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# Awareness of Testicular Cancer and Testicular Self-Examination in Male Population of Punjab, Pakistan; a Multicentric Cross Sectional Study

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**Abstract**

**Background:** Testicular cancer (TC) is a significant health concern among young and middle aged men, necessitating early detection through testicular self-examination (TSE). However, awareness gaps regarding TC and TSE persist, highlighting the need for targeted educational interventions.

**Methods**: A national multicenter cross-sectional study was conducted from March 1, 2024, to April 10, 2025, among 377 eligible male participants (aged ≥18 years) across Punjab, Pakistan. Participants were recruited using convenience sampling through an online questionnaire that was made via questions from standardized tool of WHO for Testicular self examination and testicular cancer. Then validated by Chronbach apha. Eligibility criteria included males residing in Pakistan, aged 18 years or older, with the ability to provide informed consent. A minimum sample size of 384 was estimated using OpenEpi at a 95% CI and 5% margin of error; 430 responses were received, of which 377 were analyzed after exclusions. Age-disaggregated and demographic analyses were performed. Associations between demographic factors and awareness/practices of TC and TSE were examined using Chi-square tests.

**Results:** The median age was 22 years (IQR 21–23). Nearly half (49.9%) of the participants had only limited knowledge of TC, while 30% were completely unaware. Awareness of TSE was even lower, with two-thirds of participants (67%) reporting they had never heard of it. Awareness of both TC and TSE was significantly higher among married participants, older adults (>30 years), and those affiliated with healthcare ($p < 0.001$). Factors influencing non-practice included lack of knowledge (84%) and fear of discovering a lump (68%).

**Conclusion**: The study highlights the need for targeted educational strategies to enhance TC and TSE awareness. Incorporating TC and TSE topics into healthcare curricula and using social media for public health campaigns can significantly improve knowledge and encourage proactive health behaviors. Addressing perceptual biases and focusing on education are essential for better public health outcomes through early detection and management of testicular cancer.

**Keywords:** Testicular cancer, Self-testicular examination, Awareness

## I. Introduction

Testicular cancer (TC) is among the most common malignancies affecting young men between the ages of 15 and 39 years, with an average onset age of 33 (Stoneham et al., 2019). Although TC represents only 1.36% of the overall cancer burden in Pakistan (Shallwani et al., 2010) , its incidence has been rising globally. Importantly, TC has one of the highest survival rates, approximately 95% five-year survival, when detected at an early stage(*Facts About Testicular Cancer | Testicular Cancer Statistics*, n.d.) . This highlights the pivotal role of awareness and early detection in reducing morbidity and mortality.

Testicular self-examination (TSE) is a simple, non-invasive, and cost-free screening practice that allows men to detect testicular abnormalities such as lumps, swelling, or asymmetry(ACS, n.d.) . Despite its importance, uptake of TSE remains low, especially in low- and middle-income countries (LMICs), due to limited awareness, cultural barriers, and healthcare resource constraints (F O Ugwumba, n.d.). In Pakistan, existing research indicates significant gaps in public knowledge of TC and limited adoption of TSE as a preventive practice (Saleem et al., 2017; Shallwani et al., 2010). These challenges underscore the urgent need for targeted education and awareness programs.

Globally, health systems emphasize preventive and promotive measures to combat cancers that can be detected early. For TC, the World Health Organization (WHO) recommends community-level awareness, early diagnostic strategies, and health education as integral parts of cancer control frameworks. Pakistan, however, lacks widespread public health campaigns focusing on TC. Given the cultural sensitivity around male reproductive health, young men often avoid discussions or clinical consultations on testicular health. Without structured interventions, this gap may lead to delayed diagnosis and higher morbidity.

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Previous studies in Pakistan have largely examined awareness of TC and TSE within single institutions or localized populations (Saleem et al., 2017). To date, few multicenter studies have explored both the general male population and healthcare-affiliated individuals across Punjab, making it difficult to generalize findings. Additionally, there is limited information about how age, marital status, and profession moderate awareness and practice patterns. This study addresses these gaps by providing a broader, multicenter perspective.

In light of these gaps, the primary objective of this study was to assess the level of awareness and practice regarding TC and TSE among male medical professionals and the general population of Punjab, Pakistan. Secondary aims were to identify demographic factors such as age, marital status, and professional background associated with awareness and practice, and to explore barriers influencing the adoption of TSE practices, while aligning findings with global cancer prevention frameworks, particularly WHO recommendations. The study was guided by key research questions: What is the level of awareness of TC and TSE among males in Punjab? How do demographic factors influence awareness and practice? And what sociocultural barriers prevent regular TSE practice? Based on these, we hypothesized that healthcare-affiliated participants and older or married men are more likely to demonstrate higher awareness and better practices regarding TC and TSE compared to younger and non-healthcare-affiliated participants.

## II. Materials and Methods:

**Study Design and Duration:** A multicenter cross-sectional study was conducted between March 1, 2024 and April 10, 2025, across Punjab, Pakistan, following STROBE guidelines. This study was conducted according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines to ensure comprehensive and transparent reporting of our research methods and findings.

**Study Area and Population:** Male participants (≥18 years) from Punjab, Pakistan were recruited through physical and social media platforms.

**Eligibility Criteria:** Inclusion – males ≥18 years, residents of Pakistan, provided informed consent. Exclusion – females, incomplete forms, or underage participants

### Sampling

We used the convenience sampling method in this study. Using the OpenEpi sample size calculator (*OpenEpi Menu*, n.d.) while keeping the confidence interval at 95% (margin of error at 5%) and anticipated frequency percentage at 50%, the sample size was calculated to be at least 384 participants.

