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Prevalence of LBP among physicians in Erbil city

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Abstract

Background: Physicians are always exposed to work-related risk factors that may result in many diseases. Many studies showed the high prevalence of LBP (LBP) among physicians in comparison to other musculoskeletal diseases. The present study aims to estimate the prevalence of LBP among physicians in Erbil city and to detect its related risk factors.

Subjects and methods: a cross-sectional study was conducted among physicians from all specialties inside two tertiary hospitals from Feb 1st, 2021 to Aug 2021. A questionnaire prepared by the investigator was used for data collection. The severity of LBP was assessed by a visual analog scale: from 1-3 was considered mild pain, 4-6 was moderate, and 7-10 was severe pain.

Results: It has been found that the mean BMI difference between the two groups, with and without LBP, was (27.84 ± 1.18Vs 25.46 ± 1.28) with a significant p= 0.003. The proportion with irregular sleep was (83.07% Vs 22.53%) among both groups respectively with a statistically significant p=0.032. The overall prevalence rate of LBP among physicians was 78.6%; 71.4% were males and only 28.6% were females with a significant p=0.001. The result of logistic regression for the overweight, obese, regular sleeping, and lifting heavy objects, OR with 95% confidence intervals, were; 3.40 (0.37-30.6), 2.36(0.5-10.3), 1.57(0.99-2.48), and 2.63(1.63-4.25) respectively.

Conclusion: the prevalence of LBP among physicians appears to be high and constitutes a major health concern. The BMI, lifting heavy objects, and sleep patterns were good predictors of LBP among physicians.

Keywords: LBP, Physicians, Specialties, Risk factors.

Introduction:

Physicians are exposed to work related risk factors that may result in many diseases. Many studies showed the high prevalence of LBP (LBP) among physicians in comparison to other musculoskeletal diseases [1]. A study in Tunisia reported a 57% -lifetime prevalence of LBP and an annual prevalence of 50% among all

hospital staff [2]. The result of the meta-analysis reported prevalence rate ranged from 44%-67% [1]. The prevalence of LBP among physicians in China was 44% [3]. Many cross-sectional studies in different parts of the world examined the prevalence of LBP, In Australia,[4] prevalence was 44% while in Japan, a prevalence of 84% was reported [5].

This variation in the prevalence rate could be due to factors of the study such as age groups and the definition of LBP prevalence. Point prevalence is defined as the number of individuals in a specific population under study at a certain point in time. The number of individuals who have LBP during a specific time interval is called period prevalence. Individuals who had LBP at some point in their lives are called lifetime prevalence [6].

LBP is associated with many potential risk factors, like age, physical activity, lack of exercise, abnormal postures, smoking, gender, and high BMI. The LBP was three to four times higher in individuals aged over 50 years than in those between 18-30 years, as studies revealed [7]. Accordingly, multiple factors that contributed to LBP in the elderly, timely and appropriate management approaches could be framed.

Females with low education, smokers, and lower socioeconomic class, have a higher prevalence than males, educated and non-smokers. This gender variation is explained by biological factors such as menstrual fluctuation, or pain by females more than males, and weight gain during pregnancy [8]. Menopause women who had more severe narrowing of the discs with low sex hormonal levels, would have accelerate processes of degeneration, and increase the severity of pain [8]. A study that examined data from 34,525 United States adults had found a significant association between LBP and the number of cigarettes smoked [9].

The present study aims to estimate the prevalence of LBP among physicians in Erbil, to identify associated risk factors of LBP, to identify the characteristics of LBP episodes in terms of duration and intensity, and to compare the risk of developing LBP among the different specialties.

Subjects and Methods

A cross-sectional study was conducted among physicians including senior doctors and senior house officers from all specialties inside two main tertiary health care facilities in Erbil city from the public sector from Feb 1st, 2021 to Aug. 2021.

A questionnaire that includes information about demographic characteristics like age, gender, marital status, and BMI was prepared by the researcher and was used for data collection. It also included the work-related factors like hours of work per day, type of work, duration of work in the hospital, and work position. The severity of LBP was assessed by a visual analogue scale: a score from 1-3 was considered mild pain, 4-6 was moderate, and 7-10 was severe pain [10]. Other risk factors such as doing exercise, sleeping patterns, lifting heavy objects, and smoking were also explored. A factors like living in an apartment without using an elevator as some apartments don't have elevators which is a case that makes the subjects more prone to adopt bending positions and consequently to interfere for developing backache was also taken into consideration. A stratified random sampling method was used to include physicians from each department proportional to the total number in that department. The investigator divided the population of physicians into strata then from each stratum a random sample was selected until the sample size was completed. A frequency of LBP of 25.2% [11] from a previous study, was used in finding the sample size with a marginal

