

# Undiagnosed anxiety and depression in patients presenting for evaluation of chronic low back pain

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**Objective:** To assess anxiety and depression in patients presenting with chronic low back pain at our orthopedic clinic.

**Methodology:** This cross-sectional study was conducted from August 2019 to February 2020. Patients aged 18 and above who presented with a history of chronic lower back pain for more than three months were included in the study. Those with spinal injuries leading to any fracture, lumbar spine surgery, or any prior history of psychiatric illness were excluded from the study. HADS was utilized to evaluate anxiety and depression.

**Results:** A total of 540 patients were included in the study. Pearson r data showed a weak positive but significant relationship between chronic lower back pain with anxiety ( $r = .126$ ,  $n = 540$ ,  $p = .003$ ) and depression ( $r = .109$ ,  $n = 540$ ,  $p = .011$ ).

**Conclusion:** Chronic lower back pain is one of the common presenting complaints in orthopedic clinics. Any patient that presents for management of chronic lower back pain should be assessed for anxiety and depression, as they usually exist together.

**Keywords:** Low back pain, anxiety, depression, hospital anxiety depression scale (HADS).

## INTRODUCTION

Low back pain (LBP) is seen in almost all age groups, affecting the youth responsible for a nation's economy. It is a frequent orthopedic clinic presentation.<sup>1</sup> This is a social, physical, and psychologically significant disease, especially in limited-resource populations.<sup>2</sup> Pakistan ranked second among south-Asian countries where chronic LBP is higher than Western countries.<sup>3</sup> Chronic LBP is defined as pain that persists for more than three months. This chronicity has an adverse impact on physical and work productivity, thereby producing anxiety and depression among most adult population.<sup>4</sup> Chronic pain has been associated with anxiety and depression. Pain aggravates anxiety, resulting in increased sensitivity to pain, hence pain persists for more extended periods.<sup>5</sup> About 85% of these back pains have no specific cause and are labeled as non-specific or mechanical back pain.<sup>6</sup>

Depression is characterized by loss of interest and persistent low mood. There is evidence of a close association of chronic pain with depression in up to 85% of patients.<sup>7</sup> Furthermore, these patients also have anxiety (nervousness, feeling of worries, palpitation). A study from Netherland showed that 67% of patients presenting with depression had concurrent anxiety while 63% of anxious people were suffering from depression.<sup>8</sup> Anxiety and depression in association with chronic pain negatively affect the quality of life, the efficacy of

treatment, and the increase in care costs.<sup>7</sup>

A study from Qatar had reported almost 1.5% more prevalence of depression and anxiety in individuals presenting with LBP than without it.<sup>9</sup> Chronic back pain has been associated with sleep disturbance due to anxiety and depression.<sup>10</sup> Over the period, both anxiety and depression become permanent with prolonged pain.<sup>10,11</sup> Numerous studies reported the relationship between chronic pain and depression; however, none has on anxiety. This study was conducted to evaluate the association of anxiety and depression with chronic LBP patients presenting to our clinic.

## METHODOLOGY

The cross-sectional study was conducted from August 2019 to February 2020. Informed consent was obtained from all patients and the hospital ethical review committee approved the study. The patients aged 18 and above presenting with a history of chronic LBP for more than three months were included in the study. Patients with spinal injury leading to any fracture, patients with any history of lumbar spine surgery, metabolic disorders, or prior history of psychiatric illness were excluded from the study.

All the data were recorded in designated Performa, and the hospital anxiety and depression scale (HADS) in Urdu version and English version<sup>12</sup> were utilized to analyze the level of anxiety and depression. Age, gender

and marital status, duration of symptoms, anxiety, depression were recorded. Visual analog score (VAS) was used for pain.

**Statistical Analysis:** Data analysis were performed by SPSS version 20. Pearson's correlation was run to assess the association between chronic low back pain with anxiety and depression.

