ORIGINAL RESEARCH

Prevalence and risk factors of low back pain in adults: A cross sectional study

Dr. Vijay N. Saradhara

Associate Professor, Rama Medical College, Hospital and Research Centre Pilkhuwa, Hapur, Uttar Pradesh, India

Corresponding Author
Dr. Vijay N. Saradhara
Associate Professor, Rama Medical College, Hospital and Research Centre Pilkhuwa, Hapur, Uttar Pradesh, India

ABSTRACT
Background: Low back pain (LBP) is a common health problem among adults population, and its prevalence increases with increasing in age.
Objectives: This study was hence conducted to assess the prevalence and risk factors of lower back pain among the young adults in our area.
Methods: This was a cross sectional study. Detailed demographic picture (age, gender, smoking, alcoholic status and socio-economic status) and risk factors (type and duration, physical activity, previous history of LBP, intensity and duration of pain and co morbidities) was taken from all the study patients.
Results: The most common age group to be affected were 41-50 years (40%), predominantly females (56%). Majority of the patients belong to rural (62%) and lower socio-economic class (52%). Common risk factors significantly associated with the LBP were moderate physical exercise (53.7%). Sitting for long period (40%), regular weight lifting (55%) and overweight or obese (44%). Most of the patients had LBP for 01 year with moderate intensity.
Conclusion: Identifying the risk factors of LBP at an early stage will prevent progression of LBP to a chronic disease state, thereby improving an individual's quality of life and increasing productivity.
Key words: Low back pain, prevalence, risk factors, young adults

INTRODUCTION
Low back pain is one of the common health problems that 50-80% of adults experience at some point in their life [1]. It is estimated that people over the age of 18 who can work are most susceptible to LBP, which is, globally, the most critical reason for disability [2, 3].The burden of LBP stemming from work-related ergonomic exposures was projected to result in about 21.8 million disability-adjusted life years (DALYs), in 2010 (95% confidence interval (CI) 14.5-30.5) [2]. Of this, 8.3 M DALYs were in females and the remaining 13.5 million were in males.Nearly everyone will suffer from lower back discomfort at some point in their lives [4].The prevalence of the 1 year period generally occurs in adults worldwide and increases when one reaches the middle-age period. Women are more likely to have LBP than men. People with low back discomfort who cannot engage in everyday activitieshave a greater risk of developing such conditions with age [5]. Numerous individual and environmental risk factors for LBP have been identified [6].For example, individual factors, such as metabolism, biochemistry, physical factors, and expressive tendencies, have been identified as risk factors for LBP [7]. Moreover, environmental risk factors, such as job satisfaction, lifting heavy weights, prolonged standing, forward bendingand carrying school backpacks, have been identified [6]. However, there is limited evidence of other associated risk factors of LBP, such as arthritis, diabetes, and hypertension.

AIMS & OBJECTIVES: The aim of this study to determine the prevalence and risk factors of lower back pain among the young adults in our geographical area.

MATERIALSAND METHODS
The study was a cross-sectional survey carried out in the department of orthopedics in a tertiary care center, India from January 2019 to December 2019 (01years). A total of 800 young adults suffering for low back pain attending out patient's department during the study period were enrolled.

INCLUSION CRITERIA
- Patients aged between 18 and 50 years.
- Participants who provide consent for the study.

EXCLUSION CRITERIA
- Patients <18 or > 50 years of age.
- Participants who not provide consent for the study.
- Immunocompromised or patients on steroid.

DetailedSocio-demographic data was taken from all the patients. Data included the age, gender, residential status, socio economic status, BMI, travelling history, diet,smoking and alcoholic status,type of work,posture while studying (walking, sitting in a chair and forward bending, sitting in a chair with back support, sitting on the floor with back support, and sitting on the floor without back support), Type and duration of sport, history of previous LBP, history of osteoporosis,history of spine problems,the intensity of pain, factors that aggravate and relieve LBP, duration of pain, i.e. the frequency of pain in a day are also taken. Pain was assigned a score of 0-100.

STATISTICAL ANALYSIS
The data were analyzed using the SPSS ver. 19 (SPSS Inc., Chicago, IL, USA). Percentages and proportions were calculated. The chi-square test was used for categorical variables.P value <0.05 to be considered as statistically significant.

RESULTS
Prevalence of the low back pain in the present study was 23.5% (800/3400). Out of the total patients the most common age group to be affected was 41-50 years (40%), predominantly females (56%). Majority of them (62%) were residing at rural area, 52% belong to lower socio-economic class and 42% had education up to primary school. Most of the people under study were married (89%), many of the patients (42%) were laborers, 70% of participant was vegetarian. 49% of the people were nonsmokers while 43% were occasional smokersand 55% consumed alcohol occasionally [table:1].

