Population perception of hernia and its risk factors in the Eastern Region of Saudi Arabia

Hassan Abdullah Alkhalaf1*, Abdul Qadeer Memon1, Hatem Ibrahim Alali1, Noof Khalid Alamer2, Hassan Ali Alnajar1

ABSTRACT

Background: Hernia is a condition that occurs when an internal organ pushes through a weak point in the muscle or tissue. This study aimed to assess how well the individuals in the Eastern Region of Saudi Arabia understand the risk factors of abdominal hernias.

Methods: This qualitative, cross-sectional, community-based study included 385 participants (aged 18-45) between January and February 2021. The online electronic survey was posted on social media in the Eastern region of Saudi Arabia. The data were retrieved, evaluated, coded, and processed using Statistical Package for the Social Sciences program version 22.

Results: This study found 44.9% of the participants to have poor awareness regarding hernia, 35.3% had good, and 14% had very good, while 5.7% had excellent awareness regarding hernia. The present study enrolled 385 participants where 241 were female and 144 were male. Age groups were 18-25 (61%), 26-35 (14.5%), and 36-45 (24.4%). Most of the participants (79%) linked the cause of hernia to heavy weight lifting. Furthermore, 64.4% of the participants linked pregnancy as a risk factor for hernia. Over half of the participants in the study (52.5%) linked surgery as a risk factor of hernia. Other risk factors included constipation, prostatic enlargement, asthma, diabetes mellitus, and smoking, which showed an apparent lack of awareness in the participants with proportions of 39.7%, 30.6%, 20.5%, 14%, and 12.5%, respectively.

Conclusion: The study demonstrated a lack of awareness of the population of the Eastern region of Saudi Arabia about the causative factors of hernia among the participants.

Keywords: Hernia, awareness, inguinal, risk factors, Eastern Region, Saudi Arabia.

Introduction

Hernias are a common medical problem; inguinal hernias are the most widely recognized. Overall, one of the most time-performed operations is inguinal hernia repair [1]. Hernia procedures account for 7.5% of all operations [2]. Over 20 million hernias are estimated to be operated each year worldwide [3]. Furthermore, the likelihood of repairing an inguinal hernia is predicted to be 27% for men and 3% for women [4]. Any delay or inability to recognize a hernia might have serious consequences [5]. A few patients who have experienced an inguinal hernia tend to experience another on the other hand. Overweight, family history, and smoking are all recognized as possible threats of an inguinal hernia formation [1,6,7]. The leading cause of indirect inguinal hernias is congenital according to the patient’s age. In general, any condition that increases intra-abdominal pressure can create a danger of developing a hernia [8]. Most of the abdominal hernias are without symptoms [9]. Femoral hernias are uncommon hernias that occur more frequently in females, probably due to pregnancy [10]. The significant risk factors for hernia

Correspondence to: Hassan Abdullah Alkhalaf
*Department of Surgery, King Faisal University, Al-Hofuf, Saudi Arabia
Email: alkhalfal-sb@hotmail.com
Full list of author information is available at the end of the article.
Received: 27 November 2021 | Accepted: 12 December 2021
Population perception of hernia and its risk factors

Involving excess weight, constipation, weight lifting, and pregnancy. In addition, the patient must seek medical attention if there is pain or a visible bulge in the belly, groin, or pubic bone, or any other indications of hernia [11]. However, Alkhar’s [12] findings showed a lack of general awareness of risk factors for hernia among the young Saudis in Riyadh. Overall results showed that just 48% of the respondents could connect hernia to underlying risk factors, although 22% denied correlation and 30% reported no awareness of the risk factors of hernia formation.

Subjects and Methods

This is a qualitative, cross-sectional, community-based study using a questionnaire to evaluate the awareness of the risk factors of abdominal hernias among adults in the Eastern Region of Saudi Arabia. [13]. This study included 385 participants (aged 18-45), including 144 males and 241 females. Furthermore, between January and February 2021, the participants were subjected to a standardized, self-administered, closed-ended sample questionnaire and 1 month for data analysis. The questionnaire consisted of two sections, the first part describing participants’ information, and the second part evaluating personal awareness of hernia. The online electronic survey was posted on social media in the Eastern Region of Saudi Arabia.

