

Gender Differences in Knowledge of Testicular Cancer among Students at a South African University

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Abstract

Background: Testicular cancer (TC) is the most common form of cancer among men. Lack of knowledge of male cancers is a major contributor to delays in seeking care for cancer symptoms and prevention of TC. The focus on this study was to examine gender differences in knowledge of testicular cancer (TC) and testicular self-examination (TSE) among students at an African university.

Methods: A cross-sectional survey was conducted among male and female university students. A total of 1,300 first year students were approached to participate and 976 (44.8% = male and 55.2% = female accepted; giving a response rate of 75.1%. A chi square test was used to examine the differences between male and female respondents in terms of knowledge of male cancers, TC and TSE.

Results: Only 54.2% of the sample had ever heard of male cancers. Knowledge of TC and TSE was quite low, with only 40% ever hearing of testicular cancer. Only 22% of the sample had ever heard of TSE and 15% identified a lump as a correct symptom of TC. Only 9% knew that there was some genetic predisposition to TC and 22% correctly identified the correct age-groups at risk for TC.

Overall, males had significantly higher levels of awareness ($p < .001$). However, there was no significant association between gender and knowledge of at least one correct

symptom, at least one correct, correctly identifying the ages at risk of TC and methods of preventing TC.

Conclusion: While males are more aware of male cancers and TC compared to women, their knowledge appears to be more general in nature. Male knowledge of specific aspects of TC which include knowledge of at least one correct symptom, knowledge of the ages at risk of TC and knowledge of at least one correct cause of TC did not statistically differ from that of females.

Keywords: Cancer; Gender; Knowledge; Students; Testicular

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Introduction

Testicular cancer (TC) is the most common cancer affecting men in the ages 15 to 34 years [1]. Early detection leads to reduction of morbidity and mortality because testicular cancer can be cured with very high recovery rates [2]. Although not a very prevalent cancer, Singh et al. [3] argue that because it

affects young men in their prime, it has a high disease burden and accounts for unnecessary years of life lost (YYL) as well morbidity effects of sterility and impotence. Early diagnosis is a key factor to successful treatment because it is associated with simple and less toxic treatment [4]. So knowledge of symptoms of testicular cancer as well as testicular self-examination (TSE) is critical in self detection and subsequent treatment of testicular cancer.

Several risk factors for testicular cancer exist, including cryptorchidism, a previous diagnosis in the contralateral testis and a family history of testicular cancer [5]. Conversely, current evidence suggests that vasectomy, scrotal trauma and inguinal hernia are not risk factors for testicular cancer [5]. Celebrity diagnoses of testicular cancer (such as Lance Armstrong) may have resulted in an increase in the awareness of testicular cancer across the last decade [6, 7].

Few studies have explored the knowledge and awareness of young men and testicular cancer. A study by Rovito et al. [8], which questioned male university students about testicular cancer, identified that participants were generally uninformed about testicular cancer risk and screening. Despite this lack of awareness, respondents reported a feeling a heightened sense of vulnerability regarding TC and viewed it as a life-threatening illness. A similar study with university students in Turkey reported that the majority of participants demonstrated a lack of knowledge on testicular cancer, with the most common reasons for not performing a TSE due to lack of knowledge, or lack of perceived need to perform self-examination [9].

In many African countries, little is known about the prevalence and incidence of testicular cancer especially among black African populations. Although the prevalence of testicular cancer is low in many African countries, not educating young men about detection is a costly oversight, since this is one cancer which can be easily detected and which is quite amenable to successful treatment.

The focus on this study was to examine gender differences in knowledge of testicular cancer and testicular self-examination among students at an African university. The focus on gender differences arises from evidence on health seeking behaviour which suggests that in many African settings, women tend to be more knowledgeable about diseases compared to men especially diseases affecting the reproductive system [10].

Studies among university students have shown gender differences in knowledge of HIV prevention methods, with female students being more knowledgeable [11, 12]. While more knowledge is a good thing, female knowledge of male diseases is quite disturbing since it creates a gender disparity in caring and care giving. This could suggest that females carry extra burdens of care for themselves, children and men probably at the cost of their own health.

