

Medical students vs general public awareness regarding disc prolapse in Jeddah

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ABSTRACT

Background: Disc herniation is a condition where tearing occurs in the outer annular layer of the intervertebral pad leading the inner gel-like material to bulge outwards the spinal cord, due to the high load of the vertebrae. This will produce back pain and symptoms in different sites according to the level of the herniation in the vertebral column. **Aim:** To compare the level of awareness regarding disc herniation among the general population and medical students in Jeddah. **Methodology:** A descriptive cross-sectional study was conducted through an electronic questionnaire to assess the level of awareness regarding disc prolapse among the general population and medical students in Jeddah. The questionnaire was in the Arabic language, it was taken and validated by the previous study which took place in Taif. **Results:** Our studied sample involved 1026 individuals aged between 11 and 99 years, with a mean age of 34.03 ± 13.28 years old. More than half of the respondents were female (55.4%), most of them were Saudi nationals (90.1%), and most of them have received a higher education (67.7%). Results showed that 54.1% of the general population and 77.7% of medical students reported good knowledge regarding this condition. **Conclusion:** This study revealed that the level of awareness regarding disc prolapse among the general population and medical students was poor in some respects such as: knowledge about the preventive measures, symptoms of the disease, the most common site in the spine affected by the disease, and the gold standard imaging method to diagnose this disease.

Keywords: Cervical disc prolapse, disc herniation awareness in Jeddah, disc prolapse awareness in Jeddah, lumbar disc prolapse, radiculopathy

Introduction

Disc herniation is a condition in which tearing occurs in the outerannular layer of the intervertebral pad leading the inner gel-like material to bulge outwards the spinal cord due to the high load on the vertebrae. This will produce back pain and symptoms in different sites according to the level of the herniation in the vertebral column. Pressure or an immoderate strain can cause disc herniation. Besides, the disc material can rupture as people advance in age naturally and ligaments start to weaken.^[1,2] As the

degeneration process continues, a mild strain or twist can cause the disc to rupture.^[3] However, some people are more vulnerable to disc herniation at different sites along the spine (especially at L4–L5 or L5–S1 leading to lower back pain, or C5–C6 leading to upper back pain).^[4,5] The critical risk factors of disc herniation are aging, smoking, and obesity, all of which may result in lumbar disc herniation.^[6,7] Prolonged sitting without intermittent breaks can also increase the pressure on the disc.^[8,9] Studies show that people with the highest risk of getting disc herniation are those of ages between 30 and 50 years old.^[10,11] The patient with a herniated disc presents with pain in the back accompanied by paresthesia, sensory loss, or muscle weakness. Physical findings are localized tenderness, reduction in the range of motion, and radiculopathy with provocative testing of the lower limbs.^[12-14] Regarding disc

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Received: 08-01-2020

Revised: 12-03-2020

Accepted: 22-03-2020

Published: 30-06-2020

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_36_20

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How to cite this article: Alamri ZA, Althobaiti NK, Halabi AT, Bashraheel HO, Shalwala AR, Alyousef MA. Medical students vs general public awareness regarding disc prolapse in Jeddah. J Family Med Prim Care 2020;9:3030-6.

prolapse treatment, more than 70% of the patients are relieved by conservative therapy, which includes physiotherapy; however, the surgical method is the treatment of choice, which provides better long-term benefits.^[12,15]

A few studies were done in Saudi Arabia regarding disc prolapse awareness. A study was done in Taif in 2016 involving 1034 participants to investigate the level of awareness regarding disc herniation among people in Taif. The study showed good knowledge about the disease itself, however, participants had a lack of knowledge about risk factors and preventive methods of disc herniation.^[16]

Another study took place in Aseer province on March 2019 involving 1044 participants aged between 15 and 70 years old to assess the awareness of the general population regarding disc herniation and to identify the predictors for their awareness. The study participants showed poor awareness levels regarding all the aspects of disc herniation.^[17]

No previous studies were done in Jeddah, and therefore this study aims to measure the level of awareness about disc herniation among the general population and medical students in Jeddah.

