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## Prevalence and Risk Factors of Lower Back Pain among Street Cleaners Staff in Dawadmi City, KSA



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HUMAN

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### ABSTRACT

**Background:** Lower back pain is the pain located below the margin of the 12<sup>th</sup> rib and above the inferior gluteal. It is one of the musculoskeletal disorders that are prevalent around the world as a common health problem in the workplace. There are various risk factors of lower back pain like age, occupation, smoking, obesity, heredity, lifting heavy things, and some diseases such as cancer and arthritis. **Objective:** To determine the prevalence and risk factors of lower back pain among street cleaners staff in Dawadmi city. **Methods:** We performed the cross-sectional study it will include 150 members of street cleaners staff selected randomly by convenience sampling in the period of 1 September to 31 October 2019. We interviewed administrated questionnaire including multiple-choice and end close yes or no question. We have collected the data and drawn a bar chart for qualitative variables and a histogram for quantitative variables. **Results:** We expected that 110 out of 150 participants approximately 73.3% they are suffering from lower back pain where the severity of pain will be between moderate to mild. We expected that most age groups have many cases of lower back pain was from 35 to 45. We expect from 110 who suffered from low back pain 90 of them work more than 6 hours per day, 45 they smoke, 27 play sport, 21 have a family history of low back pain, 66 carry or pushing heavy things, 15 have been beaten on the back, 7 had surgery on the back, 30 have fallen out on the back.



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## **INTRODUCTION:**

Low back pain is defined as pain or discomfort located below the margin of the 12<sup>th</sup> rib and above the inferior gluteal fold with or without leg pain [1]. It is a common health problem in the workplace among cleaners [2]. The literature reported the prevalence of low back pain among the general population ranges between 15 and 45 % [3], globally. In Saudi Arabia, the prevalence of low back pain among the general population is estimated to be 18.8% according to a single study conducted in Al-Qaseem. Most workers are expected to experience symptoms of low back pain during their life [4]. Low back pain has a profound impact both directly and indirectly on individual workers and their families, industries, and governments. Direct healthcare cost for low back pain has been reported to range from 50\$ to 90.7\$ billion yearly in the United States [5]. Total costs of direct medical expenditures and loss of work productivity combined related to low back pain have been estimated to be as high as 635\$ billion annually in the United States [6]. Occupational low back pain is a common health problem worldwide. This problem was found to be associated with major consequences in terms of disability and frequent absence [7]. Low back pain might lead to activity limitation. It has been reported that obesity, smoking, some disease like cancer and arthritis, anxiety, and depression are some examples of risk factors commonly associated with low back pain [8]. Sports and regular physical activity were found to decrease low back pain [9]. The street activity was performed manually, thus exposing the worker to a series of occupational risks, especially those related to physical work overload, as in the case of musculoskeletal impairment [10]. The role of the physical load caused by frequent trunk flexion and rotation, lifting and/ or carrying load, whole-body vibration, and heavy physical work in the occurrence of low back pain has been widely documented [11]. Although there are various researches in literature have been written about the prevalence and risk factors of low back pain in Saudi Arabia and around the world but there is a paucity of research written about the prevalence and risk factors of low back pain in Dawadmi city in Saudi Arabia especially street cleaners staff which give us this gap in literature so we will conduct this research to determine the prevalence and risk factors of low back pain among street cleaners staff in Dawadmi city.

## **MATERIALS AND METHODS:**

We have performed the cross-sectional study at the street of Dawadmi city in Saudi Arabia. The subjects included in the study were included the street cleaners staff of different

nationalities in Dawadmi city. We have selected 150 street cleaners staff to participate in this research; the subjects were selected randomly based on the availability at the street in their working time from 5 am to 9 am by convenience sampling in the period of 1 September to 31 October 2019. We have performed the interviews administrated questionnaire including multiple-choice and end close yes or no question. The questionnaire was composed of the following items: age, height, weight, the presence of low back pain, severity of low back pain, marital status, plying sport, time of work per day, smoking, family history of low back pain, carrying or pushing heavy things, beaten on the back, had surgery on the back and fallen out on the back. One of the difficulties observed during the interviews was that the street cleaners staff does not speak Arabic or English in a way that could help us to gather information by questionnaire so the help of the translator was arranged who helped us in translating the questions in the questionnaire to the language of the participants and the answers were recorded in English or Arabic. We have collected the data from the questionnaire which we have distributed to the street cleaners staff in Dawadmi city. Then we prepared the descriptive statistics bar chart for qualitative variables and histogram for quantitative variables. Also, we have calculated the body mass index to see if they have obesity or not.