Empirical evidence shows that relatively few men perform TSE. For example, Wardle et al. [13] surveyed 7304 college students throughout Europe and 87% reported never having performed a TSE and only 3% reported that they performed a TSE monthly. While gender differences are not found consistently in these studies, when differences are found, men at universities are less knowledgeable than women at universities [14 - 17]. Lack of health knowledge is a major contributor to delays in seeking care for cancer symptoms and health-promoting behaviours, such as self-examinations [18].

The primary aim of this study was to examine gender differences in knowledge of testicular cancer and testicular self-examination among students at an African university.

Methods

A cross-sectional survey was conducted among 1,300 first year male and female students aged 18 years and above at a private university in South Africa.

A two-stage cluster sampling design was used to select a sample for this study. In the first stage, there were three year classes from which to select a sample. Second and third year students were grouped as one cluster and excluded from this study as they were presumed to be contaminated by information on TC

and TSE that they might have obtained in their previous courses at the university. In the second stage, all first-year students who were new at the university and had not attended classes qualified for inclusion in the survey as the second cluster. Students who were not newly registered were excluded from the study. Respondents were finally selected using a take-it-all approach at each data collection point. This means that all first year students who qualified to be part of the study and were available in class or at the first year residence on the day of the survey were asked to participate in the study.

Subjects were asked to fill a questionnaire as a hard copy or from an ipad. A male and female version of the questionnaire was developed, which differed only on questions regarding testicular self-examination. The questionnaire was available for students to complete in both online and paper-based format. Paper based questionnaires were administered to some of the large classes at the end of lectures, in order to capture a higher response rate. Third year students were trained and employed as research assistants to collect and enter data.

The tool was pilot-tested on a sample of 20 students at Monash South Africa campus.

The questionnaire consisted of items relating to socio-demographic characteristics, intergenerational mortality, and awareness of male diseases in general and testicular cancer in particular. Knowledge of symptoms, perceived causes and knowledge of ages at risk to testicular cancer were asked. In terms of prevention and detection, questions were asked on awareness of testicular self examination, what to look for in a TSE and whether the respondents considered it useful to perform a TSE frequently or not. Other questions on sources of information on health for young people were also asked as well perceptions of risk to testicular cancer and behavioural intention to perform a TSE (for males).

Although the questionnaire collected both interval and categorical variable data, most of the interval data were of very poor quality and were collapsed into categorical data during

analysis. Questions on awareness were structured as Yes/No questions. Questions requiring more details answers focussed on knowledge of at least one male cancer, at least correct risk factor, at least one correct cause. Data were collected from July 2011 up to December 2011, with data cleaning performed in March 2012.

Data were entered into IBM SPSS (version 19) and analysed using the same software. Descriptive statistics were performed to summarise the data. Chi Square test of Independence with Yates Continuity Correction was used to examine the differences between male and female respondents in terms of knowledge of male cancers, testicular cancer and testicular self-examination.

The study was conducted in line with principles of ethical research involving human subjects. Questions were posed in general terms (asking about “your knowledge about TSE” or “views and perceptions about cancer”) rather than personal terms, in order to avoid placing pressure on participants to reveal personal information. All participants provided written informed consent. The research protocol was given ethical approval by the Monash University Human Research and Ethics Committee (MUHREC CF10/3310: 2010001738).

Results

Out of 1,300 first year students who were eligible to participate, 1,003 agreed to and participated in the study. However, 27 respondents had missing data on most variables and were deleted from the sample. The final analysis was based on 976 respondents, providing a final response rate of 75.1%. Reasons for non-participation by 297 sampled students included a lack of interest or non-compliance in returning the questionnaires.