error of 5%, a design effect of 1, 95% confidence interval and the total number of physicians inside the two tertiary health facilities was 1000 physicians. The Epi-info was used to calculate the sample size and 225 physicians were to be included but the investigator recruited 500 physicians for convenience. The questionnaire was distributed by email to physicians and the response rate was 100%. The physicians included in the study were aged between 30 to 60 years with at least one year of work experience in that field. The physicians with a history of trauma, spinal surgery, pregnancy, fracture and musculoskeletal disorders were all excluded from the study before receiving forms.

The analysis was based on a comparison of the presence or absence of LBP among physicians, and the associated factor that they have. The data was recorded on a specially designed questionnaire, collected and entered into the computer via Microsoft Excel worksheet (Excel 2010) and then analyzed by using Statistical Package for Social Sciences (SPSS) version 25 and the results were compared between patients with different variables, with a statistical significance level of ≤ 0.05. The results were presented as rates, ratios, frequencies, and percentages in tables and figure and then analyzed by using an independent t-test and Chi-square test. The logistic regression was used to find factors predicting back pain and the odds ratio with a 95% confidence interval was calculated for each.

Ethical considerations: This research was submitted to the Ethics and Scientific committees of the Kurdistan Board of Medical Specialties for scientific and ethical approval. The purpose of this study is explained for each volunteer and a written consent is obtained from each one of them. Those volunteers disagree the consent were excluded from the study. Confidentiality and anonymity of data were ensured.

Results

As the study included 500 physicians from different specialties, their age were between 25 and 60, divided in to two groups, participants with LBP and those without LBP, it aimed to estimate the prevalence of LBP among physicians from all specialties during different periods of their work which was from 1 to 6 months, 6 to 12 months, and more than 12 months.

Table (1) shows the significant difference in mean age, BMI, weight and height between physicians with LBP and those without LBP; the mean age difference was (41.31±6.02 Vs 37.63±4.74, p<0.001). The mean BMI difference between the two groups was (27.84±1.18 Vs 25.46±1.28) with a significant p= 0.003. The mean weight and height were (81.63 ± 5.4 Vs 79.53±5.6) and (171.14±3.8 Vs 170±3.9) respectively.

In Table (2), the overall prevalence rate was 78.6%; 71.4% were males and only 28.6% were females with a significant p=0.002. The (95.77%) highest prevalence was reported between 45-54 years of age. Most of the physicians in the LBP group (94%) were overweight.

The highest rate of back pain was among Orthopedic and General Surgery with significant differences (p<0.001) (Table 3). There is no significant difference in relation to the working positions.

In Table (4) the back pain group showed a higher and significant mean difference in years of working, hours of working per a day, and hours of working inside the theatre room; (12.16±5.38 Vs 8.41 ± 4.22), (7.88±1.16 Vs 6.64±1.03) and (11.94±7.80 Vs 7.51±8.45) respectively.

In Table (5) no differences were reported between the two groups in living

in an apartment or using an elevator. A higher rate (86%) smoked in the first group in comparison to the (14.01%) second group with significant results (p=0.002). The proportion with irregular sleep was (83.07% vs. 22.53%) among both groups respectively with a statistically significant p=0.05. The history of lifting heavy objects was (87.26% Vs 12.73%) in both categories respectively and the p-value was less than 0.05.

Table (6) illustrated the assessment of the severity of back pain by a visual analogue scale. The pain is categorized into three stages according to its severity.

The persistent pain showed the highest rate 68.18% of participants with moderate LBP with p < 0.001. In 61.53% of mild cases, the duration was from 1-6 months.

Weakness in lower limbs was reported in 89% of moderate cases with p < 0.001 and 73.33% of moderate cases took sick leave.

Table (7) showed the result of logistic regression with odds ratio, the overweight, obese, regular sleeping, lifting heavy objects and smoking predicted back pain. OR with 95% confidence interval were; 3.40 (0.37-30.6), 5.32(0.5-10.3), 1.57(0.99-2.48), 2.63(1.63-4.25) and 1.152(073-1.79) respectively.

Figure (1) showed that more than half (57.25%) of physicians with back pain did not take any medication, (19.59%) of participants prescribed NSAIDs for relieving the pain. (5.59%, 4.58%, 4.32%) of Candidates took (Analgesics, Paracetamol, Paracetamol and muscle relaxants) respectively.

Table 1: Distribution of the studied sample by back pain with mean differences of age, BMI.

