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PREVALENCE AND THE ASSOCIATED RISK FACTORS OF LOW BACK PAIN AMONG ACADEMIC STAFF AT MAJMAAH UNIVERSITY, SAUDI ARABIA

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Abstract:

Introduction: *Low back pain (LBP) is one of the most common musculoskeletal conditions worldwide, presenting a significant economic burden in terms of lost income, care, and compensation. It has a major effect on people's quality of life.* ***Methodology:*** *This was an observational cross-sectional study conducted among academic teaching staff at Majmaah University, Saudi Arabia, to estimate the prevalence and risk factors associated with LBP. A self-administered questionnaire was distributed to collect the required data from the university teaching staff.* ***Results:*** *A total of 290 participants were included; 72.1% were males and with a mean age (40.72 ± 6.42). The prevalence of LBP was 85.9%. There was a significant association between the frequency of LBP and years of experience (P=0.000), average working hours per day (P=0.024), hours spent sitting daily (P=0.000), moving around during office hours (P=0.000), and leaving the work due to back pain (P=0.000).* ***Conclusion:*** *A high LBP prevalence among the academic teaching staff at Majmaah University, Saudi Arabia, was reported. Males, non-Saudi, smokers, and participants with long years of experience were more frequent to have LBP. Sitting position for long hours is associated with a higher risk of LBP. Patients with diabetes, hyperparathyroidism, osteoporosis, musculoskeletal disorders, and calcium deficiency were significantly associated with higher LBP prevalence.*

Keywords; *low back pain, prevalence, University teaching staff, Saudi Arabia*

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INTRODUCTION:

Globally, LBP is one of the leading musculoskeletal disorders causing a significant economic burden in terms of lost wages, treatment, and compensation. It is responsible for a considerable impact on the quality of life (1).

This pain usually takes place in the lumbosacral region in the back. Sickness absenteeism from work is an essential indicator of LBP-related disability.

Among the major inflammatory and degenerative conditions that affect humans' ambulation, disorganization affecting the musculoskeletal system caused by nature and activities at the workplace is a significant cause of LBP (2, 3). Disorganization of the musculoskeletal system may manifest by feelings of physical suffering in muscle fibers, fasciae, ligaments and neuromuscular system (4).

Tendencies for musculoskeletal pain are related to the nature of occupation and the nature of the activities attached to this occupation (5). LBP can be due to several factors, including individual characteristics, working conditions, lifestyle factors and psychological factors.

LBP is considered the most common reason for functional disability worldwide and was estimated to affect 90% of the universal population. The point prevalence was reported between 21.5% and 57% (6-8). One-year prevalence was reported between 37.8 - 61.3% (9). The 6-month prevalence was reported between 40.8 - 42.6% (10), and the lifetime prevalence was reported between 61.6 - 70% (7). As part of the Global Burden of Disease Study (GBD), the Expert Group showed that LBP pain is among the top ten high burden diseases and injuries, with an average number of disability-adjusted life years (DALYs).

In Saudi Arabia, 54% of dentists and dental auxiliaries complained of neck pain, and 74% complained of back pain (11). LBP was the most prevalent work-related musculoskeletal disorders (WMSDs) reported by university professors in Brazil (54.8%), female school teachers in Saudi Arabian city Al–Khobar (63.8%), and from 5 regions in Saudi Arabia (38.1%) (12, 13, 14).

Omokhodion *et al.* studied rural clinical hospitals in Nigeria. The staff had LBP in about 69% of nurses, 55% of office workers, 47% housekeeping service providers, 47% of staff with heavy work had LBP, staff with unsuitable posture had 20% LBP, 20% of staff with a long time sitting and standing had LBP (15). The most-reported region of musculoskeletal pain was the low back which may be associated with prolonged sitting. Academic staff's duties involve prolonged sitting, especially in reading, preparing lectures, marking examinations, collating Results, and attending series meetings (16). **Beach *et al.*** (17) reported that sitting for a long time may precipitate stiffness of the lumbar region, in which flexion of the lumbar region may alter the passive stiffness of the lumbar spine. If passive flexion precedes such a sitting, it may increase the risk of low back injury. **Beach *et al.*** (17) concluded that alteration in the passive flexion stiffness of the low back predisposes the lumbar region to injury after sitting for a long period which contributes to LBP in sitting position.

