Cross-Sectional Study

Prevalence and Impact of Low Back Pain in a Community-Based Population in Northern India

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Background: Low back pain (LBP) ranks first for disability and sixth for overall burden on world health, with an annual approximate cost of $135 billion. There are limited data on the prevalence and risk factors for LBP in developing countries, such as India.

Objectives: To assess the prevalence, pain intensity, and quality of life (QOL) associated with LBP in northern India.

Study Design: Cross-sectional study.

Settings: Northern states of India.

Methods: Adult population of different strata of the community were interviewed. Lifetime, point, 1-year, and age standardized lifetime prevalence with 95% confidence intervals (CI) and QOL, and pain intensity using the Numeric Rating Scale (NRS-11) were determined. Binary logistic regression test was conducted to determine the predictors of LBP prevalence; odds ratio (OR) with 95% CI are presented. Significance level was set at $P \leq 0.05$.

Results: A total of 1,531 patients were interviewed of whom 48% were men and mean (standard deviation [SD]) age was 32 (10) years. Lifetime, point, 1-year, and age standardized lifetime prevalence (95% CI) were 57% (54%–59%), 32% (30%–34%), 48% (46%–51%), and 59% (56%–62%), respectively. Average (SD) NRS-11 was 4.2 (2.6). Significant impact of LBP on sleep (24%), depression/psychological problems (24%), and social life (28%) were observed. Women (OR, 2.23; 95% CI, 1.80–2.77; $P < 0.05$), walking/lifting activity (OR, 1.362; 95% CI, 1.097–1.692; $P < 0.05$), and increasing age (OR, 1.03; 95% CI, 1.02–1.04; $P < 0.05$) were most significant positive predictors of LBP.

Limitations: The progression of LBP could not be assessed in the enrolled patients.

Conclusions: LBP is highly prevalent in India, adversely affecting QOL in respondents. This calls for action by health officials to plan prevention, education, and management programs in the society.

Key words: Low back pain, pain intensity, prevalence, incidence, quality of life

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Low back pain (LBP) is a highly debilitating health condition characterized as pain and discomfort localized below the costal margin and above the inferior gluteal folds, with or without leg pain (1). LBP is common, well documented, and most prevalent amid musculoskeletal conditions (2). The Global Burden of Disease Study 2016 reported LBP in the top of years lived with disability (YLD) contributing 57.6 million (40.8–75.9 million) of total YLDs, largely because of aging and increasing world population. In low- and middle-income nations, LBP has risen by more than 50% since 1990 (3). In India, back and neck pain is ranked as the second leading cause of YLD after iron deficiency anemia (3). The estimated prevalence of LBP in India is reported to range between 42% and 83% (4,5). Recently, Ganesan et al (6) reported LBP prevalence as 42.4% per year and 22.8% per week in young Indian adults aged 18 to 35 years.

LBP possesses massive economic burden on affected individuals and families for being a common purpose for visits to a physician (7). The exploration of the risk factors for LBP is an important aspect of the management of the condition. The biopsychosocial model designates the environmental, socioeconomic, cultural, and psychological factors as significant reasons for LBP (8,9). Occupational factors, such as poor workstation ergonomics, sitting for long hours, awkward working postures, and psychological factors, such as job strain, repetitive work, job satisfaction, and anger, during the last 30 days also contributes to increased occurrence (10,11).

Pain measurement holds a great challenge on people contemplating its appropriate control. Pain is considered as multidimensional, complex, individual, and subjective perception, which can only be quantified indirectly (12). Chronic pain adversely affects the psychological and environmental facets of the patients, thus worsening the quality of life (QOL). Chronic LBP greatly affects frame of mind, which leads to irritability, anxiety, depression, low social interaction, and finally lowers the overall QOL (13). It also accounts for job absenteeism, change of job profile, and even job loss (14).

Although many studies reported the prevalence and risk factors of LBP in various populations, there is a dearth of data regarding this condition in the Indian population. Recently Ganesan et al (6) have evaluated the prevalence and risk factors for LBP among young Indian adults. However, their evaluation was restricted to 1,355 young Indian administrative service aspirants and medical postgraduate aspirants the between ages of 18 and 35 years (6).