## RESULTS

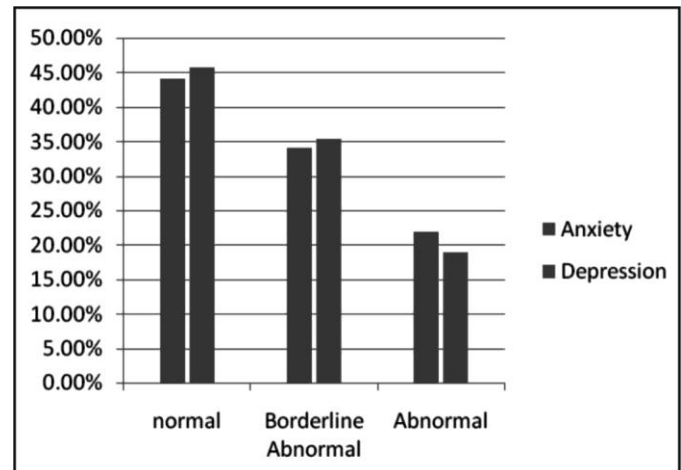
Out of 540 cases, 315 (58.3%) were females and 225 (41.7%) males. Mean age was  $38.78 \pm 11.41$  years. The mean duration of symptoms was  $24.51 \pm 3.98$  months. The mean value of VAS for pain was  $5.21 \pm 1.82$ . Out of 540 cases, 141 (26.1%) had severe pain, whereas 258 (47.8%) and 141 (26.1%) had moderate and mild pain, respectively (Table 1). Results with respect to HADS, abnormal levels of anxiety were found in 302 patients, where abnormal levels of depression were found in 293 patients (Fig. 1). The frequency of anxiety and depression among different gender showed no significant differences (Table 2 and 3).

**Table 1: Descriptive Statistics.**

Total number = 540		
Age	$38.78 \pm 11.41$	
Sex	Male	225 (41.7%)
	Female	315 (58.3%)
Marital status	Unmarried	94 (17.4%)
	Married	361 (66.9%)
	Divorced	85 (15.7%)
Duration of symptoms (months)		$24.51 \pm 3.98$
HADS (Anxiety) mean		$8.95 \pm 2.45$
HADS (Depression) mean		$8.44 \pm 2.34$
Visual analogue scale (VAS) for pain mean		$5.21 \pm 1.82$
VAS	Mild	141 (26.1%)
	Moderate	258 (47.8%)
	Severe	141 (26.1%)

The correlation of chronic LBP with anxiety and depression was assessed. The mean value for chronic LBP measured by the VAS was  $5.21 \pm 1.82$ , and the mean for anxiety and depression registered to utilize the HADS scale was  $8.59 \pm 2.45$  and  $8.44 \pm 2.34$ , respectively. Pearson r data showed a weak positive but

significant correlation between chronic LBP measured by VAS with anxiety ( $r = .126$ ,  $n = 540$ ,  $p = .003$ ) and depression ( $r = .109$ ,  $n = 540$ ,  $p = .011$ ).



**Fig. 1: HADS anxiety and depression.**

**Table 2: Stratification of depression for gender.**

	HADS Depression			Total
	Normal	Boderline Abnormal	Abnormal	
Male	102	80	43	225
Female	145	111	59	315
Total	247	191	102	540

**Table 3: Stratification of Anxiety for gender.**

	HADS Anxiety			Total
	Normal	Boderline abnormal	Abnormal	
Male	100	78	47	225
Female	138	106	71	315
Total	238	184	118	540

## DISCUSSION

Chronic LBP is the standard presentation at the orthopedic clinics around the world. This chronic pain has physical and psychological distress that may lead to or aggravate the major psychological event.<sup>5</sup> Based on our results, it was apparent that psychological disorders and chronic pain existed together. It has been observed that managing both the diseases, i.e., chronic LBP and psychological disorder, simultaneously yield better results rather than anyone being treated alone.<sup>13</sup> A

Japanese study revealed that psychological and social factors predispose lower back pain.<sup>14</sup>

Patients with persistent LBP are prone to developing psychological problems, i.e., mood or anxiety disorders.<sup>15</sup> Females constituted the majority of patients presenting with LBP compared to male patients, which was about 58.3% in our study, comparable to a study by Bento et al.<sup>16</sup> Anxiety in our study was observed in 56% of cases, 34.1% were borderline abnormal, and 21.9% were abnormal according to HADS.