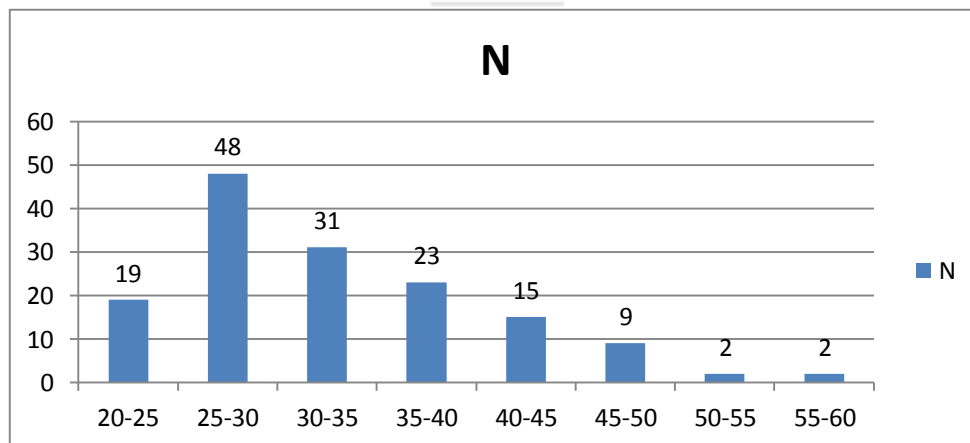
## RESULTS AND DISCUSSION:

To assess the prevalence and risk factors of low back pain among street cleaners, 150 subjects were considered from the Dawadmi region. A variety of parameters were investigated to understand the level and the proposed causes of the lower back pain such as the relation of age, height, weight, marital status, number of working hours, smoking, carrying heavy things, beaten on the back, fallen out on the back. All the 150 subjects for the study were divided into different age groups and the distribution revealed that out of the highest no of the subject belongs to the age of 25-30 years **Table-1, Figure-1**. The questionnaire was presented to all the subjects under investigation and it was observed that 54.7 % of the subjects replied positively for the lower back pain **Table-2, Figure-2**. The results of the relationship between height and lower back pain revealed that the subjects with more than 169.00 cm height are at high risk for lower back pain **Table-3, Figure-3**. On the other hand, the subjects with a weight of more than 67 kg are found at high risk for lower back pain **Table-4, Figure-4**. It was also observed that the marital status as married and the more load of the working hour is one of the major risk factors for lower back pain **Table-5, 6, Figure-5, 6**. The study of the relationship between smoking and lower back pain was revealed that there is no such

