UNDERSTANDING TESTICULAR CANCER AWARENESS AND KNOWLEDGE GAPS AND ITS PSYCHOLOGICAL INSIGHTS: A CROSS-SECTIONAL STUDY AMONG MALES IN ARAR, SAUDI ARABIA

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Abstract

Background: Testicular cancer is a highly curable malignancy that usually affects males between the ages of 15 and 35. While early detection and treatment are crucial for improving survival rates, there's a lack of general population understanding and knowledge about this cancer.

Objective: This study aims to evaluate the knowledge and awareness of testicular cancer among males in Arar, Saudi Arabia.

Methodology: The cross-sectional study included 322 males from Arar, Saudi Arabia. A questionnaire was used to assess the participant's knowledge and awareness of testicular cancer. The data was entered and analyzed using the statistical software SPSS version 27. Frequencies and percentages were computed to gauge the general level of knowledge and awareness within the population. Additionally, subgroup analysis was performed to explore differences in knowledge and awareness according to educational level. The chi-square test was employed to analyze associations, with a p-value of 0.05 or less considered statistically significant.

Results: A substantial proportion (56.8%) were unaware of testicular cancer, and 65.8% did not know about it. However, 73% showed some level of recognition regarding males developing testicular cancer, indicating a basic understanding. A significant majority (71.1%) were unaware of the early signs and symptoms of testicular cancer. A high percentage (82.6%) would consult a doctor if they noticed a testicular lump, showing a willingness to seek medical advice. There was a significant correlation between education and awareness levels ($p = 0.017$) and awareness of early signs and symptoms ($p = 0.024$).

Conclusion: This study points to a lack of knowledge and awareness concerning testicular cancer on the part of the general population, emphasizing the need for focused educational and awareness campaigns on public health towards prevention and early detection of testicular cancer as they can influence disease outcomes positively.

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Introduction

Testicular cancer arises from the germ cells of the testes, which are primary male reproductive organs involved in testosterone and sperm production. These tumours are classified into two types: seminoma (52%), and no seminoma (48%). [1] Even representing only about 1% of the total male cancers, testicular cancer (TC) is the most frequent cancer among males aged 15 to 35. [2]. In recent decades, TC has been steadily on the rise worldwide, which has raised serious public health concerns. 2013 saw an increase in the yearly incidence of TC in Sweden (2.4%), the UK (2.9%), Australia (3%), and China (3.5%). [3]. Data from Saudi Arabia over 20 years revealed that males aged 20 to 34 are most at risk of acquiring TC. The incidence of TC has risen to 70 cases annually in the second decade, which is about twice as high as the incidence in the first decade (30.5 cases annually). [4]

Although there are several established risk factors, the precise cause of testicular cancer is unknown. These include testicular cancer in the family, undescended testes, and certain genetic disorders like Klinefelter syndrome. However, in the majority of testicular cancer cases, no risk factor is identified. [5] The early sign of testicular cancer includes painless swelling or enlargement of one or both testes. A dull ache in the groin or lower abdomen, changes in the size or shape of the testes, and a heavy sensation in the scrotum are possible additional symptoms. [6]

A delay in diagnosing and treating testicular cancer can result in advanced stages, higher morbidity, and a poor prognosis [7]. Understanding testicular cancer is important because it can be cured, even if it has spread beyond the testicle or to other parts of the body. Regrettably, there exists a widespread deficiency in knowledge and awareness regarding testicular cancer within the general population. Studies conducted in various countries, including Saudi Arabia, the United States, Poland, and Pakistan, have consistently demonstrated a deficiency in awareness and understanding regarding testicular cancer. For instance, only 26.5% of individuals surveyed in Saudi Arabia were aware of testicular cancer, and media and the internet were found to be the predominant sources of information. [8]. Similarly, only 30.7% of participants in the United States knew about testicular cancer. [9] Overall knowledge regarding testicular cancer in Poland was low, and many respondents had never performed testicular self-examinations [10]. In Pakistan, 82% of respondents had never heard of testicular cancer, and 92% were not familiar with testicular self-examinations. [11]

The alarming increase in cases of testicular cancer in young men necessitates the need to raise awareness to facilitate early detection. Such cases are on the rise in Saudi Arabia, emphasizing the urgency for research and prevention efforts.

Objectives

This study aims to evaluate the knowledge and awareness of testicular cancer among males in Arar, Saudi Arabia.

Research Methodology

The study employed a cross-sectional research design to explore the knowledge and awareness of testicular cancer within the general populace of Arar, Saudi Arabia, in six months. The study targeted males aged 18 to 60 who provided informed consent. Individuals under 18 and above 60 and those who refused consent or did not complete the survey were excluded. A representative sample of the general population, with a sample size of 322 with a 95% confidence level, was chosen using a random sampling technique.

