




# PREVALENCE OF NON-SPECIFIC LOW BACK PAIN DUE TO JOB-RELATED STRESS AMONG SECURITY GUARDS


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## ABSTRACT

**Background of the study:** This research aimed to determine the prevalence of nonspecific low back pain due to job-related stress among security guards.

**Methodology:** A cross-sectional survey in Sahiwal involved 130 security guards from various educational institutes. They were chosen through random sampling, meeting criteria of age 18-60 years, job duration over 1 year, and weekly work hours >30. Job stress and pain severity were assessed using a self-made questionnaire and numeric pain rating scale (NPRS), with data analyzed using SPSS version 22.

**Result:** Low back pain prevailed in 87.7% of the security guards. Moreover, 73.8% of security guards showed fear of losing their jobs, 64.5% faced family stress and 83.1% of

participants felt pressured. The cross tab chi-square test was applied to check the association between stress and low backache, and results showed that 87.7% had both stress and low backache (p-value < 0.05).

**Conclusion:** The study concluded that non-specific low back pain is common among security guards, particularly in the age range of 40 to 60. Job-related stress factors, such as fear of job loss, on-the-job pressure, and financial stress, were identified as significant contributors to the majority of low back pain cases in this profession.

**Keywords:** *Low back pain, myalgia, occupational stress, prevalence, working conditions, work loss.*

## Introduction

Low backache is one of the most critical health problems related to psychosocial distress and decreased health-related quality of life<sup>1</sup>. Low back pain affects almost everyone at some point in their lives, and for years it was thought that kids and teenagers didn't get generalized back pain unless they had a severe, occasionally fatal disorder<sup>2</sup>. Back diseases range in severity from those that manifest suddenly and over a short period of time to those that develop gradually over years, such as osteoarthritis, disc degeneration, osteoporosis, and general non-specific backache<sup>3,4</sup>. A biopsychosocial framework is the most useful tool for elucidating the complex relationships between physical, psychological, and social health aspects that are involved in the multifactorial and widespread condition of back pain<sup>5,6</sup>. Patients develop medically recognized or self-reported.

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mental diseases as a result of the negative psychological and societal effects on their health<sup>7</sup>. The incidence of LBP and psycho-social variables are related, according to several cross-sectional research. The psychological components include discomfort, hopelessness, somatization symptoms, stress at work, and the demanding responsibilities of a job<sup>8,9</sup>. According to studies, social isolation from other people is associated with a higher risk of developing musculoskeletal disorders. Backache risk factors can include the psycho-social components of one's profession and personal life<sup>10,11</sup>. Low back pain is usually explained as pain, muscle tightness, and irritation confined lower the coastal borders and to the glutei and proximal thigh, which can radiate to the leg or can only be bound to the lower back. There are three categories that it falls under: acute, sub-acute, and chronic<sup>12</sup>. The typical prevalence of low back pain is 60%, which appears to be age-related. More people with low back pain tend to be women and older people, who are on average 40 years old<sup>13,14</sup>. Numerous studies have focused on the prevalence of LBP in the general population. Between 60% and 80% of people will experience back pain at some point in their lives<sup>15</sup>. According to estimates, low back pain is one of the six leading causes of disease burden globally. A prior study found that between 70% and 85% of backaches were brought on by work-related activities<sup>16</sup>. For the measurement of psychosocial factors at the workplace to detect the association between depression and backache, an extensive population survey was performed by using stratified cluster sampling, consisting of 8028 participants with age 30 years and 1894 participants aged 18–29 years. The psychosocial exposures in the study were measured with the Job Content Questionnaire (JCQ) and results showed good accuracy for strain and work control, and action for other influences was comparatively low. The relationship between job stress, depression, and back pain in both sexes could not have been discovered without the development of exposure classification. The study's conclusion showed that job exposure matrix more correctly categorizes jobs with high strain and low control than those with high demand or low social support<sup>17</sup>. A study was conducted on security guards on night shift work and related stress. Ninety security guards have included workers of night and night-time daily-shift and results display a significant change in cortisol. Cortisol levels rise throughout the night shift before and after shifts. They discovered a physiological predominance in vagal tone during the cardiocirculatory activity. That study's findings demonstrated that cortisol levels and blood pressure were sensitive to biological reactions to stress, and shift-change consequences occurred when there was a considerable amount of cortisol increase<sup>18</sup>. A cross-sectional study was conducted in Saudi Arabia and 427 nurses participated. The majority of the nurses who participated in the study (89.5%) were between the ages of twenty and thirty and worked on medical wards. The prevalence of back pain was 80%. Frequent lifting (95%), a lack of job satisfaction (95%), stress at work (OR = 5.81; 95%), troubles at work (OR = 2.40; 95%), and financial problems (OR = 2.08; 95%) were also associated with back discomfort. According to the findings of that study, back discomfort affects a lot of people working in the medical field. Back discomfort may be caused by psychosocial and ergonomic reasons, among other things. The overall response rate was 82.4%. more than eight years of experience in 43.4%. 79.5% of research participants reported having back pain, although only 31.9% had diagnoses, and 97.9% of those with LBP said it was related to their job. Fifty-three percent of the respondents reported having financial problems<sup>19</sup>. There was a random selection of 600 medical students for the survey. All university students, from the first to the fifth years, were given the questionnaires. A Psychological Distress Scale Questionnaire was used to assess psychological stress, while a Standardized Nordic Questionnaire was utilized to assess pain and musculoskeletal diseases. Most of the participants were second-year students who did not smoke and were single. The average stress level was 37%, and 66.7% of people reported not having ever suffered back pain. Out of 213 pupils, only 4.2% had experienced back pain that required hospitalization. Second-year students made up 25.4% of participants with LBP, and 67.1% of them were female. Their activities were impacted by 31.8% overall. thirty-three percent of the study's participants reported experiencing pain. 18.6% of people reported experiencing extreme stress. Second-year medical school, long job hours, and being a woman were the main risk factors for back discomfort<sup>20</sup>. That research study used a survey based on a questionnaire previously