To the best of our knowledge, a community-based cross-sectional study evaluating the prevalence of LBP from India has never been reported. To fill this disparity, we conducted a large, cross-sectional study primarily aimed to estimate prevalence, QOL, pain intensity, associated risk factors, and to quantify the information among different subgroups of the population.

Methods

Study Location

The study was conducted in and around the Chandigarh area of northern India; the dominant geographic features are the Indus-Gangetic Plain and the Himalayas, which separate the region from the Tibetan Plateau and central Asia (15). Northern India has a humid subtropical hot summer climate, particularly mild with dry winters, moderate seasonality with annual sunshine of approximately 2,762 hours and mean annual temperature of 73°F (16).

Study Design

A cross-sectional design quantitative in nature adopted a structured questionnaire to obtain data from January 2015 through December 2016. The study was registered with Clinical Trials Registry–India (CTRI) with registration number CTRI/2014/11/005158 on 03/11/2014. The adult population residing in and around Chandigarh fulfilling the inclusion criteria were enrolled in the study. STROBE (Strengthening the Reporting of Observational studies in Epidemiology) guidelines were followed while reporting the study.

Inclusion Criteria

Adult population of either gender between ages 18 and 65 years who were willing to participate in the study by providing written informed consent were enrolled in the study.

Exclusion Criteria

Patients not willing to participate or either refused to provide written consent and complete questionnaires were excluded from the study. Further, respondents suffering from cancer, trauma, or known vertebral fractures, work-compensation claim, or pending litigation related to the medical problem were excluded from the study.

Data Collection Instrument

A predesigned structured data collection form was used for obtaining the data. LBP was defined as pain/discomfort localized in the area below the costal margin and above the inferior gluteal folds lasting more than 1 day, regardless of accompanying radiating pain that was not merely associated with febrile illness, menstrual periods, or pregnancy. Respondents were provided with an anatomic drawing to localize the area of pain accurately.

Efficiency of Questionnaire

To assure the veracity, clearness, and consistency of the questions, the questionnaire was assessed among the pretest group consisting of 78 respondents belonging to various strata of the community. The research team, consisting of a trained investigator, data collector, clinician, pain specialist, and statistician, assessed the consistency and reliability of the complete questionnaires. Three questions sharing the same context with regard to disease characteristics were excluded, subsequently, 4 questions were modified after comprehensive discussions of the panel while obtaining responses from the pretest group. A final draft was created, and translated into commonly spoken languages (Hindi, Punjabi) in northern India.

Final Questionnaire

The final questionnaire used for documentation was comprised of 4 sections pertaining to (1) sociodemographic details; (2) disease characteristics; (3) knowledge regarding LBP; and (4) QOL, disability, and beliefs pertaining to LBP. The sociodemographic dossier was comprised of age, gender, occupation, physical activity, height, weight, body mass index (BMI), and medical reimbursement were documented to assess the risk factors for the presence of LBP. BMI was obtained by dividing the weight in kilograms by the square of the height in meters. BMI was categorized as underweight if < 18.5 kg/m^2, normal if 18.5 to 24.9 kg/m^2, overweight if 25 to 29.9 kg/m^2, and obese if ≥ 30 kg/m^2 (17). The disease characteristics section was comprised of 9 direct questions to determine lifetime, last 1 year, and chronic and point prevalence of LBP. The patients were asked questions such as: "Have you ever suffered from LBP?" for lifetime LBP, "in last one year have you suffered from LBP?" for 1-year LBP, "Have you ever suffered LBP for 12 weeks or more?" for chronic LBP, and "Are you presently suffering from LBP?" for point prevalence. Pain intensity was measured on an 11-point Numeric Rating Scale (NRS-11, 0-10) presenting "0" as "no pain" and "10" on another end as "severe pain." Fourteen questions regarding knowledge of LBP were asked to patients who have experienced lifetime episodes of LBP comprising, "What kind of treatment do you use?", "Do you feel that treatment helped you?", "Do you know the cause of LBP?", "Do you exercise regularly?" and others. Eight questions pertaining to the QOL, disability, and beliefs pertaining to LBP, such as: "Does LBP affect your sleep?", "Do you like/enjoy your current job?", "Does LBP lead to depression/psychological problem?", and "Does LBP affect your day to day routine activities?" and others.