Data Collection

The information was gathered through a well-organized survey created by drawing from existing literature [13]. The survey consisted of two sections: (1) demographic inquiries regarding age, marital status, education, and employment, and (2) inquiries about knowledge and awareness of testicular cancer. For participants who lacked proficiency in English, the survey was translated into Arabic.

Data Analysis

The data was analyzed using the statistical program SPSS version 27 for analysis. Frequencies and percentages were used to summarize the demographic characteristics of the participants as well as their responses to the knowledge and awareness questions. Subgroup analysis was conducted to identify differences in knowledge and awareness according to educational level. The chi-square test was used to evaluate the relationship.

Ethical Approval

The Local Committee of Bioethics (HAP-09-A-043) granted ethical approval on May 19, 2024, with decision number 53/24/H.

Results

The demographic data of the participants provided considerable diversity among them regarding age, marital status, level of education, and employment. The major group was aged 26-44 (55.6%), indicating that this was the modal age group. A good number were under 25 (34.5%), and only 9.9% were 45 and older. The sample was evenly divided between married (50.6%) and unmarried (49.4%) individuals, indicating a balanced representation of marital status. Primary education is represented by a lower proportion (25.2%) compared to secondary education (37.6%) and graduation (37.3%), suggesting that individuals in these groups generally have a higher level of education. In terms of employment distribution, the majority were employed (46.6%), followed by students (31.7%) and then unemployed participants (21.7%). This data demonstrates that a diverse proportion of the population participated in the study (Table 1).

Most participants (56.8%) were unaware of testicular cancer, and 65.8% were not familiar with it. However, a significant percentage (73.9%) know that men can get testicular cancer, indicating some basic level of awareness of the disease. Only 22% were aware of the affected age group. The primary sources of information were the Internet (26.4%), clinics (10.6%), and social media (12.1%). A significant proportion (41.6%) reported having no source of information, which may reflect a gap in education or outreach.

Only 39.4% think that family members of testicular cancer patients are at increased risk, and a substantial majority (71.1%) do not know the early signs and symptoms of testicular cancer, which is worrying considering the importance of early detection. Many participants recognize the significance of a lump (71.7%) and believe it may indicate cancer (73.9%), showing some understanding of serious symptoms. The majority (82.6%) would consult a doctor if they noticed a testicular lump, which indicates a willingness to seek medical advice (Table 2).

Table 1. Demographic data of participants (n = 322).

Parameters		Frequency (n)	Percentage (%)
Age (years)	Age < 25	111	34.5%
	26-44	179	55.6%
	Age ≥ 45	32	9.9%
Marital status	Married	163	50.6%
	Unmarried	159	49.4%
Education	Primary	81	25.2%
	Secondary	121	37.6%
	Graduation	120	37.3%
Employment	Unemployed	70	21.7%
	Student	102	31.7%
	Employed	150	46.6%

Table 2. Knowledge and awareness about testicular cancer.

Question	Responses	Frequency (n)	Percentage (%)
Are you aware of testicular cancer?	Yes	139	43.2%
	No	183	56.8%
Do you have knowledge about testicular cancer?	Yes	110	34.2%
	No	212	65.8%
What is your source of information about Testicular cancer?	School	15	4.7%
	Clinic	34	10.6%
	Social media	39	12.1%
	Internet	85	26.4%
	Parents	6	1.9%
	Friends	9	2.8%
	No source	134	41.6%
Do you know men can get Testicular cancer?	Yes	238	73.9%
	No	84	26.1%
Testicular cancer is common in which age group?	Less than 15 year	15	4.7%
	15-40 year	73	22.7%
	41 - 65 year	114	35.4%
	Dont know	118	36.6%
Family member of patient with testicular cancer are at increased risk of testicular cancer.	Yes	127	39.4%
	No	194	60.2%
Do you know what are the early sign and symptoms of Testicular cancer?	Yes	93	28.9%
	No	229	71.1%
Which one of the following is the earliest sign or symptom of Testicular cancer?	Pain or discomfort in testis	89	27.6%
	Change in shape of testis	26	8.1%
	Change in feeling of testis	10	3.1%
	Swelling or enlargement of testis	75	23.3%
	Dont know	122	37.9%
What do you think that finding a lump in testis is significant?	Yes	231	71.7%
	No	91	28.3%
What do you think that a lump in testis may be a cancer?	Yes	238	73.9%
	No	84	26.1%
If you notice a testicular lump, will you consult a doctor?	Yes	266	82.6%
	No	56	17.4%

Table 3. Association between education level and awareness about testicular cancer.