### Questionnaire development

A self-administered questionnaire, developed by the researchers, was used as the data collection instrument. The questionnaire was mainly developed by reviewing previous studies (Ibitoye et al., 2022a) modified by reviewing similar studies on this topic (Waheed et al., 2023)(*Testicular Cancer Awareness and Testicular Self-Examination among University Students - PubMed*, n.d.). The questionnaire contains 30 questions which were divided into five sections. Section A was designed to reveal the socio-demographic data of respondents; Sections B, C, D, and E contained questions on awareness of TSE and testicular cancer, the practice of TSE, knowledge of the steps of TSE, and factors influencing the practice of TSE. The final questionnaire is provided as **Appendix 1**

### Ethical Considerations

The online questionnaire featured a detailed explanation of the study, the usage of the data being collected, and an emphasis on the confidentiality of each participant's data before proceeding on to the questions. The latter part would appear only after one consent to participation in the former. No questions that could allow the tracking of any participant were asked. Ethical approval was obtained from the Ethical Review Board of Allama Iqbal Medical College/Jinnah Hospital, Lahore numbered: **ERB 145/4/13-06-2023/S1 ERB**. The study was conducted in full conformance with the principles of the Declaration of Helsinki.

### Data Collection

A pilot survey was conducted on 20 participants to check the usability and functionality of the questionnaire and to tend to any discrepancies or ambiguities. The online questionnaire was designed on Google Forms and circulated via social media platforms. We included at least one member from each of the four provinces of Pakistan. The response limit was set to once for an email, so there were no duplicates. However, emails were not collected as a part of the data. Incomplete forms could not be submitted as each item in the questionnaire was marked as necessary. Data collected was automatically distributed on a Google Spreadsheet, but it could be accessed by only one author who was not involved in the process of data collection so that members could access or by any means track the response of any participant. A total of 430 individuals responded to the questionnaire.

### Data Analysis

Data was entered and analyzed using SPSS version 25. We checked compliance with the attention check, then discounted incompliant responses from scoring. 53 responses were discarded in this way bringing the total eligible number of responses down

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to 377. We utilized the Chi-square test to determine the association between the demographics of participants and awareness and practice of TSE. P-values less than 0.5 were considered significant. Stacked Bar charts for questions on awareness of signs and symptoms of TSE and testicular cancer and factors influencing the practice of TSE using Microsoft Excel were made. Frequencies of TSE and testicular cancer questions were calculated using descriptive analysis.

## III. Results

### Demographic data

The median age of the 377 participants was 22 (IQR = 21-23). Almost ninety percent of subjects were undergraduate students ($n$ = 336; 89%) with an almost equal proportion being unmarried ($n$ = 339; 90%). The proportion of subjects belonging to the healthcare field and of those unrelated to it was not so different (52.8% vs 47.2% respectively). A complete breakdown of the demographic data of participants is given in Table 1.

| **Age, years; *median (IQR)*** | 22 (21 – 23) |
|---|---|
| **Education level; *n (%)*** | |
| Illiterate | 16 (4.2) |
| Undergraduate | 336 (89.1) |
| Graduate | 1 (0.3) |
| Masters | 17 (4.5) |
| M.Phil/PhD | 7 (1.9) |
| **Relationship status; *n (%)*** | |
| Non-married | 339 (89.9) |
| Married | 38 (10.1) |
| **Profession; n (%)** | |
| Related to medicine/healthcare | 199 (52.8) |
| Not related to medicine/healthcare | 178 (47.2) |

**Table 1 – Baseline demographics of the participants. All data is presented as N (%).**

### Awareness of testicular cancer

In our study, almost half of the participants ($n$ = 188; 49.9%) had heard about testicular cancer but did not have much knowledge about it. This was followed by those completely unaware of TC ($n$ = 113; 30%), whereas, only less than one-fourth of the participants were found to be aware of TC and claimed to know about it ($n$ = 76; 20.2%) as shown in Table 2.

| **Have you heard about testicular cancer?** | |
|---|---|
| No, I haven't heard about it and have no knowledge about it. | 113 (30) |
| Yes, I have heard about it but have little knowledge. | 188 (49.9) |
| Yes, I have heard about testicular cancer and have knowledge about it. | 76 (20.2) |
| **Do you know that males can get testicular cancer?** | |
| Yes | 297 (78.8) |
| No | 35 (9.3) |
| Maybe | 45 (11.9) |
| **Which age group is mostly affected by testicular cancer?** | |
| 15 years or less | 10 (2.7) |
| 15 years to 40 years | 171 (45.4) |
| 41 years to 65 years | 141 (37.4) |

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| | |
|---|---|
| Above 65 years | 55 (14.6) |
| **Is testicular cancer curable?** | |
| Yes | 211 (56) |
| No | 28 (7.4) |
| Maybe | 138 (36.6) |

**Table 2 – Awareness of participants regarding testicular cancer. All data is presented as N (%).**

More than three-fourths of the participants knew that males could get TC ($n$ = 297; 78.8%). Moreover, most of the participants believed that TC affects males aged 15 to 65 years ($n$ = 312; 82.75%). While more than half of the participants believed that TC is curable ($n$ = 211; 56%), about one-third of the participants were unsure of its curability ($n$ = 138; 36.6%).

Correlating the awareness of TC to the profession of participants (healthcare-related or healthcare-unrelated) revealed a statistically significant difference between the two groups ($P$ = <0.001). While an almost equal proportion of participants in both the groups had heard about TC with little knowledge about it, interestingly however, a significantly greater proportion of participants unrelated to healthcare were found to have good knowledge about TC as compared to healthcare-related participants (37.6% vs 4.5% respectively) among whom 45% had not even heard about TC as shown in Table 3.

| | |
|---|---|
| **Have you ever heard about testicular self-examination?** | |
| Yes | 125 (33.2) |
| No | 252 (66.8) |
| **Does testicular self-examination help in the early diagnosis of testicular cancer?** | |
| Yes | 120 (98.4) |
| No | 2 (1.6) |
| **Is awareness of testicular self-examination important to men?** | |
| Very Important | 82 (66.67) |
| Important | 28 (22.76) |
| Somewhat important | 9 (7.31) |
| Not important at all | 4 (3.25) |
| **What age should one start testicular self-examination?** | |
| 16 – 25 years | 68 (55.28) |
| 26 – 35 years | 26 (21.13) |
| 36 – 45 years | 15 (12.19) |
| 46 – 55 years | 11 (8.94) |
| Above 55 years | 3 (2.43) |
| **How often should one perform testicular self-examination?** | |
| Once in a week | 33 (26.82) |
| Once in a month | 61 (49.59) |
| Once in a year | 12 (9.75) |
| No idea | 17 (13.82) |
| **How important is TSE for men in relation to BSE and CS for women?** | |
| BSE and CS are more important than TSE. | 37 (30.57) |
| TSE is as important as BSE and CS. | 83 (68.59) |