contribution of the habit of smoking of street cleaners with the lower back pain **Table 7, Figure-7**. Carrying heavyweights on the back was also observed as one of the major risk factors for the lower back pain in street cleaners **Table-8, Figure-8**. The parameters like hitting injury at the back and fall at back were not observed as one of the major risk factors **Table-9, 10 (a, b), Figure-9, 10 (10 a,b)**. **Discussion:** The prevalence and risk factors of low back pain Have been studied in different regions in Saudi Arabia and around the world (13-15), but still there is a paucity of studies written about the prevalence and risk factors of low back pain in Dawadmi city of Saudi Arabia especially the street cleaners staff so we have conducted the study on 150 street cleaners staff in Dawadmi region of Saudi Arabia. The prevalence of low back pain in this study that was conducted on 150 participants was found to be 54.7% compared to two studies conducted in Saudi Arabia where the number of participants was between 100 and 300 participants the prevalence of low back pain in Salameh and Abdalhamed study was 61.3% (13) and the prevalence of low back pain in Moath Bin Homaid et al study was 74.2% (16) and this means that the prevalence of low back pain in Saudi Arabia was high. In a recent study we observed that the most age group suffering from low back pain was 25 to 29 There were 24 participants with a percentage of 29.26%, then 30 to 34 there were 15 participants 18.29% and then 35 to 39 there were 14 participants 17.07% these results were almost similar to two studies performed by Moath Bin Homaid et al. reported that the most age group suffer from low back pain was 25 to 34 there were 38 participants 42.69% and then 35 to 44 there were 27 participants 30.33% (16). Another study from Turki Hamdan Alzidani et al reported that the most age group suffer from low back pain was less than 30 there were 33 participants 32.67% and then from 31 to 40, there were 32 participants 31.68% (17). Our study revealed that most severity of low back pain is moderate that matched the study of Moath Bin Homaid et al and the study of Turki Hamdan Alzidani et al and oppose the study of Salameh and Abdalhamed that revealed that most severity of pain was mild (13,16,17). In this study, the most common risk factors of low back pain are smoking, carry heavy things, and falling out on the back where they resemble a study of Turki Hamdan Alzidani et al that revealed that smoking and carry heavy things is the most common risk factors of low back pain (17). We observed that those who do not have physical activity, develop low back pain more than those who do it, by 1.9 times, and who have psychosocial demand have more frequency than those who don't have psychosocial demand by 2 times, while in Other research that has made by Silvana Maria Santos Pataro I and Rita de Cássia Pereira Fernandes in Brazil, observed that who performed more dynamic work were more protected for low back pain about those who did not perform those activities.

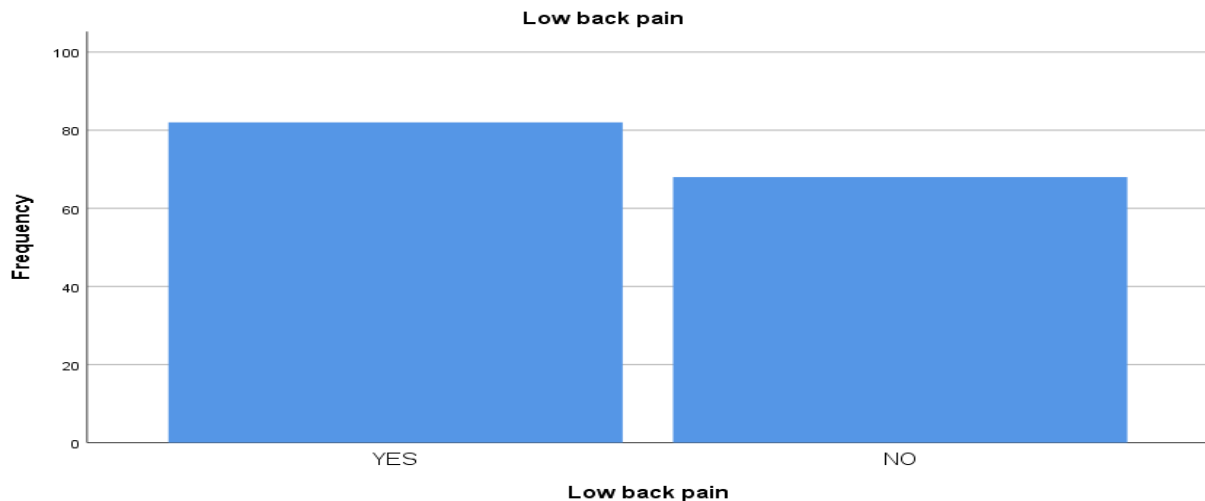
Workers exposed to a higher psychosocial demand had 1.63 times more low back pain than the ones who were not exposed (18).

