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Frequency And Determinants Of Chronic Lower Back Pain Among Patients Presenting To Primary Care Clinics In Pakistan: A Cross-Sectional Analysis

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Abstract

Objective: To ascertain the determinants of chronic lower back pain among patients presenting in primary care clinics.
Methods: 300 participants from 18 to 75 years of age were enrolled from Primary Care Clinics, Primary Health Center, Sikanderabad and Family Medicine Health Center, Clifton, for a Cross-sectional study that was done from December 1, 2020, to June 30, 2021. Consultant family physicians took informed consent and then asked relevant history questions and performed a relevant physical examination, such as a straight leg raise on the patients.
Results: The frequency of chronic lower back pain came out to be 16.7%(50). The median age was 31.99+15.7 years. For those who had chronic back pain, the majority were regularly taking Cholecalciferol supplements (20.8% p-value 0.05). The effect of depression increases the chances (0.688) of chronic lower back pain. (p-value 0.006)
Conclusion: In our study, we concluded that lower back pain, especially chronic in duration, is very rampant in the community with male predominance. The majority reported a dull type of pain. Depressed people are more vulnerable to developing chronic back pain.
Keywords: LBP (lower back pain), magnitude, restricted mobility, S.I. joint (Sacroiliac joint), community.

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1. Introduction

Low back pain is a pain, stiffness, or muscle tension located between the costal margin and the inferior gluteal folds. It can be present with or without sciatica.[1] It is classified as acute back pain when it lasts for less than six weeks, subacute when it occurs for six weeks to three months, and chronic when it lasts for more than three months.[2]

Low back pain is a recurring cause of a visit to a primary healthcare doctor in developed countries. It is a common musculoskeletal disorder worldwide and one of the leading causes of years lived with disability. LBP occurs in about 60–80% of people at some point in their lives and can begin in childhood.[3,4,5,6,7] It has been determined that up to 9% of the world's population has LBP at any given time.[8] Some studies have reported that around 60–90% of adults will experience LBP at some point in their lifetime. [9,10,11] Another study showed that it was the most common type of pain reported by patients, with 25% of U.S. adults reporting LBP in the prior three months.[12]

Low back pain has multiple risk factors, including physical and psychosocial risk factors. Incorrect sitting posture and frequently carrying and lifting heavy loads cause pain in the lower back.[13] Ageing is also a well-known risk factor for LBP, as degenerative changes in the disc and the spine are among the significant causes of LBP.[14] Also, prolonged sitting time is associated with LBP intensity.[15]

Lifestyle, short sleep hours, and lack of physical exercise also increase the risk of LBP. Unfortunately, the level of evidence for most psychosocial factors is limited, and the prevalence and burden of LBP continue to grow with time.

We decided to conduct our study on chronic LBP because there is a shortage of data on chronic LBP from Pakistan. There have been prior studies on the prevalence of low back pain in nurses and bankers of Pakistan. We want to conduct a study in a primary healthcare setting to determine the prevalence and determinants of lower back pain in Pakistan. We want to find out the relationship between backache with age and the BMI of the patients. We would also like to know the association of low back pain with lifestyle factors and what mental impact it has. We also want to find out the protective factors such as sun exposure and vitamin D supplements. We believe this study will help primary health practitioners prevent recurrent and chronic LBP.

2. Materials & Methods

A cross-sectional study was conducted in the primary health care centre of Ziauddin University from December 1, 2020, to June 30, 2021. Three hundred patients coming to the primary health care centre, aged 18 years to 75 years, were enrolled in the study. Exclusion criteria included pregnant and lactating women, patients with malignancy, congenital structural deformities, subjects with kyphosis and scoliosis, and back pain related to menstrual periods. After taking the informed and voluntary written consent to participate in the study, consultant family physicians and authors of the study took the history of the subjects and performed a relevant physical examination.