Despite much literature on this topic, there are still many lacunae in our understanding of this disease entity. Therefore, it is evident that this is a disease, which requires identification of the risk factors and merits the closest study. Presently, only a few studies on the prevalence of LBP and the possible risk factors among faculty in Saudi Arabia represent a knowledge gap. University faculty members deserve attention, and studies addressing this population are critical to study the pattern of LBP, associated factors, and measures to prevent them. Hence, this study was conducted to determine the prevalence and factors associated with LBP among faculty members of Majmaah University, Saudi Arabia.

Specific information on associated risk factors and LBP in different professional groups is needed for preventive interventions to aim at reducing musculoskeletal complaints to be better targeted.

Objectives

- To study the prevalence and risk factors associated with LBP among the academic teaching staff faculty at Majmaah University, Saudi Arabia.

  Specific objectives:
- To identify the prevalence of LBP in the academic teaching staff of the university.
- To identify if prevalence and risk factors of LBP differ between occupational groups.
- To find the association between LBP and risk factors.
- To assess the faculty with LBP in relation to their lifestyles.
- To improve our understanding of the risk factors - That may contribute to the development or progression of LBP symptoms.

METHODOLOGY:

Study design

This was an observational, cross-sectional study to estimate the prevalence and risk factors associated with LBP among the academic teaching staff at Majmaah University, Saudi Arabia.

Study setting

This study was conducted at the academic teaching staff of the following colleges of Majmaah University, Saudi Arabia.

- College of Medicine – Al Majmaah
- College of Applied Medical Sciences – Al Majmaah
- College of Business Administration – Al Majmaah
- College of Engineering – Al Majmaah
- Computer Sciences and Information Technology College – Al Majmaah

Study area

The study area is Majmaah city and Zulfi city of Kingdom of Saudi Arabia. Majmaah city is located northwest of Riyadh, which is the capital city of Saudi Arabia. It has an area of about 30,000 km^2 and a population of about 133,000 people. Majmaah's economic activity depends on animal grazing, agriculture and business.

The study will be done at Majmaah University, which was established on August 24, 2009. The university's main campus is in the south part of Majmaah City. It consists of 13 different colleges in Al Majmaah, Al Zulfi, Rumaah, Al Ghat and Hotat Sudair.
For the present study, we considered five colleges of Majmaah University. Around 800 academic teachers are present in it.

Study population

Both males and females faculty of the above-mentioned colleges of Majmaah University were included in this study.

Duration of the study

The study was conducted from October 2018 to April 2019 at Majmaah University, Saudi Arabia.

Sampling Technique

Complete Enumeration method.

Sample Size

All academic teaching staff of the colleges mentioned above of Majmaah University shall be included**.** Approximately 300 faculty of the male and female sides were included.

Inclusion criteria

- All the academic teaching staff of the colleges as mentioned above of Majmaah University, irrespective of LBP.
- Both male and female faculty members.
- The faculty members with at least one year of experience in current settings or similar settings were included in the study.

Exclusion criteria

- Non-academic staff and students of the university were excluded.
- College of Science and Humanities of Al Ghat and Rumaah and College of Science and Human Studies at Hawtat Sudair were excluded.
- Participants who failed to respond to the questionnaire even after three visits.
- The questionnaires were not adequately filled.
- Any history of spinal deformities (e.g., scoliosis), rheumatoid arthritis, recent fractures, infection or malignancy.
- Subjects with pregnancy, chronic systemic illness, or surgery.

Data collection

A self-administered questionnaire was distributed to all the faculty members. 320 copies of the questionnaire were distributed among prospective participants recruited by convenience sampling. The researchers explained the questionnaire to each participant and provided a contact number if the further explanation would be required. The same researcher collected two hundred and ninety completed copies of the questionnaire within 6 weeks, and the response rate to the questionnaire was 91% (290/320).