Age group	N(150)	Percentage
20-25	19	12.66%
25-30	48	32.00%
30-35	31	20.66%
35-40	23	15.33%
40-45	15	10.00%
45-50	9	6.00%
50-55	2	1.33%
55-60	2	1.33%



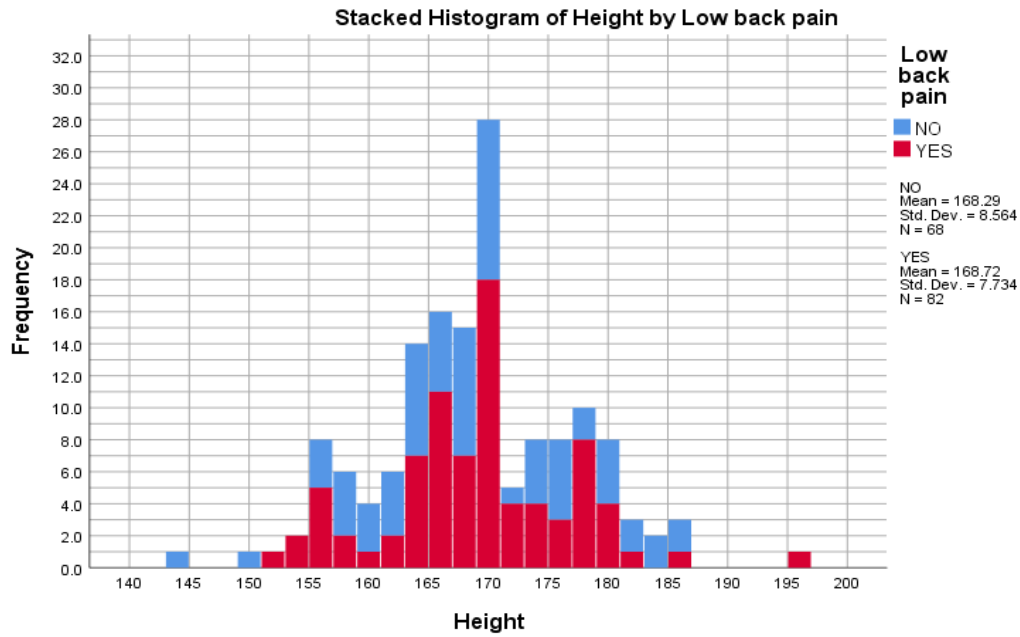
**Table No. 1, Figure No. 1: Reveals the 150 subjects were divided into different age groups and out of the highest no of the subject belongs to the age of 25-30 years**

Low back pain					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO	68	45.3	45.3	45.3
	YES	82	54.7	54.7	100.0
	Total	150	100.0	100.0	



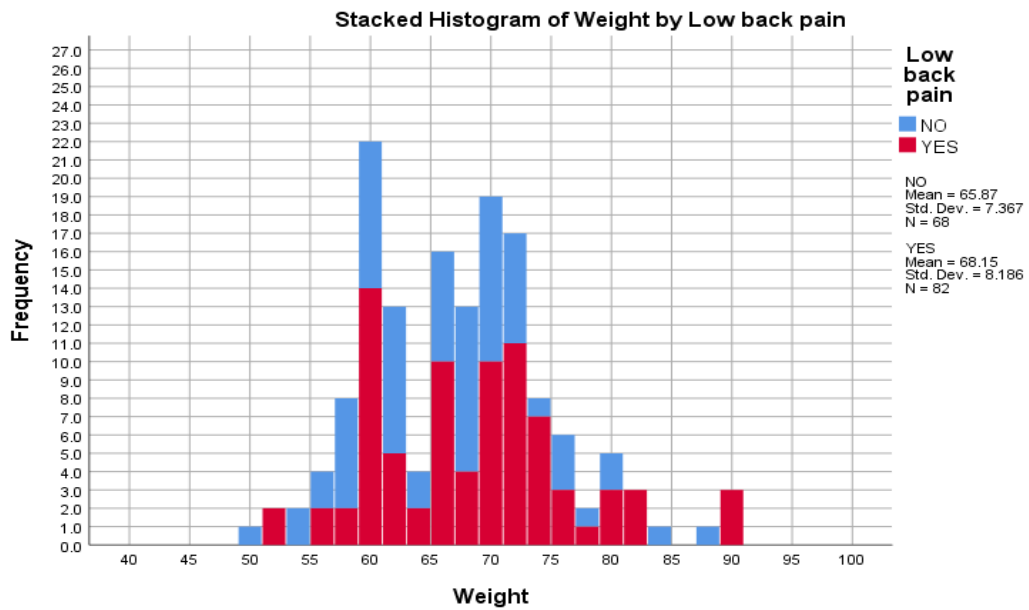
**Table No. 2, Figure No. 2: On the basis of questionnaires asked to 150 subjects 54.7% were having lower back pain.**