Methodology

This descriptive, cross-sectional study was conducted through an electronic questionnaire to assess the level of awareness regarding disc prolapse among the general population and medical students in Jeddah. The study was certified by the King Abdulaziz University Hospital Research Ethics Committee on 4/11/2019. The questionnaire was in the Arabic language, it was taken and validated by the previous study which took place in Taif.^[13] Data were collected in June 2019 at King Abdulaziz University. The type of sample was a convenient sample, and the study involved 1026 participants from both sexes. Inclusion criteria included any participant from the general population and medical students living in Jeddah. The first section of the questionnaire was about socio-demographic data, which included age, sex, nationality, educational level, marital status, and the academic year for medical students, and occupation for the general public. The second section involved questions concerning knowledge and awareness about disc prolapse. The third section involved questions regarding knowledge about risk factors of disc prolapse.

Data analysis

After collection, data were revised, coded, and then analyzed using IBM SPSS version 21. The given figures were formed using Microsoft Excel. All scientifically correct answers for awareness elements were given a score of 1 point. Then all correct answers were summed to have an ultimate score. The score was then converted to score percent by dividing the actual score by the highest score (19 points) and classified as *poor awareness* for individuals who scored 50% or less, and a *good* level for those who had a score above 50%. The study variables were labeled by frequency distribution with a percentage (%). Regarding the

characteristics of the participants, Chi-square was applied to describe the relation between them and evaluate the differences between the categorical variables.

Results

Our studied sample involved 1026 individuals aged between 11 and 99 years old, with a mean age of 34.03 ± 13.28 years. More than half of the participants were female (55.4%). Most of the respondents were Saudi nationals (90.1%), and over two thirds have received a higher education (67.7%).

Also, the greater portion of the participants were married, 53.5%; 52.9% were employed; and 34.6% worked in education. Medical students composed 21.8% of the sample, and most of them were from the clinical years, 75% [Tables 1 and 2].

The results showed that 54.1% of the general population and 77.7% of medical students reported good knowledge regarding the disease. Only a few respondents from the general population and medical students revealed that they have suffered from a previous disc prolapse, they represented 10.5% and 4%, respectively. Regarding any history of disc prolapse in the family, 40% of the general population and medical students had positive cases, and 90% of them had one to four affected family members. Also, 1.9% of the general population revealed that the number of cases in their family was more than 10. Concerning disc prolapse treatment, 87.9% of medical students and 76.4% of the general population thought that disc prolapse is curable. Regarding the type of treatment, 58.6% of the general population reported that physiotherapy is the treatment of choice, whereas 55.5% of medical students reported that surgical therapy is the treatment of choice; and only 6.7% of the general population reported that the alternative medicine is the best type of treatment. Concerning visiting an awareness activity about the disease, 94.6% of medical students and 93.9% of the general population have never visited awareness campaigns. Regarding the diagnostic method, 64.6% of the general population and 72.4% of medical students considered magnetic resonance imaging (MRI) as the best diagnostic method [Table 3].

The results showed that half of the participants had good knowledge about the disease (50.8% among males and 49.2% among females). Most of the participants who revealed good knowledge were Saudi nationals, and they represented 91.9%. Concerning marital status, 52% of the participants who reported good knowledge were married. According to the educational level, most of the participants who reported good knowledge have received a higher education, and they represented 73.3%, whereas only 1.8% of the primary educated participants reported good knowledge. Concerning the academic year among medical students, more than half of the individuals who reported good knowledge were from the clinical years, and they represented 58.5%. Regarding the occupational field, most of the respondents who reported good knowledge were working in the educational field, and they represented 33.3% [Table 4].

