

## The Prevalence of Hernia Repair and its Associated Risk Factors in Saudi Arabia

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### ABSTRACT

**Background:** despite the modern life and people knowledge about certain diseases, the prevalence of hernia repair procedures and its associated conditions have been increased in the recent years in Saudi Arabia.

**Objectives:** prevalence of hernia repair procedures is almost known in the modern countries. This study was done to know the prevalence of hernia repair procedures in Saudi Arabia.

**Methods:** a cross-sectional study on knowing the prevalence of hernia repair procedures in Saudi Arabia was distributed among men and women from February to January to February 2018 to 523 participants on many different social media platforms.

**Results:** 3.8% of the participants had done hernia repair procedure. Regarding risk factors that may lead to hernia repair procedure, 29.1% of the participants had a positive family history of hernia repair procedure, 44.5% of the participants were obese, 27.6% were smoker, 25.8% ate high fat diet, 17.5% suffered from chronic constipation, 12.6% suffered from chronic cough, 8.3% had major surgeries, 7.7% were diabetic, 5.2% had been admitted to ICU, 4.6% suffered from urinary retention, 2.1% had major trauma, 1.25% had been diagnosed with atherosclerosis disease and 37.7% were having no risk factors.

**Conclusion:** at the end of this study, we found out that hernia repair procedure is increased among people in Saudi Arabia and multiple people are suffering from many risk factors that may lead to hernia and then hernia repair procedure eventually.

**Keywords:** hernia, obesity, chronic constipation.

### INTRODUCTION

Hernia is bulging of a viscus or part of a viscus through an orifice in the walls of its internal cavity. It is one of the most common surgical procedures being performed around the world. Hernia is classified as primary or recurrent; also may be reducible or irreducible. Incarcerated and strangulated are subtypes of irreducible hernia. The most common form is the external abdominal hernia<sup>(1)</sup>. Almost about 20 million hernia repairs are performed yearly, hernioplasty is a common surgical procedure around the world<sup>(2)</sup>. Multiple repair procedures have been described to date, anyhow tension-free mesh repairs are commonly used procedures today due to their low recurrence rates post-surgical procedures<sup>(3)</sup>. Outcomes of incisional hernia procedures are discouraging. Relapses rates of suture repair of incisional hernia are present with 12% to 54%<sup>(4)</sup>. On the other hand, relapse rates of mesh repair is 2% to 36%<sup>(5)</sup>. The important risk factors of hernia include pregnancy, strenuous exercise, chronic constipation, weight gain and increase intra-abdominal pressure. The patient should

look for medical care if there is a painful or swelling on the abdomen, in the groin or pubic bone, or if the patient is complaining from other symptoms of hernia<sup>(6,7)</sup>. About 3% to 10% of hernia repair were complicated with severe or moderately severe pain for more than a year of all hernia repair procedures, this result is in a significant impact on social life, sexual life and life parameters<sup>(8)</sup>.

### MATERIALS AND METHODS

A cross sectional study involving 523 men and women participants from all over Saudi Arabia was distributed from January to February 2018. The study was a self-administered questionnaire that was distributed on a web site link through a different social media platforms to all participants. The questionnaire involved 6 questions that included two parts; part one was about asking the participants questions about their age, gender and marital status. Part two was about general questions regarding hernia repair procedure and its associated risk factors like whether the participants had done hernia repair or not.

Furthermore, the participants were also asked if they had a positive family history of hernia repair or not. They were also asked if they had one or more risk factors like diagnosed with diabetes mellitus, increased body weight, diagnosed with atherosclerosis disease, major trauma, had major surgeries, previous admission to ICU, follow a high fat diet, had chronic cough, suffering from urinary retention, suffering from chronic constipations or smoking. Statics were used to describe the participants' answers using numbers and percentages. Our answers were compared for different questions within the different groups using Pearson chi-square test. The significant of statistics was set at  $p < 0.05$  and analysis was performed using IBM SPSS statistics, version 23 (IBM, Armonk, NY,USA). **The study was done after the approval of the ethical board of University of Hail.** In this study, we have attempted to figure out the prevalence of hernia repair in Saudi Arabia, risk considerations, and complications that may occur.

## RESULTS

A total of 523 participants participated in the study, 39.8% were women and 60.2% were men (table 1). More than half of the participants were single 65.8% (table 1). Regarding age distribution, more than half of the participants were between the ages of 18 to 30 years old 70.2% and the least of the participants were over 60 years old (table 2). Regarding hernia repair procedure, 3.8% of the participants underwent hernia repair procedure (table 3). For risk factors of hernia repair procedure, 29.1% of the participants had a positive family history of hernia repair procedure, 44.5% of the participants were obese, 27.6% were smokers, 25.8% were having a high fat diet, 17.5% were suffering from chronic constipation, 12.6% were suffering from chronic cough, 8.3% underwent major surgeries at certain point of time, 7.7% were diabetic, 5.2% were admitted to the ICU, 4.6% were suffering from urinary retention, 2.1% had major traumas, 1.2% were diagnosed with atherosclerosis disease and 37.7% were risk factors free (table 4).