Statistics		
Height		
N	Valid	150
	Missing	0
Mean		168.53
Median		169.00
Mode		170
Minimum		144
Maximum		195



**Table No. 3, Figure No. 3: Relation of height and lower back pain**

Statistics		
Weight		
N	Valid	150
	Missing	0
Mean		67.11
Median		67.00
Mode		60
Minimum		50
Maximum		90

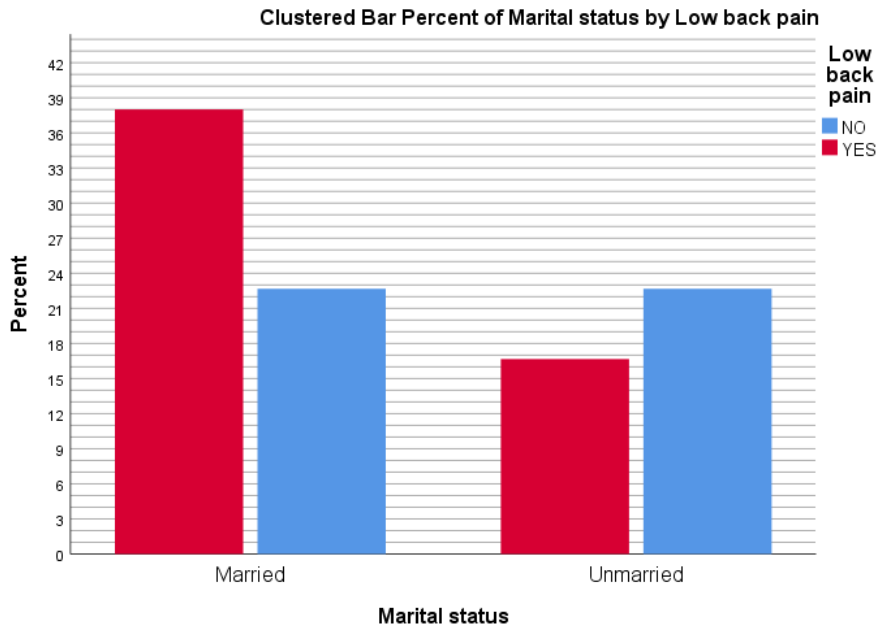


**Table No. 4, Figure No. 4: Relation of weight and lower back pain**

Marital status * Low back pain Crosstabulation				
Count				
		Low back pain		Total
		YES	NO	
Marital status	Married	57	34	91
	Unmarried	25	34	59
Total		82	68	150

Marital status					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Married	91	60.7	60.7	60.7
	Unmarried	59	39.3	39.3	100.0
	Total	150	100.0	100.0	





**Table No. 5, Figure No. 5: Relation of married status and lower back pain**

<b>Working hours per day * Low back pain Crosstabulation</b>				
Count				
		Low back pain		Total
		YES	NO	
Working hours per day	From 4 to 5 h	4	2	6
	From 6 to 7 h	7	10	17
	More than 8 h	71	56	127
Total		82	68	150

<b>Working hours per day</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	From 4 to 5 h	6	4.0	4.0	4.0
	From 6 to 7 h	17	11.3	11.3	15.3
	More than 8 h	127	84.7	84.7	100.0
	Total	150	100.0	100.0	