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| | |
|---|---|
| TSE is much more important than BSE and CS. | 1 (0.82) |
| **Do you practice testicular self-examination?** | |
| Yes | 55 (49.54) |
| No | 56 (50.45) |
| **Do you know the steps of testicular self-examination?** | |
| Yes | 63 (56.75) |
| No | 48 (43.24) |
| **Do you think testicular self-examination would be difficult to perform?** | |
| Yes | 18 (16.36) |
| No | 92 (83.63) |

Table 3 – Awareness of testicular self-examination among the participants. All data is presented as N (%). BSE = Breast self-examination; CS = Cervical smear

Correlation of awareness with the age groups also revealed statistically significant results ($P = <0.001$) with a significantly greater proportion of those aged >30 years having good knowledge about TC (75%) as compared to those aged <30 years (15%). Similar results were obtained for correlation with relationship status ($P = <0.001$) where a greater proportion of married people (63%) were found to have good knowledge about TC as compared to unmarried people (15%) as can be seen in Table 4.

| | **N** | **Have you heard about testicular cancer?** | | |
|---|---|---|---|---|
| | | **No, I haven't heard about it and have no knowledge about it.** | **Yes, I have heard about it but have little knowledge.** | **Yes, I have heard about testicular cancer and have knowledge about it.** |
| **Age Groups** | | | | |
| ≤ 30 years | 345 | 110 (31.9) | 183 (53) | 52 (15.1) |
| > 30 years | 32 | 3 (9.4) | 5 (15.6) | 24 (75) |
| ***P-value*** | | ***<0.001*** | | |
| **Profession** | | | | |
| Related to medicine/healthcare | 199 | 90 (45.2) | 100 (50.3) | 9 (4.5) |
| Not related to medicine/healthcare | 178 | 23 (12.9) | 88 (49.4) | 67 (37.6) |
| ***P-value*** | | ***<0.001*** | | |
| **Relationship status** | | | | |
| Non-married | 339 | 108 (31.9) | 179 (52.8) | 52 (15.3) |
| Married | 38 | 5 (13.2) | 9 (23.7) | 24 (63.2) |
| ***P-value*** | | ***<0.001*** | | |
| | **N** | **Have you ever heard about testicular self-examination?** | | |
| | | **Yes** | **No** | |

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| | | | |
|---|---|---|---|
| **Age Groups** | | | |
| ≤ 30 years | 345 | 123 (35.7) | 222 (64.3) |
| > 30 years | 32 | 2 (6.3) | 30 (93.8) |
| ***P-value*** | | ***0.001*** | |
| **Profession** | | | |
| Related to medicine/healthcare | 199 | 97 (48.7) | 102 (51.3) |
| Not related to medicine/healthcare | 178 | 28 (15.7) | 150 (84.3) |
| ***P-value*** | | ***<0.001*** | |
| **Relationship status** | | | |
| Non-married | 339 | 121 (35.7) | 218 (64.3) |
| Married | 38 | 4 (10.5) | 34 (89.5) |
| ***P-value*** | | ***0.002*** | |

Table 4 – Correlations of demographics of the participants with awareness of testicular cancer and testicular self-examination. All data is presented as N (%).

**Awareness of TSE**

Out of the 377 participants, two-thirds had not heard about TSE (*n* = 252; 67%). As we did not ask any other questions about TSE to those who were unaware of it, the results described next in this paragraph encompass only a third of our total population (*n* = 125; 33%). Almost all of the participants aware of TSE believed that it would help in early diagnosis of TC (*n* = 120; 98.4%). Additionally, around half of them believed that men should start TSE in their late teenage or early 20s (*n* = 68; 55.3%) and that they should perform it at least once a month (*n* = 61; 49.6%) as shown in Table 3. Most of them considered awareness of TSE to be very important (*n* = 82; 66.7%) or important (*n* = 28; 22.8%) for men and more than two-thirds of them thought that TSE is as important for men as BSE and CS are for women (*n* = 83; 68.6%). While more than fifty percent of these participants knew the steps of TSE (*n* = 63; 56.8%), it was practiced by only fifty percent of them (*n* = 55). However, the majority of them did not believe that TSE would be anything difficult to perform (*n* = 92; 82.6%). These findings are also shown in Table 3 above.

When we correlated the awareness of TSE with the profession of participants, a statistically significant difference was found between the participants who were related to healthcare and those who were not (*P* = <0.001). While an almost equal proportion of healthcare-related participants were aware and unaware of TSE (48.7% and 51.3% respectively), most of the participants unrelated to healthcare were unaware of it (*n* = 150; 84.3%). Correlation with age groups and relationship status revealed statistically significant results (*P* = 0.001 and *P* = 0.002 respectively) and it was found that almost all of the participants aware of TSE were <30 years of age (*n* = 123; 35.7%) and unmarried (*n* = 121; 35.7%) as shown in Table 4 above.

**IV. Discussion**

The increasing prevalence of testicular cancer (TC) underscores the critical importance of raising awareness about testicular self-examination (TSE) and its role in early detection for effective treatment. This cross-sectional study conducted among 377 participants, primarily young, unmarried undergraduates, provides insights into awareness and knowledge gaps about TC and TSE. The median age of the participants was 22 years and almost ninety percent of subjects were undergraduate students (*n* = 336; 89%) with an almost equal proportion being unmarried (*n* = 339; 90%). The proportion of subjects belonging to the healthcare field and of those unrelated to it was not different either (52.8% vs 47.2% respectively).