published. The study sample was 600 to determine work-related low back pain among physical therapists. According to the study, 89% of physiotherapists have low back pain during work. Teamwork and reducing work-related stress may lower the risk<sup>21</sup>. A systemic study was performed to determine LBP if objectively prolonged exposures to work while standing, as compared to sitting, in healthy adults, and the results of the study showed that prolonged standing postures at work did not cause significant LBP as compared to sitting postures. The outcome measure for back pain by standardized mean differences included 56 participants in total. The amount of time spent standing while working was not substantially less painful than the amount of time spent sitting; the standard mean difference was 0.60, 95%. Scientifically, a high degree of heterogeneity meant that 90% of the data could not be attributed to random error. The perceived back discomfort outcome indicated no statistically significant difference between extended standing and sitting<sup>22</sup>. Stress is a disturbed emotional episode. Clinical manifestations of stress include melancholy, worry, a sense of helplessness, and irregular sleeping habits. The workload and presentation of psychosocial aspects, which are the causes of low back pain, will be well understood owing to this study. As a result, the literature for our study demonstrates the link between back pain and stress from the workplace. The rationale of this study is to understand the prevalence of non-specific low back pain in this occupational group which can have broader public health implications. It can inform policy makers, employers, and healthcare providers about the need for tailored strategies to promote the health and well-being of security guards, potentially reducing the societal burden of low back pain. to check job-related stress as a risk factor for low backache in security guards. The present research aims to identify the prevalence of LBP among security guards caused by job-related stress as well as the impact of job-related stress on low back pain.

## Methodology

It was a cross-sectional observational study and data was collected conveniently from security guards at their workplace (schools and colleges) in Sahiwal after an approval letter from the campus principal, from April to September 2021. Total 130 participants were recruited according to inclusion criteria, i.e. male security guards aged 18 to 60, job duration more than one year, working hours should >30 hours/week, with informed consent using nonprobability convenient sampling techniques. The participants with spinal pathologies such as a tumour, infection, fracture, spinal stenosis, osteoporosis, radiological signs of inflammatory diseases affecting the backbone, disc prolapse with neurological signs and symptoms which require surgery, past medical history of LBP before starting a job, or any other systemic disease were excluded from the study. A self-made questionnaire was used to collect the data, and added the numeric pain rating scale in the form of questions in the questionnaire. The study's participants gave their informed consent to participate, and the questionnaire was properly described to them in plain technical language. The self-created questionnaire that was employed had 19 questions and met all requirements for back pain and work-related stress and the questionnaire was validated through expert review, ensuring that it comprehensively covered relevant aspects of pain experience, triggers, and impact on daily activities. Concurrent validity was established by comparing the questionnaire results with a validated measure for low back pain, confirming its alignment with established measures. The questionnaire exhibits high internal consistency, as indicated by a Cronbach's alpha exceeding the standard threshold, ensuring the reliability of responses. In a component of the questionnaire, the numeric Pain Rating Scale (NPRS) was also utilized to rate the severity of the patient's pain.