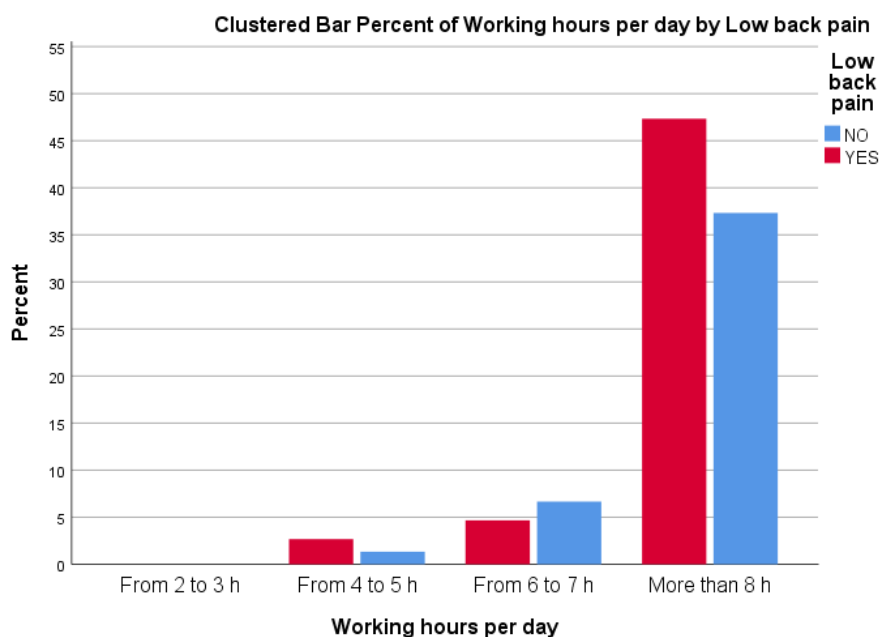


Table No. 6, Figure No. 6: Relation with working hours and lower back pain

Smoking * Low back pain Crosstabulation				
Count				
		Low back pain		Total
		YES	NO	
Smoking	YES	46	29	75
	NO	36	39	75
Total		82	68	150

Smoking					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	75	50.0	50.0	50.0
	NO	75	50.0	50.0	100.0
	Total	150	100.0	100.0	

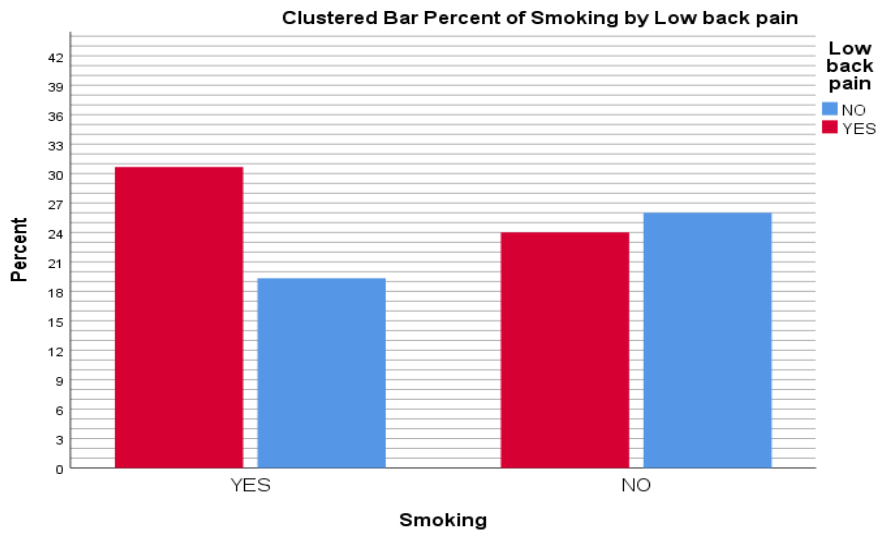
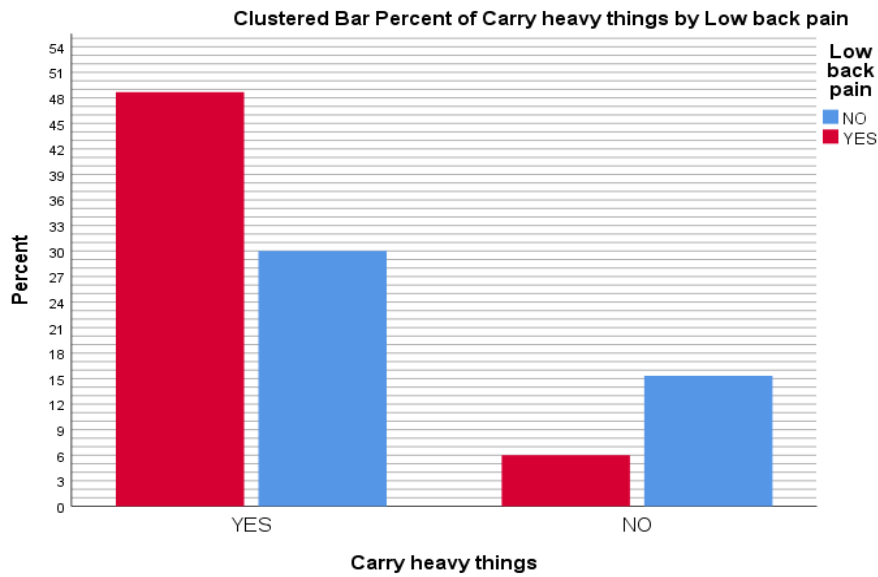