Table 1: Sociodemographic characteristics of the studied sample

Variable	Frequency (n) (1026)	Percent %
Age	Mean±Std. Deviation 34.03±13.28	
Gender		
Male	458	44.6%
Female	568	55.4%
Marital status		
Single	439	42.8%
Married	549	53.5%
Divorced / widow	38	3.7%
Educational level:		
Primary	14	1.7%
Secondary	37	4.6%
University and above	208	25.9%
None	543	67.7%
Academic year		
Med 18	39	17.4%
Med 17	17	7.6%
Med 16	74	33.0%
Med 15	75	33.5%
Med 14	19	8.5%
Nationality		
Saudi	924	90.1%
Non Saudi	102	9.9%
Type of occupation		
Office	158	21.0%
Handiwork	13	1.7%
Military	60	8.0%
Housewife	188	25.0%
Health	37	4.9%
Educational	260	34.6%
Others	35	4.7%
Occupational length		
1-5	124	1.4%
6-10	90	15.5%
11-15	62	10.7%
16-20	77	13.3%
More than 20	226	39.0%

Table 2: Sociodemographic data among the general population and medical students in Jeddah

Studied Sample	Medical Students (n=224)		General Population (n=802)	
	No.	Percentage	No.	Percentage
Age	Mean±S.D 23.09±5.92		Mean±S.D 37.09±13.15	
Gender				
Male	131	58.5%	327	40.8%
Female	93	41.5%	475	59.2%
Nationality				
Saudi	214	95.5%	710	88.5%
Non-Saudi	10	4.5%	92	11.5%
Educational Level				
Primary			14	1.7%
Middle			37	4.6%
High school	-	-	208	25.9%
University and above			543	67.7%
Marital Status				
Single	210	93.8%	229	28.6%
Married	13	5.8%	536	66.8%
Divorced/Widowed	1	0.4%	37	4.6%
Academic year				
Preclinical years	56	25%		
Clinical years	168	75%	-	-
Occupation				
Employed			424	52.9%
Unemployed	-	-	378	47.1%
Type of occupation				
Office			158	19.7%
Handiwork	-	-	13	1.6%
Military			60	7.5%
Housewife			188	23.4%
Health-care provider			37	4.6%
Education			260	32.4%
Other			35	4.4%
Occupational length				
1-5			124	15.5%
6-10			90	11.2%
11-16	-	-	62	7.7%
16-20			77	9.6%
More than 20			226	28.2%

Discussion

This study assessed the level of awareness regarding disc herniation among medical students and the general population in Jeddah. It was found that most of the medical students and the general population had good knowledge about the disease in some respects such as: whether the disease is curable or not, the treatment, and diagnostic method of choice. Only a few participants from the general population thought that disc herniation could be treated with alternative medicine.

Our study findings are similar to a previous study which took place in Taif where most of the participants thought that bad habits and the lack of knowledge would increase the risk of disc prolapse. Furthermore, most of the participants thought that bad diagnosis is one of the main causes to worsen the disease symptoms. Also, more than half of the participants thought that increased age and obesity would eventually lead to disc prolapse. Some of the findings in Taif study are inconsistent to our study

in which they reported that most of the participants did not know the gold standard imaging as the method of choice to diagnose the disease, also most of the participants did not know the preventive methods and the analgesics that can be used to relieve symptoms of the disease.^[16]

Our study contrasts with a previous study which took place in Aseer, even though most of the participants have received higher education, the studied population revealed poor level of knowledge regarding the disease risk factors, preventive measures, and treatment.^[17]

Our study and the previous studies findings were similar in which most of the participants have not visited any awareness campaigns about disc prolapse, which might be one of the main causes of poor awareness level.