Awareness of testicular cancer varied among participants; our study showed that 45.2% of health-care-affiliated participants had not heard about TC. For healthcare professionals, this is not an impressive percentage. However, this percentage is lower than 46% of 277 students reported in a study in Nigeria among health science students (Ibitoye et al., 2022b).

When participants were asked about signs and symptoms of TC, we found that a huge majority of the participants believed that a lump or swelling would be an obvious sign of TC (*n* = 327; 87%) while about three-fourths of the participants also considered

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pain and scrotal heaviness to be the signs of TC ($n$ = 290; 77% and $n$ = 278; 74% respectively). However, responses were equally divided as to whether lower abdominal pain would be a sign of TC or not as shown in Figure 1.

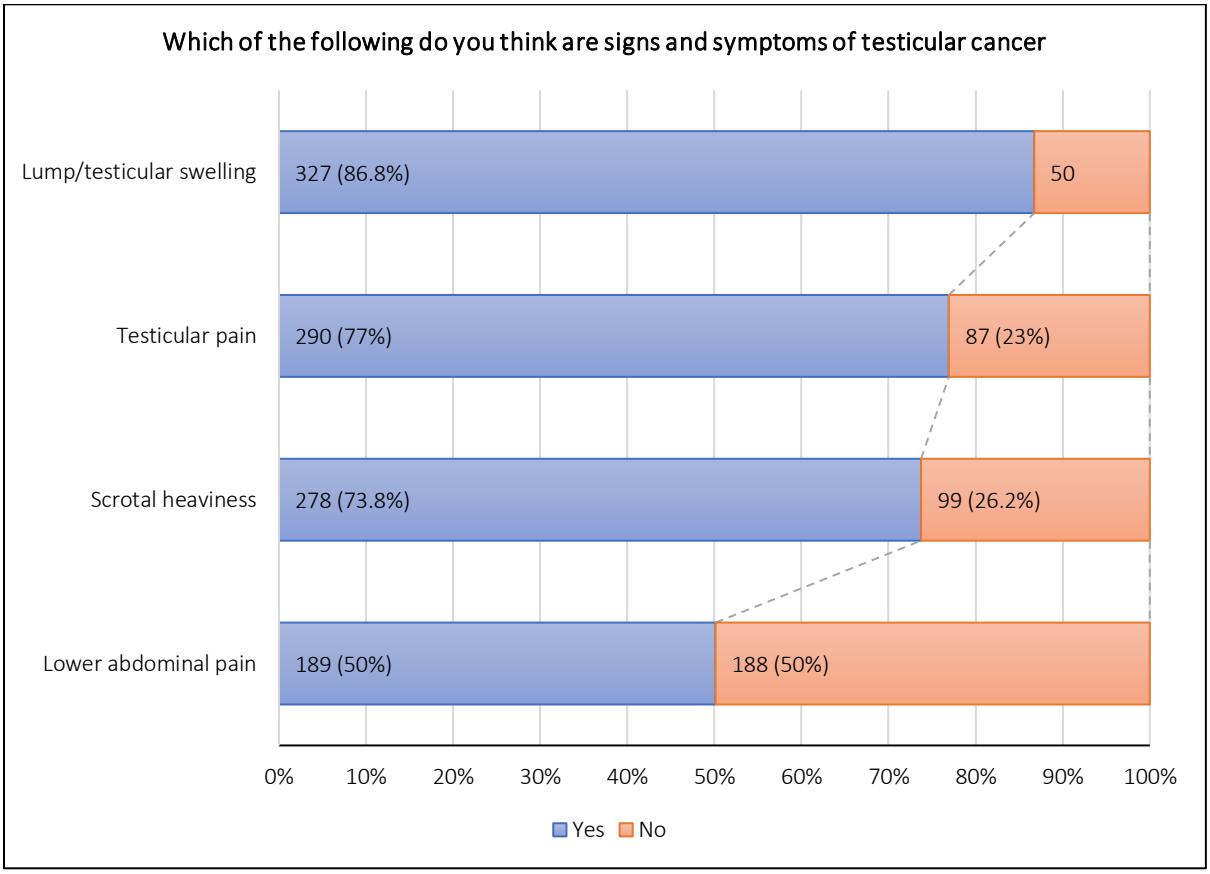



Figure 1 – Awareness about the signs and symptoms of testicular cancer.

A novel finding in our data indicated that non-healthcare-affiliated participants often perceived themselves as more knowledgeable about TC compared to healthcare-related participants. Specifically, 37.6% of non-healthcare participants believed they had good knowledge of TC. On the contrary, only 4.5% of healthcare-oriented participants reported the same. This discrepancy can be partly explained in terms of the difference in the perception of what constitutes "knowledge." Non-medical individuals may consider even minimal information as substantial knowledge, whereas medical students, aware of the depth and breadth possible in understanding disease, may not feel knowledgeable unless they have a comprehensive understanding of the topic. This phenomenon, where one's assessment of knowledge is influenced by awareness of the complexity of the information, is known as the Dunning-Kruger effect (Magnus & Peresetsky, 2022), where limited information leads to a false perception of knowledge, and well-informed individuals may underestimate their knowledge due to an awareness of the complexity and depth of what they do not know.

Correlation analysis revealed significant associations between awareness of TC and participant demographics. Older individuals and those who were married exhibited higher levels of TC knowledge, likely attributed to broader life experiences and more frequent healthcare interactions. Interestingly, despite the lack of association found in some studies (Alaradi & Almuqamam, 2020)(Ugwumba & Aghaji, 2010) findings suggest that age and marital status can influence TC awareness.

Regarding awareness of testicular self-examination (TSE) a significant knowledge gap was identified, with many participants being unaware of its importance. Only one-third were familiar with TSE, and misconceptions were common even among this group. Despite this, those aware of TSE recognized its crucial role in early testicular cancer detection. Interestingly, younger and unmarried participants showed higher levels of unawareness, indicating a need for focused education for this demographic. Factors influencing TSE practice were multifaceted, with lack of knowledge and fear of discovering a lump being predominant barriers (Pietrzyk et al., 2020) factors, such as embarrassment and religious beliefs, also played a role, highlighting the importance of addressing misconceptions and stigma surrounding TSE.

