CLINICAL SCIENCE

Public awareness of testicular cancer and testicular self-examination in academic environments: a lost opportunity

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BACKGROUND: Although testicular cancer is the most common cancer among 18- to 50-year-old males, healthcare providers seldom teach testicular self-examination techniques to clients, thus potentially missing opportunities for early detection. This form of cancer is easily diagnosable by testicular self-examination and is 96% curable if detected early. Periodic self-examination must be performed for early detection. Knowledge deficits and sociocultural norms contribute to low levels of health-related knowledge in most patients, resulting in undue delays before seeking medical advice.

OBJECTIVE: Our aim is to assess the level of awareness of testicular cancer and the prevalence of the practice of testicular self-examination in academic environments to enable appropriate interventions.

METHOD: A cross-sectional survey was administered to 750 consecutive males aged 18–50 years in three tertiary institutions in Port Harcourt from October 2008 to April 2009.

RESULT: Knowledge or awareness of testicular cancer was poor. Almost all of the respondents were unaware that testicular lumps may be signs of cancer. A lump was typically construed as a benign carbuncle or something that could resolve spontaneously. The main factor contributing to respondents' lack of knowledge of testicular cancer was that few reported that they were ''ever taught about testicular self-examination.''

CONCLUSION: Young adult men are unaware of their risk for testicular cancer, which is the most common neoplasm in this age group. Healthcare providers are not informing them of this risk, nor are they teaching them the simple early detection technique of self-examination of the testes.

KEYWORDS: Men's health; Testicular lump; Screening; Self-examination; Health education.

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INTRODUCTION

Despite improved treatment modalities, testicular cancer (TC) still remains the third leading cause of cancer deaths among young men aged 18 to 50 years.[1] The advent of chemotherapeutic agents and radiation therapy in cancer treatment seems to have prompted many professional healthcare providers to focus on therapy and posttherapeutic management only, thereby losing sight of the usefulness and benefits of early detection. A recent study reported that 89% of the risk group (adult men below age 35) had never performed testicular self-examination (TSE), and only 4% knew that men in the 18- to 50-year-old age group should perform TSE every month.[2] The most common cancers that can be detected by regular self-examination are breast cancer for women and TC for men. While breast self-examination (BSE) is gaining much attention among women in the sub-Saharan region, knowledge of TSE in men in the same region remains very poor. Although TC is far less prevalent than breast cancer, it is the most frequent cancer for men aged 18–50 in high-risk groups.[3] The literature shows that the lesion is easily detected at an early stage through frequent self-examination and can be effectively managed. Early diagnosis is associated with a reduction in mortality, and in earlier stages of the disease, management is more likely to be associated with simpler and less toxic treatment.[4] Sociocultural norms and religious beliefs deter men from performing this lifesaving technique in most developing nations. Studies from the United States of America posit a low prevalence of TSE in that vicinity;

meanwhile, little to no research has been done in the sub-Saharan region, where morbidity and mortality rates are not quantifiable because of inaccurate data.[5] The lack of health education provided in this area by healthcare workers is thought to contribute to delays in diagnosis. Unfamiliarity with the practice of TSE in this part of the world is attributable to professional healthcare providers' lack of attention and activity toward providing TSE education to their patients.[6] The very good prognosis that results from early detection and treatment of TC underscores the importance of teaching young men the techniques to detect early warning signs of TC in the sub-Saharan region. The well-known deleterious impact of diagnostic delay should turn our attention to the value of prevention. There is an urgent need for distribution of more specific information to the general public, and strong efforts should be made for propagation of TSE in light of an increasing incidence of TC. To develop effective interventions that stimulate young men to start practicing TSE, data are needed that elucidate the knowledge, beliefs and barriers that these young men experience concerning TSE. Motivated by these observations, we recently conducted a study with two main goals: to verify public awareness/unawareness of TC and TSE in males aged 18–50 years and to offer effective interventions.