Depression was observed in 54.3% of cases; 35.4% were borderline abnormal, and 18.9% were abnormal, according to HADS. Our study results were comparable with Sagheer et al, which showed abnormal levels of anxiety and depression in 55% and 48.5%, respectively.<sup>5</sup> Similarly, a German study showed abnormal levels of anxiety and depression in patients with backache were 36% and 29%, respectively.<sup>17</sup> In another study, symptoms of anxiety and depression were observed in 70% and 60% of cases.<sup>18</sup> A study conducted by Azfar et al showed that a significant number of cases had symptoms of anxiety and depression.<sup>18</sup>

In our study, most of the patients, including males and females, had a moderate intensity of pain, which was comparable to the study by Nassar et al.<sup>19</sup> We did not find any correlation of pain intensity with a duration of symptoms of low back pain, and similar results were shown by Nassar et al.<sup>19</sup> and Probst et al.<sup>20</sup> In our study, we observed a significant association between LBP and depression that was also evident in studies by Kakpovi et al<sup>21</sup> and Hiyama et al.<sup>22</sup> So it is recommended that every patient presenting with complaints of chronic LBP should almost always be evaluated for anxiety and depression, and treatment started simultaneously for both conditions to get the optimum treatment results.

## CONCLUSION

Our study revealed that chronic lower back pain is related to symptoms of anxiety and depression in a large proportion of cases.

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Conception and design: Masroor Ahmed.  
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Drafting of the article: Masroor Ahmed.  
Critical revision of article for important intellectual content: Naveed Ahmed, Muhammad Bux.

Statistical expertise: Mukesh Kumar, Ghulam Hussain.

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## REFERENCES

1. Vos T, Abajobir AA, Abate KH, Abbafati C, Abbas KM, Abd-Allah F, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 328 diseases and injuries for 195 countries, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet* 2017;390:1211-59.
2. Foster NE, Anema JR, Cherkin D, Chou R, Cohen SP, Gross DP, et al. Prevention and treatment of low back pain: evidence, challenges, and promising directions. *The Lancet* 2018;391:2368-83.
3. Hurwitz EL, Randhawa K, Torres P, Yu H, Verville L, Hartvigsen J, et al. The Global Spine Care Initiative: a systematic review of individual and community-based burden of spinal disorders in rural populations in low-and middle-income communities. *Eur Spine J* 2018;27:802-15.
4. Henschke N, Kamper SJ, Maher CG. The epidemiology and economic consequences of pain. *Mayo Clin Proc* 2015;90:139-47.
5. Sagheer MA, Khan MF, Sharif S. Association between chronic low back pain, anxiety and depression in patients at a tertiary care centre. *J Pak Med Assoc* 2013;63:688-90.
6. Määttä JH, Wadge S, MacGregor A, Karppinen J, Williams FM. Vertebral endplate (modic) change is an independent risk factor for episodes of severe and disabling low back pain. *Orthop Proc* 2016;98:17-17.
7. Fernandez M, Colodro-Conde L, Hartvigsen J, Ferreira ML, Refshauge KM, et al. Chronic low back pain and the risk of depression or anxiety symptoms: insights from a longitudinal twin study. *Spine J* 2017;17:905-12.
8. Lamers F, van Oppen P, Comijs HC, Smit JH, Spinhoven P, van Balkom AJ, et al. Comorbidity patterns of anxiety and depressive disorders in a large cohort study: the Netherlands Study of Depression and Anxiety (NESDA). *J Clin Psychiatry* 2011;72:341-8.
9. Bener A, Verjee M, Dafeeah EE, Falah O, Al-Juhaishi T, Schlogl J, et al. Psychological factors: anxiety, depression, and somatization symptoms in low back pain patients. *J Pain Res* 2013;6:95-7.
10. Campbell P, Tang N, McBeth J, Lewis M, Main CJ, Croft PR, et al. The role of sleep problems in the development of depression in those with persistent pain: a prospective cohort study. *Sleep* 2013;36:1693-8.
11. Pillay S. The psychology of low back pain - Harvard Health Blog - Harvard Health Publishing [Internet]. Harvard Health Publishing, Harvard Medical School. 2016 [cited 2021 Mar 13]. Available from: <https://www.health.harvard.edu/blog/psychology-low-back-pain-201604259537>
12. Waqas A, Aedma KK, Tariq M, Meraj H, Naveed S. Validity and reliability of the Urdu version of the Hospital Anxiety & Depression Scale for assessing antenatal anxiety and depression in Pakistan. *J Psychiatr* 2019;45:20-5.
13. Kawaguchi M, Matsudaira K, Isomura T, Inuzuka K, Koga T, Miyoshi K, et al. Assessment of psychosocial

