and structured self-administered questionnaires were used. Data analysis were performed using Statistical Programming for Social Sciences version 22 (SPSS Inc., Chicago, IL, United States). $P < 0.05$ was regarded as significant.

Results

Only about half (50.2%) of the study participants have heard of TC. The majority (65.8%) of the male students had never heard of TSE. Forty-six participants (20.4%) knew the frequency of TSE and 43 (19.1%) had practiced it. Only 43 (19.1%) participants have carried out TSE before.

The participants' age and level of study are the two statistically significant sociodemographic variables that contributed to the level of knowledge about TSE. The majority (58.2%) of the respondents showed a favorable disposition towards TC and performing TSE.

Conclusion.

This study showed that the knowledge of TC and TSE was low among the students. We recommend the inclusion of TC and TSE in the general studies curriculum of undergraduates to ensure massive educational campaigns and training on TC and TSE techniques among young male groups.

Key words: testicular cancer, testicular self-examination, practice, early detection, undergraduates, Nigeria.

Introduction

Testicular cancer is the most common cancer in males between 15 and 40 years old. [1] It is the third leading cause of cancer death in males in the second and third decades of life and its responsible for 19% of all cancer deaths in this age group.[1,2] At the moment, the age-adjusted incidence of TC is on the increase.[2] In Africa, presentation is often late with attendant high morbidity and mortality.[3] From the foregoing, therefore, TC awareness and practice of TSE among males who fall within this age group are necessary for early detection and prompt management of TC.

Early detection and treatment can lead to the cure of TC.[4] Unfortunately, more than 50% of patients are diagnosed after the cancer has spread beyond the testes to the abdomen, pelvis, or other solid organs[5,6]. In these patients the chances for cure and survival, are much slimmer. Most men between the ages of 15 and 40 years, the group with the highest risk for TC, have little

knowledge about TC and TSE.[7] The excellent outcome that follows early diagnosis and management of TC accentuate the importance of teaching TSE.

TSE refers to the process by which a man checks the appearance as well as the consistency of his testes with the ultimate aim of detecting abnormalities and swellings.[8] It is a straightforward procedure that requires a few minutes to complete. TSE gives young men the privilege to thoroughly and carefully examine their testes. TSE can result in early detection of TC. The individual has to check for any change in size, consistency, or shape of the testes as well as lumps in the testes.[8] The first noticeable symptom is generally a painless mass in the testis.[6] In this regard, it has been recommended that young men in their second to fourth decade of life should practice TSE every month. The purpose of this study was to assess the knowledge and practice of TC and TSE among male undergraduate students of Edo north senatorial district of Edo state, Nigeria with a view to creating awareness about TC and encouraging the practice of TSE particularly, among this vulnerable group.

Materials and methods.

This was a descriptive cross-sectional study, conducted in a public tertiary institution in the Edo North senatorial district of Edo State, Nigeria. All students were informed that the exercise was voluntary and questionnaire administration was done by research assistants in the absence of academic staff, in order to avoid any form of coercion. Ethical principles as stated in the Declaration of Helsinki were strictly adhered to. The students were informed about the need to accurately fill the questionnaires without including their names. Permission to conduct the survey was obtained from the school management.

The questionnaire was pre-tested on 30 male students of the same age group in another higher institution. The questionnaire was divided into two parts: the first part sought information on socio-demographic data, such as participants' age, educational status, religion, and year of study. The second part assessed knowledge about TC and the knowledge, attitudes and practices of TSE among the students. The knowledge about TSE was assessed with questions bothering on the steps in the performance of TSE, frequency of performance, and what to watch out for during TSE. The participants' rating of the importance of TSE was also assessed. Following the completion of the questionnaire, how to perform a TSE and the best time to do so were explained to the participants. The data was analyzed using the SPSS (Statistical Package for Social Sciences), version 22.0. Where applicable and appropriate, descriptive statistics such as frequencies, means, ratios, standard deviations, percentages were used to describe the variables.

Results

A total of 250 male students participated in the study. However, 25 questionnaires were poorly filled and were rejected, leaving 225 for data analysis. The mean age of the students was 22.6 ± 3.90 years with a range of 16 – 37 years. The majority (65.8%) of the students were between 21-25 years. Other sociodemographic variables of the participants are as shown in Table I.