History questions included questions related to lower back pain, such as onset, course, duration, quality, exacerbating, relieving factors, and pain severity. Patients were requested to rate their pain on a scale of 1 to 10, where 1 was the mildest pain, and 10 meant the worst possible pain. Patients were also asked about pain triggers, history, family history, and socioeconomic questions. The patients were also screened for depression using Patient Health Questionnaire-2 (PHQ-2) and Patient Health Questionnaire-9 (PHQ-9). The Patient Health Questionnaire (PHQ) is a self-directing form of the PRIME-MD diagnostic instrument for common mental disorders. The PHQ-2 is a 2 question-screening tool used to screen for depression in individuals. If the score is three or greater, there is a higher likelihood of depression.[16] The patients who screened positive were further evaluated using the PHQ-9. The PHQ-9 is the depression module, which uses a scale to score each of the 9 DSM criteria as "0" which means not at all to "3" which stands for nearly every day. Major Depression is then diagnosed if five or more of the nine depressive symptom criteria have been present, with depressed mood or anhedonia being one symptom and the symptoms are present more than half the days in the past fourteen days.[17] The 7-item anxiety scale (GAD-7) was used to screen for GAD.[18] The patient's BMI was calculated with the help of their height and weight measured at the clinic. A physical exam was then performed, including inspection, palpation, range of motion of the back, and special tests such as straight leg raise and the Flexion, Abduction and External Rotation (FABER) test. The examination was performed while the patient was standing, lying, and sitting. The patient's gait, heel, and toe walking were also observed. After asking the questions and performing the examination, the information was documented for each participant by the consultant family physicians.

In a study conducted in 2018 in Lahore, Pakistan, 167 subjects were recruited to see the prevalence of lower back pain. We almost doubled the sample size in our study.[19] Data entry was done using SPSS version 20. Shapiro Wik test for normality of numerical variables seen. For non-parametric variables, the Median and interquartile range were analyzed by Mann-Whitney's test. The BMI was gauged by dividing the weight in kilograms by the square of height in meters. The frequency and percentage were computed for categorical variables such as type, location, nature of pain, pain score, pain duration, aggravating and relieving factors, and presence of depression. The association of chronic back pain with variables was analyzed using chi-square, and binary logistic regression was also computed with a 95% Confidence interval. Multivariate logistic regression was analyzed for all significant variables. A P-value of 0.05 was considered significant.

3. Results

The frequency of chronic lower back pain came out to be 16.7% (50). The mean age was 31.99±15.7 years. The mean BMI was 23.23±4.9kg/m^2. The mean Pain Score as per the Visual analog Score (VAS) came out to be 2.8±2.9 in our study. Table 1 demonstrates the demographics and association of chronic back pain, various risk factors and sequelae. Table 2 demonstrates Odd's ratio of various factors with chronic back pain with a 95% Confidence Interval.

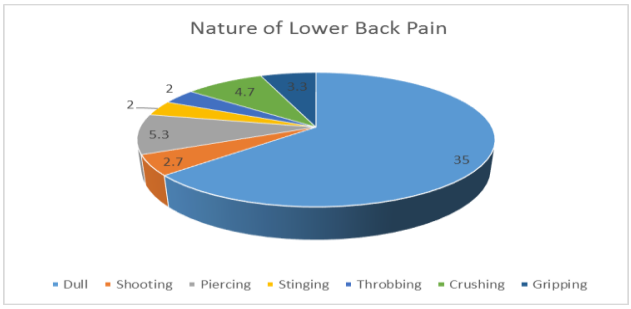

Figure 1: Proportion of subjects having varying nature of Pain

Figure 1 demonstrates the proportion of subjects having varying natures of pain. The majority of subjects, 53.3% (160), had lumbar pain, followed by 28% (84) having sacral joint pain. Out of that, 26.2% had right sacroiliitis, while 6.7% had left sacroiliitis. A statistically significant (p-value 0.006) increase effect of depression (0.688) was seen with chronic back pain. When lifestyle factors were evaluated, most participants (20%) did prolonged sitting, followed by 6.7% who did a lot of bending. 6% lifted heavyweight, and 4.7 % had to stand for long hours.

When we looked at the association of risk factors with chronic back pain, we analyzed that those who had chronic back pain majority were regularly taking Cholecalciferol supplements (20.8% p-value 0.05).