The mean age of the total sample was 21.2 years, with a standard deviation (SD) of 2.15. The male sample was slightly older with a mean age of 21.8 years (SD 2.47) while the female sample had a mean age of 20.8 years (SD 1.75). Of the 976 respondents, more than half 55.2% (539) were female compared to 44.8% (437) who were male. The largest percentage of students were those studying Arts (38.7%) followed by Business

and Economics (36.9%). 80% of the students reported their home to be in an urban area, 43% had older brothers, 32% had

deceased fathers and 27% had deceased mothers. The socio-demographic indicators are shown in Table 1.

Table 1: Socio-demographic indicators of the Testicular cancer study sample, South Africa

Variable	
Gender	
Males	437(44.8%)
Females	539(55.2%)
Total	976(100%)
Faculty	
Health Sciences	66(6.8%)
IT	172(17.6%)
Arts	378(38.7%)
Business and Economics	360(36.9%)
Total	976(100%)
Where is your home located?	
Urban	782(80.1%)
Rural	194(19.9%)
Total	976 (100%)
Have any older brothers?	
Yes	422(43.2%)
No	554(56.8%)
Is your father alive?	
Yes	662(67.8%)
No	314(32.2%)
Is your mother alive?	
Yes	710(72.7%)
No	266(27.3%)
Do you have any surviving grandparent?	
yes	668(68.4%)
No	308(31.6%)
Total	976 (100%)

Awareness and knowledge of men's health

A total of 54.2% of respondents had ever heard of cancers specific to men, with the majority reporting cancers of the brain

and bladders most specific to men (Table 2). Only 40.2% of respondents had ever heard of testicular cancer, with less than one-fifth perceiving it as a serious disease. Few respondents had

ever heard of a TSE (22.0%), with the majority of respondents reporting limited knowledge or awareness about testicular

cancer screening, diagnosis or treatment issues.

Table 2: Awareness and knowledge male cancers and testicular cancer, testicular cancer study, South Africa

Question	Response	Response rate (%)
What are the most common male diseases?	HIV and AIDS	672 (68.9%)
What is the most serious male disease?	HIV and AIDS	742 (76.0%)
Most common male cancer	Bladder and brain	513 (52.6%)
How serious is Testicular Cancer?	Serious/very serious	193 (19.8%)
Ever heard of testicular self-examination?	Yes	215 (22.0%)
What does a man look for in TSE?	One correct indicator identified-a lump	148 (15.2%)
Identify at least one symptom of TC	One symptom correctly identified	230 (23.6%)
Indicate at least one cause of TC	One correct cause identified	89 (9.1%)
Which groups are at highest risk of TC?	Correct risk groups identified	216 (22.1%)
Do you know any methods of preventing testicular cancer?	Yes	168 (17.2%)
Would you like to receive more information on TC?	Yes	287 (29.4%)
How useful do you think a TSE is?	Useful/very useful	270 (27.7%)
Would you like to know more about TSE?	Yes	376 (38.5%)
What is your most common source of health information on men?	Internet, magazines and books	570 (58.4%)
Source of information on testicular cancer?	Internet, magazines and books	840 (86.1%)

Gender differences

Several differences existed in the knowledge and awareness of male cancers between male and female respondents (Table 3). More males (51.7%) than females (48.3%) had heard about cancers that affect men. Again, more males (55.4%) than females (44.6%) could give the names of male cancers and more males (52.3%) than females (47.5%) had ever heard of testicular

cancer. However, more females (53.4%) than males (46.6%) had knowledge of the main symptoms of testicular cancer.

Significantly more males had previously heard of male-specific cancers ($p < 0.01$), and had a greater awareness of testicular cancer compared to female respondents ($p < 0.01$).

Significant gender differences in the knowledge of specific characteristics of testicular cancer were also identified ($p < 0.01$), although there was no significant association between gender

and knowledge of at least one correct symptom, cause correctly identifying the ages at risk of TC and methods of preventing TC (all $p > 0.01$).

Males had significantly higher levels of awareness and these gender differences were statistically significant at the .001 level.