MATERIALS AND METHODS

The target group for this investigation was young college students, academic and nonacademic staff and local artisans within three universities and colleges in the Port Harcourt metropolitan area. Port Harcourt is a major cosmopolitan capital city of Rivers State in the South-South geopolitical zone within Nigeria; it encompasses Port Harcourt City Local Government Area (PALGA) and Obio-Akpor Local Government Area (OBALGA). It is one of the major cities of the Niger Delta Region, with diverse industrial activities related to oil and gas exploration, which attracts a heterogeneous set of residents.

Study Design

We recruited subjects by approaching the schools and obtaining permission for the researchers to administer the written questionnaire among men aged 18–50 years. One college of education and two universities in the Port Harcourt area were approached. In the questionnaire, TSE was described as the practice by which a man checks himself (i.e., his scrotum) for any abnormalities in his testicles. Participants were then asked to provide responses to the questionnaire's 25 open-ended questions, which were aimed at eliciting the relevant awareness, beliefs and practices among the young men concerning TC and TSE. The response scale was structured according to the 5-point modified Likert-type scale[13]: Strongly Agree (SA) = 5 points, Agree (A) = 4 points, Disagree (D) = 3 points, Strongly Disagree (SD) = 2 point and No Input (NI) = 1 point. The 5-point Likert scale was further reduced to a 3-point scale by collapsing 'agree' and 'strongly agree' into one category ('agree') and collapsing 'disagree' and 'strongly disagree' into another category ('disagree'). 'No input' remained the same (NI). After completing the questionnaire, all subjects received a lecture on TC and TSE with a return demonstration and intervention offered, as appropriate.

Criteria for Selection: A cross-sectional survey was carried out on 920 consecutive 18- to 50-year-old males in two universities and one college of education in Port Harcourt from October 2008 to April 2009. A total of 750 men agreed to be interviewed and consented to complete the questionnaire and also agreed to sign the terms of agreement that were included in the study. The remaining 170 men either declined to be interviewed, provided an incomplete questionnaire or did not agree to sign the terms of agreement, and these men were excluded from the study.

Ethical approval and consent

The study was approved by the facilities' ethical boards. A standardized description of the study's goals and procedures, data uses and protection and rights of respondents were provided in both written and verbal forms to all respondents before obtaining informed and verbal consent for participating in the survey. Respondents were free to decline participation, not respond to any question or opt out completely at any time during the interview without reprimand.

RESULT

Respondents' ages ranged from 18 to 50 years (Table I). A total of 407 (54.3%) were undergraduates, 50 (6.6%) had secondary education, 301 (40.1%) were civil servants and 239 (32%) were unemployed. Knowledge or awareness of TC was poor; only 69 (9.2%) of the respondents were aware that testicular lumps could be a sign of cancer, and these respondents had some form of testicular anomaly. Only 78 (10.4%) were able to identify any other potential signs and symptoms. The majority of respondents (88.6%) had not heard of TC and most reported that they were not ''ever taught about testicular self examination,'' and 470 (63%) felt that a lump could be as benign as a carbuncle (boil) or something that could resolve spontaneously and was insignificant. Respondents claimed they had not heard of TC and that they were not ''ever taught about TSE.'' However, the intervention tools used in this study resulted in 15 (2%) of the participants detecting at least one testicular abnormality (e.g., cryptorchidism, orchitis, epididymitis or testicular lump) in the process of performing TSE (Table III).

Table I - Sociodemographic Distribution And Screening Guidelines N = 750.

Variables	Respondents
Age	**No. (%)**
≤20	101 (13.5)
21–26	90 (12.0)
27–32	100 (13.0)
33–38	95 (12.7)
39–44	187 (25.0)
≥45	177 (23.6)
Education	
Illiterate	12 (1.6)
Primary education	25 (3.3)
Secondary education	50 (6.7)
Undergraduates	407 (54.3)
Graduates/students	29 (3.9)
Tertiary education	227 (30.3)
Profession/Occupation	
Unemployed	239 (31.8)
Self-Employed	210 (28.0)
Civil servants	30 (40.0)

Table II - Knowledge/Awareness Of TC And TSE Practice.