Instruments

The average intensity of LBP (Pain score) - 10 cm Visual Analogue Scale (VAS). Level of disability caused by LBP - (Oswestry Low Back Pain Disability Index). Psychological factors – Depression, Anxiety and Stress Scale (DASS). The questionnaire was divided into four sections; the first section presented the Sociodemographic characteristics. The second section included the lifestyle and work-related factors. The third section indicated the characteristics of medical risk factors, and the fourth section presented the LBP characteristics.

Data Analysis

The data were entered in the Microsoft Excel sheet and analyzed using the Statistical Package for Social Science (SPSS), version 25. Descriptive statistics were produced for demographic characteristics and work history. Both descriptive analyses were performed in this study, including (mean, median, range, frequency, percentage and standard deviation) and inferential tests. In the inferential tests, the Chi-square test was used for categorized variables. A $P < 0.05$ was used to indicate statistical significance.

Ethical Consideration

Prior to the start of the study, ethical approval was obtained from the Ethics committee, Majmaah University. The data collected were handled confidentially. The investigators explained the aims of the study and its significance to the participants. All faculty members were informed that their participation was voluntary. All participants' informed consent was taken to participate in this study.

RESULTS:

Table (1) shows the sociodemographic characteristics of 290 participants in association with the frequency of LBP. Most participants were males (72.1%) and with a mean age of 40.72 ± 6.42. There was a significant association between gender and LBP frequency (P=0.032). Most participants (74.8%) were non-Saudi; however, more than half of the non-Saudi participants (55.8%) have occasional LBP, and less than half of the Saudi (45.5%) occasionally have back pain. Nationality was significantly associated with the frequency of LBP (P=0.009). Less than half of them were assistant professors (46.1%), 46.5% had other academic ranks, 4.2% were professors, and 3.2% were associate professors. The vast majority were teaching faculty (92.7%), and 7.3% were non-teaching faculty. Of the teaching faculty participants, 51.7% have occasional LBP, and 34.7% sometimes have LBP. While of the non-teaching participants, 81% of them have occasional LBP. This association was statistically significant (P=0.048). The reported mean height was (171 ± 9.5) and was significantly associated with LBP frequency (P=0.000). The reported mean weight was (73.1 ± 15.6). The mean BMI (25.3 ± 4.05) was significantly associated with LBP frequency (P=0.040). Regarding the BMI, more than half of the participants (53.8%) were normal, 32.8% were overweight, 10.3% were obese, and 3.1% were underweight. Most participants (87.2%) were non-smokers, more than half of them (56.5%) had occasional LBP, and 56.8% of the smokers sometimes have LBP; this association was statistically significant (P=0.003). Nearly 39% do not have a physical activity/ exercise, 33.1% perform a physical activity more than 5 days/ week, and 21.4% do exercise 3-5 days per week. 61.5% of the participants who do not have any physical activity and 62.9% of those who do exercise 3-5 days/ week have occasional LBP; this association was statistically significant (P=0.001).

Table (2) shows the work-related characteristics of the participants in association with LBP frequency. There was a significant association between the frequency of LBP and years of experience (P=0.000), average working hours per day (P=0.024), hours spent sitting daily (P=0.000), moving around during office hours (P=0.000), and leaving the work due to back pain (P=0.000). Regarding the years of experience, 31.7% have 0-5 years, 28.6% have 6-10 years, 23.1% have more than 15 years, and 16.6% have 11-15 years. More than half of those with >15 years of experience (59.7%) and 56.5% of those with 0-5 years of experience had occasional LBP. More than half of the participants (57.9%) work for 4-7 hours per day, 23.1% work for more than 7 hours and 19% work for 0-3 hours. LBP was more occasionally frequent among those with 0-3 hours of work (70.9%) and 49.3% of those with >7 hours. Regarding the hours spent sitting daily, more than half of them (54.8%) spent 2-4 hours sitting, 16.9% spent 5-6 hours, 15.9% spent more than 6 hours, and 12.4% spent 0-1 hour. LBP was more occasionally frequent among the participants with fewer sitting hours, 63.9% of those who spend 0-1 hour sitting, 45.9% of those spending 2-4 hours sitting, 71.4% of those spending 5-6 hours and 50% of those spending more than 6 hours. Regarding the hours spent standing daily, more than half of them (56.2%) spent 2-4 hours setting, 20.3% spent 5-6 hours, 7.9% spent more than 6 hours, and 15.5% spent 0-1 hour. Participants who spend > 6 hours standing per day had more occasionally frequent LBP (69.6%), and 51.1% of those spending 0-1 hours standing. Most participants (63.1%) sometimes move around during office hours, and 13.8% never do this. The majority of the participants (85.9%) have experienced LBP before. Most participants (85.9%) never left work due to LBP, 14.8% left work for back pain for (1-3) times, 3.4% left work for 4-5 times, and 1% left it for 6-10 times. 59% of those who never left work due to LBP have occasional back pain.

