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Prevalence and Predictors of Low Back Pain Among a Sample of Iraqi Academic Staff: A Cross-Sectional Study

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Abstract

Low back pain (LBP) is a common worldwide health issue that significantly affects everyday activities. However, it has been thoroughly examined among healthcare professionals in Iraq.

The impact on university academic staff has not been adequately investigated, despite their prolonged periods of sitting and standing. A cross-sectional study with analytical components was conducted using a convenience sample of 98 academic staff (both clinical and non-clinical) in Babylon, Iraq, to assess the prevalence of LBP across various timeframes and to determine associated socio-demographic, occupational, and anthropometric factors. Participants completed the Nordic Musculoskeletal Questionnaire. Prevalence was evaluated at the lifetime, 12-month, 4-week, and point (current-day) intervals.

The lifetime prevalence of LBP was 56.1%, decreasing to 35.7% over the past year, 31.6% in the last four weeks, and 25.5% on the day of the survey. Daily working hours showed a significant difference (p=0.035), with individuals with LBP working fewer hours (average 5.4) compared to those without LBP (average 5.6). This counterintuitive result challenges the hypothesis that longer working hours raise the risk of LBP. Of those with 12-month LBP (n=35), 54.3% reported activity limitations. Working 6 or more hours per day was associated with lower odds of LBP, but this association was not statistically significant. A significant association was found with height (p=0.004); individuals with LBP tended to be taller. This may indicate ergonomic mismatches or biomechanical stress. No significant links were found for age, years of teaching, gender, chronic disease, or job type (p>0.05), possibly reflecting the characteristics of academic work.

Low back pain is a common issue among the studied group of Iraqi academic personnel. The negative correlation with working hours suggests the presence of potential ergonomic or activity-level confounders. It is advisable to implement ergonomic interventions.

Keywords: Low back pain (LBP), Academic staff, Prevalence, Iraq.

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Introduction

Low back pain is one of the most prevalent and debilitating conditions, characterized by pain in the lower back. It can interfere with daily activities and has a significant negative impact worldwide (1). This condition affects more than 600 million patients globally (2). Most of the literature indicates that 50%-80% of the population has experienced low back pain at some point in their lifetime (1-3).

In general, academic and teaching staff have lower physical demands than other professionals because their work involves teaching, research, and prolonged sitting and standing (2). In contrast, health workers have physically demanding jobs (4). The occurrence of low back pain among academic staff might be related to multiple factors, including gender, age, and educational rank. Moreover, long working hours in static positions, whether sitting or standing, might also be an essential contributing factor (2,5).

Female sex has long been identified as a risk factor for low back pain; this association may be related to hormonal factors, physical abilities, and reproductive issues (2,5). The aging process has also been identified as a risk factor for low back pain due to degenerative changes that occur over a lifetime (6).

Despite research reporting a high prevalence of low back pain (LBP) among health professionals in Iraq, estimated at more than 90%, there remains a knowledge gap regarding the prevalence of this important group, the university academic staff in the Iraqi community, specifically within the Babylon area (7,8). The reported prevalence of LBP varies, ranging from about 22% among academic staff. from 11% in Thailand to more than 55% in Ethiopia. This variation might reflect working conditions for academic staff, working hours, methodology, or other cofactors (2,5).

The study aims to estimate the prevalence of low back pain among a sample of Iraqi academic staff and to determine factors associated with LBP. The objectives of this study are to estimate the prevalence of low back pain as chronic pain over the past 12 months, the past 4 weeks, and at the time of the questionnaire, and to identify possible associations and predictors, including gender, age, and job type, as well as the impact of LBP on daily life. The primary hypothesis is that longer average daily working hours are associated with higher odds of LBP. The secondary hypothesis is that academic rank is related to LBP.

Materials &Methods

Study Design

This cross-sectional study with analytical components was conducted from July to August 2025 at the College of Medical and Health Techniques, Al Mustaqbal University, Babylon, Iraq. The study included the four main departments: Radiological Techniques, Laboratory, Anesthesia, and Optics Techniques.

