Dijlah Journal of Medical Sciences (DJMS) Vol. 3, No. 1, January, 2026, pp. 33-41
P-ISSN: 3078-3178, E-ISSN: 3078-8625, paper ID: 04

ORIGINAL ARTICLE

Prevalence of Low Back Pain in Patient Attend Rheumatology Clinic in AL-Yarmouk Teaching Hospital in Baghdad, Iraq

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Article Info

Article history:

Received June, 02, 2025
Revised August, 06, 2025
Accepted November, 01, 2025

Keywords:

Low Back Pain,
Body Mass Index,
Rheumatology Clinic,
Risk Factors,
Occupational Activity

ABSTRACT

Due to its prevalence, tendency to recur, and expense in treatment, lost work, disability and other factors, lower back pain is considered a significant health concern. This research explores the prevalence of lower back pain and the associated risk factors in patients attending the rheumatology clinic at Al-Yarmouk Teaching Hospital in Baghdad, Iraq, over the development timeline of September 2024 to March 2025. In total 2,013 patients attended the clinic in the study timeline, and 445 patients met the definition of this research on lower back pain (22.11%). Descriptive analytical data were collected through interviews and physical measurements. The majority of patients were in the 46-60 age group (39.6%; female 61.9%). The prevalence of obesity was 39.6%, and overweight was 35.5%. The most common occupational activity was sedentary work (27.1%), which was statistically associated with low back pain (p=0.0021). 69.2% of patients had concomitant diseases, with arthritis being the most common comorbidity (17.6%). 86.8% of patients used analgesics for their pain. These findings provide evidence of a significant disability burden in the general rheumatology population and support interventions aimed at reducing modifiable risks that can decrease the overall burden of disability related to low back pain in this population (such as obesity and occupational hazards).

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1- INTRODUCTION

Low back pain is one of the most common reasons for people to seek outpatient medical care, exceeded only by hypertension and diabetes. LBP is considered a major health problem due to its high prevalence, probability of recurrence, and association with disability[1]. LBP is generally defined as the perception of pain in the posterior aspect of the body between the inferior border of the rib cage and the inferior gluteal fold. LBP is a symptom that can be caused by a wide variety of factors , such as mechanical, inflammatory, infectious, and psychological. During normal daily activities, the forces acting on the back amount to between two to three times the body weight [2]. It would seem reasonable to suggest that an increase in body weight would worsen the symptoms of all types of LBP, regardless of the cause, especially the mechanical type. LBP is one of the most costly musculoskeletal complaints in today's society , affecting up to 70-80% of the population at least once during their lifetime [3]. Many sociodemographic factors associated with LBP include age, gender, being married or divorced, as well as previous LBP history and carrying heavy loads. Sitting , especially prolonged sitting, is also accepted as a risk factor for LBP. However, many practitioners express the belief that work-specific duties are often causal or exacerbate the onset and persistence of back pain[4]. A recommendation of work absence, commonly described as "a short break from work"

to allow healing, is common. Lack of instant remedies, uncertainty about the course and prognosis, and the relationship to lifestyle challenge the communication skills of healthcare providers. Most episodes of back pain respond adequately to conservative therapy, but some patients will continue to suffer from CLBP for long periods. Approximately 95% of the costs associated with LBP care are spent on this remaining 5-10% of persons who experience a bout of LBP that lasts more than 8 weeks. Up to 10 years ago, it was globally considered a Western world problem; however, during the past decade, growing numbers of studies have proved that LBP is similarly a common problem in low- and middle-income nations[5].To determine the prevalence of the low back pain in Iraqi patients attend the rheumatology clinic at Al-yarmouke teaching hospital in Baghdad governorate to bring up the recommendation about this important clinical symptom that have impact on individuals , families , communities, health-care systems and businesses. This includes pain, activity limitations, participation restrictions, career burden, use of health-care resources and financial burden.

2- MATERIALS AND METHODS

2.1 Study Design and Setting

This research, employing a descriptive-analytical method, investigates the prevalence of low back pain (LBP) and the risk factors influencing patients who visit the Rheumatology Clinic of Al-Yarmouk Teaching Hospital in the Baghdad governorate. Data has been collected over six months, from September 1, 2024, to March 31, 2025, from eligible visiting patients.This clinic receives all types of rheumatologic patients at different ages from both males and females.Initially when the clinic receives a patient with musculoskeletal disorder (who are usually referred from general hospitals, private clinic of a physician or from other primary health centers), a physician take the history and then carefully examines the patient and conducts the necessary tests. In addition to giving medications to the patients the other important role of the clinics is to offer advice to the patients about how to control the disease, how to follow the rules and helping them to understand the nature of the disease and its consequences.

