


## STUDENTS' CORNER ORIGINAL ARTICLES

# PERCEPTIONS OF MALE NURSING STUDENTS TOWARDS TESTICULAR SELF-EXAMINATION IN PUNJAB PROVINCE, PAKISTAN

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## ABSTRACT

**Background:** Testicular self-examination (TSE) is quick, painless process for detecting testicular cancer in its early stages. The objective of this study was to determine level of perceptions of male nursing students towards TSE in Punjab, province, Pakistan.

**Materials & Methods:** This cross-sectional study was done in Lahore School of Nursing, Lahore, Pakistan from October, 2021 to January, 2022. For 106 male nursing students, we used 5-point Likert scale with 10 items. Level of perceptions towards TSE was research variable on ratio scale. Age groups and marital status were demographic variables on nominal scale. Nominal variables were analyzed by count and percentage. Ratio data was skewed, so analyzed by median, quartile 1, quartile 3 and IQR, with 95%CI for median.  $H_{01}$  was verified by one-sample Wilcoxon signed-rank test and  $H_{02}$  and  $H_{03}$  by Mann-Whitney U test.

**Results:** 106 male nursing students included 32 (30.2%) in age group  $\leq 20$  & 74 (69.8%) in  $> 20$  years, and 102 (96.2%) single & four (3.8%) married. Observed median score of perceptions towards TSE 3.30 was statistically significantly lower ( $p = < .0001$ ) than expected score of 3.75. Median score of perceptions was same ( $p = .475$ ) for age group  $\leq 20$  years (3.50) and  $> 20$  years (3.25) and same ( $p = .248$ ) for single (3.30) and married (3.10) students.

**Conclusion:** In our study, the level of perceptions of male nursing students towards testicular self-examination in Punjab province, Pakistan was lower than expected. The level was same for age group  $\leq 20$  years and  $> 20$  years and for single and married students.

**KEY WORDS:** Testicular Self-Examination; Testicular Neoplasms; Testicular Cancer; Testicular Tumor; Male; Nursing; Students; Perception; Neoplasms; Pakistan.

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## 1. INTRODUCTION

**1.1 Background:** It is a man's world where males are the dominant part of the society. Pakistan had 106.02 males for every 100 females in 2020.<sup>1</sup>

The testicles are inner genital structures that produce spermatozoa; the male reproductive cells.<sup>2</sup> Whenever cells in a testis mutate and expand uncontrolled, a tumor forms. Testicular self-examination (TSE) is a process that examines the consistency and appearance of testicles.<sup>3</sup> It is a quick, painless

process that takes just three minutes to perform. It is a crucial clinical technique for detecting testicular cancer (TC) in its early stages. Testicular neoplasm is a significant public health problem, since its incidence rates have steadily climbed globally in recent decades, making it the most frequent cancer in men.<sup>4</sup> Globally, a total of 50,000 reported incidents and 10,000 deaths are reported each year.<sup>5</sup> At some stages of life, one out of every 250 men will experience testicular cancer.<sup>6</sup>

According to a study, testicular neoplasms account for 3.8 percent of all cancers in Pakistan. At the Aga Khan University Hospital in Karachi, 170 cases of testicular cancer were detected over the period of eight years. The majority of the neoplasms were detected in third and fourth decades of life.<sup>7</sup>

TC is the most common malignancy in men in age range of 15-35, accounting for 20% of all cancer diagnoses and 14% of all cancer deaths in this age group. Hence, it is one of the most serious threats for

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young men.<sup>8</sup> A basic preventative method involves visually checking and palpating the gonads for any abnormalities and early detection of testicular cancer.<sup>9</sup> TSE is a monthly physical examination performed with both hands, in front of a mirror by the individual during or after a shower.<sup>10</sup>

This statement is backed up by the fact that nine out of ten incidences of testicular cancer are discovered by the patients themselves.<sup>3</sup>

TC starts with an alteration in normal testicular flesh, which then grows uncontrollably into a tumor. The most common testicular tumor symptoms are dull soreness in the scrotum, swelling without discomfort, as well as a sense of weight gain.<sup>2</sup> To guarantee early detection, the males must examine the testes for any lumps, as well as any variations in size, shape or consistency. Importance of TSE is highlighted by the fact that early discovery and treatment results in cure.<sup>11</sup> If you have abnormal sensitivity, loss of sexual activity, a mass or thickening in one of the testicles, a significant decrease or increase in the size of one of the testicles, blood or watery semen, general tiredness, or a buildup of fluid within the scrotum; it is highly recommended that you seek medical help. After adolescence, all males should inspect their testicles themselves monthly according to the American Cancer Society.<sup>12</sup> TSE and clinical testicular examination are two suggested precautionary approaches to lessen TC death rate and the rate of disease. Clinical self-examination, on the other hand, demands a hospital visit and skill, whereas TSE is a low-cost tool that men can perform themselves at home.<sup>13</sup>

