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Research Article

Prevalence Low Back Pain in Security Personnel in Vidarbha Region of Maharashtra, India: A Cross Sectional Study

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ABSTRACT

Introduction: Low Back Pain (LBP) is a frequent complaint among security personnel. It is a multifaceted and dynamic phenomenon. Up to 80% of people will experience low back pain at any point during their productive lives. Low back pain causes some weakness in those who are symptomatic.

Purpose: LBP is linked to injury and the inability to work. It is the most functional disability nowadays. The population of low back pain patients is increasing daily, leading to an economic and physical imbalance in the Vidarbha region of Maharashtra, where a large population is disabled because of low back pain.

Methods: The sample involved 66 security staff who met the following criteria: they were between the ages of 18 and 60, had worked as a guard for more than 5 years, worked at least 8 hours per day, and had suffered from low back pain for at least 1-3 months. Questionnaire-based 10 questions were asked related to body posture and work-related questions, and daily activity-related questions were asked, and the evaluation was made using scale. The intensity of discomfort, personal treatment, standing, sleeping, sex life, work-life, social life, and travel was among the questions asked. These questions were based on the intensity of pain.

Result: 66 security personnel were assessed. Out of which 20 patients had a minimal disability which is 30.77% of the total population. 31 participants had a moderate disability which is 47.69%. Whereas 12 security personnel i.e., 18.46% had a severe disability and 2 security personnel had crippled disability which is 3.08% of total participants.

Conclusion: It is concluded that working for 6-10 hours is more productive and less harmful for the body. It is also concluded that this population of security guards has moderate and minimal low back pain disability.

Keywords: Low back pain; Security personnel; Guards; Sciatica; Low back; Back pain; Chronic low back pain

INTRODUCTION

Low back pain is described as having occurred in the region of the lumbar due to various reasons. Low Back Pain (LBP) is the most prevalent musculoskeletal condition in adults, affecting up to 84 percent of the population [1]. The key identified risk factors for chronic pain include previous history of LBP, job frustration, involvement of sciatica, severity of physical impairment and, to a lesser degree, poor overall psychological status, unsatisfactory social background [2-4]. Work-related Musculo-Skeletal Disorders (WMSDs) are disorders in which personnel experience stiffness in one or more parts of the body, as well as joint pain, tingling, and swelling [4,5]. Excessive standing, on the other hand, occurs when employees spend more than half of their working hours standing, putting them at risk for workplace injuries [5]. According to research, standing for more than four hours a day causes low back pain, while 50 percent of stable people feel back and leg stiffness after just two hours of prolonged standing [5].

Security personnel spends almost half of their time on the job standing. This puts them at a higher risk of long-term hazards than other workers, such as lathe and milling machine operators, who must perform not only long periods of standing, but also

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repetitive motions, bending, and vibration, among other things [6]. Shift work also has long-term as well as short-term impacts. The short-term effects include effects on sleep, circadian rhythm, health, and safety as well as disturbances in one's person and social life, whereas the long-term effects include both gastrointestinal and cardiovascular diseases [7]. In general, the hospitals' security staff is among the shift workers, and more than the other shift workers are subject to safety troubling factors. Of course, because the security systems of hospitals in most developed countries are monitored by surveillance cameras, the security staff of the security guards is not faced with these problems. The impact of disorders arising from security guards has not yet been studied on this group of shift workers. In addition, security guards followed by the actions of the patient's companions and other issues may have a detrimental impact on the security staff of the hospitals [6]. As a result, the focus of our research is on determining the prevalence of LBP as the primary behavior in security guards whose job requires them to stand for long periods. To stop LBP, strategies for avoidance and coping may be applied after the prevalence has been determined. This would enhance the security guard's physical and emotional well-being, as well as their productivity and performance at work [7].

METHODOLOGY

Objective

To evaluate the Low Back Pain Disability in symptomatic low back pain security guard. Using oswestry disability questionnaire.