Ethical Considerations

The institutional ethics committee of the Post Graduate Institute of Medical Education and Research, Chandigarh approved the study. Ethically anonymity was maintained pertaining to the questionnaire; absolutely no names were penned on questionnaires. Although in enrolling patients written informed consent was obtained, those who refused to provide consent were excluded from the study.

Data Collection Procedure

Trained investigators having a good acquaintance in the local language (Hindi, Punjabi), experienced in conducting a survey, and comprehensive knowledge of disease were employed for face-to-face data collection. Considering the meticulous collection of information from patients, the purpose of the study was thoroughly explained prior to the administration of the questionnaire. During the filling of the questionnaire, the interviewer explained diligently if patients felt indecision or misunderstanding about any question. Because LBP characterization is highly perplexing, the precise definitions contrasting various prevalence's were specified in the questionnaire to abate bias and underreporting. For compiling missing information, if any, after initial data collection, an attempt was made by revisiting the patient through telephone/face-to-face interview to obtain complete information; a questionnaire containing missing items even after revisiting the patients were rejected for final analysis.

Outcome Measures

The primary outcome was to determine the lifetime prevalence, 1-year prevalence, recurrent prevalence, and point prevalence of LBP. The secondary outcomes included assessment of pain intensity (NRS-11, 0-10),

QOL among respondents with LBP, and assessment of risk factors associated with lifetime LBP.

Lifetime Prevalence of Chronic LBP

Lifetime prevalence was the proportion of the recruited population who, at some point in their life up to the time of assessment (interview), have ever had an episode of LBP.

Point Prevalence of Chronic LBP

Point prevalence was the proportion of the recruited population that were suffering from LBP at the time of assessment.

One-Year Prevalence

One-year prevalence refers to proportion of the recruited population that ever had suffered episodes of LBP in the prior 1 year of the time of assessment.

Chronic Prevalence

Chronic prevalence refers to proportion of the recruited population whose LBP episode persisted continually for 12 weeks or more.

Sampling Technique and Sample Size

A stratified, multilevel, systematic random sampling was employed in this study. The city of Chandigarh was stratified into urban, rural, and slum areas (18). The sample was collected from these domains as per the probability proportionate to their size. The number of households selected was proportionate to the urban, rural, and slum population, that is, 90%, 7%, and 3%, respectively (18). From each of these areas, 4 sectors, 2 villages, and 2 colonies randomly selected, respectively. From each urban sector 337 households, from each village 45 households, and from each colony 105 households were selected using systematic random sampling. Within each household, one person was randomly selected from all the eligible respondents if the selected person was not available for the study on the date of the survey, the suitable day and time were enquired, and all the respondents were contacted at the end of the survey as per the day and time of their convenience.

Statistical Analyses

Data were entered into Microsoft Excel (Microsoft Corporation, Redmond, WA) and exported to SPSS version 22 (IBM Corporation, Armonk, NY) for final analysis. The LBP lifetime prevalence, point prevalence, 1-year and chronic prevalence were presented as a proportion of the sample with 95% confidence interval (CI). The chi-squared test and an independent t-test were used to analyze categorical and quantitative variables, respectively. Binomial logistic regression was performed using the stepwise, forward entry method, and significant risk factors for lifetime LBP were examined using significance, standard error, 95% CIs, and the Wald test. The results were presented as odds ratio (OR) with 95% CI. LBP was plugged as a dependent variable, whereas demographic items, occupation, gender, and physical factors were used as independent variables. Throughout the analysis, probability value (*P* value) < 0.05 was regarded as statistically significant.

Results

Demographics

Of the 1,648 enrolled patients, 1,531 (92.9%) completed the data collection form; the remainder were incomplete, and hence were excluded from the study. The mean (standard deviation [SD]) age was 32.0 (10.0) years with the majority (three-fourths) belonging to the younger (18–35) age group. The gender distribution was almost equal with 48% being men. The mean (SD) BMI of the patients was 22.6 (4.5) with only one-fourth being overweight and the majority (60%) having normal BMI. The enrolled women were slightly younger 31.3 (10.4) years and had lower BMI 21.5 (4.2) as compared with enrolled men (32.8 [9.9] and 23.7 [4.7], respectively). Nearly half of the patients were eligible for medical reimbursement. The patients were from diverse occupations with 27% being students/researchers, 26% management/professionals, and 6% laborers, respectively (Table 1).