There is a dearth of information among young men about TC, as well as TSE, that is vital for initial diagnosis. Lack of interest in the test due to feelings of shame and guilt, as well as delays in seeing a doctor are some of the red signs towards it.<sup>2</sup> Poland's education policymakers have encouraged expanding TSE education in high schools for a better perception. Modules and instructional approaches for cancer prevention should also be implemented.<sup>5</sup> As per the studies of the American Cancer Society, males at the age of 15 should be taught how to execute TSE by physicians or nurses.<sup>9</sup>

Around 2,000 fresh incidents are diagnosed in UK. In US, about 8,000 men are identified with TC each year, with roughly 390 deaths.<sup>9</sup> According to research conducted in the United States, 46% respondents acknowledged performing TSE and 5% said they did not.<sup>9</sup>

In Turkey, TC affects 1.3% population. TSE was practiced by 5% of those who were aware of it, and 10% were practicing it in Iran.<sup>3</sup> A Turkish study revealed that young male medical science university students have low perception and self-efficacy on TSE. More emphasis needs to be placed on medical

science students' educational courses.<sup>2</sup> Breast self-examination has obtained good perception among women, while men's better perception of TSE is still lacking.<sup>9</sup>

**1.2 Research Problems (RPs), Knowledge Gaps (KGs):** Our three RPs were unawareness of level of perceptions of male nursing students towards TSE as overall and by age groups and marital status in Punjab province, Pakistan. There was no study found online that was relevant to these three RPs. So these were our three KGs.

### 1.3 Research Questions (RQ)

**RQ 1:** What is the level of perceptions of male nursing students towards testicular self-examination (TSE) in Punjab province, Pakistan?

**RQ 2:** What is the level of perceptions of male nursing students by age groups towards TSE in Punjab province, Pakistan?

**RQ 3:** What is the level of perceptions of male nursing students by marital status towards TSE in Punjab province, Pakistan?

### 1.4 Research Objectives (RO)

**RO 1:** To determine the level of perceptions of male nursing students towards TSE in Punjab, province, Pakistan

**RO 2:** To compare the level of perceptions of male nursing students towards TSE by age groups in Punjab, province, Pakistan

**RO 3:** To compare the level of perceptions of male nursing students towards TSE by marital status in Punjab, province, Pakistan

### 1.5 Research (Null) Hypotheses

**H<sub>01</sub>:** The median of perceptions score of male nursing students towards TSE in Punjab province, Pakistan equals 3.75.

**H<sub>02</sub>:** The distribution of perceptions score of male nursing students towards TSE in Punjab province, Pakistan is same across categories of age groups.

**H<sub>03</sub>:** The distribution of perceptions score of male nursing students towards TSE in Punjab province, Pakistan is same across categories of marital status.

**1.6 Significance of Study:** Little literature is found on TSE, and according to our knowledge this is the very first study on such topic in Pakistan. The information gathered could be used to temper public perception towards TSE and testicular cancer.<sup>14</sup> It would highlight the importance of TSE for earlier diagnosis and hence treatment. It will serve as a paradigm for researcher's own understanding and the participants will also stimulate their perceptions.<sup>15</sup> It will give the baseline data to the stakeholders and researchers to compare the perceptions towards TSE among their male nursing and other students and thereby make it a part of curriculum.

## 2. MATERIAL AND METHODS

**2.1 Design, setting, duration and ethical consideration:** This cross-sectional study was carried out in Lahore School of Nursing, Faculty of Allied Health & Sciences, The University of Lahore, Lahore, Pakistan from October 11, 2021 to January 10, 2022. Permission was granted by the Institutional Ethical Committee. The protocols of ethical committees were strictly followed, and the rights of the research participants were protected. A written informed consent was used, and all information was kept confidential. There are no disadvantages or risks to the participants. Participants were free to withdraw from the study at any time.