Variables	Respondents No. (%)
Aware of TC	78 (10.4)
Aware of TSE	7 (1.0)
No prior knowledge of TC	305 (40.7)
No prior knowledge of TSE	360 (48.0)
Prior HX of testicular abnormalities	85 (11.3)
Seen by an M.D. in the last 2 years	680 (90.7)
Understand the S/S of TC	25 (3.3)
Ever been taught TSE	9 (1.2)
Ever performed TSE	7 (1.0)
Viewed TSE as immoral/ masturbation	105 (14.0)
Deem TSE teaching as vital	51 (6.8)
Willingness to practice TSE if instructed	625 (83.3)
Aware that lump may be cancerous	69 (9.2)
Identify other potential S/S of TC	78 (10.4)
Deem lump as insignificant	470 (62.7)
Fearful of detecting a lump	200 (26.7)

Abbreviations: TC = Testicular Cancer, TSE = Testicular Self-Examination, HX = History MD = Medical Doctor, S/S = Signs and Symptoms.

Two hundred (27%) men from the group claimed they were afraid of detecting a lump and declined to do TSE (Table II).

DISCUSSION

The data from this study suggest that most respondents had never heard of TC or TSE and had limited knowledge of common symptoms, and had never practiced TSE. The very few that were knowledgeable of TC/TSE appeared to be those that had some form of testicular anomaly (Table II). Some models propose that worry may serve as a facilitator or motivator for cancer screening behavior. These models show a curvilinear relationship between cancer worry and preventive behaviors, suggesting that worry is a facilitator to a certain level.[10] The results of this study provide a basis for structuring an intervention aimed at improving TSE awareness and compliance and confirm recently published evidence of a severe lack of knowledge about TC among the most at-risk individuals.[11]

We contend that although 680 (90.66%) respondents reported visiting healthcare facilities on a regular basis, most of them were not given instruction on TSE (Table II). The suboptimal knowledge of TSE practices in this population suggests that men's health clinics and educational organizations may be more effective in delivering the message than regular healthcare facilities. Unfortunately, such clinics and forums are not available to all, and where they do exist, they are present in limited numbers, and teaching is not prioritized. Our findings suggest that sociocultural norms, religious beliefs and fear of detecting cancerous lumps could be affecting young men's knowledge of and attitudes toward TC and TSE (Table II). A total of 200 (27%) men from the group claimed they were afraid of detecting a lump and declined to do TSE (Table II). However, they were reassured that early detection of testicular cancer can lead to an almost 100% cure rate, as prognosis when detected at early stages is very good. Respondents who perceived TSE as masturbation and immoral, which is against their cultural and religious norms and beliefs, were reassured that TSE does not violate religious and cultural mores. Remarkably, despite the very low knowledge of TSE prior to the study, a large proportion of the respondents (83.33%) showed willingness to practice TSE as instructed (Table II). In addition, during the course of this investigation, the intervention tools resulted in 15 men reporting the detection of at least one testicular abnormality (e.g., cryptorchidism, orchitis, epididymitis, or testicular lump) in the process of performing TSE (Table III). These men were referred to urologists for further assessment. This result suggests that the questionnaire/instruction approach with the accompanying brief introduction, all of which were focused on increasing knowledge of TC and TSE, could be a powerful intervention tool. Teaching TSE remains a considerable task for health education and healthcare providers, especially with regard to resolving the fears that hinder men from practicing it. This finding is consistent with other research on early detection of cancer and TSE[11] that shows that knowledge is an important prerequisite for a positive intention and behavior. The knowledge deficit regarding TC found in the present study may also explain the very limited importance that respondents attached to TSE. Because most subjects had never heard of TC, they obviously had no knowledge of TSE. This is consistent with other studies that have found that lack of knowledge and behavior with respect to TSE were more pronounced in countries where information about TC and TSE was suboptimal.[12] Additional studies are recommended to determine the generalizability of these results.