Question		Primary	Secondary	Graduation	p-value
Are you aware of testicular cancer?	Yes	20.9%	33.1%	46.0%	0.017
	No	28.4%	41.0%	30.6%	
Do you have knowledge about testicular cancer?	Yes	24.5%	40.0%	35.5%	0.805
	No	25.5%	36.3%	38.2%	
Family member of patient with testicular cancer are at increased risk of testicular cancer.	Yes	27.6%	29.1%	43.3%	0.095
	No	23.7%	42.8%	33.5%	
Do you know what are the early sign and symptoms of Testicular cancer?	Yes	33.3%	39.8%	26.9%	0.024
	No	21.8%	36.7%	41.5%	
Which one of the following is the earliest sign or symptom of Testicular cancer?	Pain or discomfort in testis	23.6%	37.1%	39.3%	0.069
	Change in shape of testis	19.2%	34.6%	46.2%	
	Change in feeling of testis	10.0%	70.0%	20.0%	
	Swelling or enlargement of testis	38.7%	29.3%	32.0%	
	Don't know	20.5%	41.0%	38.5%	
What do you think that a lump in testis may be a cancer?	Yes	29.8%	37.0%	33.2%	0.002
	No		39.3%	48.8%	
If you notice a testicular lump, will you consult a doctor?	Yes	21.4%	37.6%	41.0%	0.001
	No	42.9%	37.5%	19.6%	

There is a statistically significant difference (p = 0.017) in awareness according to level of education, with higher levels of awareness in those with graduation compared to primary education. (Table 3) However, there is no significant difference (p = 0.8) in knowledge about testicular cancer across education levels. The perception of increased risk for family members is insignificant (p = 0.095), suggesting a general lack of awareness across education levels.

There is a significant difference (p = 0.024) in knowledge of early signs, with more graduates identifying them than primary education participants. A substantial difference (p = 0.002) highlights that graduates are more likely to believe a testicular lump may indicate cancer and are more likely to consult a doctor if they notice a testicular lump (p = 0.001) (Table 3).

Discussion

Our research revealed a concerning lack of knowledge about testicular cancer. Most participants (56.8%) were unaware of testicular cancer, and a significant percentage (65.8%) lacked specific knowledge about it. However, 73.9% recognized that men can develop this form of cancer. This indicates that while general awareness is present, in-depth understanding is lacking. Around the world, various studies have reported poor knowledge among young men who are mostly at risk of TC. According to a cross-sectional survey conducted in Bahrain, 47% of respondents were unaware that men may have TC. [12] According to research conducted in Nigeria, 88.6% of participants had never heard of TC, and barely 1% were aware of TSE. [13] In another survey, half of Saudi men had poor knowledge of testicular cancer, and only 26% were aware of testicular self-examination, which highlights a need for raising knowledge and education in the country. [14] Similarly reflecting a lack of knowledge, research from South London revealed that although 91% acknowledged TC existence, only 26% correctly identified the vulnerable age group. [15]

The results of our study indicated that the Internet was the most common source of information regarding testicular cancer (26.4%), followed by clinics (10.6%) and social media platforms (12.1%). Half of the participants reported having no access to TC-related information. This indicates gaps in education or outreach on this critical health issue. A Swedish study of male senior high school students found that the media is the main source of knowledge regarding TC; however, there is still a dearth of information from other sources, such as academic institutions or healthcare providers. The study found that while many students could identify a lump in the testes as a symptom of TC, there was confusion regarding other symptoms, indicating a lack of detailed knowledge. [16,17] The role of healthcare providers is crucial in educating patients about TC and encouraging self-examination. [18]

Early detection and treatment of testicular cancer (TC) require widespread awareness of its symptoms and signs. However, concerningly, 71.1% of the population is unaware of these symptoms and signs. According to studies, while awareness levels may be quite high, understanding of TC symptoms remains poor. For instance, in a survey of 815 participants, 78.7% of males and 89.3% of females were aware of TC, yet nearly half could not identify the most common symptoms. [19]

Our findings revealed a large knowledge gap (p = 0.024) between primary education participants and graduates. The studies of El Mezayen and Qandil support the idea that education has a positive impact by providing substantial variations in the awareness and knowledge of testicular cancer among the students before and after the training session. [20, 21] This emphasizes the relevance of educational initiatives to raise the overall understanding of testicular cancer.

Conclusion

This research uncovered the poor knowledge and awareness of testicular cancer among the general population in Arar, Saudi Arabia. More than half of the participants were unaware of the disease and its early signs. However, it is reassuring that most of the respondents were aware of the associated risk and were open to seeking medical advice for lumps. It also emphasized education in raising awareness, as proven by its association with understanding and knowledge of the early signs and symptoms of TC. This further supports the need for health education and public campaigns to raise awareness and early detection, translating to improved health outcomes.

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