**2.2 Population, sample size, technique and selection:** Out of so many nursing institutes in Punjab province, we selected conveniently four, with 385 students. These included 135 male students; our population of interest. Being accessible, all population was taken as sample. Twenty were selected for pilot study. Questionnaire was distributed to the rest of 115; 106 responded with response rate of 92.17%. This sample of 106 included 62 (58.5%) from Lahore School of Nursing, Lahore), 14 (13.2%) from Shalamar Nursing College, Lahore, 11 (10.4%) from Multan College of Nursing, Multan and 19 (17.9%) from Shahida Islam Nursing College, Lodhran.

### 2.4 Data collection plan

**2.4.1 Data collection tool/ Pilot study:** The questionnaire was borrowed from Zeleke, Argaw, and Kefale.<sup>3</sup> It was a 5-point Likert scale with 10 items. The responses were rated from 1 to 5 for strongly disagree, disagree, neutral, agree & strongly agree, respectively. A data matrix was developed using the Data Editor of IBM SPSS, adding all the scores for 10 items and then dividing by 10 (number of items) and

thus yielding mean score for each participant; the level of perceptions score. The pilot study showed the reliability of questionnaire as Cronbach's alpha of 0.711. The questionnaire was distributed by hand and then collected by hand after a day. \_

**2.4.2 Variables:** Level of perceptions of male nursing students towards TSE was a research variable on ratio (numeric) scale. Age groups ( $\leq 20$  years &  $> 20$  years) and marital status (single & married) were two demographic variables on nominal scale.

### 2.5 Data analysis plan

**2.5.1 Descriptive statistics & estimation of parameters:** Nominal variables were analyzed by count and percentage. Ratio variable was subjected to tests of normality; Skewness, Kurtosis and Shapiro-Wilk. As all the data was skewed, so it was analyzed by median, quartile 1, quartile 3 and interquartile range, with 95% CI for median.

**2.6 Hypotheses testing:** As all data was skewed, so non-parametric tests were applied.  $H_{01}$  was verified by one-sample Wilcoxon signed-rank test,  $H_{02}$  and  $H_{03}$  were verified by Mann Whitney U test. Sample sizes, medians, IQRs, difference of medians, 95%CI of difference of medians, test statistics, degree of freedom and significance (p values) are given with interpretation. The data was analyzed by IBM SPSS v.26.0, released 2017 (IBM SPSS Corp., Armonk, NY, USA) and Windows 10 Professional (Microsoft Corp., USA).

## 3. RESULTS

**3.1 Sample demographics:** The sample of 106 male nursing students included 32 (30.2%) in age group  $\leq 20$  & 74 (69.8%) in  $> 20$  years, and 102 (96.2%) were single & four (3.8%) were married.

**3.2 Normality of data:** Three tests are applied to determine the normality of ratio (numeric) data. (Table 3.2)

**Table 3.2: Normality of data for level of perceptions of male nursing students towards testicular self-examination in Punjab province, Pakistan (n=106)**

Variables	Group	Skewness Statistic	Kurtosis Statistic	Shapiro-Wilk test			Data distribution
				Statistic	d.f.	p-value	
Overall sample		0.300	-0.417	0.975	106	.042	Skewed
Age groups (years)	≤20 years	-.164	-.510	.967	32	.409	Normal
	>20 years	.573	-.265	.941	74	.002	Skewed
Marital status	Single	.247	-.489	.978	102	.090	Normal
	Married	2.000	4.000	.630	4	.001	Skewed

### 3.3 Descriptive statistics & estimation of parameters for level of perceptions of male nursing students towards TSE:

The median score of the sample was 3.30 (95%CI 3.20-3.50). The score was similar in two age groups and in single and married nursing students as their confidence intervals are overlapping. (Table 3.3)

### 3.4 Hypotheses Testing

**3.4.1: Level of perceptions of male nursing students towards TSE ( $H_{01}$ ):** As the distribution of data was skewed, hence a non-parametric one-sample Wilcoxon signed-rank test was used. With p-value <.00001, null hypothesis was rejected, so the observed median score of perceptions of the sample was statistically significantly lower than the expected median score of perceptions for the population. In simple words we can say that

the median score of perceptions of male nursing students towards TSE of our sample was lower than expected. (Table 3.4.1)

**3.4.2: Level of perceptions of male nursing students towards TSE by age groups ( $H_{02}$ ):** Median score of perceptions was compared between the age group  $\leq 20$  years and  $>20$  years through independent samples Mann-Whitney U test at alpha .05. As p-value was higher than alpha level ( $p=0.475$ ), hence  $H_{02}$  was retained, showing statistically no significant difference between the two age groups. (Table 3.4.2)

**3.4.3: Level of perceptions of male nursing students towards TSE by marital status ( $H_{03}$ ):** Median score of perceptions was compared between the single and married male student nurses through independent samples Mann Whitney U test at alpha .05.