Table 1: Comparison of Risk Factors among Healthy and Chronic Lower Back Pain Afflicted Patients

Numerical variables			**With Chronic Back Pain Median (IQR)**	**Without Chronic Back Pain Median (IQR)**	**p-value**
Age in years			23(12)	24(19)	0.336
BMI kg/m2			22.23(3.92)	22.65(5.97)	0.512
Pain Score			0.00(8)	3(6)	0.00
Categorical Variables		N(%)	With ch. back pain n(%)	Without ch. back pain n(%)	p-value
Gender	**Males**	134(44.7)	28(20.9)	106(79.1)	0.00
	Females	166(55.3)	22(13.3)	144(86.7)	
Marital status	**single**	184(61.3)	35(19.1)	148(80.9)	0.541
	Married	116(38.7)	15(12.9)	101(87.1)	
Education	**illiterate**	26 (8.7)	1(3.8)	25(96.2)	
	Primary	20(6.7)	4(20)	16(80)	
	Secondary	16(5.3)	1(6.2)	15(93.8)	0.2
	College	24(8)	2(8.3)	22(91.7)	
	University	214(71.3)	42(19.6)	172(80.4)	
Sleep on a mattressed bed		246(82)	44(17.9)	202(82.1)	0.021
	Floor	22(7.3)	5(22.7)	17(77.3)	
	Charpai	32(10.7)	1(3.1)	31(96.9)	
back trauma	**present**	58(19.3)	6(10.3)	52(89.7)	0
	absent	200(66.7)	43(21.5)	157(78.5)	
Screen time(Hrs)	**<2**	170(56.7)	28(16.5)	142(83.5)	0.310
	2.1- 6	96(32)	18(18.8)	78(81.2)	
	>6	32(10.7)	4(12.5)	28(87.5)	
Sun Exposure	**<15m**	90(30)	13(14.4)	77(85.6)	0.844
	15-3o m	90(30)	18(20)	72(80)	
	30m-1hr	54(18)	9(16.7)	45(83.3)	
	1hr-2hr	16(5.3)	2(12.5)	14(87.5)	
	2hr-3hr	32(10.7)	4(12.5)	28(87.5)	
	>3hrs	18(6)	4(22.2)	14(77.8)	
Vit D3 Don't take		202(67.3)	5(20.8)	19(79.2)	0.05
	Regular intake	24(8)	5(20.8)	19(79.2)	
	Irregular intake	72(24)	8(11.1)	64(88.9)	
MDD	**present**	58(19.3)	5(8.6)	53(91.4)	0.006
	absent	174(58)	27(15.5)	147(84.5)	
Anxiety	**present**	184(61.3)	34(18.5)	150(81.5)	0.074
	absent	116(38.7)	16(13.8)	100(86.2)	

Table 2: Association of variables with chronic back pain using binary regression.

Variables		Crude OR	95% CI		p-value	Adjusted OR	95% CI		p-value
			Lower	Upper			Lower	Upper	
VIT D supplements	Regular intake	1	-	-	-	-	-	-	-
	Irregular intake	0.47	0.139	1.624	0.235	0.548	0.151	1.986	0.360
	Don't take	0.84	0.295	2.400	0.747	0.982	0.333	2.895	0.973
Gender	Male	1.729	0.937	3.189	0.08	2.22	1.14	4.323	0.19
	Female	1	-	-	-	-	-	-	-
Age		0.985	0.964	1.007	0.183	0.978	0.954	1.002	0.073
BMI		0.97	0.904	1.04	0.396	-	-	-	-
Marital status	single	1	-	-	-	-	-	-	-
	married	0.158	0.821	3.046	0.17	1.19	0.45	3.15	0.724
Education	illiterate	0.164	0.22	1.244	0.08	1.253	0.104	15.08	0.859
	primary	1.024	0.325	3.222	0.968	7.493	1.074	52.27	0.042
	secondary	0.273	0.035	2.125	0.215	0.614	0.065	5.77	0.670
	College	0.372	0.084	1.646	0.193	0.956	0.175	5.228	0.959
	university	1	-	-	-	-	-	-	-
Major Depressive Disorder	Yes	0.514	0.188	1.403	0.194	0.678	0.237	1.940	0.469
	No	1	-	-	-	-	-	-	-
Sun exposure	<15 mins	1	-	-	-	-	-	-	-
	15-30 mins	1.481	0.677	3.238	0.325	-	-	-	-
	30mins-1hr	1.185	0.469	2.991	0.720	-	-	-	-
	1-2hrs	0.846	0.172	4.166	0.837	-	-	-	-
	2-3hrs	0.846	0.255	2.813	0.785	-	-	-	-
	>3hrs	1.692	0.481	5.948	0.412	-	-	-	-
Anxiety	Absent	1				-	-	-	-
	Present	1.417	0.743	2.702	0.290		--	-	-
Back Trauma	Present	0.421	0.170	1.047	0.063	0.504	0.195	1.308	0.159
	Absent	1	-	-	-	-	-	-	-
Screen time	<2hrs	1	-	-	-	-	-	-	-
	2-6hrs	1.466	0.471	4.559	0.509	-	-	-	-
	>6hrs	1.871	0.579	6.045	0.295	-	-	-	-
Sleep on	Mattressed bed	1	-	-	-	-	-	-	-
	Floor	7.273	0.963	54.9	0.054	5.27	0.603	46.03	0.133
	Charpai	9.748	1.042	91.229	0.046	6.34	0.590	68.3	0.127

