

Knowledge, Attitude and Practice of Testicular Self-Examination among Male Teachers of Schools in Gaidakot Municipality, Nawalparasi, Nepal

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Abstract

Background: Testicular cancer is an increasingly common form of cancer that often develops silently and is typically diagnosed in its later stages. Performing regular testicular self-examinations is the most effective way to detect it early. The objective of the study is to identify level of knowledge, attitude and practice of testicular self-examination among teachers of schools in Gaidakot Municipality, Nawalparasi, Nepal.

Methods: A descriptive cross-sectional study was used to assess the knowledge, attitudes, and practices related to testicular self-examination (TSE) among 116 male school teachers. A non-probability purposive sampling technique was used to select a sample with self-administered questionnaires. Data were collected using self-administered questionnaires and analyzed using descriptive and inferential statistics with SPSS version 22.

Results: The findings of the study show that 92.2% of participants were aware of testicular cancer, and overall knowledge of testicular self-examination (TSE) was considered good, with 37.9% providing correct responses. However, only 36.2% were familiar with the steps of performing TSE. Attitudes toward TSE were generally positive, with only 3% expressing negative views. Despite this, actual practice of TSE was very low, with only 5.2% reporting they performed it, while 85.3% reported not practicing it at all.

Conclusion: The study concluded that while the majority of respondents had good knowledge and a positive attitude toward testicular self-examination (TSE), their actual practice was very poor. This indicates that although teachers were aware of TSE and understood its importance, they were not applying this knowledge in practice, possibly due to various underlying factors. The low rate of TSE practice suggests that teachers are not actively engaged in testicular screening, which may contribute to the late diagnosis of testicular cancer.

Key words: knowledge, practice, attitude, testicular cancer, school teachers

Introduction

Cancer remains a significant global health burden, responsible for approximately 9.7 million deaths in 2022, with new cases projected to reach around 20 million by 2025.¹ Among males aged 15 to 35 years, testicular cancer is the most commonly diagnosed malignancy.² In 2023, approximately 9,190 new cases of testicular cancer were diagnosed worldwide representing about 0.05% of all new cancer cases. An estimated 470 deaths occurred that year due to testicular cancer, constituting roughly 0.1% of overall cancer mortality. Between 2010 and 2019, the global annual incidence of testicular cancer increased by an average of 0.7% per year.³

Testicular cancer risk factors include genetic mutations such as those in the KIT (tyrosine protein kinase) and RAS (rat sarcoma) genes, along with environmental exposures, hormonal imbalances, and conditions such as cryptorchidism, hypospadias, and impaired spermatogenesis.⁴ A common early symptom is a hard, painless, pea-sized lump or swelling in the testicle.⁵ Although testicular cancer is highly treatable when diagnosed early, its incidence continues to rise due to delayed detection and lack of awareness.⁶ Although there is no clearly established method for the prevention of testicular cancer, the cure rate is excellent up to 96% when detected early.⁷ Early detection is possible through regular

testicular self-examinations and prompt reporting of any unusual lumps or swelling⁸

Routine self-examination of the testes involves checking for abnormal lumps, dull aches, a feeling of heaviness, or any discomfort.⁹ It is considered a highly beneficial and reliable method for promoting early health-seeking behavior, as it is cost-effective, noninvasive, simple to perform, and safe.¹⁰ A study of India 19% of the respondents had knowledge about TSE and they had not practiced of TSE.¹¹ Another study of Nepal, 56.3% of respondents had poor knowledge regarding TCs and TSE, 11.4% had performed TSE and 67.2% had shown an unfavorable attitude towards TC and TSE.¹²

Methods

A cross-sectional study was used to assess the Knowledge, Attitude and Practice of Self-Testicular Examination among Male secondary level Teachers of Schools in ward no 1 to 5 Gaidakot, Municipality, Nawalparasi, Nepal. The non-probability purposive sampling technique was used for data collection with self-administered questionnaires. The sample size was 116 male teachers. The instruments consisted of four parts: Part I included questionnaires related to the sociodemographic characteristics of the respondents, Part II included questionnaires related to Knowledge regarding TSE, part III questionnaires related to attitude regarding TSE. And part IV Questionnaires related to practice regarding TSE. The validity of instruments was established by extensive literature review, consultation with subject expert of research. The reliability of the instruments was maintained by pretesting in 10% of the sample population in a similar setting. Those samples were excluded from the main study. The level of knowledge measured using self-administered questionnaires. Each correct answer was scored as 1, and each incorrect answer was scored as 0. The levels of knowledge, level of practice and level of attitudes were measured based on Bloom's cut-off point and categorized into three levels: good (80–100%), moderate (60–79%), and poor (<60%).¹³