Table 3: Distribution of the studied sample according to knowledge score regarding disc prolapse among the general population and medical students in Jeddah

Studied	Sample	Medical Students (224)		Population (802)		Significant Tests <i>P</i>
		No.	%	No.	%	
Knowledge						
Poor		50	22.3%	368	45.9%	0.00*
Good		174	77.7%	434	54.1%	
Knows what is Disc Prolapse						
Yes		189	84.4%	524	65.3%	0.00*
No		35	15.6%	278	34.7%	
Have a Disc Prolapse						
Yes		9	4%	84	10.5%	0.00*
No		215	96%	718	89.5%	
Know the Disc Prolapse risk factors						
Yes		142	63.4%	351	43.8%	0.00*
No		82	36.6%	451	56.2%	
Know how to deal with Disc Prolapse						
Yes		64	28.6%	158	19.7%	0.00*
No		160	71.4%	644	80.3%	
Know how to prevent the Disc Prolapse						
Yes		99	44.2%	251	31.3	
No		125	55.8%	551	68.7	0.00*
Thinks that analgesics can be used always to manage the Disc Prolapse symptoms						
Yes		45	20.1%	123	15.3%	
No		132	58.9%	485	60.5%	.197
I don't know		47	21%	194	24.2%	
Any history of Disc Prolapse in the family						
Yes		91	40.6%	327	40.8%	0.00*
No		133	59.4%	363	45.3%	
I don't know		0	0%	112	14%	
If yes, Number of cases						
1-4		96	97%	343	92.7%	.369
5-7		3	3%	18	4.9%	
7-10		0	0	2	0.5%	
More than 10		0	0	7	1.9%	
Thinks that Disc Prolapse can be treated						
Yes		197	87.9%	613	76.4%	0.00*
No		12	5.4%	46	5.7%	
I don't know		15	6.7%	143	17.8%	
If yes, the type of treatment						
Pharmacotherapy		2	1%	24	3.6%	0.00*
Surgical therapy		111	55.5%	211	31.2%	
Physiotherapy		86	43%	396	58.6%	
Alternative medicine		1	0.5%	45	6.7%	
Visited an awareness activity about Disc Prolapse						
Yes		12	5.4%	49	6.1%	0.07
No		212	94.6%	753	93.9%	
12-If yes, the place						
Institution		7	58.3%	19	44.2%	0.589
Public places		5	41.7%	24	55.8%	
Thinks that the bad habits will increase the risk of Disc Prolapse						
Yes		205	91.5%	652	81.3%	0.00*
No		5	2.2%	32	4.0%	
I don't know		14	6.3%	118	14.7%	
Thinks that the lack of knowledge will increase the risk of the disc prolapse						
Yes		200	89.3%	658	82%	0.00*
No		13	5.8%	62	7.7%	
I don't know		11	4.9%	83	10.2%	

Cont....

Table 3: Continued...

Thinks that the bad diagnosis of the disc prolapse is one of the reasons for severe Disc Prolapse					
Yes	201	89.7%	657	81.9%	0.00*
No	10	4.5%	42	5.2%	
I don't know	13	5.8%	103	12.8%	
Thinks that the regular exercise will prevent you from the Disc Prolapse					
Yes	165	73.7%	559	69.7%	0.271
No	17	7.6%	90	11.2%	
I don't know	42	18.8%	153	19.1%	
Knows the correct way to bake up something from the floor					
Yes	188	83.9%	524	65.3%	0.00*
No	36	16.1%	278	34.7%	
Thinks that increased age will produce Disc Prolapse					
Yes	178	79.5%	529	66%	
No	14	6.3%	119	14.8%	0.00*
I don't know	32	14.3	154	19.2%	
Thinks that increased age will produce Disc Prolapse					
Yes					
No	169	75.4%	492	61.3%	0.00*
I don't Know	20	8.9%	133	16.6%	
	35	15.6%	177	22.1%	
Knows the symptoms of the Disc Prolapse					
Yes	114	50.9%	283	35.3%	0.00*
No	110	49.1%	519	64.7%	
Knows the diagnostic method for the Disc Prolapse					
Yes	88	39.3%	177	22.1%	0.00*
No	136	60.7%	625	77.9%	
Knows the most common site of the spine affected by the Disc Prolapse					
Yes	97	43.3%	334	41.6%	0.713
No	127	56.7%	468	58.4%	
Thinks that Disc Prolapse more common in Jeddah city					
Yes					
No	74	33%	208	25.9%	
I don't know	23	10.3%	143	17.8%	0.00*
	127	56.7%	451	56.2%	
Knows the best modality in radiology department to diagnosis the Disc Prolapse					
Yes	115	51.3%	259	32.3%	0.00*
No	109	48.7%	543	67.7%	
If yes, the best method					
-MRI	84	72.4%	170	64.6%	
-CT	13	11.2%	60	22.8%	
-X-RAY	19	16.4%	29	11%	
-US	0	0%	4	1.5%	0.00*