Table III - Testicular Abnormalities Discovered While Practicing TSE As Instructed.

Variables	Respondents No. (%)
Cryptorchid	2 (0.3)
Orchitis	2 (0.3)
Epididymitis	5 (0.7)
Hydrocele	4 (0.5)
Testicular Lump	2 (0.3)

Limitation

Several caveats are noteworthy. The investigators believe it is unlikely that a study of this magnitude could ever be conducted in Nigeria, given the level of knowledge deficits relatively common in the populace regarding TSE and institutionalized ethical constraints for research in human subjects.

This study drew subjects from a few tertiary institutions and therefore may not be a true reflection of the situation in the entire community. Additional studies are recommended to determine the generalizability of these results.

CONCLUSION

The knowledge deficits surrounding TC and TSE among young men remain at panic levels in the developing world, while TC remains the most common neoplasm in this age group. Irregular and inaccurate data make computing an accurate incidence and prevalence of TC impossible. Nurses and doctors are not informing the populace of this risk, nor are they teaching them the simple early detection technique for self-examination of the testes. Such teaching could be incorporated into routine outpatient and inpatient interactions with high-risk clients. Employing straightforward cognitive health education techniques might prove to be very effective among these vulnerable young men. Awareness of TSE would largely bridge the gap of global TC inequality, given that the most important tool for bridging this gap is initiating early

detection of TC among the public. This group of men will probably respond best to objective information that emphasizes the benefits of TSE, provides useful tips that help them keep up with regular TSE, and reinforces the importance of detecting TC at a preventable stage. The promotion of TSE is ultimately enhanced by a focus on these principles.

Recommendations: Public health campaigns should encourage more men to perform regular TSE. In addition, we suggest that young men attending healthcare institutions for any reason should be given opportunistic health education on TSE, perhaps accompanied by a patient leaflet. This information could be used to design an educational intervention to increase health professionals' focus on TSE, especially in young males.

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APPENDIX [A]

Testicular self-exam (TSE) is the practice in which a man checks himself (scrotum) for any abnormalities in his testicles for signs and symptoms of testicular cancer (TC). We are conducting a study to elicit the relevant awareness, beliefs and practice among young men concerning TC and TSE. Please provide your responses to the questionnaire to elicit the relevant awareness, beliefs and practice concerning TC and TSE. We are readily available to answer any question and clarify issues as the situation demands. Thank you for your time and input.

QUESTIONNAIRE ON TC/TSE AWARENESS

ITEM	RESPONSE VARIABLES [A] [D] [NI]
1.	The age group at highest risk of TC is 60 years and above.
2.	Knowing someone who had TC promotes awareness.
3.	I believe TC is a problem faced by athletes.
4.	A testicular exam has been done on me during a physical exam.
5.	I would need a nurse/doctor to do TSE.
6.	TC is a disease of the affluent.
7.	TSE is definitely an important healthy behavior.
8.	TSE should be performed at least once a month.
9.	A doctor/nurse has recommended TSE to me before.
10.	Weekly regular exercise can be substituted for TSE.
11.	I follow medical advice and believe it will benefit my health status.
12.	The practice of TSE will interfere with my activities.
13.	TC is a witchcraft spell inflicted by the wicked.
14.	TC would endanger my marriage or significant relationship.
15.	TSE would endanger my marriage or significant relationship.
16.	The thought of TC makes me feel nervous.
17.	I have a lot to gain by performing TSE.
18.	TSE could help detect a lump before it is discovered by doctors/nurses.
19.	Seeking out information about TSE is embarrassing.
20.	TSE could be done by my sexual partner.
21.	My family would make fun of me if I did TSE.
22.	Performing TSE would require starting a new healthy habit.
23.	Performing TSE could be a very difficult task.
24.	Performing TSE would cost me a significant amount of money and time.
25.	TSE can irritate the testicles, which may cause a health problem.

[A] = Agree [D] = Disagree [NI] = No Input.