4. Discussion

This prospective cross-sectional study was carried out to determine the magnitude and associations of lower back pain in our community in Pakistan. Three hundred patients from primary health care centres between 18 to 75 years of age were enrolled in the study. In this current study, the frequency of chronic lower back pain was 16.7%(50) which was quite high. Out of 300 participants, 244 participants had lower back pain. Out of these 244 participants, 50 participants had chronic lower back pain. In the present study, the mean age for low back pain was found to be 31.99+15.7. In contrast, a study conducted between November 2007 and December 2008 showed that patients with lower backache have a mean age of 52.8 years (standard

deviation [S.D.] = 15.0).[20] This difference might be because of our small sample size and the candidates who took part in our study were comparatively young.

In this research, the mean BMI of the participants was found to be 23.23+4.9 kg/m^2. The mean BMI fell in the normal weight range for the participants in our study. A previous study conducted in Norway showed that obese women and men had an approximately 20% increased risk of chronic low back pain.[21] Another study conducted in Norway showed that an increased prevalence of low back pain was significantly associated with high body mass index in both men and women.[22] In our current study, the association of BMI with low back pain was not significant.

One study showed that the prevalence of chronic lower back pain generally declined with greater levels of education and increasing income.[12] Whereas our study showed that the prevalence of lower back pain increased with the level of education. 19.6 % of the individuals with chronic lower back pain were either in university or had graduated from university. This could be related to sitting for prolonged periods while studying or working in the office.

Our study shows that lower back pain, especially chronic in duration, is rampant in our community with male predominance. Another study showed that the median overall prevalence of low back pain was higher among females than males across all age groups, contradicting our findings.[23]

The current study showed that patients with chronic lower back pain were not depressed (15.5% p-value 0.00). A Jerusalem Longitudinal Study consisting of 277 subjects aged 70 years at baseline and 77 years at follow-up showed that chronic back pain was associated with the female gender, and depression was associated with age 70 years in these patients.[24] A prospective cross-sectional study was conducted in 2010 at the Department of Neurosurgery at Liaquat National Hospital in Karachi, Pakistan, that showed an abnormal level of anxiety and depression. In chronic low back pain patients, 77 (55%) participants had anxiety, and 68 (48.57%) patients had depression.[25] Another study carried out in the U.S. showed that individuals with chronic low backache had an association with depression.[26] Our findings were different from the rest of the studies, which could be due to the low sample size and reluctance towards talking about mood disorders in our society.

5. Conclusion

Our study concluded that lower back pain, especially chronic in duration, is very rampant in our community with male predominance. The majority report a dull type of pain, and it does not lead to mood disorders such as anxiety; however, depression increases the likelihood of developing chronic back pain.

CONFLICTS OF INTEREST- None

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Contributions:
R.A, F.J - Conception of study
M.M, N.A - Experimentation/Study Conduction
F.J, M.M, N.A - Analysis/Interpretation/Discussion
F.J, - Manuscript Writing
R.A, F.J, M.M, N.A, T.A - Critical Review
R.A, F.J, M.M, N.A, T.A - Facilitation and Material analysis

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