When the participants aware of TSE were asked about various factors influencing its practice, most of them considered lack of knowledge regarding TSE to be the most important factor ($n$ = 105; 84%) followed by fear of discovering a lump ($n$ = 85; 68%). Less than half of these participants believed that touching testes is embarrassing ($n$ = 53; 42%) and even fewer participants considered it a sin ($n$ = 38; 30%). Around one-third of these participants also thought that TSE is time-consuming ($n$ = 43; 34%). These findings are shown in Figure 2.

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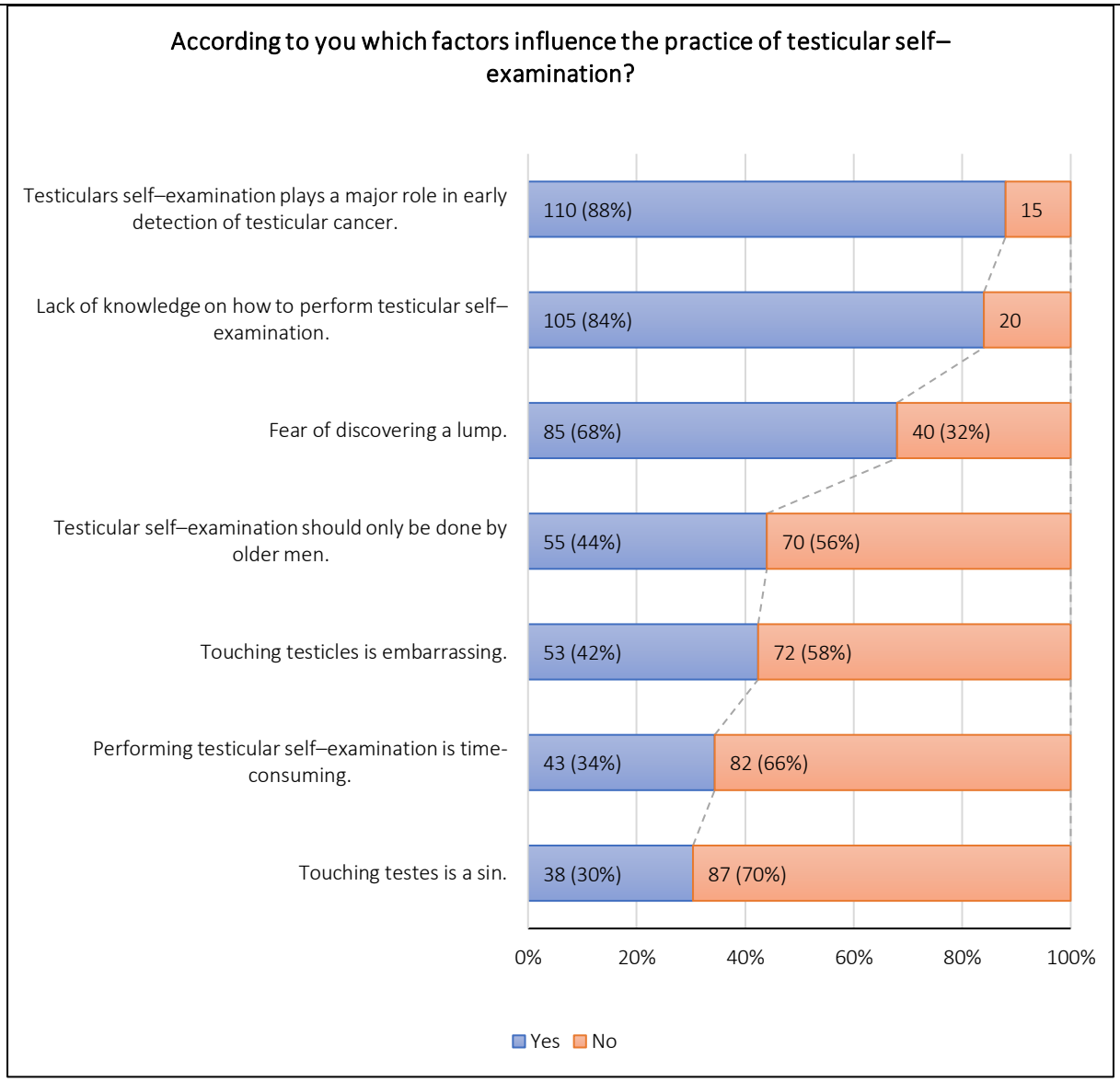



Figure 2 – Responses to the questions about the factors influencing the practice of testicular self-examination.

These findings align with the World Health Organization's (WHO) cancer control framework, which emphasizes a minimum combination prevention package: (1) raising community awareness, (2) promoting self-examination and timely help-seeking, (3) ensuring referral pathways to diagnostic confirmation, including ultrasound and PCR-based tumor marker assays where available, and (4) linkage to treatment, palliative, and rehabilitative services. Thus, determinants such as age, marital status, and professional background influence preventive and promotive awareness, while access to diagnostics and supportive services determine the extent to which palliative and rehabilitative care can be delivered. A defragmented approach integrating these four domains is critical for strengthening testicular cancer care systems in Pakistan.

Our results suggest a dire need for targeted educational programs that should specifically address these knowledge gaps and perceptual biases in both healthcare and general populations. For healthcare students, integrating detailed modules on less common cancers like TC into the curriculum is the best method for awareness and screening practices (Altowaijri et al., 2024), this can also ensure understanding and preparedness to deliver accurate information in their professional and personal spaces. Public health campaigns should utilize platforms that are frequently used by the young audience, such as social media, to deliver awareness about TC and TSE.

The limitations of this study include its cross-sectional nature, which restricts the ability to determine causality and association, and the potential for response bias due to the sensitivity and taboo about the topic especially in the study population area. Additionally, the participants, mainly the young, unmarried students, may not accurately reflect the broader population's awareness and practices. Medical students might have experienced a form of the "impostor syndrome," where despite knowing, they feel they do not understand TC well enough. This bias can lead to an underestimation of their knowledge.