Participants were recruited through a census-based convenience sampling approach. All present academic staff, both clinical and non-clinical, who met the inclusion criteria during the data collection period, were invited to join. The sample consisted of ninety-eight participants, representing the

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The total number of eligible academic staff who consented to participate from the selected departments was recorded. This sampling method was chosen due to the limited population size. The inclusion criteria were that all participants were involved in teaching and clinical training across all academic ranks and age groups. Participants with rheumatological disease or a history of musculoskeletal surgery were excluded. Data were collected through face-to-face interviews using a structured questionnaire incorporating the Arabic version of the extended Nordic Musculoskeletal Questionnaire (9). Low back pain was defined as localized pain in the area between the lowermost ribs and the gluteal area.

Statistical Analysis

IBM SPSS 24 was used for the statistical analysis. Descriptive statistics are reported for lifetime, 12 months, 4 weeks, and at the time of the questionnaire. Continuous variables are reported as means and standard deviations, and categorical variables as percentages, given the limited sample size (n=98) and the number of LBP cases (n=35). Continuous variables were compared between groups using an independent-samples t-test. Categorical variables were analyzed using chi-square tests. Associations between LBP and potential predictors were examined using univariate logistic regression. Results are reported as crude odds ratios and 95% confidence intervals. p-values < 0.05 are considered significant. The analysis was limited to univariate regression to avoid overfitting.

Results:

Prevalence of Low back pain

The lifetime prevalence of LBP is 56.1% (95% CI: 46.3-65.9), indicating that more than half of all academic staff have experienced LBP at some point. The prevalence of LBP declined by about 35.7% over the last 12 months, 31.6% over the last 4 weeks, and 25.5% on the current day. This prevalence suggests that LBP is a serious health problem. The change in prevalence from 12 months to four weeks, and then to the current day, demonstrates that this pain is episodic rather than chronic. This episodic pain is consistent with workload demands (Table 1).

Sample Population Characteristics

The age range in this study population was 25-75 years, with a mean age of 46.4 years. Males represented 75.5% of the sample. The participants were overweight, with a mean BMI of 28.6 kg/m². The mean years of teaching were 10.3 years, with an average of 5.5 hours per day. About 35.7% of the participants reported having a chronic disease, such as diabetes and/or hypertension (Table 2).

Table 1: Prevalence of Low back pain

Time Period	Cases (n)	Prevalence	95% CI
Lifetime (Ever)	55	56.1%	(46.3-65.9)
Past 12 months	35	35.7%	(26.2-45.2)
Past 4 weeks	31	31.6%	(22.4-40.8)
Today	25	25.5%	(16.9-34.1)

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Table 2: Participant Characteristics (n=98).

Variable	Mean ± SD	Range (Min-Max)
Age (years)	46.4 ± 15.2	25.0 - 75.0
BMI (kg/m²)	28.6 ± 4.2	20.8 - 36.7
Years of Teaching	10.3 ± 11.3	1.0 - 45.0
Daily Working Hours	5.5 ± 0.7	2.0 - 6.0
Weight (kg)	82.4 ± 12.5	54.0 - 113.0
Height (cm)	169.9 ± 7.1	156.0 - 190.0
Categorical variables		**n (%)**
Gender	Female Male	24 (24.5%) 74 (75.5%)
Chronic Disease	No Yes	63 (64.3%) 35 (35.7%)
Job Type	Clinical Non-Clinical	59 (60.2%) 39 (39.8%)

Characteristics by LBP Status (Past 12 Months)

Daily working hours showed a statistically significant difference (p=0.035), with those with LBP working fewer hours (5.4) than those without LBP (5.6). This unexpected finding contradicts the hypothesis that longer working hours increase the risk of LBP. Height also differed significantly (p=0.004), with LBP-positive individuals taller on average. This height finding is interesting and might suggest an ergonomic mismatch or biomechanical stress (Table 3).