Variables	LBP N=393 Mean ± SD	No LBPs N=197 Mean ± SD	P-value
Age(years)	41.31 ± 6.02	37.63 ± 4.74	< 0.001
BMI (Kg/m2)	27.84 ± 1.18	25.46 ± 1.28	0.003
Weight	81.63 ± 5.4	79.53 ± 5.6	0.001
Height	171.14 ± 3.8	170 ± 3.9	0.015

Table 2: Distribution of the LBP by sociodemographic characteristics of the studied sample.

Variables	LBP 393 No (%)	No LBP 107 No (%)	Total 500 No (%)	P-value
Gender				
Male	294(82.35)	63(17.64)	357(100)	0.002
Female	99(69.23)	44(30.76)	143(100)	
Marital status				
Married	381(80.37)	93(86.91)	474(100)	< 0.001
Single	12(46.15)	14(53.84)	26(100)	
Age groups	Years			
≤ 34	111(68.94)	50(46.72)	161(100)	< 0.001
35-44	144(73.84)	51(26.15)	195(100)	
45-54	136(95.77)	6(4.2)	142(100)	
55-64	2(100)	0(0)	2(100)	
BMI (Kg/m^2)				
Normal	5(71.42)	2(28.57)	7(100)	< 0.001
Overweight	371(78.27)	103(21.72)	474(100)	
Obese	17(89.47)	2(10.52)	19(100)	

Table3: The prevalence of back pain according to specialty and working status

Variables	LBP N=393	No LBP N=107	Total N=500	P-value
Type of specialist	No (%)	No (%)	No (%)	
Internal Medicine	20(58.8)	14(41.17)	34(100)	< 0.001
General surgery	30(96.7)	1(3.2)	31(100)	
Orthopaedic	40(100)	0(0)	40(100)	
Ophthalmology	31(86.11)	5(13.88)	36(100)	
Radiology	33(86.84)	5(13.15)	38(100)	
Anaesthesia	25(96.15)	1(3.8)	26(100)	
ENT	37(74)	13(26)	50(100)	
Urology	31(70.45)	13(29.54)	44(100)	
Plastic surgery	30(85.71)	5(14.28)	35(100)	
Dermatology	21(46.66)	24(53.33)	45(100)	
Neurosurgery	22(84.16)	4(15.38)	26(100)	
Gynaecology & obstetrics	25(86.20)	4(13.79)	29(100)	
Maxillofacial	21(84)	4(16)	25(100)	
Endocrinology	6(0.6)	4(0.4)	10(100)	
Rheumatology	21(67.74)	10(32.25)	31(100)	
Working status				
Long-standing	4(100)	0(0)	4(100)	0.082
Sitting	148(74)	52(2.75)	200(100)	
Both	241(81.41)	55(18.58)	296(100)	

Table 4: Distribution of the studied sample by mean differences in years of working, hours of working, using mobile and exercising.

Variables	LBP Mean ± SD N=393	No LBPs Mean ± SD N=107	P-value
Years of working as a physician	12.16 ± 5.38	8.41 ± 4.22	< 0.001
Hours working per a day	7.88 ± 1.16	6.64 ± 1.03	0.049
Daily hours of using laptops, mobiles	3.64 ± 0.69	3.70 ± 0.71	0.433
Surgeons' working hours inside Theatre room per a week	11.94 ± 7.80	7.51 ± 8.45	< 0.001
Hours of back exercises per a week	0.92 ± 1.77	0.76 ± 1.82	0.427

Table 5: Distribution of the studied sample by back pain and lifestyle.

Variables	LBP N=393 No (%)	No-LBP N=107 No (%)	Total N=500 No (%)	P-value
Live in an apartment				
Yes	68(75.55)	22(24.44)	90(100)	0.437
No	325(79.26)	85(20.73)	410(100)	
Using elevator				
Yes	68(75.55)	22(24.44)	90(100)	0.437
No	325(79.26)	85(20.73)	410(100)	
Smoking				
Yes	92(85.98)	15(14.01)	107(100)	0.002
No	277(75.06)	92(24.93)	369(100)	
Ex-smoker	24(100)	0(0)	24(100)	
Sleeping				
Regular	231(75.73)	74(24.26)	305(100)	0.05
Not regular	162(83.07)	33(22.53)	195(100)	
Exercise regularly				
Yes	87(82.85)	18(17.14)	105(100)	0.143
No	306(77.46)	89(22.53)	395(100)	
Lifting heavy Objects				
Yes	185(87.26)	27(12.73)	212(100)	< 0.001
No	208(72.22)	80(27.77)	288(100)	

Table 6: Distribution of the studied sample by the severity of LBP.