**Table 3.3: Descriptive statistics & estimation of parameters for level of perceptions of male nursing students towards testicular self-examination in Punjab, Pakistan (n=106)**

Variables	Groups	Sample Statistics				95%CI of Median	
		Quartile 1 (Q1)	Median (Q2)	Q3	IQR	Lower	Upper
Overall sample		3.10	3.30	3.82	0.72	3.20	3.50
Age groups	≤ 20 years	2.87	3.50	3.95	1.08	3.17	3.80
	>20 years	3.10	3.25	3.82	0.72	3.20	3.32
Marital Status	Single	3.10	3.30	3.90	0.80	3.20	3.50
	Married	3.10	3.10	3.25	0.15	3.10	3.30

Q=Quartile, IQR=Inter quartile range (Q3-Q1), CI=Confidence Interval

**Table 3.4.1: Level of perceptions of male nursing students towards testicular self-examination in Punjab province, Pakistan (n=106)**

Observed median score	Hypothetical median score (Test value)	Test statistics	Standard error	Standardized Test statistic	p-value
3.30	3.75	1238.5	316.86	-5.040	<.00001
One-Sample Wilcoxon Signed Rank Test, $H_{01}$ rejected at alpha .05					

**Table 3.4.2: Level of perceptions of male nursing students towards testicular self-examination by age groups in Punjab province, Pakistan (n=106)**

Groups	Sample size	Median	Mann-Whiteny U	Wilcoxon W	Standard error	Standardized test statistic	p-value (2-tailed)
≤ 20 years	n1=32	3.50	1080.5	3855.5	144.881	-0.714	.475
>20 years	n2=74	3.25					
Independent Samples Mann-Whiteny U test					H <sub>o2</sub> retained at alpha .05		



**Table 3.4.3: Level of perceptions of male nursing students towards testicular self-examination by marital status in Punjab province, Pakistan (n=106)**

Groups	Sample size	Median	Mann-Whiteny U	Wilcoxon W	Standard error	Standardized test statistic	p-value (2-tailed)
Single	n1=102	3.30	134.5	144.5	60.138	-1.156	.248
Married	n2=4	3.10					
Independent Samples Mann-Whiteny U test					H <sub>03</sub> retained at alpha .05		

As p-value was higher than alpha level ( $p = .248$ ), so H<sub>03</sub> was retained, showing statistically no significant difference between the two age groups. (Table 3.4.3)

## 4. DISCUSSION

**4.1 Level of perceptions of male nursing students towards TSE:** The main focus of our study was to assess the level of perceptions of male nursing students towards TSE in Punjab province, Pakistan. Our study showed median score of perceptions of male nursing students towards TSE as 3.30 (95% CI 3.20-3.50) on 5-point Likert scale. It was lower than expected score of 3.75 ( $p = <.00001$ ). (Table 3.4.1)

**4.2 Level of perceptions of male nursing students towards TSE by age groups:** Our study showed median score of perceptions of male nursing students towards TSE as 3.50 (95% CI 3.17-3.80) for  $\leq 20$  years age group and 3.25 (95% CI 3.20-3.32) for  $>20$  years. The difference was statistically non-significant ( $p = .475$ ). (Table 3.4.2)

**4.3 Level of perceptions of male nursing students towards TSE by marital status:** Our study showed median score of perceptions of male nursing students towards TSE as 3.30 (95% CI 3.20-3.50) for single and 3.10 (95% CI 3.10-3.30) for married students. The difference was statistically non-significant ( $p = .248$ ). (Table 3.4.3)

**4.4 Strengths of our study:** We had collected data on a 5-point Likert scale and then analyzed it as median score for the sample (sample statistics) and for the population (estimation of parameters as 95% confidence interval) as whole and then by age groups and marital status. Then we have verified our four hypotheses. Our study would be the very first study and novel addition to the global literature to measure the level of perceptions on Likert scale and analyzing it as median scores and hypotheses testing. Further we have adopted an 8-steps "Marwat's Logical Trajectory of Research Process".