The data collection tool was self-developed in English. Ethical approval was obtained from the Institutional Review Committee (IRC) of BPKMCH, and administrative approval was obtained from municipality office for selected

schools. Written informed consent was obtained from each respondent prior to data collection. Confidentiality was maintained by ensuring that collected information wasn't disclosed to others and that collected data was used only for study purpose. These data were checked, reviewed, and organized for completeness, consistency, and accuracy. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 22, employing descriptive and inferential statistics.

Results

Regarding the sociodemographic characteristics of the respondents. Out of 116 respondents 16.4% were belonged to age group 30–39-year. The Mean±SD, min(max) was 35.84±10.265 years with ranging from 20 to 62 years. Regarding religion, the majority (96.6%) were as Hindu, like this ethnically, 77.6%, were Brahmin/Chhetri. In terms of marital status, 67.2% of the respondents were married. Regarding education 50.9% respondents had master's level, similarly 99.1% had not have family history of testicular cancer (Table 1).

Regarding, source of information about TSE 39.7% of respondents information was obtained through health worker whereas, 3.4% was obtained through family and relatives (Table 2).

Regarding the knowledge of respondents about TSE, 92.2% of teachers identified testicular cancer as an abnormal growth arising from the testes, and 69% recognized testicular abnormalities as a risk factor for developing TC. Similarly, 83.6% of teachers were aware that an abnormal lump in the testis is a common symptom of TC, while 90.5% acknowledged that early detection plays a vital role in effective treatment. However, only 52.6% correctly identified periodic self-examination of the testis by both inspection and palpation as a method for detection. Furthermore, 36.2% reported that they were familiar with the steps of TSE, and 68.1% recognized that its primary benefit is the early diagnosis of testicular cancer (Table 3).

Regarding the attitude toward TSE, 75% of respondents strongly agreed that they feel comfortable discussing it. About 57.8% strongly agreed that TSE should be included in men's regular check-ups, while 22.4% expressed confidence in their ability to perform TSE. Additionally, 63.8% strongly agreed

Table 1: Respondent's Sociodemographic information (n=116)

Sociodemographic variables	Frequency	Percentage
Age(years)		
20-29	36	15.5
30-39	38	16.4
40-49	27	11.6
50-59	13	5.6
60-69	2	0.9
Mean $\pm$ SD, Min (max)	35.84 $\pm$ 10.265,20(62)	
Religion		
Hindu	112	96.6
Buddhism	3	2.6
Christian	1	0.9
Ethnicity		
Brahmin/Chhetri	90	77.6
Janajati	16	13.8
Dalit	3	2.6
Madhesi	4	3.4
Others	3	2.6
Marital status		
Married	78	67.2
Unmarried	37	31.9
Divorced	1	0.9
Educational status		
Higher Secondary	14	12.1
Bachelors	43	37.1
Masters	59	50.9
Family history of testicular cancer		
Yes	1	0.9
No	115	99.1

Table 2: Source of knowledge regarding Self-Testicular Examination (n=116)

Variables	Frequency	Percentage
Health worker	46	39.7
Media	31	26.7
Self-learning	35	30.2
Family and Relative	4	3.4

that TSE is important for maintaining men's health, and 56.9% strongly agreed that practicing TSE regularly is beneficial. Similarly, 50.9% strongly agreed that assessing testicular health through TSE can be time-consuming. Concerning the importance of encouraging and educating other men to perform TSE, 73.3% strongly agreed. In terms of participation in awareness campaigns, 50% of respondents agreed

they would participate when possible, while 43.1% strongly agreed that stigma still exists around TSE. (Table 4).