Table (3) presents the medical characteristics of participants in association with frequency of LBP among positive conditions. Diabetes was significantly associated with LBP frequency (P=0.000); 14.1% of the total participants have diabetes, more than half of them (24.4%) always have LBP, and 58.5% have occasional or non-LBP. Hyperparathyroidism among only 6 participants (2.1%), 4 (66.7%) sometimes have

LBP, and 2 (33.3%) often have LBP; this association was statistically significant (P=0.020). A total of 21 (7.2%) participants had osteoporosis, 61.9% of them always have LBP; this association was statistically significant (P=0.000). A total of 18 (6.2%) have respiratory disease, 61.1% of them have occasional or no LBP; this association was statistically significant (P=0.029). The musculoskeletal disorder was detected in 24.8% of the participants; less than half of them (47.2%) have occasional or no LBP; this association was statistically significant (P=0.000). A total of 6 (2.1%) participants had previous back trauma; half of them (50%) often have LBP; this association was statistically significant (P=0.003). Nearly 9.7% have calcium deficiency, less than half of them (48.5%) sometimes have LBP; this association was statistically significant (P=0.043). Hypertension was detected in 13.1% of the participants, no significant association was found (P=0.557). Kidney disease (10.3%), back surgery (1.7%), and vitamin D deficiency (11.4%) were not significantly associated with LBP frequency.

Table (4) shows the characteristics of LBP among the participants. According to VAS, more than half of the participants (51.4%) have a mild intensity of LBP, 33.7 have a moderate intensity that does not affect their work, 13.3% have a moderate intensity that affects their work, and only 1.6% have severe LBP intensity. The majority (70.7%) have a 0-2 hours duration of a painful episode of acute back pain, 25.7% have the episode of 3-5 hours, and the duration lasts for more than 5 hours in 3.6% of them. The duration of a painful episode of chronic back pain lasts for less than 5 days in most participants (74.3%) and 5-10 days in 18.1% of the population. Less than half of them (45.4%) have occasional LBP, 39.4% sometimes have LBP, 10% often have LBP, and only 5.2% always have LBP. According to Oswestry Low Back Pain Disability Index, most participants (83.1%) have a minimal disability caused by LBP, 14.1% have a moderate disability, and 2.8% have a severe disability. According to DASS, most participants (69.1%) were normal, 22.1% had mild psychological symptoms, 8.4% had moderate symptoms, and only 0.4% had severe symptoms. The majority (72.7%) did not do any investigations for LBP, 14.9% did blood analysis, 8.4% underwent an x-ray, and 1.6% had an MRI scan. Less than half of them (41%) did not pay attention to LBP, 24.5% had self-medication, and 10% had rest or did exercise. All of those who left work for 4-5 times (100%) always have LBP.

Table (1): Sociodemographic characteristics of participants in association with LBP frequency.