Table 3: Gender differences in knowledge and awareness of TC

Knowledge and awareness of TC	Male No %	Female No %	Total No %
Reported awareness of any male-specific cancers	276 (63.2)	253 (46.9)	529 (54.2)
Previously heard of heard of testicular cancer	210 (48.1)	182 (33.8)	392 (40.2)
Correct identification of on symptom of testicular cancer	107 (24.5)	123 (22.8)	230 (23.6)
Correct identification of cause of testicular cancer	45 (10.3)	44 (8.2)	89 (9.1)
Correct identification of a method for preventing testicular cancer	58 (13.3)	110 (20.4)	168 (17.2)

Discussion

This study did not provide evidence to support the finding that females have higher levels of awareness and knowledge of male diseases than males. However, in support of most studies on testicular cancer, this study showed that knowledge of TC and TSE is low among university students in this South African university. The results also showed that while males showed higher levels of awareness and general knowledge of male diseases, they did not have any superior knowledge of specificities of testicular cancer. Their knowledge of causes, symptoms and risk factors did not statistically differ from that of females.

The bivariate results indicate a number of expected and surprising findings. The fact that HIV and AIDS were mentioned as the most common disease among men was expected. South Africa has been going through an HIV pandemic for the last ten years. Although both incidence and prevalence have declined in the last two years, it is not surprising that respondents still consider this as the main disease among men.

A surprising finding was that only 54.2% of the sample has ever heard of male cancers and so was the fact that the most common

type of male cancer reported was bladder and brain cancer. It is not clear why respondents clustered these two different cancers together.

Knowledge of testicular cancer and testicular self-examination was quite low. Only 40% had ever heard of testicular cancer. This is supported by other global studies such as Lechner, Oenema, de Nooijer [19], where levels of knowledge and behaviour with respect to testicular cancer and TSE were very low among the young men.

However, it was surprising that the internet and magazines are the most common sources of health information for university students who have health facilities on campus.

The practice of TSE was low, again confirming findings from other studies. Only 22% of the sample had ever heard of testicular self-examination and 15% identified a lump as a correct symptom of testicular cancer. The disadvantage of this is reflected in the poor understanding of what to look for during a TSE. A large percentage (35%) said they did not know what to look for. More women in this study indicated that they would like to know more about TSE than men.

Only 9% knew that there was some genetic predisposition to testicular cancer and 22% correctly identified the correct age-groups at risk for testicular cancer.

In spite of these low levels of knowledge, only 29% wanted to receive more information on testicular cancer and only 28% considered a testicular self-examination to be useful. However, 39% of the sample was keen to get more information about testicular self-examination.

Similarities in results between this study and previous studies - all seem to suggest low awareness and knowledge about TC and ability to perform a TSE. Future strategies may be to increase health promotion strategies to increase awareness etc about TC and TSE. The hurdle may be that many medical organizations do not recommend screening for TC – compromise may be to increase education, thereby targeting those at risk (as per introduction) to seek guidance on screening for TC.

Conclusions

Women and men have very different health needs and different knowledge levels about male cancers. Men in this study were more knowledgeable than women on cancers affecting men but were less knowledgeable than women on main symptoms of testicular cancer and the desire to know about TSE.

The results suggest that there is need for a more qualitative study on students' knowledge of cancers. A focus on both male and female cancers affecting young male and females could provide a good opportunity for health education. In addition it may also be necessary to educate and inform students about various types of cancers in Africa and emphasize that not all cancers are caused by sexually transmitted infections or by HIV. The results indicate that a different approach is needed for educating young men on testicular cancer and testicular self-examination at universities. Providing straightforward cognitive health education techniques might prove to be very effective among these young men. This group of men will probably respond best to objective information that emphasises the positive outcomes of TSE, to education that gives useful tips

that help them to keep up regular TSE and to education providing objective information on the risk of getting testicular cancer. It is recommended that young men who are fearful of finding testicular cancer by performing TSE probably be provided with a different health education approach. They will respond better to health education focusing on their personal responsibility to perform TSE regularly and on the importance of behaving in accordance with their own personal standards or norms with respect to health behaviour.

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