**Table (1):** gender and marital status:

Gender	Frequency	Percentage
Men	315	60.8
Women	208	39.2
Total	523	100
Marital status		
Men	344	65.8
Women	179	34.2
Total	523	100

**Table (2):** age distribution:

Age	Frequency	Percentage
0-18	26	5
18-30	367	70.2
30-45	92	17.6
45-60	27	5.2
>60	11	2
Total	523	100

**Table (3):** hernia repair procedure :

Hernia repair	Frequency	Percentage
Yes	20	3.8
No	503	96.2
Total	523	100

**Table (4):** risk factors of hernia repair

		Frequency	Percentage
Positive family history of hernia repair	Yes	152	29.1
	No	371	70.9
	Total	523	100
Obese	Yes	145	44.5
	No	181	55.5
	Total	326	100
Smoker	Yes	90	27.6
	No	236	72.4
	Total	326	100
High fat diet	Yes	84	25.8
	No	242	74.2
	Total	326	100
Chronic constipation	Yes	57	17.5
	No	269	82.5
	Total	326	100
Chronic cough	Yes	41	12.6
	No	285	87.4
	Total	326	100
Underwent major surgeries	Yes	27	8.3
	No	299	91.7
	Total	326	100
Diabetic	Yes	25	7.7
	No	301	92.3
	Total	326	100
Admitted to ICU	Yes	17	5.2
	No	309	94.8
	Total	326	100
Urinary retention	Yes	15	4.6
	No	311	95.4
	Total	326	100
Major traumas	Yes	7	2.1
	No	319	97.9
	Total	326	100
Atherosclerosis	Yes	4	1.2
	No	322	98.8
	Total	326	100
Risk free	Yes	197	37.7
	No	326	62.3
	Total	523	100

## DISCUSSION

The abdominal hernia and its procedures are a common complain between both males and females particularly the umbilical and para-umbilical hernia<sup>(7)</sup>. This study was done to know the prevalence of hernia repair procedure and its associated risk factors and conditions in Saudi Arabia.

In our study, we found that hernia repair procedure rate is increased in Saudi Arabia population. Among the 523 participants, 20 of them had a hernia repair procedure at a certain time of point with a 3.8% rate affection..

Hernia repair procedure in Saudi Arabia is one of the most common abdominal procedures in general surgical wards. In the U.K , the Natalie Dabbas study showed that, the relative frequency of different hernia types is inguinal, umbilical, epigastric, incisional, para-umbilical and femoral<sup>(9)</sup>.

In a study that was done at King Saud University, Riyadh, Saudi Arabia, showed that the adult para-umbilical hernia positive cases among females were 24.9% and among males were 23.3%<sup>(10)</sup>. Regarding hernia is bulging of a viscus various literature, umbilical and para-umbilical hernias were up to five times more prevalent in women, showing that pregnancy is a significant cause influence<sup>(11)</sup>.

In the present study, regarding the risk factors and associated conditions of hernia repair procedure, this study revealed that 152 of the 523 participants had a positive family history of hernia repair procedure.

Also, 145 of the participants suffered from obesity, 90 participants were smoker, 84 had eaten high fat diet, 57 suffered from chronic constipation and only 4 patients were diagnosed with atherosclerosis disease out of 326 participants. More than one third of the patients were having no risk factors that may lead to the procedure eventually.

The limitation of this study was that we could not compare most of our results with other studies that were done in Saudi Arabia since they were almost no studies about this topic and our sample size is not that big enough.

## CONCLUSION

We can conclude that hernia repair procedure rate and its associated risk factors are increased among people of Saudi Arabia community. Participants of this study had multiple risk factors and associated conditions that may lead to hernia repair procedure eventually. Ministry of health and doctors should work together to educate people about the risk factors that may lead to hernia repair procedure and how to deal with these risk factors in case they were present. People also should seek medical care once they feel any unusual pain feelings in the abdomen.

## REFERENCES

1. **Norman S, Christopher J, Ronan P et al.(2008):**Bailey & Love's Short Practice of Surgery. 25th ed. London: Edward Arnold. Chapter 57, Hernia.
2. **Dabbas N, Adams K, Pearson K et al.(2011):**Frequency of abdominal wall hernias: is classical teaching out of date? JRSM Short Rep.,2(1):5.
3. **Fitzgibbons RJ, Richards AT, Quinn TH(2002):** Open hernia repair. ACS Surgery, Principles and Practice. 6th ed. Available at: <https://pdfs.semanticscholar.org/a069/fa3cb3f8192e14d853fa3d6c4f413850eb21.pdf>
4. **Luijendijk RW, Lemmen MH, Hop WC et al.(1997):** Incisional hernia recurrence following "vest-over-pants" or vertical Mayo repair of primary hernias of the midline. *World J Surg.*,21:62–65.
5. **van der L , van V (1988):** Long-term results after surgical correction of incisional hernia. *Neth J Surg.*,40:127–129.
6. **Rains A, Capper W (1977):** Short Practice of Surgery. 15th ed. London: Lewis. Available at :<https://www.abebooks.com/Bailey-Loves-Short-Practice-Surgery-Sixteenth/10382847007/bd>
7. **Kingnorth A, LeBlanc KA(2003):** Management of abdominal hernias. 3rd Edition. London: Edward Arnold.
8. **Grant AM, Scott NW, O'Dwyer PJ et al.(2004):** Five-year follow-up of a randomized trial to assess pain and numbness after laparoscopic or open repair of groin hernia. *Br J Surg.*, 91(12):1570–1574.
9. **Dabbas N, Adams K, Pearson K et al.(2011):** Frequency of abdominal wall hernias: is classical teaching out of date? JRSM Short Rep; 2(1):5.
10. **Bedewi MA, El-Sharkawy MS, Al Boukai AA et al.(2012):** Prevalence of adult paraumbilical hernia. Assessment by high-resolution sonography: a hospital-based study. *Hernia*, 16(1):59–62.
11. **Russell R, Williams N, Bulstrode C(2000):** Bailey & Love's Short Practice of Surgery. 23rd Edition. London: Hodder Arnold.