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Future research should explore longitudinal designs to evaluate how knowledge and behaviors change over time and include more diverse demographics. Qualitative studies could provide deeper insights into the personal and cultural influences that halt individuals from practicing TSE, facilitating the development of more effective educational and interventional strategies.

In conclusion, the study underscores the necessity for effective educational strategies to improve knowledge and practices related to TC and TSE. By addressing perceptual biases and enhancing curricular content in medical education, we can better prepare future healthcare providers and improve public health outcomes through the early detection and management of testicular cancer.

**V. Conclusion:**

This multicenter study shows that awareness and practice of testicular cancer (TC) and testicular self-examination (TSE) are alarmingly low among men in Punjab, Pakistan, with nearly half unaware of TC and two-thirds unfamiliar with TSE. Awareness was significantly shaped by age, marital status, and healthcare affiliation, underscoring demographic influences on preventive health behavior. In line with WHO's cancer control framework, effective strategies should integrate preventive and promotive education, strengthen diagnostic referral systems, and ensure access to palliative and rehabilitative care. Embedding TSE awareness into medical curricula and community health campaigns, particularly through social media, offers a cost-effective means to reduce delays in diagnosis and improve survival outcomes.

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**Appendix 1:**

**Awareness of Testicular Cancer and Testicular Self Examination in Male Population of Punjab, Pakistan, a Multicentric Cross Sectional study.**

**Section A. Socio-demographic information**

Please write or tick (√) as appropriate

1. Age: …….
2. Profession _____ (If you belong to the healthcare profession please answer the next Question too)
3. You are; Doctor ( ) Medical Student ( ) Allied health student ( )
4. Religion: Christianity [ ] Islam [ ] Other [ ],
5. Please specify……..
6. Relationship status: Single [ ] Married [ ] Other [ ]
7. What Is your level of education? Matric [ ] Bachelors [ ] Masters [ ] Higher [ ] illiterate [ ]
8. Are you a smoker? Yes [ ] No [ ]

**Section B. Awareness of Testicular Self-Examination & Testicular cancer**

Select the most appropriate answer for the following questions based on your awareness

**Testicular Cancer;**

8. Have you heard about testicular cancer?

[ ] Yes, I have heard about testicular cancer and have knowledge about it.

[ ] Yes, I have heard about it but have little knowledge.

[ ] No, I haven't heard about it and have no knowledge about it.

9. If you know about testicular cancer; What is your source of information? Hospital [ ] Clinical/ health talks [ ] electronic/social media [ ] friends [ ] other____

10. Do you know that males can get cancer of the testis? Yes [ ] No [ ] No idea [ ]

11. In your Opinion,

What age group might be most affected? 15y [ ] 15-40y [ ] 40-65y [ ] >65y [ ]

12. Which of the following do you think are signs and symptoms of testicular cancer?

Lump/testicular swelling Yes [ ] no [ ]

Testicular pains Yes [ ] no [ ]

Lower abdominal pains Yes [ ] no [ ]

Scrotal heaviness Yes [ ] no [ ]

13. In your Opinion,

Is testicular cancer curable? Yes [ ] no [ ]

**Testicular self examination;**

14. Have you ever heard about testicular self examination? Yes [ ] no [ ]

**If you answered "YES "then proceed With the following questions If "NO" then Move onto the Next section**

**In your opinion;**

15. Who should know about testicular self-examination? All men [ ] Male students[ ] Health workers[ ] Other [ ], Please specify……..

16. Does testicular-self-examination help in the early diagnosis of testicular cancer? Yes[ ] No[ ]

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17. Is awareness of testicular self-examination important to men? Not at all important [ ] Somehow important [ ] Important [ ] Very important [ ]

18. At what age should one start testicular self-examination? 16-20[ ] 21-25[ ] 26-30[ ] 31 and above[ ]

19. When is the best time to perform testicular self-examination? Every week [ ] every month[ ] once in a year[ ] I don't know[ ]

20. Do you practice Testicular Self-Examination? Yes [ ] No[ ]

21. Do you know the process and steps involved in Testicular Self-Examination?

Yes[ ] No[ ]

**If you answered "Yes" to the above Question then proceed With the following questions If "NO" then Move onto the Next section**

Answer the following questions regarding the steps involved in performing testicular self-examination.

If the statement is correct, select Yes; if it is incorrect, select No

- Stand in front of the mirror and look for swelling on the scrotum Yes[ ] No[ ]
- Using both hands, the scrotum should be gently lifted so that the area underneath can be checked Yes[ ] No[ ]
- The index and the middle finger should be placed under each testicle with the thumb on top. Yes[ ] No[ ]
- The testes should be examined one at a time Yes[ ] No[ ]
- Use both hands to examine both testes together as one Yes[ ] No[ ]
- Roll each testis with thumb alone Yes[ ] No[ ]
- Feel for lumps of any size Yes[ ] No[ ]

22. How important is testicular self examination (TSE) for men in relation to breast self examination and cervical smear exam for women? ( choose one option)

TSE not at all important compared to breast self exam and cervical smear [ ]

breast self exam and cervical smear more important than TSE [ ]

TSE is as important as breast self exam and cervical smear [ ]

TSE is much more important than breast self exam and cervical smear [ ]

**Section C. Factors influencing the practice/Awareness of testicular Self –Examination**

"Testicular self-examination is a procedure where a man examines his own testicles and scrotum for possible lumps or swelling. It is usually undertaken at home while standing in front of a mirror and after having a warm bath or shower"

*According to you which factors influence the practice/Awareness of Testicular Self–Examination.*

23. Touching one's testicles is embarrassing? Yes [ ] No[ ]

24. Fear of discovering a lump? Yes[ ] No[ ]

25. Lack of knowledge on how to do Testicular Self–Examination? Yes[ ] No[ ]

26. Touching one's testes is a sin? Yes[ ] No[ ]

27. Testicular Self–Examination plays a major role in early detection of testicular cancer? Yes[ ] No[ ]

28. Doing Testicular Self–Examination is time-consuming? Yes[ ] No[ ]

29. Testicular Self–Examination should be done by older men? Yes[ ] No[ ]

**Appendix 2: Tables and Figures:**

| | |
|---|---|
| **Age, years; *median (IQR)*** | 22 (21 – 23) |
| **Education level; *n (%)*** | |
| Illiterate | 16 (4.2) |