Variables	Categories	Frequency (%) (n=290)	Frequency of LBP				P-value
			Always	Often	Sometimes	Occasional or none	
Age (years)	Mean ± SD	40.72 ± 6.42	41.31 ± 7.95	41.64 ± 5.96	40.39 ± 6.82	40.73 ± 6.14	0.839
Gender	Male	209 (72.1%)	10 (4.8%)	22 (10.5%)	61 (29.2%)	116 (55.5%)	**0.032**
	Female	81 (27.9%)	3 (3.7%)	3 (3.7%)	37 (45.7%)	38 (46.9%)	
Nationality	Saudi	73 (25.2%)	0 (0%)	5 (6.8%)	35 (47.9%)	33 (45.2%)	**0.009**
	Non-Saudi	217 (74.8%)	13 (6%)	20 (9.2%)	63 (29%)	121 (55.8%)	
Academic Rank	Assistant Professor	131 (46.1%)	2 (1.5%)	13 (9.9%)	38 (29%)	78 (59.5%)	0.111
	Associate Professor	9 (3.2%)	0 (0%)	1 (11.1%)	2 (22.2%)	6 (66.7%)	
	Professor	12 (4.2%)	0 (0%)	0 (0%)	3 (25%)	9 (75%)	
	Others	132 (46.5%)	11 (8.3%)	11 (8.3%)	49 (37.1%)	61 (46.2%)	
Occupation	Teaching Faculty	265 (92.7%)	13 (4.9%)	23 (8.7%)	92 (34.7%)	137 (51.7%)	**0.048**
	Non-teaching faculty	21 (7.3%)	0 (0%)	2 (9.5%)	2 (9.5%)	17 (81%)	
Height (cm)	Mean ± SD	171 ± 9.5	167.1 ± 7.5	170.2 ± 9.2	174.1 ± 9.5	169.5 ± 9.2	**0.000**
Weight (kg)	Mean ± SD	73.1 ± 15.6	68.7 ± 8.4	75.9 ± 13.5	74.3 ± 14.6	73.8 ± 12.6	0.558
BMI	Mean ± SD	25.3 ± 4.05	24.48 ± 98	26.08 ± 3.57	24.51 ± 4.52	25.67 ± 3.91	**0.040**
BMI Group	Underweight	9 (3.1%)	0 (0%)	0 (0%)	3 (33.3%)	6 (66.7%)	0.053
	Normal	156 (53.8%)	13 (8.3%)	14 (9%)	56 (35.9%)	73 (46.8%)	
	Overweight	95 (32.8%)	0 (0%)	8 (8.4%)	27 (28.4%)	60 (63.2%)	
	Obese	30 (10.3%)	0 (0%)	3 (10%)	12 (40%)	15 (50%)	
Smoking	Yes	37 (12.8%)	0 (0%)	5 (13.5%)	21 (56.8%)	11 (29.7%)	**0.003**
	No	253 (87.2%)	13 (5.1%)	20 (7.9%)	77 (30.4%)	143 (56.5%)	
Physical activity - Sports/Exercise (days/week)	No	96 (33.1%)	0 (0%)	9 (9.4%)	28 (29.2%)	59 (61.5%)	**0.001**
	0 – 2	113 (39%)	10 (8.8%)	12 (10.6%)	41 (36.3%)	50 (44.2%)	
	3 – 5	62 (21.4%)	3 (4.8%)	4 (6.5%)	16 (25.8%)	39 (62.9%)	
	More than 5	19 (6.6%)	0 (0%)	0 (0%)	13 (68.4%)	6 (31.6%)	

***Kruskal-Wallis test was used.**

Table (2): Work-related characteristics of participants in association with LBP frequency.