Study design

One of the most widely used scales for measuring disability linked to LBP is the Oswestry Disability Index (ODI) [8]. In hospital settings, the Oswestry Disability Index (ODI) [9,10] is the most widely used low back pain test questionnaire. It's a self-contained questionnaire of 10 groups that are meant to measure the shortcomings of different everyday activities. Each section is graded on a scale of 0 to 5, with 5 denoting the most severe impairment. The index is determined by dividing the overall score by the total potential score, multiplying by 100, and then expressing the result as a percentage. As a consequence, the denominator is diminished by 5 on any question not answered. If a patient has several statements in question, the highest score is used to determine whether or not the patient is disabled. The questionnaire takes about 1 minute to complete and takes about 3.5-5 minutes to complete. The Oswestry Disability Index (ODI) [10] is one of the most widely used condition-specific outcome tests in the treatment of spinal injuries and low back pain. It's a common tool among researchers and disability evaluators for determining a patient's lifelong functional disability. The test is considered the "gold standard" in the field of low back practical result tools. The ODI has been modified for use in secondary care settings since being widely used as a condition-specific outcome predictor in patients with spinal disorders [11].

The ODI consists of ten objects for the patient to choose which represent the ability of the patient to manage their daily lives while coping with their main objects must have the following:

- Pain speed
- Personal preferences (e.g. washing and dressing)
- Lift your head
- Taking a walk
- Seated
- Trying to sleep
- Sexual life
- Social life

After its initial growth, the original version of the ODI has been revised. The most recent version was published in 2004 [9].

Study setting-The study was conducted in the multidimensional setup where security guards were present. General questions were asked as given in the questionnaire a basic method was used to calculate the score. The location of the study was in the Vidarbha region of Maharashtra, India. The institutional ethics committee gave the clearance for the project. Ref no. DMIMS (DU)/IEC/2017-18/6554

Rationale/need of the study

The study mainly intends to measure the low back pain disability in symptomatic low back pain security guards. Differences in individual characteristics such as personality and coping skills can be very important in predicting when some job conditions will result in some disabilities in the workplace due to stress, and therefore if we detect the disability associated with security workers and can provide some ergonomic advice according to the problem, we can intervene early. This burden of musculoskeletal disorders can be assuaged by simple measures such as proper ergonomics practices, job training, and adequate periods of rest between strenuous works. Hence the present study was undertaken to the assessment of LBP disability in symptomatic LBP security guards.

Participants

As the population of the security guard is abundant in the city due to industrialization and urbanization. The very selective population was considered such as age group between 18 yrs to 60 yrs. Those who were currently working full time as security personnel and have work for at least 8 hrs. per day. Another inclusive criterion was the complaint of low back pain lasting for 3 months. Where as the exclusive criteria were part-time jobs and history of spinal surgery. This criterion was added because to rule out any tricky population.

RESULTS

The research was primarily performed in the 21 to 50 year age group. The present study included 19 patients aged 21-30 years, i.e. 29.23 percent. There were 21 patients in the 31-40 age group, which is 32.31%. A total of 25 patients, i.e. 38.47 percent, engaged in the last 41-60 years. The mean was 42.13 ± 12.81 from the age of 21-50 years (Figure 1).

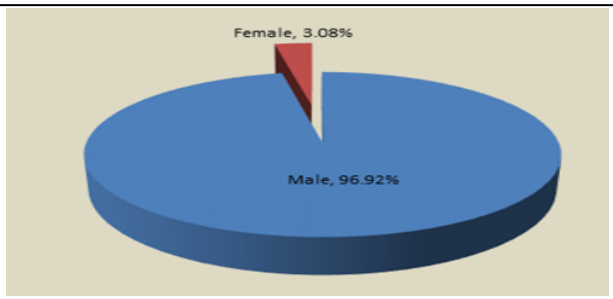

Figure 1: Gender wise distribution of patients.