2.2 Study Population and Eligibility Criteria

For the aim of this study, a research team was deployed to Al-Yarmouk Medical Teaching Hospital in Baghdad from September 2024 to March 2025 and screened adult patients between the ages of 16 and 60 years in the rheumatology clinic. Patients referred to the clinic for joint or muscle pain were assessed, and those with low back pain (LBP) as their primary complaint were invited to join the study. By recruiting patients in the order they presented, the researchers aimed to develop a broad and accurate reflection of LBP cases that presented at the hospital. Volunteers had to be of age, experiencing back pain, and capable of comprehending the study and answering questions to be included. Individuals with pain due to gynecological, intestinal, or urinary issues ; those who had recently injured their spine, were newly diagnosed with cancer, or were pregnant, were excluded. Anyone with severe memory or speech problems was also excluded to ensure that responses would accurately reflect each individual's experience. Research staff personally interviewed those still eligible using a clear checklist.

2.3 Sample Size

An appropriate sample size was calculated according to the following sample equation was applied

$N=Z^2\times Pq/d^2$

Where:

- N = Sample size.
- Z = Z sta s cal for a level of confidence 95%.
- P = expected proportion.
- q = 1 – p.
- d = absolute precision.

According to the literature and studies from around the world, I expected a proportion of around 16.7%. Considering this study, with 95% confidence limits and a degree of precision of 5%, the estimated sample size includes 445 patients. The researcher visited the rheumatology outpatient clinic three days per week, every other day, and remained at the center the entire time. Any patient who met the selection criteria and was ready to participate was included in the study.

2.4 Data Collection Tools and Operational Definitions

The data were collected by the researcher through: - Interview: Direct interviews with patients according to the questionnaire, which consists of two parts: 1. The first part includes socio-demographic characteristics such as (name , age, gender, marital status, level of education, residence, and occupation). 2. The second part includes questions related to LBP, such as (pain characteristics, associated diseases, pain medication, and smoking). - The height and weight of all participants were measured, and Body Mass Index (BMI) was calculated. All these measures were conducted by the researcher herself to obtain more accurate results.

• Urban was defined as a higher population density and vast human features compared to the surrounding area. An urban area included cities, towns, or conurbations according to the boundaries of Baghdad Governorate.

• Rural was defined as all places, population, and housing units located outside urban areas and urban clusters.

• Being sedentary is defined as performing activities of at least moderate intensity for less than half an hour each day.

• Current smoking status was defined as an adult who reported at the time of the interview that they regularly smoked one or more cigarettes per day for at least two months prior.

• Height was measured in a standing position without shoes using a scale measure (Seca) fixed to the wall of the examination room , with height measured to the nearest one centimeter.

• Body weight was measured with subjects wearing lightweight clothing and no shoes using a digital scale (Seca), and this digital balance was recalibrated after every ten patients.

• BMI was calculated using the standard formula: $BMI = \frac{\text{weight (kg)}}{[height\ (m)]^2}$

BMI was categorized according to WHO guidelines as

1. Normal body weight; 18.5 to 24.9.
2. Overweight; 25.0 to 25.9.
3. Obese; 30.0 and greater.

2.5 Data Management and Statistical Analysis

The data were coded, and each questionnaire was assigned a serial identifying number after the researcher entered the data into the computer. Data analysis was carried out using the available statistical package SPSS-22. The data were presented in simple measures of frequency, percentage, mean, standard deviation, and range (minimum-maximum values). The significance of differences in various percentages (qualitative data) was tested using the chi-square test (χ^2-test) with the application of Yates ' correction or Fisher's Exact test whenever applicable. Statistical significance was considered whenever the P value was equal to or less than 0.05.

3- RESULTS AND DISCUSSION

In this study, the total number of participating patients was 445 out of 2,013 individuals who sought rheumatology care at Al-Yarmouk Teaching Hospital in Baghdad during the data collection period (September 2024 to March 2025). The following section describes the obtained results. The prevalence of LBP as illustrated in fig. 1 was 22.11 %.