Table 1: Socio-demographic details of low back pain patients

Socio-demographic variables		Number (n=800)	Percentage
Age group	18-30 years	192	24%
	31-40 years	288	36%
	41-50 years	320	40%
Gender	Male	352	44%
	Female	448	56%
Residential status	Rural	496	62%
	Urban	304	38%
Socio-economic class	Lower	416	52%
	Middle	288	36%
	Upper	96	12%
Education	Illiterate	232	29%
	Primary school	336	42%
	High school	168	21%
	Graduate	64	8%
Marital status	Married	712	89%
	Unmarried	88	11%
Food habits	Vegetarian	560	70%
	Non-Vegetarian	240	30%
Occupation	Laborers	336	42%
	Businessman	192	24%
	Sitting job	272	34%
Smoking	Regular	64	8%
	Occasional	344	43%
	Never	392	49%
Alcohol consumption	Regular	224	28%
	Occasional	440	55%
	Never	136	17%

Most of the patients had moderate physical exercise on daily basis (53.75%). Only 15% had past history of spine problem, 55% have regular weight lifting, 40% patients were occasional sitting for long time. Most of the patients (44%) were overweight, 59.5% had family history of LBP and 24% having history of fracture (table 2).

Table 2: Risk factors associated with low back pain

Risk factors		Number (n=800)	Percentage
Past history of spine problem	Present	120	15%
	Absent	680	85%
Physical exercise	No	50	6.25%
	Mild	110	13.75%
	Moderate	430	53.75%
	Strenuous	210	6.25%
Weight lifting	Regular	440	55%
	Occasional	304	38%
	Never	56	7%
Sitting for long period	Regular	256	32%
	Occasional	320	40%
	Never	224	28%
BMI	Normal	160	20%
	Overweight	352	44%
	Obese	288	36%
Family history of LBP	Yes	476	59.5%
	No	324	40.5%
History of fractures	Yes	192	24%
	No	608	76%

Majority (66%) of the patients had LBP for around 1 year, 61% of the patients were position of the pain in the lower back and 45% of patients had moderate degree of pain (Table 3).

Table 3: Time, duration and severity of low back pain

Pain related factors		Number (n=800)	Percentage
Period of pain	Recent	128	16%
	1 months	80	10%
	1 year	528	66%
	>3 years	64	8%
Position of pain	Back	144	18%
	Lower back	488	61%
	2nd rib to gluteal folds	168	21%
Severity of pain	Mild	190	23.7%
	Moderate	360	45%
	Severe	250	31.3%

Among relation of co morbidities and LBP, 34.5% was diabetic, 30.5% had hypertension, 31.5% patients having dyslipidemia, 15% of asthma and 23% patients had depression. Osteoporosis was present in 44.5% of LBP patients and 38.7% had arthritis.

Table 4: Correlation of low back pain with other comorbid conditions

Comorbid conditions		Number (n=800)	Percentage
Diabetes	Present	276	34.5%
	Absent	524	65.5%
Hypertension	Present	244	30.5%
	Absent	556	69.5%
Arthritis	Present	310	38.7%
	Absent	490	61.3%
Asthma	Present	120	15%
	Absent	680	85%
Depression	Present	184	23%
	Absent	616	77%
Osteoporosis	Yes	356	44.5%
	No	444	55.5%
Dyslipidemia	Yes	252	31.5%
	No	548	68.5%

DISCUSSION

Lower back pain is one of the common causes for frequent visits to hospital, as well as absence from work and activity. It results in financial stress due to frequent hospital visits and mental and physical stress to the individual and his family. LBP has been reported from throughout the world, both developed and developing countries alike. LBP occurs at any time, to anybody [8-9].

The prevalence of low back pain in middle-aged adults was 23.5%, in agreement with the Waterman BR, et al.[10] and Jacobs JM, et al.[11] reported prevalence of LBP were 28% and 23% respectively.

Present study was found females to be more affected by back pain than males, corroborated by Hoy et al.[12] and Rodrigo, et al.[13].

In our study LBP was most commonly affect 41-50 years older adults, concordance with the Hayden J, et al.[14] and Meucci RD, et al.[15].

Prevalence of LBP was increases with the age. Higher prevalence of LBP in this age group is said to be associated with the occupational as well as domestic pressures that overload the lower back along with the degenerative articular process shown after 30 years of age.

In the present study, we had found no significant association with the marital status, literacy, smoking and alcohol consumption to LBP, our results correlate with the Ramdas J et al.[16].

Current study observed that LBP was more among rural and lower socio-economic class persons, comparable with the Freburger et al.[17].

The most common risk factors for LBP in present study were physical exercise, lifting weights; family history of LBP, obesity and sitting for long periods, similar finding also reported by Heneweer H, et al.[18] and Heuch I, et al.[19].Sedentary life style especially due to sitting at computers for long period of time contributed to the lower back pain. Obesity is known to promote overloading of the articular structures of the lumbar spine, thus causing predisposition to degeneration resulting in LBP.

In our study patients had LBP for around 1 year and moderate in nature, consistent observation seen by Ramdas J et al.[20].

Co morbidities like diabetes, hypertension, asthma, dyslipidemia, arthritis and osteoporosis was not significantly associated with the LBP in this study, our results comparable with thesome other researchers [21-22].

CONCLUSION

This study shows that lower back pain is prevalent especially among the younger adults. The predisposing factors for this condition are obesity, carrying weights, stress, sitting in a position for a long period of time, etc. Identification of these risk factors at an early stage will prevent the progression of acute LBP to chronic LBP. As chronic LBP has the potential to curb individual quality of life and increase economic burden, creating awareness about the modifiable risk factors in young adult populations may lead to lifestyle modifications, thereby improving their quality of life and increasing productivity.

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