## Data analysis method

Collected data were analyzed and tabulated using SPSS software. To represent the relevant variables, frequency tables and suitable graphs in the form of a histogram, pie chart, and bar chart were employed. The statistical software for social sciences (SPSS) version 22 was used to enter and analyse data. Descriptive statistics was used to calculate all values. The mean and standard

deviation are used to present numerical data, such as age. The presentation of qualitative data and groups takes the form of frequencies (percentages). The basic cross-tab chi-square test was used to analyze the relationship between stress and LBP.

### Results

A total of 130 security guards, aged between 18 and 60 years, were included in the study. Among these participants, 77% fell into the age group of 41-60 years, 94% were married, 69.2% owned their accommodation, 61% had less than 10 years of job experience, and 77.7% worked 12-hour shifts. These demographic details are elaborated in Table 1. Figure 2 illustrates that among the 130 participants, 114 individuals reported experiencing low back pain. To explore the association between stress and low backache, the study utilized cross-tabulation and a chi-square test. The variables "stress" and "low backache" are categorical and measured at the nominal level. The chi-square test is appropriate for evaluating associations between two categorical variables. The findings from this statistical analysis revealed a significant relationship, with 87.7% of those reporting low back pain also indicating they experienced stress (pvalue<0.05) as mention in table 2.

Variables	Category	n(%)
Age(years)	18-25	9(6.9)
	26-40	44(33.8)
	41-60	77(59.2)
Marital Status	Married	123(94.6)
	Unmarried	7(5.4)
Accommodation	Own	90(69.2)
	On Rent	40(30.8)
No. of job years	< 10 years	80(61.5)
	>10 years	36(27.7)
	>20 years	12(9.2)
	>30 years	2(1.5)
Working hours per day	<12 hrs	19(14.6)
	12 hrs	101(77.7)
	>12hrs	10(7.7)

Table 01: Demographic Characteristics (n=130)

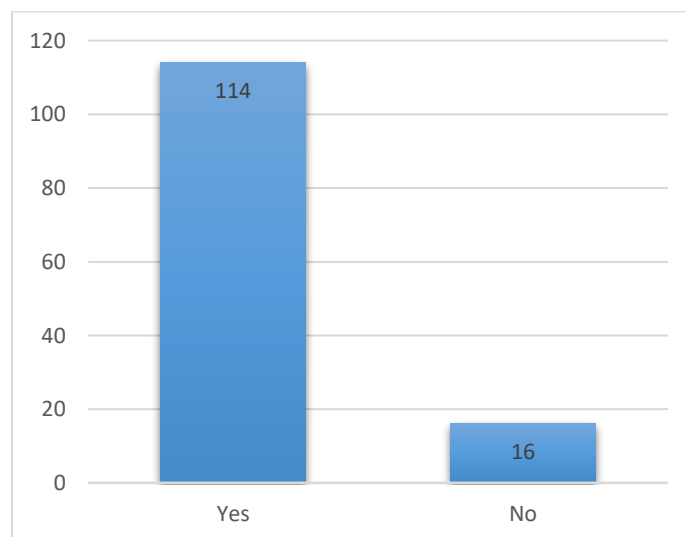


Fig 01: Frequency of low back pain in security guards

The information presented in the table indicates that out of the 130 participants, 114 individuals reported experiencing low back pain

		Stress		Total	%	P value
		Yes	No			
Back Pain	Yes	87	27	114	87.7	0.05
	No	9	7	16	12.30	
Total		96	34	130	100	