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| | |
|---|---|
| Undergraduate | 336 (89.1) |
| Graduate | 1 (0.3) |
| Masters | 17 (4.5) |
| M.Phil/PhD | 7 (1.9) |
| **Relationship status; *n (%)*** | |
| Non-married | 339 (89.9) |
| Married | 38 (10.1) |
| **Profession; n (%)** | |
| Related to medicine/healthcare | 199 (52.8) |
| Not related to medicine/healthcare | 178 (47.2) |

**Table 1 – Baseline demographics of the participants. All data is presented as N (%).**

| | |
|---|---|
| **Have you heard about testicular cancer?** | |
| No, I haven't heard about it and have no knowledge about it. | 113 (30) |
| Yes, I have heard about it but have little knowledge. | 188 (49.9) |
| Yes, I have heard about testicular cancer and have knowledge about it. | 76 (20.2) |
| **Do you know that males can get testicular cancer?** | |
| Yes | 297 (78.8) |
| No | 35 (9.3) |
| Maybe | 45 (11.9) |
| **Which age group is mostly affected by testicular cancer?** | |
| 15 years or less | 10 (2.7) |
| 15 years to 40 years | 171 (45.4) |
| 41 years to 65 years | 141 (37.4) |
| Above 65 years | 55 (14.6) |
| **Is testicular cancer curable?** | |
| Yes | 211 (56) |
| No | 28 (7.4) |
| Maybe | 138 (36.6) |

**Table 2 – Awareness of participants regarding testicular cancer. All data is presented as N (%).**

| | |
|---|---|
| **Have you ever heard about testicular self-examination?** | |
| Yes | 125 (33.2) |
| No | 252 (66.8) |
| **Does testicular self-examination help in the early diagnosis of testicular cancer?** | |
| Yes | 120 (98.4) |
| No | 2 (1.6) |
| **Is awareness of testicular self-examination important to men?** | |
| Very Important | 82 (66.67) |

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| | |
|---|---|
| Important | 28 (22.76) |
| Somewhat important | 9 (7.31) |
| Not important at all | 4 (3.25) |
| **What age should one start testicular self-examination?** | |
| 16 – 25 years | 68 (55.28) |
| 26 – 35 years | 26 (21.13) |
| 36 – 45 years | 15 (12.19) |
| 46 – 55 years | 11 (8.94) |
| Above 55 years | 3 (2.43) |
| **How often should one perform testicular self-examination?** | |
| Once in a week | 33 (26.82) |
| Once in a month | 61 (49.59) |
| Once in a year | 12 (9.75) |
| No idea | 17 (13.82) |
| **How important is TSE for men in relation to BSE and CS for women?** | |
| BSE and CS are more important than TSE. | 37 (30.57) |
| TSE is as important as BSE and CS. | 83 (68.59) |
| TSE is much more important than BSE and CS. | 1 (0.82) |
| **Do you practice testicular self-examination?** | |
| Yes | 55 (49.54) |
| No | 56 (50.45) |
| **Do you know the steps of testicular self-examination?** | |
| Yes | 63 (56.75) |
| No | 48 (43.24) |
| **Do you think testicular self-examination would be difficult to perform?** | |
| Yes | 18 (16.36) |
| No | 92 (83.63) |

**Table 3 – Awareness of testicular self-examination among the participants. All data is presented as N (%).** BSE = Breast self-examination; CS = Cervical smear

| | **N** | **Have you heard about testicular cancer?** | | |
|---|---|---|---|---|
| | | **No, I haven't heard about it and have no knowledge about it.** | **Yes, I have heard about it but have little knowledge.** | **Yes, I have heard about testicular cancer and have knowledge about it.** |
| **Age Groups** | | | | |
| ≤ 30 years | 345 | 110 (31.9) | 183 (53) | 52 (15.1) |
| > 30 years | 32 | 3 (9.4) | 5 (15.6) | 24 (75) |
| ***P-value*** | | ***<0.001*** | | |
| **Profession** | | | | |

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| | | | | |
|---|---|---|---|---|
| Related to medicine/healthcare | 199 | 90 (45.2) | 100 (50.3) | 9 (4.5) |
| Not related to medicine/healthcare | 178 | 23 (12.9) | 88 (49.4) | 67 (37.6) |
| ***P-value*** | | ***<0.001*** | | |
| **Relationship status** | | | | |
| Non-married | 339 | 108 (31.9) | 179 (52.8) | 52 (15.3) |
| Married | 38 | 5 (13.2) | 9 (23.7) | 24 (63.2) |
| ***P-value*** | | ***<0.001*** | | |

| | **N** | **Have you ever heard about testicular self-examination?** | |
|---|---|---|---|
| | | **Yes** | **No** |
| **Age Groups** | | | |
| ≤ 30 years | 345 | 123 (35.7) | 222 (64.3) |
| > 30 years | 32 | 2 (6.3) | 30 (93.8) |
| ***P-value*** | | ***0.001*** | |
| **Profession** | | | |
| Related to medicine/healthcare | 199 | 97 (48.7) | 102 (51.3) |
| Not related to medicine/healthcare | 178 | 28 (15.7) | 150 (84.3) |
| ***P-value*** | | ***<0.001*** | |
| **Relationship status** | | | |
| Non-married | 339 | 121 (35.7) | 218 (64.3) |
| Married | 38 | 4 (10.5) | 34 (89.5) |
| ***P-value*** | | ***0.002*** | |

Table 4 – Correlations of demographics of the participants with awareness of testicular cancer and testicular self-examination. All data is presented as N (%).