LBP Prevalence

The lifetime prevalence of LBP was found to be 871/1,531 (57%; 95% CI, 54–59), with women (525/799, 65%; 95% CI, 62–69) reporting significantly higher prevalence than men (346/733, 47%; 95% CI, 44–51; *P* < 0.01). The point prevalence, chronic prevalence, and 1-year prevalence in the study cohort was found to be 32% (95% CI, 30%–34%), 12% (95% CI, 11%–14%), and 48% (95% CI, 46%–51%), respectively. The other prevalence rates were also found significantly higher in women as compared with men; point prevalence (298/799, 36%, 95% CI, 34%–41% vs. 191/733, 26%, 95% CI, 23%–29%; *P* < 0.001), chronic prevalence (112/799, 14%, 95% CI, 12%–17% vs. 73/733, 10%, 95% CI, 8%–

Table 1. *Baseline characteristics of the patients.*

Characteristics	Total n = 1531	Men 733 (48%)	Women 798 (62%)	*P* Value
Age, yrs, mean (SD)	32 (10)	33 (10)	31 (10)	< 0.005*
Height, cm, mean (SD)	166 (9)	169 (9)	164 (8)	< 0.001*
Weight, kg, mean (SD)	63 (63)	68 (14)	58 (11)	< 0.001*
BMI, kg/m2, mean (SD)	23 (4.5)	24 (5)	2 (4)	< 0.001*
Age group, yrs, n (%)				
18–30	886 (57.8)	408 (55.7)	478 (59.8)	0.093
30–60	621 (40.5)	308 (42.0)	313 (39.2)	
> 60	25 (1.6)	17 (2.3)	8 (1)	
BMI range, kg/m^2, n (%)†				
Underweight	232 (15)	73 (10)	159 (20)	< 0.001*
Normal	925 (60)	416 (57)	509 (64)	
Overweight	374 (24)	244 (33)	130 (16)	
Medical reimbursement, n (%)				
Yes	756 (49)	366 (50)	390 (49)	0.661
No	775 (51)	367 (50)	408 (51)	
Occupation, n (%)				
Clerk/oversee	70 (5)	48 (6)	22 (3)	< 0.001*
Semiskilled	177 (12)	115 (16)	62 (8)	
House worker	107 (7)	12 (2)	95 (12)	
Labor work	245 (16)	185 (25)	60 (7)	
Management/professional	398 (26)	174 (24)	224 (28)	
Top executive	17 (1)	16 (2)	1 (0.1)	
Student/researcher	410 (27)	152 (21)	258 (32)	
Doctor/nursing staff	107 (7)	31 (4)	76 (10)	

*$P < 0.05$: statistically significant.
†Underweight: <18.5 kg/m^2, normal weight: 18.5–24.9 kg/m^2, overweight: 25.0–29.9 kg/m^2.

12%; $P = 0.015$), and 1-year prevalence (448/799, 56%, 95% CI, 53%–60% vs. 294/733, 40%, 95% CI, 37%–44%; $P < 0.001$). The standardized lifetime prevalence of LBP was 59%. Data representing various prevalence and standardized lifetime prevalence of LBP are delineated in Tables 2 and 3.

QOL

The results reported adverse consequences of LBP on QOL. On the professional front, work absenteeism was reported in 35% (305/870) of the affected population with equal gender distribution, and 30% (258) of sufferers could not enjoy their job because of LBP, with a significantly higher proportion in men (32%, 111) affected than in women (21%, 148; $P = 0.001$. Further, 16% (143) were forced to change their job profile because of LBP with equal gender distribution.