Table No. 7, Figure No. 7: Relation with smoking and lower back pain

Carry heavy things * Low back pain Crosstabulation				
Count				
		Low back pain		Total
		YES	NO	
Carry heavy things	YES	73	45	118
	NO	9	23	32
Total		82	68	150

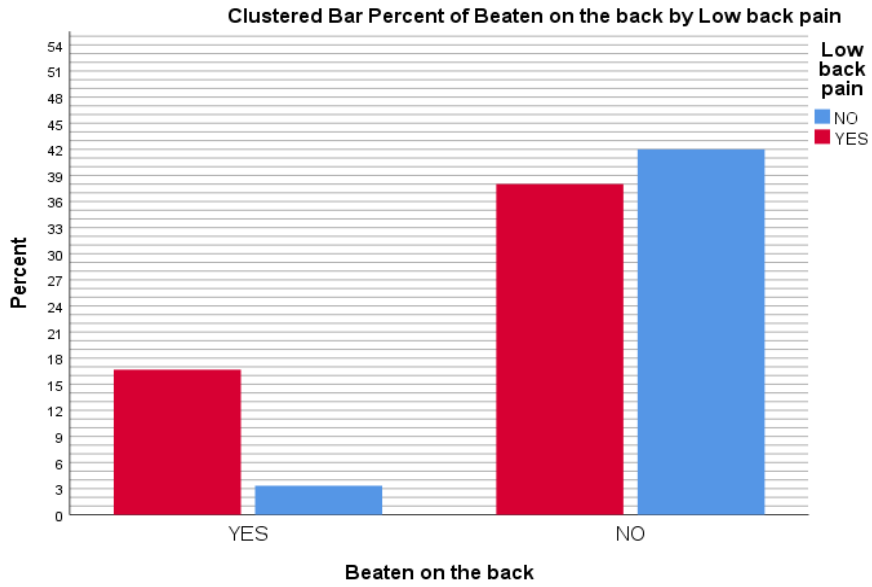
Carry heavy things					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	118	78.7	78.7	78.7
	NO	32	21.3	21.3	100.0
	Total	150	100.0	100.0	



**Table No. 8, Figure No. 8: Relation with carrying heavy things and lower back pain**

<b>Beaten on the back * Low back pain Cross-tabulation</b>				
Count				
		Low back pain		Total
		YES	NO	
Beaten on the back	YES	25	5	30
	NO	57	63	120
Total		82	68	150

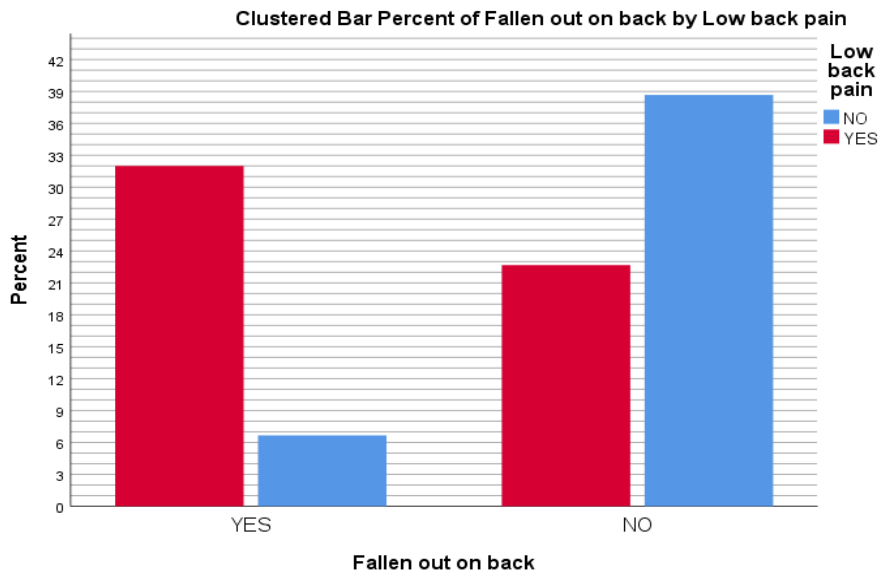
<b>Beaten on the back</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	30	20.0	20.0	20.0
	NO	120	80.0	80.0	100.0
	Total	150	100.0	100.0	