Table 3: Knowledge Regarding on Testicular Self-examination of respondents (n=116)

Knowledge variables	Correct Response	
	Frequency	Percentage
Abnormal growth arising from testis is Testicular Cancer	107	92.2
Testicular abnormalities are risk factor	80	69.0
Abnormal lump is the Symptom	97	83.6
Early detection is important for effective treatment	105	90.5
TSE is a Periodic self-examination of testis by looking and feeling	61	52.6
Known to steps of TSE	42	36.2
Potential benefit of TSE is early diagnosis	79	68.1

Table 4: Attitude of Respondents on Testicular Self-examination (n=116)

Attitude variables	Strongly Agree 5	Agree 4	Unsure 3	Disagree 2	Strongly Disagree 1
Comfortable to discuss about TSE with health personnel	87(75)	27(23.31)	2(1.7)	-	-
TSE must include in men's regular checkup	67(57.8)	42(36.2)	3(1.7)	1(0.9)	3(2.6)
Confident in my ability to perform TSE	26(22.4)	49(42.2)	25(21.6)	14(12)	2(1.7)
TSE is important for maintaining men's health	74(63.8)	34(29.3)	4(3.4)	2(1.7)	2(1.7)
TSE is beneficial if practiced regularly	66(56.9)	42(36.2)	5(4.3)	-	3(2.6)
Time consuming to assess the testicular health condition	41(35.3)	59(50.9)	11(9.5)	2(1.7)	3(2.6)
Important to encourage and educate other men to perform TSE in my social circle	85(73.3)	29(25)	1(0.9)	-	1(0.9)
Interested to know more about TSE	65(56)	49(42.2)	1(0.8)	-	1(0.9)
Will participate in TSE awareness campaign when possible	44(37.9)	58(50)	11(9.5)	1(0.9)	2(1.7)
There is stigma about discussing TSE openly	50(43.1)	46(39.7)	8(6.9)	7(6.0)	5(4.3)

Regarding the practice of testicular self-examination (TSE), only 28.4% of respondents reported ever performing TSE, while 18.1% practiced it on a monthly basis, and just 2.6% performed it on the same date each month. Additionally, 23.3% reported

using a mirror while performing TSE, 26.7% used the cupping method, and 25.9% practiced the circular method. Only 26.7% of respondents reported practicing TSE in a stepwise manner. Furthermore, 21.6% were able to identify the epididymis and vas deferens, and 26.7% were able to detect abnormalities during self-examination. Notably, 43.1% of respondents performed inspection during bathing but without following any structured steps (Table 5).

Table5: Practice of Respondent on Testicular self-examination (n=116)

Practice Variables	Frequency	Percentage
Ever performed TSE	33	28.4%
Perform once Every month	21	18.1%
Perform TSE at same date	3	2.6%
Use mirror to perform TSE	27	23.3%
Use cupping method	31	26.7%
Circular motion method	30	25.9%
Follow step turn wise	31	26.7%
Able to detect Epididymis and vas deferens	25	21.6%
Able to detect abnormality	44	37.9%
Inspection during bath (randomly without any steps)	50	43.1%

Regarding level of knowledge, 37.9% of respondents were good, knowledge on testicular cancer and testicular self-examination. As regards attitude 60.7% were positive and 85.3% were poor practice of TSE. (Table 6).

Table 6: Level of knowledge and Attitude and practice of Respondents-regarding Testicular self-examination (n=116)

Level of knowledge	Frequency	Percentage
Poor	36	31.0
Moderate	36	31.0
Good	44	37.9
Level of attitude		
Negative	3	2.6
Neutral	31	26.7
Positive	82	70.7
Level of practice		
Poor practice	99	85.3
Moderate Practice	11	9.5
Good practice	6	5.2

There is no statistically significant between level of knowledge and sociodemographic variables (Table 7)

Table7: Association between knowledge on TSE and sociodemographic variables

Sociodemographic variable	Level of knowledge			Chi-Square	P value
	Poor	Moderate	Good		
Age					
20-29	9(25)	9(25)	18(50)	9.478	0.304 ^L
30-39	10(26.3)	14(36.8)	14(36.8)		
40-49	11(40.7)	9(33.3)	7(25.9)		
≥50	6(30.7)	4(30.8)	5(38.5)		
Religion					
Hindu	35(32.1)	35(31.3)	41(36.6)	4.435	0.35 ^L
Buddhist	-	1(33.3)	2(66.7)		
Christian	-	-	1(100)		
Marital status					
Married	26(33.3)	24(30.8)	28(35.9)	3.425	0.489 ^L
Unmarried	10(24.5)	12(32.4)	16(43.2)		
Ethnicity					
Bhramin/ chettri	32(35.6)	23(25.6)	35(38.9)	11.325	0.184 ^L
Dalit	-	2(66.7)	1(33.3)		
Janajati	2(12.5)	7(43.8)	7(43.8)		
Madhesi	1(25)	2(50)	1(25)		
Others	1(33.3)	2(66.7)	-		
Education					
Higher Secondary	4(28.6)	4(28.6)	6(42.9)	1.367	0.307 ^L
Bachelors	15(34.9)	11(25.6)	17(39.5)		
Masters	17(28.8)	21(35.6)	21(35.6)		
Familial history					
Yes	-	1(100)	-	2.36	0.307 ^L
No	36(31.3)	35(30.4)	44(38.3)		