Impact of LBP on Function

About 54% of participants who had LBP in the past 12 months reported that it interfered with their daily activities. About 31.4% had changed their work, and about 11.4% reported the need for hospital admission because of pain. In this sample, only 14.3% reported taking sick leave, suggesting that participants continued working despite their pain. This trend of continuing to work despite pain might increase the risk of chronic LBP (Table 4).

Association between predictors and LBP (Univariate Analysis)

Working 6 or more hours per day was associated with lower odds; however, this trend did not reach statistical significance (OR=0.40, 95% CI: 0.17-0.94, p=0.055). No significant associations were observed for age, years of teaching, gender, chronic disease, or job type (p>0.05). This association might reflect characteristics of academic work (Table 5).

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Table 3. Characteristics by LBP Status (Past 12 Months)

Variable	LBP Present (n=35)	LBP Absent (n=63)	p-value
Age (years)	44.2 ± 16.0	47.6 ± 14.7	0.342
BMI (kg/m²)	27.4 ± 4.0	29.2 ± 4.2	0.056
Years of Teaching	9.4 ± 10.8	10.9 ± 11.6	0.147
Daily Working Hours	5.4 ± 0.6	5.6 ± 0.7	0.035
Weight (kg)	81.4 ± 12.4	83.0 ± 12.6	0.275
Height (cm)	172.4 ± 7.5	168.6 ± 6.6	0.004

Data presented as Mean ± SD. Comparisons between groups were made using Independent Samples T-test. "Values of p<0.05 were considered to be significant."

Table 4 Impact of LBP Function

Impact Indicator	n (%)	95% CI
Activity Limitation	19 (54.3%)	(37.8-70.8)
Doctor/Healthcare Visit	17 (48.6%)	(32.0-65.1)
Medication Use	19 (54.3%)	(37.8-70.8)
Sick Leave	5 (14.3%)	(2.7-25.9)
Work Duty Changes (Ever)	11 (31.4%)	(16.0-46.8)
Hospitalization (Ever)	4 (11.4%)	(0.9-22.0)

Table 5: Factors Associated with LBP (Univariate Analysis)

Variable	Crude OR	95% CI	p-value
Age (≥44 vs <44 years)	0.77	(0.33-1.75)	0.673
BMI (≥28.3 vs <28.3 kg/m²)	0.53	(0.23-1.23)	0.206
Years Teaching (≥5 vs <5 years)	0.40	(0.17-0.97)	0.067
Working Hours (≥6 vs <6 hrs./day)	0.40	(0.17-0.94)	0.055

Discussion

In this study, the prevalence of low back pain was assessed among academic staff at an Iraqi university in Babylon, along with its predictors and its impact on this population. More than half of the participants reported experiencing low back pain at some point in their lifetime. Additionally, over one-third reported low back pain in the past 12 months. These findings highlight a prevalent problem within this community. In this study, the prevalence of low back pain among academic personnel at a university in Babylon, Iraq, was examined, along with its determinants and implications for this demographic cohort. More than 50% of the subjects reported experiencing low back pain at some point in their lives. Furthermore, more than one-

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third disclosed experiencing low back pain within the preceding twelve months. These observations underscore a significant health concern prevalent within this subset of the population.

The study found that 56.1% of academic staff had experienced low back pain at some point in their lifetime. This is similar to the reported prevalence of low back pain among academic staff in Ethiopia over the last 12 months, which was 55.7% (2). A nearly identical percentage was reported among bank workers in Ethiopia (55.4%; 10) and among school teachers in Botswana (55.7%). In Somaliland, approximately 52% of primary school teachers reported low back pain (11). These similar percentages indicate that jobs involving prolonged sitting, standing, or repetitive actions may all contribute to this global issue. The variation may reflect differences in physical demands; healthcare professionals face challenges due to patient care and prolonged standing, while academic staff experience prolonged sitting and cognitive stress. However, in this study, the prevalence decreased from lifetime (56.1%) to 12-month (35.7%), 4-week (31.6%), and point (25.5%). This decrease in low back pain may suggest that these episodes are episodic rather than persistent. Other studies have also reported a similar decrease in pain pattern (2).