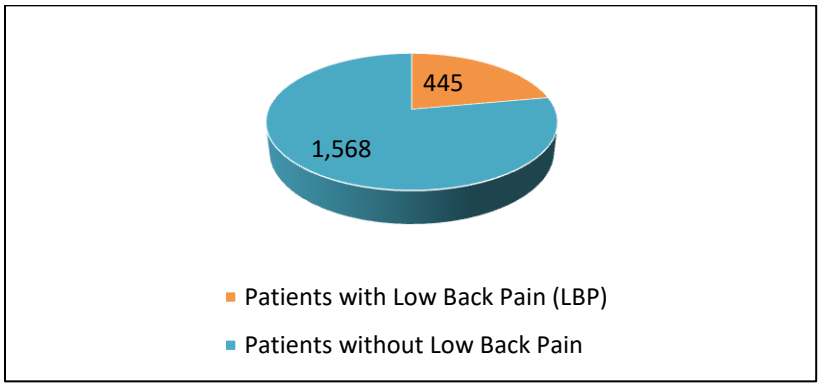

Figure (1): Demonstrates the prevalence of the LBP in patients attend rheumatology clinic

3.1 Socio Demographic

These patients were evaluated in terms of age, gender, marital status, education level, and place of residence, providing valuable background information for interpreting the prevalence and potential risk factors for low back pain in this population.

Table (1): Distribution of the sample according to socio demographic characteristic

Variable		frequency	Percent
Age	16-25	61	13.6%
	26-35	85	19.0%
	36-45	124	27.8%
	46-60	176	39.6%
Gender	Male	170	38.1%
	Female	275	61.9%
Marital status	Single	18	4.0%
	Married	189	42.5%
	Divorced	135	30.4%
	Widow	103	23.1%
Level of education	Illiterate	67	15.0%
	Primary	116	26.0%
	Intermediate	70	15.8%
	preparatory	91	20.5%
	University and higher	101	22.7%
Residence	Urban	315	70.7%
	Rural	130	29.3%

In terms of age distribution, the highest percentage of patients (39.6%) belonged to the age group of 46-60 years, followed by 27.8% in the age group of 36-45 years, indicating that lower back pain (LBP) is more common among middle-aged individuals, which may be due to cumulative physical load or spinal degeneration with advancing age. 19.0% were in the age group of 26-35 years and 13.6% in the age group of 16-25 years.

In terms of gender, the majority of the samples were women at 61.9% compared to men at 38.1%. The greater occurrence among women may be attributed to biological differences, greater exposure to household physical work, or an improved healthcare-seeking behavior among women compared to men.

Regarding marital status, 42.5% were married, 30.4% divorced, 23.1% widowed, and just 4.0% single. The high percentage of divorced and widowed patients suggests a connection between social stressors and LBP as a chronic pain condition. The educational level of the patients varied: 26.0% were primary educated, 22.7% had university education or above, 20.5% were educated at the preparatory school level, 15.8% were intermediate-level educated, and 15.0% were illiterate. Lower education may reflect less awareness of back care and health-seeking behavior and may be one reason for the persistence or exacerbation of LBP.

Finally, regarding the place of residence, the vast majority of patients (70.7%) were from urban areas and 29.3% were from rural areas. The high number of respondents from urban areas may indicate that inappropriate physical activity, prolonged sitting, and unhealthy urban habits may be major causes of back pain.

3.2 Anthropometric Data, Smoking Status, and ESR Test Results

This section of the article discusses the distribution of the sample based on selected health features. These features include Body Mass Index (BMI), smoking, and the use of the erythrocyte sedimentation rate (ESR) test.BMI is an important indicator of physical and nutritional status, and smoking has also been commonly identified as a risk factor for back degeneration and chronic pain. ESR is a non-specific inflammatory marker that can aid in diagnosing the inflammatory etiologies of low back pain.

Table (2):.Distribution of the sample according to anthropometrics, smoking habit and ESR test

Variable		frequency	Percent	Chi-square	p-value
BMI	Normal(18.5-24.9)	111	24.9%	13.05	0.0016
	Over weight (25-29.9)	158	35.5%		
	Obese=>30	176	39.6%		
smoking	Yes	201	45.1%	1.12	0.1431
	No	244	54.9%		
ESR	done	316	71.1%	42.95	0.0000
	No	129	28.9%		
*Significant using Pearson Chi square test at 0.05 level.					