Variables	Mild N=160 No (%)	Moderate N=219 No (%)	Severe N=14 No (%)	Total N=393 No (%)	p-value
Character					
Intermittent	159(42.85)	204(54.98)	8(2.1)	371(100)	< 0.001
Persistent	1(4.5)	15(68.18)	6(27.27)	22(100)	
Duration					
1-6 months	8(61.53)	5(38.46)	0	13(100)	0.378
6-12 months	107(41.31)	141(54.44)	11(4.2)	259(100)	
More than 1 year	45(37.19)	73(60.33)	3(2.4)	121(100)	
Weakness in lower limbs					
Present	5(3.03)	147(89.09)	13(7.8)	165(100)	< 0.001
Absent	155(67.98)	72(31.57)	1(0.43)	228(100)	
Sick leave					
Yes	2(3.3)	44(73.33)	14(23.33)	60(100)	< 0.001
No	158(47.44)	175(52.55)	0	333(100)	

Table 7: The results of the logistic regression analysis with predictors of LBP.

Variables	B	SE	Wald	df	P-value	Odds ratio (95% confidence interval)
Female	Reference					
Male	-0.73	0.22	10.21	1	0.001	0.48(0.30-0.75)
Age(years)	.314	.121	6.753	1	0.001	0.89(0.86-0.94)
Height	.252	.526	.230	1	0.002	0.93(0.88-0.98)
Weight	-.319	.565	.317	1	0.573	0.93 (0.89-0.97)
BMI(Kg/m2)			1.497	2	0.473	
Normal	Reference					
Overweight	1.224	1.122	1.190	1	0.027	3.40 (0.37-30.6)
Obese	.859	.756	1.291	1	0.025	5.32(0.5-10.3)
Years working as a physician	-.476	.135	12.494	1	0.001	0.86(0.82-0.90)
Working hours daily	-.135	.110	1.493	1	0.222	0.83(0.68-0.1)
Sleeping						
Regular	-.220	.301	.536	1	0.052	1.57(0.99-2.48)
Irregular	Reference					
Exercise						
Yes	-.247	.315	.613	1	0.233	0.78 (0.40-1.24)
No	Reference					
Lifting heavy objects	-.841	.271	9.626	1	0.001	2.63(1.63-4.25)
Smoking	0.14	0.227	0.387	1	0.534	1.15 (073-1.79)

B: Coefficient of Regression, SE: standard error, Wald: test named, it is a statistical test, df: degree of freedom

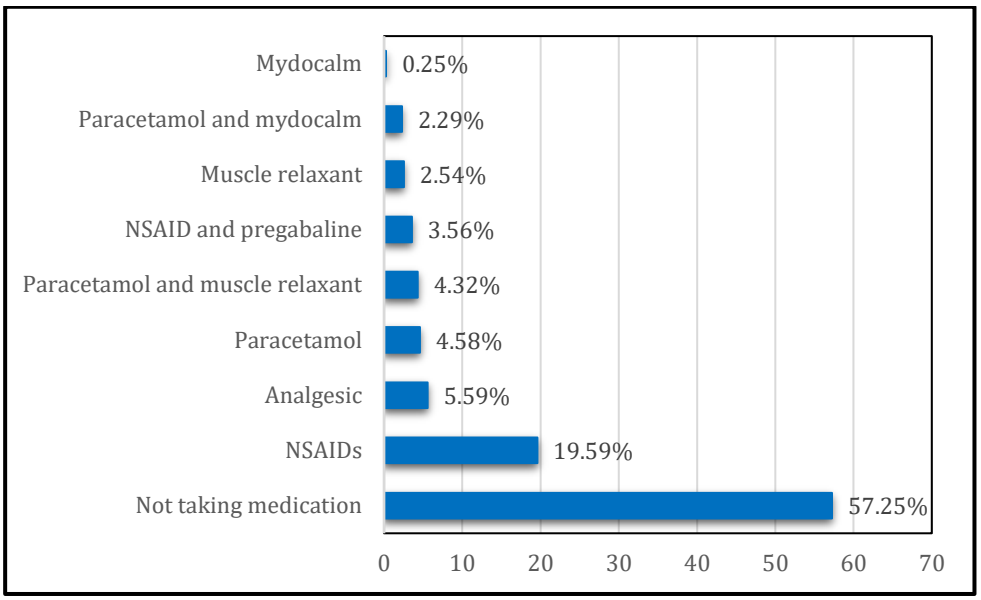

Figure 1: Types of medications taken by physicians with back pain. More than half (57.25%) of physicians with back pain did not take any medication. The NSAIDs were used by 19.59%.