The data were retrieved, evaluated, coded, and processed into the Statistical Package for the Social Sciences version 22. For all statistical analyses, two-tailed tests were employed. p-values less than 0.05 were estimated statistically significant. Each correct answer for awareness of hernias and their risk factors was given 1 point, and the total sum of the discrete scores for the various questions was computed. Inadequate awareness was defined as a score of less than 60% (5 points) of the highest points, while heightened awareness was described as 60% (6 points or more) of the maximum score. All parameters, including demographic data, self-perception of hernia awareness, and awareness items for hernia and its related risk factors, were subjected to descriptive analysis depending upon the frequency and percent distribution. The distribution of participant awareness of hernia and risk factors was assessed using cross-tabulation based on

| Table 1. Personal data of the participants in the study (Eastern Region, Saudi Arabia). |
|-----------------------------------|------|------|
| Personal data                    | No   | %    |
| Age in years                     |      |      |
| 18-25                             | 235  | 61.0 |
| 26-35                             | 56   | 14.5 |
| 36-45                             | 94   | 24.4 |
| Gender                            |      |      |
| Male                              | 144  | 37.4 |
| Female                            | 241  | 62.6 |
| Educational level                 |      |      |
| Below secondary                   | 17   | 4.4  |
| Secondary                         | 97   | 25.2 |
| University/above                   | 271  | 70.4 |

Figure 1. Self-perception regarding awareness level of hernia among study participants.
Results

The study’s questionnaire was completed by 385 individuals who met the inclusion criteria. The ages of the participants varied from 18 to 45 years, with an average of 24.8 ± 11.3 years. 241 (62.6%) participants were female and 144 (37.4%) were male. As for their educational level, 271 (70.4%) participants were university graduates, 97 (25.2%) had a secondary level, and 17 (4.4%) had below the secondary level of education (Table 1). Figure 1 shows the self-perception regarding the awareness level of hernia as reported by the study participants. 173 (44.9%) participants had poor awareness regarding hernia, 136 (35.3%) had good awareness, and 55 (14%) had very good awareness, while 21 (5.7%) had excellent awareness regarding hernia. Table 2 shows participants’ awareness regarding hernia and its related risk factors: the association between asthma and hernia: 79 (20.5%) participants responded that asthmatic patients have a high chance of hernia development, while 80 (20.8%) responded with “No,” and 226 (58.7%) chose “Do not know.” Association between hernia and heavy lifting: 304 (79.0%) related hernia to heavy weight lifting, while 30 (7.8%) said “No,” and 51 (13.2%) answered with “Do not know.” Association between hernia and constipation: 153 (39.7%) said that hernia is related to constipation, while 99 (25.7%) answered with “No,” and 133 (34.5%) of the participants answered as “Do not know.” Association between smoking and hernia: 48 (12.5%) selected “Yes,” 179 (46.5%) as “No,” and 158 (41.0%) as “Do not know.” Association between pregnancy/labor and hernia: 248 (64.4%) answered “Yes,” 56 (14.5%) responded with “No,” and 81 (21%) with “Do not know.” Association between hernia and previous surgery: 202 (52.5%) participants reported “Yes” that hernia is related to previous surgery, 74 (19.2%) responded with “No,” and 109 (28.3%) answered with “Do not know.” Association between an enlarged prostate and hernia: 118 (30.6%) participants reported “Yes” that patients with prostatic enlargement are at risk for hernia, while 50 (13.0%) answered with “No,” and 217 (56.4%) responded with “Do not know.” Association between diabetes mellitus (DM) and hernia: 54 (14.0%) answered with “Yes,” 125 (32.5%) answered with “No,” and more than half (206, 53.5%) of the participants responded with “Do not know.” In total, only 56 (14.5%) participants had a good level of awareness regarding hernia and its related risk factors (Figure 2).