The study illustrated a significant adverse impact on performing day-to-day routine activities among two-fifths (40%) of affected patients, with women (44%, 232) suffering significantly more than men (33%, 114; $P < 0.001$). A total of 47% (402) patients reported adverse impact on normal sleep, with women (52%, 272) affected significantly more than men (38%, 130; $P < 0.001$). Furthermore, 28% (240) reported detrimental influence on their meetings and social life as a consequence LBP, with women (32%, 168) affected significantly more than men (21%, 72; $P < 0.001$). One-fourth of affected patients had to withstand depression or psychological problems, with women (28%, 145/525) reporting significantly higher influence than men (19%, 67/346; $P < 0.007$) (Table 4).

Table 2. *Prevalence of LBP.*

Prevalence	Total n [% (95%CI)] 1,531 (100)	Men n [% (95%CI)] 733 (48)	Women n [% (95%CI)] 799 (62)	*P* Value
Lifetime prevalence	871 [57 (54–59)]	346 [47 (44–51)]	525 [65 (62–69)]	< 0.001*
Point prevalence	489 [32 (30–34)]	191 [26 (23–29)]	298 [36 (34–41)]	< 0.001*
One-year prevalence	742 [48 (46–51)]	294 [40 (37–44)]	448 [56 (53–60)]	< 0.001*
Chronic prevalence	185 [12 (11–14)]	73 [10 (8–12)]	112 [14 (12–17)]	0.015*
Age standardized lifetime prevalence	59%			

*$P < 0.05$ was statistically significant

Table 3. *Variable specific and standardized LBP lifetime prevalence.*

Variables	Overall			Men			Women			*P* Value
	n	LBP+	P (%)	n	LBP+	P (%)	n	LBP+	P (%)	
Age category, yrs										
18–30	886	445	50.2	408	159	39	478	286	59.8	< 0.01*
30–60	621	412	66.3	308	179	58.1	313	233	74.4	< 0.01*
> 60	25	14	56	17	8	47.1	8	6	75	0.19
BMI category†										
Underweight	232	130	56	73	27	37	159	103	64.8	< 0.01*
Normal	925	532	57.5	416	196	47.1	509	336	66.0	< 0.01*
Overweight	375	209	55.7	244	123	50.4	131	86	65.6	< 0.01*

LBP+, Low back pain positive; n, number; P, prevalence.
*$P < 0.05$ was statistically significant.
†Underweight: <18.5 kg/m^2, normal weight: 18.5–24.9 kg/m^2, overweight: 25.0–29.9 kg/m^2.

Table 4. *Impact of LBP on QOL among LBP positive patients (N = 870).*

Characteristics	Total n (%) n = 870	Men n (%) n = 346	Women n (%) n = 525	*P* Value
Absence from work	305 (35)	119 (34)	186 (35)	0.834
Enjoying current job	612 (70)	235 (68)	377 (79)	0.001*
Forced to change job profile	143 (16)	62 (18)	81 (16)	0.312
Affecting day-to-day routine activities	346 (40)	114 (33)	232 (44)	0.001*
Affecting sleep	402 (46)	130 (38)	272 (52)	< 0.001*
Affecting social life/meeting other people	240 (28)	72 (21)	168 (32)	< 0.001*
Depression/psychological problem	212 (24)	67 (19)	145 (28)	0.007*

*$P < 0.05$ was statistically significant

Pain Intensity

The overall mean (SD) intensity of LBP was reported to be moderate; NRS-11 4.2 (2.6). Women 4.1% (2.6) reported significantly lower pain intensity as compared with men 4.5% (2.5); $P = 0.04$). On further age categorization, although women reported lower pain intensity among all age groups and BMI categories as compared with men, significant differences were observed in only younger age group (18–35 years) (3.9 [2.5] vs. 4.3 [2.5], $P = 0.04$), and overweight patients (3.8 [2.6] vs. 4.5 [2.6], $P = 0.02$) (Tables 5 and 6).

The analysis reported significantly higher proportion of LBP-positive male patients (219, 65%) having

moderate to severe pain intensity as compared with female patients (288, 56%; $P = 0.0070$. Further, the pain intensity did not differ much with the type of job profile; blue (423, 60%) and white collared (84, 56%; $P = 0.321$) job patients reported almost equal prevalence of moderate to severe pain intensity. The type of day-to-day activity significantly affected the pain intensity suffered by the patients with activities involving lifting/walking (290, 66%) and caused higher prevalence of moderate to severe pain intensity as compared with daily activities involving sitting/standing (217, 52%; $P < 0.001$).