- risk factors for the development of nonspecific chronic disabling low back pain in Japanese workers-findings from the Japan Epidemiological Research of Occupation-related Back Pain (JOB) study. *Ind Health* 2015;53:368-77.
14. van't Land H, Verdurmen J, ten Have M, van Dorsselaer S, de Graaf R. The Association between chronic back pain and psychiatric disorders; results from a longitudinal population-based study. *J Anxiety Disord* 2011;29:247-9.
15. Castro MC, Quarantini LC, Daltro C, Pires-Caldas M, Koenen KC, Kraychete DC. Co-morbid depression and anxiety symptoms in patients with chronic pain. *Arquivos de Neuro-Psiquiatria* 2011;67:982-5.
16. Bento TP, dos Santos Genebra CV, Maciel NM, Cornelio GP, Simeão SF, de Vitta A. Low back pain and some associated factors: is there any difference between genders? *Braz J Phys Ther* 2020;24:79-87.
17. Delitto A, George SZ, Van Dillen LR, Whitman JM, Sowa G, Shekelle P, et al. Orthopaedic section of the American Physical Therapy Association: low back pain. *J Orthop Sports Phys Ther* 2012;42:A1-57.
18. Azfar SM, Murad MA, Azim SR, Baig M. Frequency of and various factors associated with stress, anxiety, and depression among low back pain patients. *Cureus* 2019;11.
19. Nassar N, Assaf N, Farrag D, Ibrahim D, Al-Sheekh A. Depression in patients with chronic low back pain. *Egypt Rheumatol Rehabil* 2019;46:48-54.
20. Probst T, Neumeier S, Altmeppen J, Angerer M, Loew T, Pieh C. Depressed mood differentially mediates the relationship between pain intensity and pain disability depending on pain duration: a moderated mediation analysis in chronic pain patients. *Pain Res Manag* Volume 2016, Article ID 3204914, 7 pages. <http://dx.doi.org/10.1155/2016/3204914>.
21. Kakpovi K, Soedje KM, Koffi-Tessio VE, Ahoble KE, Fianyo E, Houzou P, et al. Anxiety and depression disorders in chronic non-specific low back pain in Lomé (Togo). *Open J Rheumatol Autoimmune Dis* 2017;7:1-15.
22. Hiyama A, Watanabe M, Katoh H, Sato M, Sakai D, Mochida J. Effect of depression and neuropathic pain using questionnaires on quality of life in patients with low back pain; cross-sectional retrospective study. *Eur Spine J* 2016;25:2750-60.