Table 3 shows the distribution of participants’ awareness level regarding hernia and its related risk factors according to their personal data. Good awareness level was insignificant but higher among the older age group than the young age group (16% vs. 13.6%, respectively; \( p = \ldots \))

![Figure 2. Overall awareness level regarding hernia and its related risk factors among study participants.](image)
Population perception of hernia and its risk factors

On the other hand, 17.8% of the female participants had a good awareness level regarding hernia and its related risk factors compared to 9% of the males (\(p = 0.018\)). Furthermore, 14% of university graduated participants had good awareness regarding hernia compared to 11.8% of the lower educated category with no statistical significance (\(p = 0.794\)). Besides, only 22.7% of the participants who thought their awareness regarding hernia is excellent had a good awareness level compared to 13.3% of those who said they have a poor understanding with no significant relationship (\(p = 0.704\)).

### Discussion

This research is focused on the level of awareness of the population in the study group about the relationship between hernia and its risk factors. The study included 385 participants of both genders of various ages and educational levels.

### Hernia and physical pressure

Based on our findings, most participants could not associate hernia with the common risk factors, such as physical pressure (heavy lifting, pregnancy, and surgery with proportions of 79\%, 64.4\%, and 52.5\%, respectively). In addition, the participants in another study were unable to link these risk factors to hernia with proportions of 87\%, 65\%, and 62\%, respectively [12]. On the other hand, other studies showed that the participants could connect these risk factors with hernia with proportions of 89.5\%, 88.5\%, and 86\% [13].

Physical effort, as a risk factor, is strongly connected to the occurrence of inguinal hernias, according to a study conducted by Flich et al. [14], who found that a person whose job entails lifting or other intense effort has an increased chance than those whose jobs are less strenuous (\(p < 0.05\)). In addition, abrupt rises in intra-abdominal pressure allow diaphragmatic hernias to form [14]. Another research found that vomiting or excessive weight lifting is a significant indicator of hiatal hernia occurrence [15].

### Hernia and asthma

In our study, only 20.5\% supported the connection between asthma and the development of hernias, while 58.7\% responded with “Do not know,” and 20.8\% responded as “No.” According to another study, only 32\% of the participants agreed with the connection, while 34\% said “No,” and 34\% had no previous awareness [16]. Considering other hernia risk factors, such as the link between constipation and enlarged prostate to hernia, the awareness level of the enrolled participants in this study was low, with just 39.7\% of them linking hernia to constipation and 30.6\% of them relating hernia to prostate enlargement.

### Hernia and smoking

According to various studies, the development of inguinal hernias is related to a malfunction of 206...
connective tissue metabolism. In addition, smoking is considered a significant risk factor in the reemergence of groin hernia, most probably due to an extraordinary connective tissue metabolism in smokers [17]. A novel study indicates that collagenous tissue may be linked to the process of a hernia forming under destructive agents, such as tobacco, alcohol, and diabetes. Moreover, quantitative findings are still necessary and may show the true changes in the tissue, especially in the muscle of the cremaster [18]. Furthermore, some studies reported that 8.4% of the patients with hernias of the abdominal wall have diabetes and that 43% of these patients smoke [12]. The participants in this study could not link the occurrence of hernia to smoking, as only 12.5% replied to the correlation, while 46.5% disagreed and 41% had no idea. Another study revealed that only 37% of the participants agreed to the relationship between hernia and smoking [12]. In terms of the connection between DM and the development of hernia, only 14% of the respondents agreed that DM patients had a high risk of developing a hernia. On the other hand, 32.5% responded with no and 53.5% had no idea.

Conclusion

The findings of this study demonstrate a lack of public awareness about the risk factors of hernia among the participants. This implies that appropriate action is required to make Saudi individuals more aware of hernia risk factors. Based on the results, it is recommended that social media and awareness campaigns may be used to raise the awareness of hernia and its risk factors among Saudi people.

List of Abbreviations

Conflict of interests

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

None.

Consent to participate

Informed consent was obtained from all the participants.

Ethical approval

The present study was approved by the Research Ethics Committee of College of Medicine, King Faisal University. Registration number: 2020-10-30, dated October 18, 2020.

Author details

Hassan Abdullah Alkhalaf¹, Abdul Qadeer Memon¹, Hatem Ibrahim Alali¹, Noof Khalid Alamer², Hassan Ali Alnajar²

1. Department of Surgery, King Faisal University, Al-Hofuf, Saudi Arabia

2. Department of Internal Medicine, King Faisal University, Al-Hofuf, Saudi Arabia

References