Level of Significance $P \leq 0.05\%$

L=Likelihood

Discussion

This study was conducted in the schools of Gaidakot Municipality, Nawalparasi to assess the knowledge, attitude, and practice of testicular self-examination among teachers. The study showed that 16.4% of respondents were in the 30–39 years age groups. The mean age of the respondents was 35.84 years. In comparison, a study conducted in South London reported a mean age of 32 years, with 67% of participants falling within the 18–50 years age range¹⁴. With regard to religion, the majority of respondents were Hindu 96.6%. These findings are

consistent with a study carried out in India, where 63% of participants were Hindu.¹⁵ In present study 50.9% of respondents master's degree. similarly, only 0.9% reported the history of testicular cancer in their family and 99.1% were not familial history.

Regarding source of information revealed that 39.7% of respondents had learned about testicular self-examination (TSE) from health workers, 26% from media, 30.2% through self-learning, and 3.4% from family or relatives. A similar pattern was noted in a study conducted in Nepal, where 20.9% received information from health workers, 19.9% through sex education, and 19.5% from parents or teachers.¹² In this study regarding the knowledge of testicular self-examination, it revealed that out of 116 respondents 37.9% had good level of knowledge whereas, the 31% of respondents had poor level of knowledge and 31 had moderate level of knowledge.

In this study most of the participants (92.2%) were known to testicular cancer as abnormal growth arising from testis as testicular cancer and this finding consistent with the study of Europe most of (91%) of men had known about Testicular cancer.¹⁶ Similarly, in this study 80(69) teachers were known to abnormalities of testes as risk factor and symptom of TC was known to 97(83.6) respondents,

In this study, 52.6% of respondents were aware of testicular self-examination (TSE) as a periodic practice; however, only 36.2% were familiar with the correct steps involved. This finding is consistent with a study conducted in Thailand, where only 17.6% of male university graduates from different countries reported knowledge of how to perform TSE.¹⁷ In the present study, 35.5% of participants reported that TSE is time-consuming but useful for assessing testicular health. Furthermore, 75% strongly agreed with having open discussions with health personnel regarding TSE. In addition, 73.3% strongly supported the importance of encouraging their social circles to perform TSE, and 56% expressed interest in gaining more knowledge about it. In comparison, a study conducted in Nigeria among medical students found that 58.9% considered TSE very important for men's health, 90.4% believed it is worthwhile to perform TSE regularly, and 90.1% showed interest in learning more about testicular cancer (TC) and TSE.¹⁸ In the present study, 43.1% strongly agreed

that TSE is stigmatized in society, which is consistent with findings from a study in Turkey, where 6.1% of participants felt that practicing TSE was sinful.¹⁹

In this study, 85.3% of respondents demonstrated a poor level of TSE practice, 9.5% had a moderate level, and only 5.2% showed a good level of practice. Additionally, 28.4% reported performing TSE at least once in their lifetime, 18.1% performed it once a month, and only 2.6% practiced it on the same date each month. Similarly, a study conducted in Haryana reported that 75.5% of respondents had a below-average level of TSE practice.²⁰ Another study in Saudi Arabia found that only 4% of respondents practiced TSE, and just 1.5% performed it regularly once a month.²¹ Regarding the association between Sociodemographic variables and knowledge there was no statistically significant association between level of knowledge and age, religion, marital status, ethnicity, education, familial history of testicular cancer. Like this a study conducted in Turkey there is no statistically association between age, marital status, and educational.²²

Conclusion

The study revealed that overall knowledge related to testicular self-examination (TSE) was satisfactory, with nearly equal proportions of participants demonstrating moderate and low levels of knowledge. However, the attitude towards TSE was highly positive, as almost two-thirds of participants expressed a favorable attitude towards its practice. Despite this positive attitude, the actual practice of TSE remained very low, which may be attributed to insufficient information regarding the correct steps of the procedure. Therefore, it is crucial to establish adequate awareness and knowledge among the male population, including teachers, who can play a vital role in disseminating information to students, society, and communities.

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