MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.59218/makrjms.2024.5.252.255

OPEN ACCESS

Key Words
Low back pain, pain intensity, prevalence, incidence, quality of life

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Received: 31 December 2023
Accepted: 25 January 2024
Published: 29 January 2024

Citation: Gaurav Akhand, Kanishk Bhandari, Girija Nandan Mishra, Puneet Kumar Acharya, 2024. Prevalence and Impact of Low Back Pain in Adult Population in Central India: An Observational Study. Res. J. Med. Sci., 18: 252-255, doi: 10.59218/makrjms.2024.5.252.255

Prevalence and Impact of Low Back Pain in Adult Population in Central India: An Observational Study

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ABSTRACT
Lower back pain (LBP) is a pervasive issue globally, with a substantial impact on individual' s health, productivity, and healthcare expenses. This prospective observational study conducted in a tertiary care hospital in central India aimed to assess the prevalence of LBP among adults and identify associated risk factors. A total of 100 participants aged 18-65 years were included, with detailed demographic and clinical data collected. A higher prevalence of LBP among females, particularly in the age group of 30-50 years. Physical exertion, psychological stress, weightlifting, obesity, and prolonged sitting emerged as significant risk factors. While socioeconomic factors did not show a significant correlation with LBP in this study, lifestyle factors such as sedentary behavior and physical strain played crucial roles. Early identification of these risk factors is vital for timely intervention to prevent chronicity and improve quality of life. This study underscores the importance of addressing modifiable risk factors to mitigate the burden of LBP in the population. This study shows that lower back pain is common in all age groups, especially younger adults. Weightlifting, stress, prolonged sitting, and obesity contribute to this condition. Identifying these underlying factors can help diagnose the condition early and prevent chronic pain, improving quality of life.

INTRODUCTION

Back Pain (BP) constitutes a significant societal and economic issue. The incidence of acute and chronic low back pain (CLBP) in adults has experienced a twofold increase over the past decade and is currently undergoing a significant rise in the elderly population, impacting individuals of both genders and all ethnicities. Low back pain (LBP) has a substantial influence on an individual's ability to perform tasks, as the pain limits their ability to engage in work-related activities and is a primary reason for missing work. The economic burden is manifested directly through the substantial expenses associated with healthcare expenditure and indirectly through reduced productivity. Anticipated to escalate further in the upcoming years, these expenses are projected to increase. Anticipated to escalate further in the upcoming years, these expenses are projected to increase. In Bangladesh, India, Nepal, Pakistan, and Sri Lanka, the respective prevalence rates of back pain were 64.8%, 19.8%, 69.5%, 40.6%, and 36.2%. The high prevalence of lower back pain in all the aforementioned countries is primarily attributed to a lack of physical activity[1]. Worldwide, over 540 million individuals are impacted by lower back pain, and the prevalence of this condition has increased twofold over the past 25 years. The incidence of the condition is projected to rise further due to a growing population that is both older and more obese[2].

The prevalence of LBP has been observed to vary from 6.2% to 92%, with an increase in prevalence as age increases and a higher occurrence in females. There is a strong correlation between lower socioeconomic status, limited education, past occurrences of lower back pain, physical factors like heavy lifting, repetitive work, prolonged static posture, and awkward posture, as well as psychosocial factors such as anxiety, depression, job dissatisfaction, and lack of job control, mental stress, long working hours, and obesity with the development of lower back pain[2].

The concept of 'work style' suggests that ergonomic and psychosocial risk factors combine to influence the occurrence, worsening, and/or persistence of upper limb pain and functional limitations. The utilization of computers has significantly risen among the working populations worldwide, including India. A recent study found that 64% of Indian IT professionals experienced symptoms of pain and discomfort.

Worldwide, the prevalence of lower back pain exceeds 540 million individuals. It has profound impacts on one's overall state of being and frequently leads to notable physical and psychological health issues. Furthermore, it has an impact on job productivity and societal obligations, such as personal relationships, and is progressively becoming a significant contributor to rising healthcare expenses. Pain has a substantial influence on one's ability to function, as it limits one's ability to perform work-related tasks and is a primary reason for missing work. The economic burden is manifested through the substantial expenses incurred in healthcare and the subsequent decline in productivity[3].

Prior studies have demonstrated that the incidence of Work-related Musculoskeletal Disorders (WMSD's) is on the rise among individuals who use computers worldwide. Several studies have indicated that extended periods of sitting may be a significant risk factor for the onset of Low-Back Pain, along with other factors such as Low socioeconomic status, inadequate education, prior history of LBP, physical factors like lifting heavy objects, repetitive job tasks, prolonged static posture, and awkward posture, psychosocial factors such as anxiety, depression, job dissatisfaction, lack of job control, and mental stress, working hours, and obesity have been linked to LBP. The objective of this study is to see prevalence low back pain among adult population attending orthopaedic OPD of tertiary care hospital of central India.

METHODS AND METHODS

This prospective observational study was conducted by the Department of Orthopedics at tertiary care hospital of central India. 100 adults between the ages of 18-65 years were included into the study. After attaining the informed consent from all the participants in the study, detailed demographic picture was taken from all the patients who included the age, gender, smoking and alcoholic status, socio economic status, travelling, type of work, hours at work. Type and duration of sport, history of previous LBP, the intensity of pain, way it is relieved, duration of pain, i.e. the frequency of pain in a day are also taken into account. Height, weight of all the patients were noted and the BMI was calculated

RESULTS AND DISCUSSION

Among the 100 participants included in the study, 43 individuals (43%) were male, while 57 individuals (57%) were female. Among males, the age group most commonly affected was 31-40 years, with 38 individuals (38%) affected. Among females, the most commonly affected age group was 41-50 years, with 38 individuals (38%) affected, followed by 31-40 years with 26 individuals (26%) affected (Table 1).