**4.5 Studies for comparison:** We could not find studies with comparable data as median score with confidence interval and hypotheses testing in local, national, regional and global literature. Almost all studies have analyzed their data as counts and percentages, which we have presented in the following paragraphs.

There is a dearth of information among young men

about testicular self-examination (TSE). There is negative perception about TSE due to feelings of shame and guilt; that is the red sign towards testicular neoplasm.<sup>2</sup>

Data on teenage males is scarce in industrialized nations, and even more so in poor ones, when it comes to TSE.<sup>14</sup> Breast self-examination has obtained good perception among women, while men's good perception of TSE is still lacking.<sup>9</sup>

Ramim, et al.<sup>8</sup> included 330 young students from a medical sciences university in year 2010-2011 and collected data through a self-administered questionnaire. Less than 5% of the students reported they had knowledge regarding TSE and only 10% were performing it. Just 2% of them were found to have good knowledge about testicular cancer (TC) and 17% had good awareness about TSE. Less than 10% participants had good attitude about performing TSE and over 81% showed poor self-efficacy.

Rovito, et al.<sup>16</sup> surveyed 300 university males on their perceptions of vulnerability, perceived value of health promotion methods, TSE knowledge, and preference for health promotional information. The results indicated that men were generally unaware of TSE and were unsure of their risk of developing the disease. Participants reported very positive responses to questions about the value of health promotion methods, particularly TSE, and indicated a high intention to perform health promotion behaviors.

Atuhaire, et al.<sup>3</sup> sought to assess the knowledge and practice of TSE among secondary students at Ntare School, Mbarara District in south western Uganda through cross-sectional quantitative study among 165 students. Of the male students, 41.8% reported to have knowledge about TSE and only 23.6% practiced TSE. Most students rated their knowledge of TSE to be below 5 (from 1-10) score. Of the 39 students who admitted performing TSE, only 16 did it monthly.

Zelege, et al.<sup>3</sup> included 422 participants with a response rate of 98.3%. Out of the respondents 31.8% had good knowledge, 51.3% had favorable attitude and 11.8% had good practice for TSE. The major reason in 62% participants not to perform TSE was lack of knowledge about TSE.

Khadra, et al.<sup>18</sup> conducted a cross-sectional questionnaire survey on 250 consecutive male attenders

aged 18-50 years in two general practices; one inner city, and one suburban. After obtaining informed consent, male patients in the waiting room were asked to complete a brief confidential questionnaire about TC and TSE. The response rate was 81%. Mean age was 32 years (range 18-50). Ninety-one per cent were aware of TC but only 26% knew that TC can be curable if detected early. Although 49% of responders had carried out TSE in the past year, only 22% were practicing according to recommendations i.e. feeling for lumps at least monthly.

Ugurlu, et al.<sup>19</sup> conducted a study in a university in Ankara, Turkey with 634 male students. 44% had heard about TC during their education, but majority of participants has lack of knowledge about signs and symptoms of TC. Only 5.9% of them (38/634) indicated they received information on TSE and 17.7% had practice of TSE before; only one in four performed it monthly. The reason for not doing TSE was mostly 'not having knowledge' in 83.4% and 'not seen as important' in 55.7% cases.

Avci, et al.<sup>20</sup> included 425 university students in his cross-sectional study, with mean age of  $22.2 \pm 2.3$  (17-40) years. Of them, 420 (98.8%) were single. Of them, 56.2% have heard about TC before, and 18.4% said they were informed about TC. The health belief model scale may be used in TC screenings for males to measure susceptibility, seriousness, health motivation, barriers, benefits, and self-efficacy.

Rudberg, et al.<sup>17</sup> assessed the knowledge and attitudes towards TSE among 727 senior high school male students in Sweden, with mean age 17 years. They completed a 60-item questionnaire, encompassing background characteristics, information, knowledge of and attitudes toward TC, and prevalence of TSE practice. The results showed that most students had never heard of TC or TSE, had limited knowledge of common symptoms, and had hardly ever practiced TSE.

## 5. CONCLUSION

In our study, the level of perceptions of male nursing students towards testicular self-examination in Punjab province, Pakistan was lower than expected. The level of perceptions was same for age group  $\leq 20$  years and  $> 20$  years and for single and married male nursing students.

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#### CONFLICT OF INTEREST

Authors declare no conflict of interest.  
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#### AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	AA, MQ
Acquisition, Analysis or Interpretation of Data:	AA, MQ, KP, KOA, MA
Manuscript Writing & Approval:	AA, MQ, KP, KOA, MA

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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