The statistics indicate that nearly half of the patients (39.6%) were obese (BMI ≥30) and 35.5% were overweight. Just 24.9% had a normal BMI. The distribution indicates a high association between being overweight and low back pain. Obesity leads to mechanical stress on the spine and systemic inflammation, both of which increase musculoskeletal pain and reduce mobility. The chi-square test demonstrates a significant difference in BMI distribution ($p = 0.0016$), indicating that BMI could influence the health outcomes being studied which might relate to low back pain or other conditions.

The results show that 45.1% percent of the patients were smokers and based on the results of the Chi-squared test, there is no significant correlation ($p = 0.1431$), which indicates that smoking may not be a related factor and suggests that smoking does not have a direct effect on lower back pain.

The ESR test indicates that 71.1% of patients have inflammation, making this test a useful tool for screening to evaluate inflammatory or autoimmune diseases, particularly in rheumatology practices. The chi-square test produces a highly significant outcome ($p = 0.0000$) that indicates the ESR test which identifies inflammation receives frequent use among this group for inflammatory low back pain diagnosis purposes.This test is used as a non-specific indicator of inflammation in the body and can be helpful in diagnosing and monitoring various diseases and conditions.

3.3 Occupational and Clinical Characteristics of Low Back Pain

We present the clinical and occupational characteristics of low back pain among the patients we examined. The type and duration of occupational movement may be defined risk factors in musculoskeletal disorders, especially when the specific occupational movement is repetitive or prolonged to the point of strain. Additionally , pain frequency, site, and onset, as clinical expressions of pain, may account for information about LBP's underlying cause and chronicity. This information is useful in diagnosing and managing treatment plans.

Table (3): Frequency distribution and proportion of patients according to the type of occupations and its duration, Clinical characteristic of the pain

Variable		frequency	Percent	Chi-square	p-value
Type of Movement in occupations	Sedentary movement	121	27.1%	11.68	0.0021
	carrying	94	21.2%		
	standing	101	22.7%		
	sitting	67	15.0%		
	vibration	62	14%		
Duration Of occupation (years)	<5	64	14.3%	14.05	0.0015
	5-9	91	20.5%		
	10-14	116	26.0%		
	15-19	86	19.4%		
	=>20	88	19.8%		
Onset of pain	Sudden	192	43.2%	9.37	0.0048
	Gradual	253	56.8%		
Site of pain	Localized	162	36.3%	5.78	0.0095
	Radiated	283	63.7%		
Frequency of pain	First attack	99	22.3%	13.49	0.0017
	Recurrent attack	346	77.7%		
***Significant using Pearson Chi square test at 0.05 level.**					

Sedentary work was the most frequently reported type of occupational activity by participants (27.1%), followed by standing (22.7%) and carrying (21.2%). These data indicate both static and dynamic occupational stressors contributing to LBP. We know that jobs where workers spend extended periods either sitting or standing, and those with physical demands (for example, lifting and carrying), create biomechanical stressors to the lumbar region . We also know that 13.9% of participants were exposed to vibration, Research findings established a meaningful link between job-related movement patterns and low back pain through statistical analysis ($\chi^2 = 11.68$, $p = 0.0021$). The physical demands of work environments appear to affect low back pain development based on this statistical association between occupational movement types. most closely associated with machinery or transport-based jobs. Vibration is an accepted risk factor for disc degeneration and chronic LBP.

Occupational duration of 10 to 14 years affected most patients at 26.0% while those with 5 to 9 years at 20.5% and those with 20 or more years of experience at 19.8% and those with 15 to 19 years at 19.4% and finally those with less than 5 years at 14.3% were affected the least. The statistical analysis revealed a significant difference between the occupational duration groups because of the observed values ($\chi^2 = 14.05$, $p = 0.0015$) which indicates.