Table 1: Demographic characteristics

	Frequency (n)	Percentage (%)
Age group		
<20 years	40	17.8
20-25 years	148	65.8
26-30 years	24	10.7
31-35 years	10	4.4
>35 years	3	1.3
Total	225	100.0

Level of study		
First year	92	40.9
Second year	80	35.6
Third year	18	8.0
Fourth year	35	15.6
Total	225	100.0
Religion		
Christianity	193	85.8
Islam	32	14.2
African traditional religion	0	0.0
Others	0	0.0
Total	225	100.0

Seventy- seven (34.2%) of the 225 participants have heard about TSE and the information was obtained majorly from health workers (50.6%). A few of the students (n=9, 4.0%) of the students know that TSE is important and the knowledge of frequency of TSE was very poor (Table II). Notable also, from table II, was the poor knowledge of the frequency of TSE.

Table II: Knowledge of TSE

	Frequency (n)	**Percentage**
Heard of TSE		
No	148	65.8
Yes	77	34.2
Total	225	100.0
Source of TSE information		
Hospital/health workers	39	50.6
Friends/peers	7	9.1
Television/newspaper	11	14.3
Social media	12	16.9
Family	8	9.1
Total	77	100.0
Shared knowledge of TSE		
Yes	29	12.9
No	196	87.1

Total	225	100.0
Taught TSE		
Yes	19	8.4
No	206	91.6
Total	225	100.0
Frequency of TSE		
Monthly	46	20.4
Every 2 months	31	13.8
Every 6 months	16	7.1
Yearly	16	7.1
Don't know	116	51.6
Total	225	100.0
Is TSE important		
Yes	9	4.0
No	113	50.2
Don't know	103	45.8
Total	225	100.0

Regarding the level of knowledge of TSE, the majority of the respondents (n= 148, 65%) have poor knowledge while only a handful (n= 21, 9.3%) have good knowledge of TSE (Figure 1). Similarly, concerning the level of practice of TSE, only 8% (n= 18) of the respondents practice TSE regularly while 18.7% (n= 42) have a fair level of practice of TSE. More than a third of the respondents have a poor level of practice of TSE (n= 165, 73.3%).

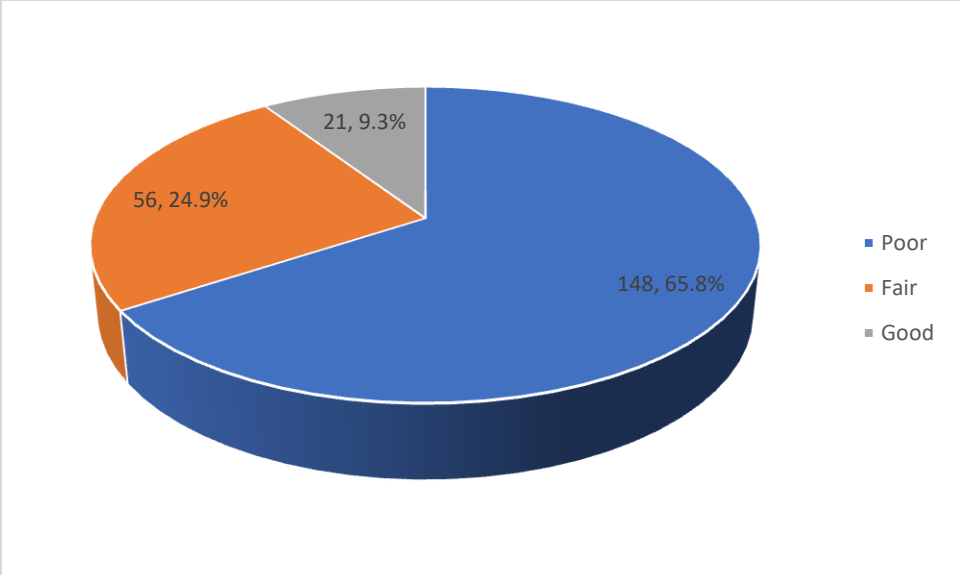

Figure 1: Level of knowledge of TSE

Of the 225 respondents, only 19.1% (n=28) had done testicular examination before. Although all respondents who had done TSE know the right steps, only 6.7% know the right tool for the TSE. Table III shows the respondents frequency of practice of TSE, their willingness to practice TSE, and other parameters related to the practice of TSE.