Variables	Categories	Frequency (%) (n=290)	Frequency of LBP				P-value
			Always	Often	Sometimes	Occasional or none	
Work experience (years)	0 – 5	92 (31.7%)	0 (0%)	7 (7.6%)	33 (35.9%)	52 (56.5%)	**0.000**
	6 – 10	83 (28.6%)	0 (0%)	7 (8.4%)	31 (37.3%)	45 (54.2%)	
	11 – 15	48 (16.6%)	10 (20.8%)	5 (10.4%)	16 (33.3%)	17 (35.4%)	
	More than 15	67 (23.1%)	3 (4.5%)	6 (9%)	18 (26.9%)	40 (59.7%)	
Average working hours/day (hours)	0 – 3	55 (19%)	0 (0%)	6 (10.9%)	10 (18.2%)	39 (70.9%)	**0.024**
	4 – 7	168 (57.9%)	10 (6%)	11 (6.5%)	65 (38.7%)	82 (48.8%)	
	More than 7	67 (23.1%)	3 (4.5%)	8 (11.9%)	23 (34.3%)	33 (49.3%)	
Hours spent sitting daily (Hours/day)	0 – 1	36 (12.4%)	0 (0%)	8 (22.2%)	5 (13.9%)	23 (63.9%)	**0.000**
	2 – 4	159 (54.8%)	10 (6.3%)	14 (8.8%)	62 (39%)	73 (45.9%)	
	5 – 6	49 (16.9%)	0 (0%)	3 (6.1%)	11 (22.4%)	35 (71.4%)	
	More than 6	46 (15.9%)	3 (6.5%)	0 (0%)	20 (43.5%)	23 (50%)	
Hours spent standing daily (Hours/day)	0 – 1	45 (15.5%)	0 (0%)	4 (8.9%)	18 (40%)	23 (51.1%)	**0.000**
	2 – 4	163 (56.2%)	3 (1.8%)	12 (7.4%)	58 (35.6%)	90 (55.2%)	
	5 – 6	59 (20.3%)	10 (16.9%)	9 (15.3%)	15 (25.4%)	25 (42.4%)	
	More than 6	23 (7.9%)	0 (0%)	0 (0%)	7 (30.4%)	16 (69.6%)	
Do you move around during your office hours	Never	40 (13.8%)	0 (0%)	4 (10%)	19 (47.5%)	17 (42.5%)	**0.051**
	Sometimes	183 (63.1%)	10 (5.5%)	15 (8.2%)	66 (36.1%)	92 (50.3%)	
	Often	67 (23.1%)	3 (4.5%)	6 (9%)	13 (19.4%)	45 (67.2%)	
Experience low back pain	No	41 (14.1%)					
	Yes	249 (85.9%)					
Have you taken any leave from work due to back pain during the last year (Days in a year)	Nil	234 (80.7%)	3 (1.3%)	20 (8.5%)	73 (31.2%)	138 (59%)	**0.000**
	1 – 3	43 (14.8%)	0 (0%)	5 (11.6%)	25 (58.1%)	13 (30.2%)	
	4 – 5	10 (3.4%)	10 (100%)	0 (0%)	0 (0%)	0 (0%)	
	6 – 10	3 (1%)	0 (0%)	0 (0%)	0 (0%)	3 (100%)	
	More than 10	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	

Table (3): Medical characteristics of participants in association with frequency of LBP among positive condition

Condition	Yes	No	Frequency of LBP among positive condition				P-value
			Always	Often	Sometimes	Occasional or none	
Diabetes	41 (14.1%)	249 (85.9%)	10 (24.4%)	3 (7.3%)	4 (9.8%)	24 (58.5%)	**0.000**
Hypertension	38 (13.1%)	252 (86.9%)	3 (7.9%)	3 (7.9%)	10 (26.3%)	22 (57.9%)	0.557
Hyperparathyroidism	6 (2.1%)	284 (97.9%)	0 (0%)	2 (33.3%)	4 (66.7%)	0 (0%)	**0.020**
Osteoporosis	21 (7.2%)	269 (92.8%)	13 (61.9%)	3 (14.3%)	5 (23.8%)	0 (0%)	**0.000**
Respiratory disease	18 (6.2%)	272 (93.8%)	3 (16.7%)	0 (0%)	4 (22.2%)	11 (61.1%)	**0.029**
Kidney disease	30 (10.3%)	260 (89.7%)	0 (0%)	4 (13.3%)	11 (36.7%)	15 (50%)	0.474
Musculoskeletal disorders	72 (24.8%)	218 (75.2%)	10 (13.9%)	10 (13.9%)	18 (25%)	34 (47.2%)	**0.000**
Back trauma	6 (2.1%)	284 (97.9%)	0 (0%)	3 (50%)	2 (33.3%)	1 (16.7%)	**0.003**
Back surgery	5 (1.7%)	285 (98.3%)	0 (0%)	1 (16.7%)	4 (66.7%)	1 (16.7%)	0.238
Vitamin D deficiency	33 (11.4%)	257 (88.6%)	0 (0%)	1 (20%)	0 (0%)	4 (80%)	0.333
Calcium deficiency	28 (9.7%)	262 (90.3%)	3 (9.1%)	0 (0%)	16 (48.5%)	14 (42.4%)	**0.043**

Table (4): Characteristics of LBP in participants.