The beginning of pain occurred more often as gradual onset in 56.8% of cases compared to 43.2% of cases which experienced sudden onset and the difference was statistically significant ($\chi^2 = 9.37$, $p = 0.0048$). This may reflect cumulative strain rather than acute injury in many patients. Most survey participants (63.7%) indicated that their pain spread out from its original location but 36.3% experienced pain that remained localized to one area. The difference was statistically significant ($\chi^2 = 5.78$, $p = 0.0095$) because the patients showed a notable prevalence of nerve root involvement or sciatica-like symptoms. The analysis of pain revealed that repeated pain episodes occurred much more frequently (77.7%) than first-time episodes (22.3%) and the difference was statistically significant ($\chi^2 = 13.49$, $p = 0.0017$). The findings demonstrate that low back pain tends to be chronic and recurring among this patient population. The results of this research highlight the crucial role of work-related elements and clinical symptoms in the analysis of low back pain patterns and associated risk factors.

3.4 Comorbidities and Pain Management Behaviors

Low back pain (LBP) is typically associated with a range of related musculoskeletal and systemic conditions that are possibly causative in the development or perpetuation, or exacerbation, of LBP. Consideration of the potential associated conditions, including Rheumatoid Arthritis (RA), Osteoarthritis Arthritis (OA), Ankylosing Spondylitis (AS), and discogenic conditions, must be taken into account in formulating all diagnoses in the first place and creating suitable treatment regimens. Second, an understanding of pain behavior, largely medication taken in reaction to pain, can guide self-management practice and paint a portrait of potential lack of access to or absence of education about health care.

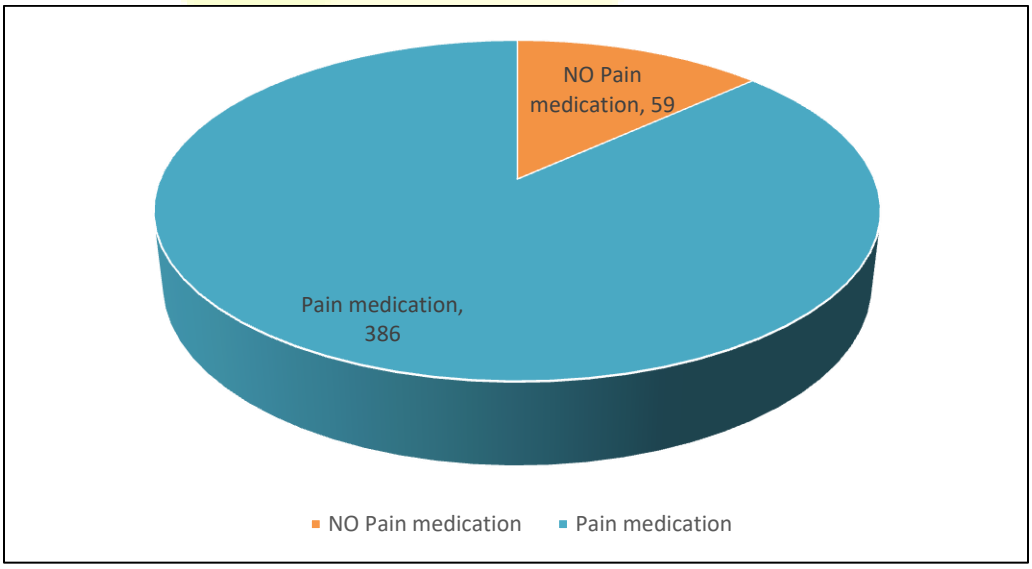

Figure (2): Proportion of patient taking medication among the LBP patients

Table (4): Frequency distribution and proportion of patients according Co morbidity and management behaviors

Variable		frequency	Percent	Chi-square	p-value
Associated disease	No	137	30.8%	27.63	0.0000
	RA	64	14.3%		
	OA	72	16.1%		
	Fracture	31	7.0%		
	Disco genic disease	59	13.2%		
	AS	34	7.7%		
	Trauma	29	6.6%		
	infection	19	4.3%		
Pain medication	Yes	386	86.8%	19.25	0.0009
	No	59	13.2%		
***Significant using Pearson Chi square test at 0.05 level**					

The results obtained from the patients' conditions showed that only 30.8% of the patients had no other accompanying conditions, while 69.2% had one or more concurrent conditions. These included osteoarthritis 16.1%, rheumatoid arthritis 14.3%, Disco genic disease13.2%, ankylosing spondylitis 7.7%, fractures 7.0%, Trauma6.6%, and infections 4.3%.