Gender plays a significant role in the field of outdoor work. Men have more rights, while women lack protection, so their participation is less than men do. In this sample, 63 participants were male if we quantify them as a percentage of the total population, representing 96.92 percent of the total population, and only 2 females, representing 3.08 percent of the total population, participated. If it comes to male involvement and participation, male involvement is more dominant than female and male employment is granted an advantage over female employment (Figure 2).

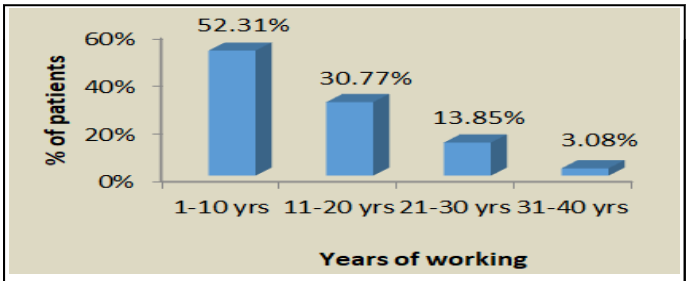

Figure 2: Distribution of patients according to years of working.

Here's the distribution of jobs in years. Working in the field of guarding requires a lot of physical activity and strength to work in any environment. According to the findings, the average number of participants in the period from 1 to 10 years of study was 52.31 percent. 30.77 percent of the research population has 11-20 years of experience and more experience than the 1-10 year working population, more experience than the 21-29 year study population is 13.85 percent and is more likely to experience musculoskeletal pain. At last, 3.08 percent of patients with work experience of 31-40 years of age, these patients range from 45-50 years of age and are the oldest among the study population (Figure 3).

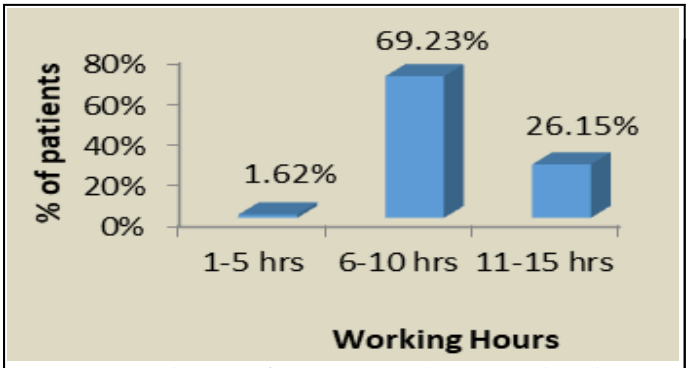

Figure 3: Distribution of patients according to working hours.

Working hours of security guards play a significant part, with the longest hours causing pain and lack of focus from work. The study reports that 10-hour work is more efficient than more than 12 hours a day. As the age of security personnel raises the workload and the emphasis on endurance decreases. In this study, 1.62 percent, i.e. 3 security guards work for 1-5 hours, the average working time of the research population is 6-10 hours, which has 69.23 percent of the population and is more efficient for work. Where 11-15 hours of work is performed in 26.15 percent, i.e., 17 hours of the research population. The average value measured is 9.26 ± 2.29 (4-15 hrs) (Table 1).

Low back pain	Score range	No of patients	Percentage
Minimal disability	0%-20%	20	30.77
Moderate disability	21%-40%	31	47.69
Severe disability	41%-60%	12	18.46
Crippled	61%-80%	2	3.08
Bed bound	81%-100%	0	0
Total		65	100
Mean ± SD		14.58 ± 7.81(0-33)	
Mean%		29.16%	

Table 1: Assessment with low back pain.