**Table No. 9, Figure No. 9: Relation with beaten at back and lower back pain**

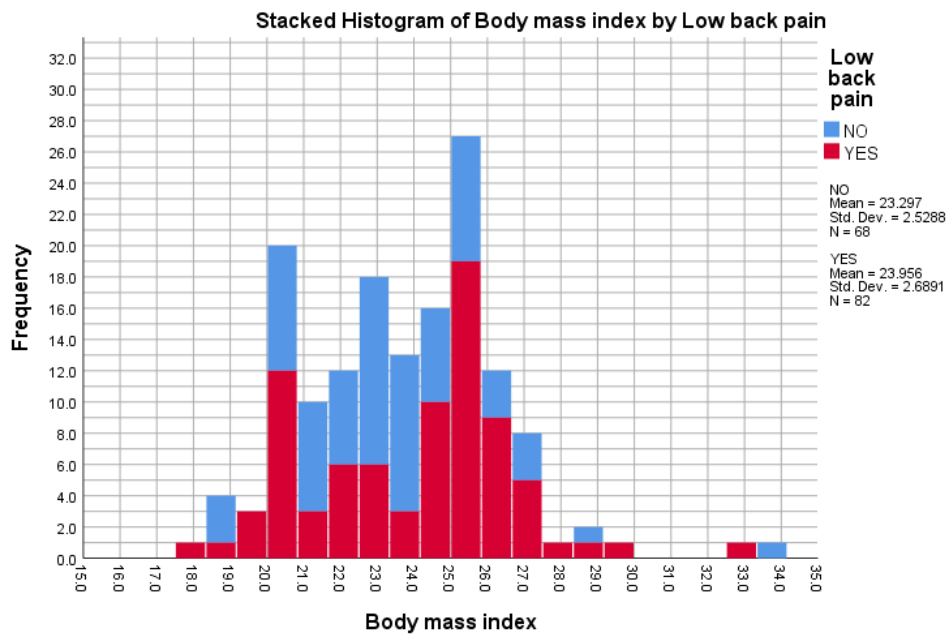
<b>Fallen out on back * Low back pain Crosstabulation</b>				
Count				
		Low back pain		Total
		YES	NO	
Fallen out on back	YES	48	10	58
	NO	34	58	92
Total		82	68	150

<b>Fallen out on back</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	YES	58	38.7	38.7	38.7
	NO	92	61.3	61.3	100.0
	Total	150	100.0	100.0	



**Table No. 10 a, Figure No. 10a: Relation with fallen at back and lower back pain**

Statistics		
Body mass index		
N	Valid	150
	Missing	0
Mean		23.657
Median		23.750
Mode		20.8 <sup>a</sup>
Minimum		18.2
Maximum		33.9



**Table No. 10 b, Figure No. 10 b: Relation with fallen at back and lower back pain**

**CONCLUSION:**

The recent cross sectional study aimed to assess the prevalence and risk factors of low back pain among the street cleaners, in Dawadmi city of Kingdom of Saudi Arabia. The study was carried out using questionnaire on 150 subjects through random selection and the findings were recorded. The findings were revealed that 73.3 % participants were suffering from lower back pain according to the age 35 to 45. In recent study we observed that the most age group suffering from low back pain was 25 to 29. There were 24 participants with a percentage of 29.26%, then 30 to 34 and 15 participants with a percent of 18.29% and then 35 to 39 there were 14 participants with a percent of 17.07%. It was also observed that our findings strongly recommended the previous studies.

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