Table III: Practice of TSE

	Frequency	Percentage
Done TSE		
Yes	43	19.1
No	197	87.6
Tools used		
None	15	6.7
Mirror	28	12.4
Don't know	182	80.9
Steps involved		
Yes	43	19.1
No	13	5.8
I don't know	169	75.1
Frequency		
Monthly	46	20.4
Every 2 months	31	13.8
Every 6 months	16	7.1
Yearly	16	7.1
Don't know	116	51.6
Had testicular swelling or pain?		
Yes	31	13.8
No	194	86.2
Willingness to practice TSE		
Yes	131	58.2
No	19	8.4
Not sure	75	33.3

As depicted in table IV, only about half of the respondents have heard of TC. About half of the 225 participants do not know that TSE can result in early cancer detection and do not also know

that they are at risk of TC. However, 96.4% (n=217) are willing to know more about TC and TSE.

Table IV: Knowledge of testicular cancer

	Frequency	Percentage
Heard of testicular cancer		
Yes	113	50.2
No	112	49.8
TSE and testicular cancer detection		
Yes	103	45.8
No	16	7.1
Don't know	106	47.1
Risk of testicular cancer		
Yes	28	12.4
No	84	37.3
Don't know	113	50.2
Testicular cancer highest age group		
below 15 years	26	11.6
15-35 years	52	23.1
above 35 years	71	31.6
Don't know	76	33.8
Testicular cancer curable		
Yes	53	23.6
No	20	8.9
Don't know	152	67.6
Know more about TC and TSE		
Yes	217	96.4
No	8	3.6

Table V shows the association between the level of knowledge of TSE and sociodemographic variables. The level of knowledge was significantly associated with age ($p = 0.005$) and level of study ($p = 0.005$). Regarding the association between the level of practice of TSE and sociodemographic variables, there was a strong association between the level of practice and the level of study ($p = 0.006$) and religion ($p = 0.003$). However, no association was found between the level of practice and the age of the study participants ($p = 0.126$).

Table V: Association between level of knowledge of TSE and sociodemographic variables

	Level of Knowledge of TSE				
	Poor	**Fair**	**Good**	χ^2	**P**
Age group					
<20 years	31(77.5)	5(12.5)	4(10.0)	19.884	0.005
20-25 years	101(68.2)	37(25.0)	10(6.8)		
26-30 years	12(50.0)	8(33.3)	4(16.7)		
31-35 years	4(40.0)	5(50.0)	1(10.0)		
>35 years	0(0.0)	1(33.3)	2(66.7)		
Level of study					
first year	71(77.2)	16(17.4)	5(5.4)	17.437	0.005
second year	50(62.5)	22(27.5)	8(10.0)		
third year	12(66.7)	6(33.3)	0(0.0)		
fourth year	15(42.9)	12(34.3)	8(22.9)		
Religion					
Christianity	131(67.9)	47(24.4)	15(7.8)	4.609	0.100
Islam	17(53.1)	9(28.1)	6(18.8)		

No association was, however, found between the sociodemographic variables and the level of knowledge about TC (Table VI). The majority of the study participants (n=217, 96.4%) were willing to know more about TC and TSE.

Table VI: Association between level of knowledge of testicular cancer and sociodemographic variables

	Level of Knowledge of Testicular Cancer				
	Poor	**Fair**	**Good**	χ	**P**
Age group					
<20 years	19(47.5)	17(42.5)	4(10.0)	11.302	0.140
20-25 years	62(41.9)	63(42.6)	23(15.5)		
26-30 years	14(58.3)	7(29.2)	3(12.5)		
31-35 years	1(10.0)	6(60.0)	3(30.0)		
>35 years	0(0.0)	3(100.0)	0(0.0)		
Level of study					
first year	42(45.7)	42(45.7)	8(8.7)	9.882	0.130

second year	35(43.8)	30(37.5)	15(18.8)		
third year	10(55.6)	5(27.8)	3(16.7)		
fourth year	9(25.7)	19(54.3)	7(20.0)		
Religion					
Christianity	87(45.1)	79(40.9)	27(14.0)	3.229	0.199
Islam	9(28.1)	17(53.1)	6(18.8)		
ATR	0(0.0)	0(0.0)	0(0.0)		
Others	0(0.0)	0(0.0)	0(0.0)		