Discussion:

In the current study, the evaluation of LBP was conducted among a sample of physicians including senior physicians and senior house officers working at two tertiary hospitals and to the best of our knowledge, this is the first study inside Erbil city. The prevalence of LBP reported in this study was 78.6%. This finding was consistent with other studies done earlier. This percent is near to estimates reported in other populations: 75.8% [12] in a study in Serbia and 65-80% [13] in the United States. Two previous studies reported lower percent in Iran than our study, 29.3% and 27% respectively [14,15].

The explanation for the differences in results could be due to different methodologies which yielded different rates. The definition of LBP varied in the current study from other previous studies in that evaluation of back pain was done based on the presence of pain in the past month or twelve months duration. The current study may be subjected to recall bias due to memory lapses. A higher rate of prevalence was reported among males in comparison with females: 74.80% vs. 25.19%. This finding was inconsistent with other studies. Females are more at risk of developing back pain due to factors such as pregnancy, contraceptives, estrogen, and menopause [16,17]. The high rate of LBP among male surgeon physicians might indicate that they are among the groups that stood for long hours in the theatre room and they will benefit from the involvement in prevention programs in future.

A significant difference of 27.84 ± 1.18 Vs. 25.46 ± 1.28, p=0.003 was reported in the mean BMI between the two groups. The higher rate (89%) of obese physicians indicated that loss of muscle mass and body fat distribution will aggravate the pain. The efforts should be directed to reduce BMI among physicians and may be considered a possible interference in reducing the prevalence of LBP among them [18].

A percentage of 83.07% of physicians who irregularly in this study have back pain

and the odds among those who sleep regularly is OR=1.57(0.99-2.48), p= 0.052. Earlier results confirmed that sleep is a protective factor and sleep disorders can lower pain threshold and worsen back pain. The high incidence of migraine and depression among patients with sleep disorders was reported in many studies [19]; this explains the bidirectional relationship between sleep and LBP.

The mean differences in hours of working reached a significant level of 7.88 ± 1.16 Vs 6.64 ± 1.03, p=0.05. A higher rate was reported among (100%) orthopedic surgeons, (96.7%) General surgeons and working inside theatre rooms also reached a significant level of 11.94 ± 7.80 Vs 7.51 ± 8.45 P< 0.001. The findings of the present study were in line with that of Mecca [20], Saudi Arabia cross-sectional study.

In this study, more than half (57.25%) of physicians with back pain did not take any medication. The best LBP reliever in 51.7% of physicians in Saudi Arabia's (20) study was rest and only 43.6% took medication.

The associations between LBP and the risk factors of living in an apartment, using the elevator and doing exercise did not reach a significant level. The LBP group had a positive history of lifting heavy objects in 87.26% (OR 2.63(1.63-4.25)). In Gaza study, 62% had a history of lifting heavy objects [21].

The descriptive statistics about LBP showed that most of them were mild and moderate cases: 40.71%, and 55.72% respectively. The intermittent character, weakness and no sick leave were 94.4%, 41% and 84%.

In this study, 56% had LBP in 6-12 months duration and, in 30.78% the duration of pain was more than 1 year. The point prevalence for the last six months (62.3%), and last year (71.7%) in the North Iran study was higher than these results [22]. The result of the logistic analysis confirmed some risk factors like BMI (OR 3.40 (0.37-30.6), p=0.027) as a significant predictor of LBP.

In this study, the prevalence of LBP among smokers was 86% and among non-smokers was 75% (p=0.002) and (OR =1.15 95%CI (073-1.79)). Back pain was valued to be present in 23.5% of never-smokers, 33.1% of former smokers, and 36.9% of current smokers in America study [9]. Another study in the US reported higher odds for back pain (OR=1.2) among smokers [23]. They explained the relation by the presence of a biological substance that aggravated back pain.

As this study is cross-sectional, inferences cannot be obtained about causation; this is one of the limitations. The second limitation is the representative-ness of the sample. The results cannot be generalized to other facilities inside Erbil city. The prevalence in the current study is within the range and this confirms the validity of the results. This point is considered one of its strengths.

Conclusion and Recommendation

The prevalence of LBP among physicians seems to be high and constitutes a major health concern. Most of the cases were mild and moderate. The BMI, lifting heavy objects and sleep patterns were good predictors of LBP among physicians. Further studies recommended with larger sample sizes and other health staff should be included. Physicians should be engaged in programs for muscle strengthening and reducing weight.

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