The statistical analysis showed a very strong connection between comorbidities and low back pain which suggests that systemic or musculoskeletal diseases significantly contribute to LBP development or worsening ($\chi^2 = 27.63$, $p < 0.0001$). The use of pain medication was reported by 86.8% of patients while 13.2% chose not to use any medication. The statistical analysis showed that medication usage among LBP patients was significant ($\chi^2 = 19.25$, $p = 0.0009$) because most patients depend on pharmaceutical interventions. These results might indicate that many patients experience long-term pain yet they lack proper awareness or access to non-medicinal treatment options which include physical therapy and patient education. These findings demonstrate the medical intricacy of LBP through its strong relationships with multiple persistent health conditions and the substantial use of medicinal treatments for symptom control**.**

4- DISCUSSION

The observed 22.11% prevalence of low back pain (LBP) among patients at the Rheumatology Clinic in Baghdad falls between global averages for the general population and the elevated levels seen in high-risk occupational groups. International studies estimate a global point prevalence of LBP at around 7.5% [6], whereas rates are significantly higher among healthcare professionals and athletes—for instance, 59.3% among Iraqi healthcare workers [7], and up to 67% among athletes in Saudi Arabia [8]. Thus, the present findings reflect a moderately high LBP burden, consistent with what may be expected in a specialized tertiary care setting.

In this study, overweight and obesity were the primary risk factors for LBP, with over 75% of the patients having a body mass index (BMI) above the normal range and 39.6% classified as obese. One of the main findings of prior studies is the significance of obesity as a major mechanical and inflammatory risk factor for LBP [9, 1, 2].Additionally, sedentary occupations—reported in 27.1% of the patients—were found to be significantly associated with LBP, aligning with literature linking prolonged sitting and static postures to spinal strain and chronic pain, especially in Middle Eastern and European working populations [7, 8, 9].

Beyond mechanical factors, comorbidities played a critical role in the chronicity of LBP in our cohort. A total of 69.2% of patients had at least one additional condition, most notably rheumatoid arthritis and osteoarthritis, reinforcing findings from other studies that musculoskeletal and systemic diseases exacerbate LBP symptoms [9, 1, 3]. Pain characteristics further support chronicity: 77.7% of patients reported recurrent LBP and 63.7% experienced radiating pain—patterns that are well-documented in chronic LBP patients with neuropathic features or disc degeneration [8, 9, 11]. From a demographic and geographical perspective, the majority of patients (61.9%) were female, which is consistent with the global trend of a higher prevalence of LBP in women [15, 1, 6]. The majority of patients (70.7%) lived in urban settings, likely because of the impact on health effects of sedentary urban lifestyles, time in sitting, and occupational exposures. While most of the evidence about urban-rural disparities in LBP is mixed internationally [11], the findings of this study are consistent with some evidence that urban populations have

a higher burden of LBP, likely due to environmental and behavioral risk factors [1, 12, 10]. Clearly, these findings have implications for public health policy and clinical practice in Iraq. Once again, the prominent modifiable factors (particularly obesity and occupational factors) highlight the potential role for prevention, including ergonomic interventions - particularly in the workplace, increasing physical activity, and weight loss programs [1, 6, 13, 10]. In addition, several authors recommend education and knowledge dissemination programs and advocating for occupational safety across all high-risk occupations [7, 8, 9]. Future research in this population should examine non-pharmacologic management of LBP (e.g., physiotherapy, vitamin D supplementation) and prospective studies should examine the causal pathways from modifiable lifestyle factors to chronic LBP outcomes [11, 10, 12]. These strategies will help to develop context-appropriate policies to address the increasing burden of LBP in Iraq.

5- CONCLUSION

The goal of this study was to denote the burden of low back pain (LBP) and understand the risk factors for LBP for patients during a visit to a rheumatology practice in Iraq. As we summarized in the introduction, we have shown that LBP is a large health burden for patients. We noted the high burden for females, middle-aged adults, and persons with obesity, persons with sedentary jobs, and persons with musculoskeletal comorbidities. Our study also highlighted the important and significant role lifestyle and work-related risk factors play in the occurrence and persistence of LBP, similar to findings in other parts of the world. Based on our findings, public health need for interventions related to weight control, ergonomic workplace practices, and assessment procedures for identifying risk for individuals at very high risk for LBP. Future research may wish to develop interventions based on a model that reflects reality, or designs based on evaluating long-term preventative and rehabilitative outcomes in this population which warrants further research.

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