The majority of individuals included in the study were married, accounting for 91% of the sample. Out of the total accounting for 42% of the population, had received education up to the primary school level. On the other hand, 30% of the population were unable to read or write, indicating illiteracy. A mere 7% of patients had education beyond high school level. A

Table 1: Age wise distribution of patients

Age (years)	Males (n=43)	Females (n= 57)
18-30	11 (25%)	7 (11.9%)
31-40	17 (38.6%)	15 (26.3%)
41-50	10 (23.9%)	22 (38.1%)
>50	5 (12.5%)	13 (23.7%)

Table 2: Demographic details of Study Participants

Parameter	Number	Percentage
Marital Status		
Married	91	91%
Unmarried	9	9%
Education		
Illiterate	30	30%
Primary school	42	42%
High school	21	21%
College and above	7	7%
Occupation		
Housewives	11	11%
Labourers	38	38%
Farmers	23	23%
Drivers	15	15%
Sitting job	13	13%
Food Habits		
Vegetarian	5	5%
Non-vegetarian	95	95%
Smoking		
Regular	4	4%
Occasional	45	45%
Never	52	52%
Alcohol Consumption		
Regular	31	31%
Occasional	55	55%
Never	14	14%
Coffee/Tea Intake		
Regular	82	82%
Occasional	13	13%
Never	6	6%

Table 3: Time And Duration of Pain

	Number	Percentage
Period of Pain		
Recent	15	15%
1month	11	11%
1year	65	65%
>3 years	9	9%
Position of Pain		
Back	19	19%
Low back	60	60%
2th rib to gluteal folds	21	21%

significant portion of the patients (38%) were manual laborers who frequently lifted heavy objects. Additionally, 23% of the patients were farmers who engaged in both weightlifting and prolonged bending from the waist. 15% of the individuals were employed as drivers, specifically in occupations such as taxi and lorry drivers. 52% of the individuals were classified as nonsmokers, while 86% were categorized as alcohol consumers, either regularly or occasionally. The majority of individuals consumed beverages such as coffee or tea regularly (Table 2).

Sixty five patients, accounting for 65% of the total, experienced lower back pain (LBP) for approximately one year. An additional 11% of patients reported having LBP for one month or longer. 9% of them had been experiencing suffering for more than 3 years. Out of the total number of patients, 60 (60%) experienced pain exclusively in the lower back, while 21 (21%) had pain that extended from the 12th rib to the lower gluteal folds (Table 3).

The majority of patients engaged in rigorous daily physical exercise for an extended duration (71%). A total of 58% of the sample, reported experiencing stress and anxiety. Similarly, patients representing 56% of the sample reported engaging in regular heavy weightlifting. Out of the total number of individuals, (45%) were classified as overweight or obese and experienced lower back pain (LBP) as a result of their excessive weight. Additionally, individuals (29%) reported LBP caused by prolonged sitting.

Lower back pain is a prevalent reason for frequent hospital visits, as well as work and activity absences [4,5]. The consequences include financial strain caused by frequent hospital visits, as well as mental and physical strain on both the individual and their family. LBP has been documented in various regions across the globe, encompassing both developed and developing nations[6,7].

While lower back pain (LBP) can affect anyone at any time, our study revealed a higher prevalence of LBP among females compared to males. The age group between 30 and 50 years appeared to be predominantly impacted. The current study was supported by a study conducted by Hoy et al, which found that females experience a higher degree of back pain compared to males.One In their study, Hestbaek et al found that the yearly occurrence of lower back pain (LBP) among young adults was 32.4%, whereas Ganesan et al observed a higher occurrence of 42.4% in their study[8,9]. Kopec *et al*. have documented that the prevalence of low back pain (LBP) is higher during the third decade of life[10]. Additionally, it was noted that the early onset of the condition contributed to the development of a chronic form of the disease, leading to increased morbidity in patients[11]. The low occurrence of lower back pain in this age group is believed to be linked to the physical demands of work and household activities that strain the lower back, as well as the degenerative changes that occur in the joints after the age of 30[12]. In this study, we did not find any significant correlation between marital status, socioeconomic background, or literacy and LBP (low back pain). Nevertheless, a study conducted by Freburger *et al.* revealed that lower back pain (LBP) is more prevalent among individuals belonging to the lower socioeconomic stratum[13]. The predominant risk factors for low back pain (LBP) in the current study were physical exertion and psychological stress. Additionally, risk factors included weightlifting, obesity, and prolonged periods of sitting. The sedentary lifestyle, particularly prolonged sitting at computers, has been reported by several authors to be a contributing factor to lower back pain, which supports our study findings[14-16]. Obesity increases the strain on the joints of the lower back, leading to a higher risk of degeneration and subsequent lower back pain[12].

CONCLUSION

This study demonstrates the high prevalence of lower back pain across all age groups, with a particular emphasis on its occurrence among younger adults. The contributing factors for this condition include obesity, lifting heavy objects, stress, prolonged periods of sitting, and so on. Identifying these underlying factors in individuals can help diagnose the condition as early as possible and prevent the pain from becoming chronic, thus enhancing the overall quality of life.

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