A cross-sectional study by Al Bakri et al. (2024) reported a 12-month prevalence of more than 90% among healthcare workers in Iraq. This high prevalence may reflect the physical demands placed on hospital-based healthcare personnel compared with academic staff at universities, as the sample included only clinical healthcare workers. However, the study lacks a structured methodology, which may introduce sampling bias (8). A study by Khudhir et al. (2017) (7) reported a prevalence of low back pain among academic staff of about 61%. The study included both academic and administrative staff, had a relatively small sample size (70), used ambiguous sampling and an invalid questionnaire, and did not adjust for potential confounders in its regression analysis, which might explain the higher 12-month low back pain rate. In Iran, a cohort of more than 160,000 participants demonstrated a lifetime prevalence of LBP of 25.2%. The gap may be due to the study including different occupational groups with varying physical activities and demands (12).

Although participants with low back pain had a lower mean BMI than those without it, BMI was not a significant predictor in the regression model ($p=0.206$). This suggests that, within this academic group, BMI may not be the primary factor affecting low back pain compared with occupational factors. This study did not find an association between low back pain and age, gender, or academic rank. However, female sex has been reported as a predictor of LBP (2, 13). The Ethiopian study by Hailu et al. (2025) provided the most relevant evidence for academic staff, including 607 staff members who completed the validated Nordic questionnaire. However, the study was conducted during COVID-19, a period characterized by a sedentary lifestyle, which may have influenced the results.

The lack of association observed in this study may be due to work distribution, cultural factors, and hormonal factors. An inverse trend was observed between working hours and LBP, with participants working more than 6 hours having lower odds; however, this did not reach statistical significance ($p>0.05$). The cross-sectional

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study by Mohammedi et al. (2017) reported that a sedentary lifestyle is associated with LBP among teachers. This study addressed psychosocial stressors and pain-limited activity rather than activity protection (3). These findings are consistent with the literature from Ethiopia (56%), Somaliland (52%), and Saudi Arabia, suggesting that the nature of the academic lifestyle plays a role across different regions despite cultural differences, in contrast to other studies that have reported a positive correlation between long working hours and LBP (2, 11). The explanation for this finding may be that physical activity contributes to better health than a sedentary lifestyle and that it may be associated with the type of job, as prolonged working hours for academic staff differ from those of health workers, who have different physical activity demands. However, because physical activity levels were not directly measured, this finding remains a hypothesis in this study and requires investigation. Moreover, this pain may be related to abnormal posture and repetitive movements that place biomechanical stress on the lower back (3, 14). In addition, prolonged physical inactivity may lead to weak paraspinal muscles and spinal malalignment (15). In this study, there was no relationship between LBP and years of teaching. This finding is consistent with those of other studies (2, 7).

Most participants in this study reported that LBP led to limitations in physical activity and reduced working hours. A limitation of this study is that it relies on tangible stress rather than a valid psychometric score (13). Despite the high reported prevalence of LBP, few participants took sick leave, with academic staff continuing to work despite pain. This finding is also reported by Workneh et al. (10). This may reflect job demands, role pressure (presenteeism), or potential job insecurity, as working despite pain may increase the risk of chronic LBP and long-term disability.

Limitations of the study

The limitations of this study include its cross-sectional design, which precludes establishing causality. The use of the Nordic Musculoskeletal self-report questionnaire may introduce recall bias because it relies on self-reported pain rather than clinically diagnosed conditions. Additionally, the study did not assess each participant's physical activity levels. The relatively small sample size may have limited the ability to detect modest associations. Although this study provides an important baseline for academic staff in Iraq, it is a single-center study, which significantly limits the generalizability of the findings to all Iraqi academic staff. Combining clinical and non-clinical groups may obscure specific job-related risks. Future multicenter studies with larger samples and multivariable models are recommended.

Conclusion

Low back pain is a prevalent burden among the studied sample of Iraqi academic staff. The inverse association with working hours suggests the presence of ergonomic or activity-level confounders. Ergonomic interventions are recommended.

Ethical approval

The ethical approval has been obtained from the Review Committee of Al Mustaqbal University (No. Reh 1-2.3.26).

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