Limitations

Despite the large number of respondents in this study, all were educated and most of them were from the general population. Medical students represented less than one third of the studied sample. The comparison between the general population and medical students in this study probably led to less representative results since there was a significant difference in the sample stratification and size between both groups.

Conclusion And Recommendations

This study revealed that the level of awareness regarding disc

prolapse among the general population and medical students was poor in some respects such as: knowledge about the preventive measures, symptoms of the disease, the most common site in the spine affected by the disease, and the gold standard imaging method to diagnose this disease. This is a common disease that presents in the primary healthcare centers, increasing the level of awareness among both medical students and the general population would contribute significantly in reducing the burden and load over the primary healthcare centers and family physicians, whether by providing the scientific material in educational facilities or establishing awareness campaigns in public places such as commercial centers, hospitals, and schools.

Table 4: Distribution of the studied sample according to the knowledge score among the studied sample

Knowledge	Poor		Good		Significant Tests <i>P</i>
	No.	Percentage	No.	Percentage	
Gender					
Male	149	35.6%	309	50.8%	0.00*
Female	269	64.4%	299	49.2%	
Nationality					
Saudi	365	87.3%	559	91.9%	0.02*
Non-Saudi	53	12.7%	49	8.1%	
Educational Level					
Primary	6	1.6%	8	1.8%	0.00*
Middle	16	4.3%	21	4.8%	
High school	121	32.9%	87	20%	
University and above	225	61.1%	318	73.3%	
Marital Status					
Single	173	41.4%	266	43.8%	0.31
Married	233	55.7%	316	52%	
Divorced/Widowed	12	2.9%	26	4.3%	
Academic Year					
Preclinical years	13	5.8%	43	19.2%	1.00
Clinical years	37	16.5%	131	58.5%	
Medical/Public					
Medical	50	4.9%	174	17%	0.00*
Public	368	35.9%	434	42.3%	
Occupation					
Employed	166	45.1%	258	59.4%	0.00*
Unemployed	202	54.9%	176	40.6%	
Type of Occupation					
Office	66	19.1%	92	22.7%	0.00*
Handiwork	5	1.4%	8	2%	
Military	28	8.1%	32	7.9%	
Housewife	104	30.1%	84	20.7%	
Health-care provider	8	2.3%	29	7.1%	
Education	125	36.2%	135	33.3%	
Other	9	2.6%	26	6.4%	
Occupation length					
1-5	67	26.7%	57	17.4	0.02*
6-10	43	17.1%	47	14.3	
11-16	23	9.2%	39	11.9	
16-20	35	13.9%	42	12.8	
More than 20	83	33.1%	143	43.6	

The superscript (*) means that there is statistical significance

Acknowledgement

This study was held in Road of Change Research Summer School as part of their groups, it is a peer to peer teaching program specific to teaching students how to conduct research, we would like to thank them for their significant contributions to the paper. Special thanks to Dr. Suzan Alkhodair for valuable English language editing and comments that were needed to complete our paper. We would like to thank the following interns and medical students: Mohammed Alsafhi, Salah Shihata, Mohammed Albakri, Fatimah Swead, Dr. Bayan Almuzaini for their data collection and constant support.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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