Discussion

Though malignant, TC has an excellent cure rate when detected early. However, the morbidity and mortality rates in Africa is generally high due to late presentation.[5] TSE, particularly among the high-risk age group, is key to early presentation and good outcomes in the management of TC. In this study, the knowledge of TC and TSE as well as the practice of TSE among male undergraduate students in Edo North senatorial district in Edo state. The work also reiterates the need to encourage the practice of TSE among undergraduates who predominantly fall within the high-risk group. The age range of the study participants was 16 to 37 years. The percentage of students who were aware of TC and TSE were 34.2% and 50.2% respectively.

This study showed poor level of knowledge of TC (Table II). Previous studies have revealed that even men within the age with the highest risk of developing TC have a poor knowledge of TC.[9,10] This observation is bothersome as the poor knowledge of TC could be accountable for the performance of TSE as noted in this work. The implication of this is the late presentation of patients with TC as seen in sub-Saharan Africa.

In addition, this study showed a weak knowledge regarding TC highest risk age group (11.6% correct), early detection of TC with TSE (45.8% correct), participants risk of developing TC

(12.4% correct), and the probability of cure when detected early (23.6% correct). Previous workers also reported similar findings of poor knowledge level in these domains.[11,12]

Despite the study population being enlightened and the age range most at risk, the awareness and practice of TSE is still very low as only about a third (32.4%) of the students have heard about TSE. This shows that there is poor awareness and sensitization about TSE among the undergraduates in our study population. This figure in this study is similar to the 32% reported among undergraduates in Ethiopia.[13] This may be related to the fact that education on TSE and TC is inadequate or absent in the undergraduates' general studies curriculum. As a result of this, these undergraduates will not be able to enlighten their friends and colleagues on the usefulness of TSE in the early detection of TC, and this will further lower the level of sensitization and awareness of TSE in the general public. Hence, there is an urgent need for undergraduate students to be educated on TC and TSE as part of their general studies curriculum.

This study showed a positive correlation between the age of participants, the year of study and the level of knowledge of the respondents about TSE (Table V). However, there was no association between all the sociodemographic variables and the level of knowledge of the participants (Table VI).

In addition, this study identified a low level of practice among the study participants. Only 2.4% know the correct steps, 19.1% know the tools needed for TSE and 20.4% know the frequency of performance of TSE (Table III). These findings are comparable to other works done in sub-Sahara Africa and other developing countries. In a similar study done in the south Eastern part of Nigeria, a practice prevalence rates of 23% was noted among the undergraduate medical students. Also, a similar study done by Peltzer and colleague in low income, middle income, and emerging economy countries in Africa and Asia, revealed that a proportion of between 7.3% and

17.6% ever practiced TSE in the last 12 months.[14]Even in the developed countries the practice prevalence rates of TSE is still low as many studies have reported rates below 30%.[15,16]This general low level of practice of TSE may be attributable to a low level of their awareness, knowledge, attitude and intention among the undergraduate population. Hence, we suggest the inclusion of TC and TSE in the undergraduates' general studies curriculum and a massive in the sub-Saharan Africa.

Of note is that despite the low level of knowledge of TC and TSE before the study, a very high proportion of the study participants (58.2%) are willing to know more about TC and TSE and to practice TSE after hearing about it (Table III). Other studies have also reported a similar positive intention to carry out TSE after hearing about it.[10] This willingness to practice TSE routinely among this study population is an indication that awareness creation and sensitization will succeed in this area.

Conclusion

This study showed a low overall knowledge, practices towards TC and TSE, its potential curability when detected early among male college students pursuing a Bachelor's degree were very low. Due to lack of knowledge on TC and TSE techniques, potential opportunity for early detection of TC is missed. It is necessary to implement education campaigns, awareness programs, and TSE trainings among high-risk male group.

We recommend the inclusion of TC and TSE teaching in the undergraduates' general studies curriculum (targeting adolescents) as it would create awareness and sensitization among these high-risk group.

Consent and ethical approval

This study was carried out in accordance with the Declaration of Helsinki or university standard guideline.

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