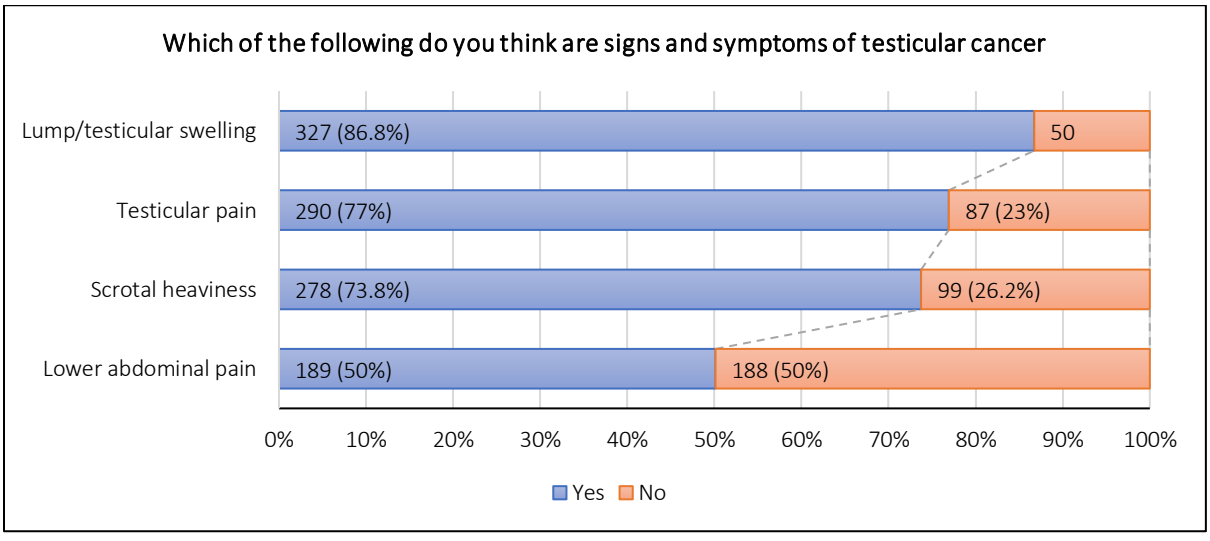



Figure 1 – Awareness about the signs and symptoms of testicular cancer.

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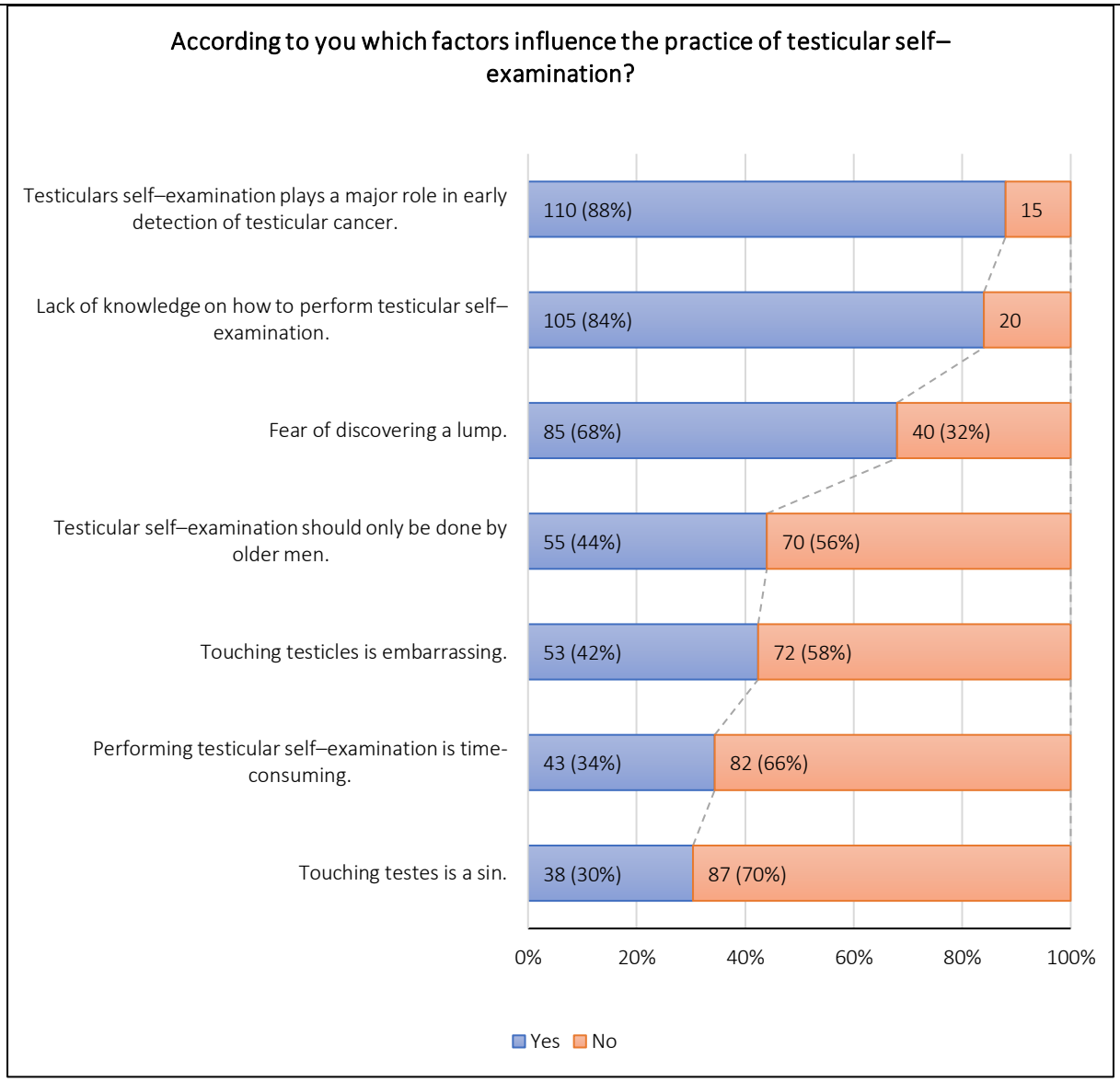



Figure 2 – Responses to the questions about the factors influencing the practice of testicular self-examination.