Table 5. *LBP intensity among the patients.*

Category	Total Mean (SD)	Male Mean (SD)	Female Mean (SD)	*P* Value
Overall pain intensity (n = 858)	4.2 (2.6)	4.5 (2.5)	4.1 (2.6)	0.04
Age group, yrs				
18–35 (n = 587)	4.1 (2.5)	4.3 (2.5)	3.9 (2.5)	0.04
36–60 (n = 258)	4.6 (2.7)	4.6 (2.3)	4.5 (2.9)	0.84
> 60 (n = 13)	5.2 (2.8)	6.4 (2.6)	3.8 (2.5)	0.09
BMI†				
Underweight (n = 129)	4.4 (2.4)	5.2 (2.2)	4.1 (2.5)	0.05
Normal (n = 527)	4.2 (2.6)	4.5 (2.5)	4.1 (2.6)	0.08
Overweight (n = 203)	4.3 (2.6)	4.5 (2.6)	3.8 (2.6)	0.02

*$P < 0.05$ was statistically significant.
†Underweight: < 18.5 kg/m^2, normal weight: 18.5–24.9 kg/m^2, overweight: 25.0–29.9 kg/m^2.

Table 6. *Pain information of study patients (n = 856).*

Characteristics	Total n	No/Mild Pain n (%)	Moderate/Severe Pain n (%)	*P* Value
Gender				
Male	338	119 (35.2)	219 (64.8)	0.007
Female	518	230 (44.4)	288 (55.6)	
Age category, yrs				
18–30	439	206 (46.9)	233 (53.1)	0.001
30–60	404	139 (34.4)	265 (65.6)	
>60	13	4 (30.8)	9 (69.2)	
BMI category†				
Underweight	128	48 (37.5)	80 (62.5)	0.726
Normal	524	216 (41.2)	308 (58.8)	
Overweight	203	84 (41.4)	119 (58.6)	
Type of job				
White collar	151	67 (44.4)	84 (55.6)	0.321
Blue collar	705	282 (40)	423 (60)	
Type of activity				
Standing/sitting	418	201 (48.1)	217 (51.9)	0.000
Lifting/walking	438	148 (33.8)	290 (66.2)	

*$P < 0.05$ was statistically significant.
†Underweight: < 18.5 kg/m^2, normal weight: 18.5–24.9 kg/m^2, overweight: 25.0–29.9 kg/m^2.

Variables Associated with LBP

To understand the at-risk population for the occurrence of LBP in present study cohort, multivariate binary logistic regression analysis was applied. The probable factors, such as age, gender, BMI, job profile, and type of activity, were considered. We found that increasing age (OR 1.03; 95% CI, 1.02–1.04; $P < 0.001$), being women (OR, 2.23; 95% CI, 1.80–2.77; $P < 0.001$), and activities, such as lifting/walking (OR, 1.362; 95% CI, 1.09–1.69; $P < 0.001$) poses a higher risk of developing LBP. BMI and type of job (blue or white collar) did not influence the occurrence of LBP in our study cohort (Table 7).

Discussion

The prevalence and the burden of LBP have been published by many countries to provide data (16-21) for the framework of policy with concerns on prevention and treatment (22). The Global Burden of Disease Study 2016 confirmed LBP among the 5 leading causes of YLD (3). To our knowledge, this is the first cross-sectional, community-based, epidemiologic study carried out among northern Indian population for the assessment of the prevalence of LBP and its associated risk factors along with pain intensity and QOL to provide evidence in central Asia.