Table 02: Relationship between back pain and stress

## Discussion

The occurrence of back pain can be impacted by psychosocial stress experienced in the workplace. Individuals in the healthcare sector often engage in job-related tasks and body positions that affect their musculoskeletal system, making them more susceptible to pain, particularly in the back region. Low back pain (LBP) not only leads to significant costs but also contributes to morbidity. Despite efforts to manage low back pain, success has been limited, necessitating a deeper understanding of risk factors, particularly those of a psychological nature. In 2020, researcher Aishwarya Bhandari<sup>23</sup> conducted a survey to determine the prevalence of back pain among campus security guards using the Oswestry Disability Index (ODI). The study examined the percentage of individuals experiencing back pain based on factors such as age, gender, work experience, and day/night shifts. The results indicated that 29% of male guards out of a total of 73% reported back pain, while 19% of female guards out of 26% experienced back pain. The study concluded that the overall prevalence of back pain among guards was 48%. Our own research utilized a custom questionnaire and the Numeric Pain Rating Scale (NPRS) to assess the prevalence of back pain attributed to job-related stress in security guards. Factors such as age, marital status, accommodation, and job-related aspects (such as experience, duration, family stress, financial concerns, job satisfaction, and fears of job loss) influenced the occurrence of back pain among guards. Out of 130 participants, 114 (87.7%) reported back pain due to job-related stress, with a statistically significant P-value of <0.05. Another study by Hoda<sup>23</sup> explored the relationship between back pain and psychosocial (job-related) factors. The study found a high prevalence of back pain, at 80%, among participants. Factors strongly associated with back pain included lack of work satisfaction (95%), job-related stress (odds ratio [OR] = 5.81; 95% confidence interval [CI]), job-related problems (OR = 2.40; 95% CI), and financial issues (OR = 2.08; 95% CI). Factors remaining significantly correlated with back pain in the final analysis included lifting (95%), job-related stress (OR = 4.22; 95% CI), and lack of work satisfaction (OR = 1.87; 95% CI). The study concluded that back pain was prevalent in the healthcare sector, with lifting, social factors, and ergonomic considerations being significant contributors. Notably, financial issues were reported by 53.9% of the sample. Contrasting with this, our present study uncovered that 73.8% of participants feared job loss, 83.1% felt pressure from superiors, 65.4% experienced family-related stress, and only 13.8% could comfortably manage their expenses. Furthermore, 83.8% of individuals did not find their job interesting, while 9.2% expressed genuine job interest; the remaining 90.8% cited financial concerns as their primary motivation for employment. The identified routine responsibilities and stressors, including family pressures, workload pressures from superiors, prolonged static postures, financial constraints, and job disinterest, all contribute to a hazardous occupational environment predisposing guards to back pain. These findings reaffirm the prevalence of back pain among security guards. Adnan<sup>24</sup> conducted a survey in 2018, focusing on back pain and its associations. The study found that back pain was a prevalent issue among the employed population. Factors such as age, job-related physical demands, and psychosocial factors influenced the occurrence of back pain, which was closely tied to activity. The study indicated that approximately 37% of back pain was attributed to activity, with higher pain levels reported among males who experienced delayed salary payments. In our studied



population, 43.1% of individuals faced delayed salary payments, contributing to stress among guards. This further emphasizes the significance of these factors in causing back pain. Jobs involving early morning and late-night hours, as well as exposure to potentially violent situations or individuals, pose an elevated risk of physical violence. In this context, a study focused on guards assessed the prevalence of job-related violence. The findings indicated a higher prevalence of violence among younger males under greater time pressure and less experienced workers. Notably, verbal aggression was the most common form of violence, with older security guards being more frequently targeted<sup>25</sup>. In our own study, 60.52% of individuals reported experiencing back pain for over 6 weeks, 17.54% for over 2 weeks, 16.67% for a month, and 5.3% for more than 4 weeks. The results suggested a link between time pressure and violence, highlighting that busy guards might lack the opportunity to address situations properly. Duration of work, experience level, and job shifts emerged as risk factors for back pain. The average standard deviation for back pain intensity was 1.63 (0.6). Backache is the most common trouble in the adult population and the research support that backache is a basic complaint in security guards. We sought that job stress, ergonomic factors, emotional distress, and health behavior are prospectively connected to return visits for back pain. Personal issues, married life, and accommodation problems were also reported. A piece of clinical advice resulting from that study was healthcare providers must include the precondition of support, education, and suitable referral for patients that perceive themselves with a high level of stress.

## Conclusion

It is concluded that nonspecific low back pain is common in security guards, especially those between the ages of forty and sixty. Most of them experience low back pain as a result of work-related stress, which includes worry about losing their jobs, feeling under pressure at work, and worrying about their families' finances. Consequently, security guards' low back pain is linked to stress from their jobs.

### AUTHORS' CONTRIBUTION:

The following authors have made substantial contributions to the manuscript as under:

**Conception or Design:** Zainab Naeem, Sidra Zia, Iffat Ali, Laraib Un Nisa, Alina Amjad, Abubakar Mujtaba

**Acquisition, Analysis or Interpretation of Data:** Zainab Naeem, Sidra Zia, Iffat Ali, Laraib Un Nisa, Alina Amjad, Abubakar Mujtaba

**Manuscript Writing & Approval:** Zainab Naeem, Sidra Zia, Iffat Ali, Laraib Un Nisa, Alina Amjad, Abubakar Mujtaba

All authors acknowledge their accountability for all facets of the research, ensuring that any concerns regarding the accuracy or integrity of the work are duly investigated and resolved.

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