Here comes a major map. According to this research conducted in the region, approximately 20 (n=20) security personnel have a disability of 30.77%, which means that 20 security personnel have a cumulative score of 0-20 percent in all calculations. Moderate disability for the highest number, i.e., 31 security workers, has a disability of 21-40 percent. Accordingly, according to this point, workers have been assigned a modest amount of work based on their capacity to do the job. Approximately 12 (n=12) security staff, consisting of 18.46 percent of the total sample population, have an impairment of between 41 and 60 percent. The job distribution of this demographic is primarily based in the workplace and has limited fieldwork in a changing setting. Severely disabled security staff has the highest risk of being away from work. And this fluctuates their working hours and their reliance on drugs, which leads to economic imbalances and job losses. This research also results in disabled security personnel who have lost their fieldwork and are still involved in office work. There were 2 (n=2) security staff with 61-80 percent of the total impairment. The presence of these people is 3.08 percent in the overall report. A disabling illness or functional impairment leads to jobs and a substantial economic imbalance. The mean ± SD measured is 14.58 ± 7.81(0-33) and the total figure calculated is 29.16 percent.

DISCUSSION

It is observed that in the present analysis, 20 participants had a minimal disability, 31 participants had moderate disability, 12 participants had a severe disability and 2 participants had crippled disability. Studies have shown that a high prevalence of Musculo-Skeletal Disorder (MSD) could be since doing long-term work for more than 4 hours potentially exposes the worker to various MSDs. Prolonged low-intensity loads can increase the likelihood of tissue damage due to Viscoelastic time-dependent behavior of biological tissues leading to pain and discomfort leading to disability. Long-term fatigue, depression, and physical disability are noted when it affects various muscles, resulting in greater occupational restriction, absenteeism (loss of work), and the need to change jobs. According to a study, standing for more than four hours a day causes low back pain in workers, while 50 percent of healthy people report back and leg stiffness after just two hours of sustained standing. Security guards devote almost half of their working hours standing.

One of the most common risk factors for low back pain is advanced age. According to some reports, incidence peaked in the third decade [12-15], and average prevalence increased with age until 60 or 65, after which it steadily declined [16,17]. As previously mentioned, Dionne. discovered that the incidence of more severe forms of low back pain increases with age [18-21], and an increasing number of studies indicate that low back pain is a very prevalent problem in teenagers [22-30].

Although most researchers find no substantial variations in the prevalence of low back pain between men and women [31-35], our systematic analysis discovered that women had a higher mean and median prevalence of low back pain. Few studies have shown that older women have a higher incidence of low back pain than older men [36,37], and others have shown that women are more likely to take time off work and seek medical attention for low back pain, as well as being more likely to have permanent low back pain [38-43].

CONCLUSION

This study concludes that the impairment that arose due to musculoskeletal disorders is very successful for the body and can contribute to absenteeism at work. The research was provided to the head office of the university, and security staff was given jobs based on their disability. And proper implementation has been assured. This research also concludes that the selected population has limited to moderate levels of low back pain impairment. The most common etiology of low back pain is usually caused by long-standing posture to correct the security personnel has been recommended to sit for at least 10 minutes in between 2 hours.

Current studies show similar findings that back pain and physical activity have a significant effect on each other. Bad posture is the focus of wide-ranging debate across the globe. Prolonged sitting leads to disorder of the spine and the disease is known as posture and back pain syndrome. There is a relationship between the body mass index and the back pain of the security guards in this report. 58 percent of adults had a spinal pain problem; others had back pain and some had a neck pain complaint.

Low back pain has been related to occupational standing. Increased hip and trunk muscle co-activation, i.e., Gluteus Medius and trunk muscle co-activation, appears to be a predisposing rather than an adaptive factor in the production of low back pain during a standing combination of a positive successful hip abduction test and the presence of muscle co-activation during standing, which may be helpful for early diagnosis of at-risk individuals.

This report backs up previous findings that guards suffer from low back pain while on duty. Low social support and career satisfaction were linked to back pain amid low physical demands in workgroups with a high back pain rate. Another analysis of low back pain in Iranian factory workers revealed mechanical work and irregular muscle usage, concluding that back pain is a common issue in the working community. The prevalence of back pain has been caused by age and certain work-related physical and psychosocial causes, but the difference between different groups of workers is small. According to the report, which measures the global pressure of back pain due to cumulative occupational exposures and finds that 37% of low back pain is linked to occupation worldwide, back pain is completely related to the person's occupation.

CONFLICT OF INTEREST

The authors declare no competing interests.

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