The study enrolled 1,531 patients with a mean age of 32 years of almost equal gender distribution. The lifetime prevalence (57%), last 1-year prevalence (48%), point prevalence (32%), and chronic prevalence (12%) were reported in

Table 7. *Risk factors for LBP among northern Indian population.*

Variable	OR	95% CI	*P* Value
Age (yrs)	1.03	1.02–1.04	0.000
BMI†	0.998	0.974–1.022	0.847
Gender			
Male	1 (Ref)		
Female	2.234	1.800–2.774	0.000
Job profile			
White collar job	1 (Ref)		
Blue collar job	1.20	0.911–1.581	0.195
Type of activity			
Standing/sitting	1 (Ref)		
Walking/lifting	1.362	1.097–1.692	0.005

Ref, reference.
*$P < 0.05$ was statistically significant.
†Underweight: < 18.5 kg/m^2, normal weight: 18.5–24.9 kg/m^2, overweight: 25.0–29.9 kg/m^2.

the present study. In recent years, there have been an increased burden of musculoskeletal disease and back pain in both developed and developing nations (3,23). Our study reported women possessing higher LBP lifetime prevalence (65%) and last 1-year prevalence (56%), which is in agreement with the previous studies (24). The explanation for female misery of LBP is not clear, although biopsychosocial mechanisms, including sex hormones, genetic factors, endogenous opioid function, and pain coping, contribute to the gender difference in pain (25,26). The higher risk of developing LBP in women may be associated with the higher incidence of spine diseases (e.g., vertebral microfractures), to more frequent practice of activities that may trigger back pain (e.g., household chores), and perhaps to "complaining" being more socially acceptable for women than for men (27).

Recently, Ganesan et al (6) have evaluated the prevalence and risk factors for LBP among young Indian adults. However, their evaluation was restricted to 1,355 young Indian administrative service aspirants and medical postgraduate aspirants between the ages of 18 and 35 years. The authors reported LBP prevalence was 42.4% per year and 22.8% per week (6). Because the recruitment in our study was assessed from all age groups, it resulted in the increased age-standardized lifetime prevalence of 59%. In contrast to Ganesan et al (6), our study reported age, gender, and weight lifting as significant predictors for LBP, and mostly we determined the point, recurrent, 1-year, and lifetime prevalence as well.

In the present study, the pain intensity was evaluated on the NRS-11 (0-10) in a cohort of patients with LBP. The overall mean pain intensity of 4.2 was recorded; men and the elderly population reported increased intensity of pain. A study by Dureja et al (28) stated higher overall mean pain intensity (6.93), however, they studied the point prevalence of chronic pain in the past 6 months using a telephonic interview in 8 cities across India. Dureja et al (28) reported the intensity of pain was reported eminent among women and the patients in higher age groups. In accordance with other published studies, higher pain intensity was reported among patients within higher age groups (27,28). Similarly, our results advocated the higher pain intensity of LBP in patients with higher BMI; as reported by earlier studies (29,30), this relationship provides evidence to support a biopsychosocial interaction of obesity with LBP (29).

The important aspect of this study was to determine the impact of LBP on QOL. LBP has a detrimental impact on numerous areas of daily life, such as ability to work, exercise, and carry out domestic activities. Work-related disability, missed working days of employees, and loss of productivity impart significant economic burden on individuals and society by virtue of diagnosis and treatment of LBP (31,32). Our study reported deteriorated QOL among LBP affirmative patients: 35% of patients remained absent from work, and normal sleep of 47% of patients was affected. Sleep disorders may give rise to stress in daily life, weakening the memory, and pose difficulty even in carrying out small tasks. Furthermore, both quality and quantity of sleep may exert repugnant effects on the overall QOL in patients (15,33,34).

In consonance with previous studies, age, women, and type of activity (standing/lifting) were reported as significant risk factors for the occurrence of LBP (16,27,35). The occupations demanding heavy lifting, which results in bending or twisting, are associated with increased intradiscal pressure that predisposes discs to injury owing to degeneration or herniation (36-38).

The strength of our study is the stratification of the sampling, which was taken from the urban, rural, slum, and national institutes enrolling the patients from various ethnicities. India is demographically and culturally diverse, our findings are also the representations of the rest of central Asia. However, it is a cross-sectional study, therefore we could not assess LBP progression in these patients.

Conclusions

To our knowledge, this is the first community-based, epidemiologic study from northern India that reports LBP as a highly prevalent problem in the Indian population, which adversely affects the QOL in respondents. The identified risk factors, such as female gender, increasing age, and heavy weight lifting, are similar to those reported previously in the literature. Therefore this calls for action by health officials and professionals to plan for appropriate programs of prevention and management of LBP in society.

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