Variables	Categories	Frequency (%)
The average intensity of LBP (Pain score) 10 cm Visual Analogue Scale (VAS)	I – Mild	128 (51.4%)
	II – Moderate, does not affect my work	84 (33.7%)
	III – Moderate, does affect my work	33 (13.3%)
	IV – Severe, slightly affects my daily life	4 (1.6%)
	V – Severe, considerably affects my daily life	0 (0%)
Duration of the painful episode – Acute back pain (Hours)	0 – 2 hours	176 (70.7%)
	3 – 5 hours	64 (25.7%)
	More than 5 hours	9 (3.6%)
Duration of the painful episode – Chronic back pain (Days)	Less than 5 days	185 (74.3%)
	5 – 10 days	45 (18.1%)
	More than 10 days	19 (7.6%)
Frequency of LBP	Occasional	113 (45.4%)
	Sometimes	98 (39.4%)
	Often	25 (10%)
	Always	13 (5.2%)
Level of disability caused LBP (Oswestry Low Back Pain Disability Index)	Minimal	207 (83.1%)
	Moderate	35 (14.1%)
	Severe	7 (2.8%)
Psychological factors – Depression, Anxiety and Stress	Normal; 0 – 9	172 (69.1%)
	Mild; 10 – 13	55 (22.1%)

Scale (DASS)	Moderate; 14 – 20	21 (8.4%)
	Severe; 21 – 27	1 (0.4%)
	Extremely severe; 28+	0 (0%)
Investigations are done for LBP	No	181 (72.7%)
	Blood analysis	37 (14.9%)
	X-ray	21 (8.4%)
	MRI scan	4 (1.6%)
	CT scan	2 (0.8%)
	Hormonal Assay	2 (0.8%)
	Others	2 (0.8%)
Do you take any treatment for LBP	No attention	102 (41%)
	Self-medication	61 (24.5%)
	Rest/Exercises	25 (10%)
	Belt/Change in posture	33 (13.3%)
	Medical treatment	7 (2.8%)
	Physiotherapy	14 (5.6%)
	Frequent hospital admission	6 (2.4%)
	Alternative therapy	1 (0.4%)

DISCUSSION:

This study aimed to estimate the prevalence of LBP and associated risk factors with sociodemographic characteristics, lifestyle, and the medical records of the academic teaching staff at Majmaah University, Saudi Arabia. According to our findings, a high LBP prevalence (85.9%) was demonstrated. This was similar to **Chaiklieng *et al.*,** who reported 83% prevalence of LBP among university office workers [18], and higher than the prevalence of LBP reported by previous studies among university staff 57.5% (Ethiopia) and 22.3% (Thailand) [19, 20]. This variance may be due to age discrepancies between the research groups, with those in the listed studies being on average younger (mean age: 34.7–38 years) than those included in the present study (mean age: 40.72 years). An age-LBP correlation has been established, with LBP being more prevalent among persons aging more than 40 years [19].

This study demonstrated a significant association regarding gender and nationality and LBP frequency. Males and non-Saudi participants were more frequent to have LBP. In contrast, **Diallo *et al.*** did not find any significant difference between both sexes [21]. Another study demonstrated that female teachers have significantly higher LBP prevalence (75.9%) than males (48.9%).

Smokers had significantly higher frequencies of LBP than the non-smokers in this study. These findings were consistent with previous studies [22, 23]; however other studies found a non-significant association between smoking and LBP prevalence [15, 24, 25].

Smoking may reflect a complex of psychological and lifestyle factors. Smokers tend to have a lower physical and mental health status and thus show more depressive symptoms. Smoking also may vary with social class, education and occupation.

The practice of ergonomics improves working efficiency, comfort, and easiness to use without compromising health and safety. An ergonomically deficient workplace may not cause immediate pain because the human body can adapt to a poorly designed workplace to some extent. However, in the long-term, workplace deficiencies will surpass the body's coping mechanisms, resulting in pain, mental stress, decreased performance, and poor quality of work [26].

This study demonstrated a significant association between the frequency of LBP and years of experience (P=0.000); older participants with many years of experience have higher rates of LBP prevalence. A possible reason would be that older participants, mindful of their comparatively higher risk, participated in the daily exercise at a comparably higher level (P=0.02) [21]. Nonetheless, several studies have identified age as a major risk factor for LBP, with old age being linked to the spine and vertebral disc degeneration and a loss of connective tissue elasticity, leading to LBP [19, 27].

In the current study, high LBP prevalence was recorded among those who have long hours of work and sitting. Another study described sitting as working in a sitting position for more than 2 hours per day [20], as opposed to a previous study that found a link between working in a sitting position for more than 8 hours per day and the prevalence of LBP in Thai office workers [28]. The disc pressure at L3 is greater in a sitting posture than in a standing position, but this static loading and pressure is very low compared to what is required to cause spinal damage. On the other hand, LBP is more common in people who do a lot of physical activity because there is a lot more axial load on the vertebral disc [29]. Bill et al. (18, 19) found that prolonged sitting without intermittent breaks causes compression of disk height at the L4-5 level. This will cause or promote LBP. In one study, it was reported that pain in the lumbar region to be the commonest form of pain related to working activity among expertise [30].

The current findings established that diabetes is significantly associated with LBP prevalence. Musculoskeletal complications are most prevalent in patients with a long history of type 1 diabetes, but they can occur in patients with type 2 diabetes as well [31]. **Eivazi *et al.*** reported that in terms of severity, duration, and functional level of impairment, low back pain is a frequent issue among diabetic patients [32].

Hyperparathyroidism, osteoporosis, respiratory disease, musculoskeletal disorders, previous back trauma, and calcium deficiency were significantly associated with higher LBP prevalence. Poor work performance and work absenteeism were reported to be among the consequences of musculoskeletal disorders [33]. Both long-term sickness and short-term sickness absence were established from literature to be strongly connected with LBP and neck/shoulder pain in several occupations [34, 35]. **Vuori *et al.*** also found an association between osteoporosis and LBP [37].

This study found that most participants have mild and moderate LBP intensity. Most pain episodes last for 0-2 hours and 5 days in chronic back pain. According to Oswestry Low Back Pain Disability Index, most participants have a minimum disability of LBP that may affect their work. According to DASS, most participants were normal, and only 30.9% had psychological symptoms. A significant effect of work-related stress on LBP was found by various other researchers [38, 39].

Limitation and strengths

As the study was conducted in one university, the findings in this study cannot be generalized to all colleges in different parts of Saudi Arabia.

To date, only a few literatures have discussed LBP among university teaching staff generally in developing countries, including Saudi Arabia, even though academics are at great risk for developing LBP.

CONCLUSION AND RECOMMENDATIONS:

This study demonstrated high LBP prevalence among the academic teaching staff at Majmaah University, Saudi Arabia. Males, non-Saudi, smokers, and participants with long years of experience were more frequent to have LBP. Sitting position for long hours is associated with a higher risk of LBP. Patients with diabetes, hyperparathyroidism, osteoporosis, respiratory disease, musculoskeletal disorders, previous back trauma, and calcium deficiency were significantly associated with higher LBP prevalence. We found that most participants have mild and moderate LBP intensity. Most pain episodes last for 0-2 hours and 5 days in chronic back pain. Most participants have a minimum disability of LBP that may affect their work. Preventive measures should be taken to reduce the risk of lower back pain, such as arranging proper rest periods, educational programs to teach the proper use of body mechanics, together with smoking cessation programs for staff members. Ergonomic assessment of workplace risk factors and the greater use of back care interventions are recommended.

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