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Assessment of depression, anxiety and quality of life in chronic low back pain patients in rural population

Vivek Narendra Pawar[1], Rohit Balasaheb Rahane[2]*

[1]Department of Physiotherapy, Arogyasadan Super Specialty Hospital, Savedi, Ahilyanagar, Maharashtra, India
[2]Department of Musculoskeletal and Sports, Rashtrasant Janardhan Swami college of Physiotherapy, Kokamthan, Kopargaon, Ahilyanagar, Maharashtra, India

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***Correspondence:**
Dr. Rohit Balasaheb Rahane,
E-mail: rohitrahane2050@gmail.com

ABSTRACT

Background: Chronic low back pain (CLBP) being one of the most common musculoskeletal disorders, has a clear impact on the psychological status of the patient; also studies have shown that Quality of Life (QOL) is hampered in CLBP cases. Several studies have been conducted recently on CLBP and its association with depression, anxiety and QOL, however, this study has been majorly surveyed on the urban population; a need was felt to perform a similar survey on the rural population. This stud aimed to assess the depression, anxiety and quality of life in patients with chronic low back pain in rural population.
Methods: Total 60 participants were selected based on inclusion and exclusion criteria from the orthopedic department of Dr. APJ Abdul Kalam College of Physiotherapy. PHQ 9, GAD-7 and WHOQOL-BREF Questionnaires were used in their local language (Marathi). Data was collected on sheet of paper, and a consent form was given to participants.
Results: Results of PHQ-9, and GAD-7 obtained in the study revealed that 54 participants were severely depressed and 6 participants were moderately severe depressed. 50 participants of CLBP have severe anxiety issues, 8 participants have moderate anxiety and only 2 have mild anxiety. QOL was more affected in CLBP patient.
Conclusions: This study concludes that there is high incidence of depression and anxiety in CLBP patients and have reduced QOL. Therefore, psychological counseling should be integral part of conventional CLBP treatment.

Keywords: Anxiety, Chronic low back pain, Depression, Quality of life

INTRODUCTION

Low back pain is a common musculoskeletal issue affecting 70-85% of adults, especially those of working age, with prevalence increasing with age.[1,2] While most LBP episodes resolve within a month, pain lasting over three months defines chronic LBP, affecting 10-40% and leading to disability, influenced by psychosocial factors.[3,4] Depression and anxiety strongly correlate with pain severity, prevalent in various chronic musculoskeletal conditions like LBP.[1,3,4] Major depression, a leading cause of disability and reduced quality of life, is strongly associated with back pain.[5,6] Psychological factors like stress, mood, and depression influence chronic low back pain (CLBP) development, especially in adults. While depression is linked to back pain, specific research on this connection in adults is limited.[6,7] Depression is prevalent (up to 85%) in painful conditions, and commonly co-occurs with anxiety, which, alongside depression, negatively impacts chronic pain treatment.[8-10] The patient health questionnaire (PHQ)-9 is a brief, reliable tool for diagnosing and measuring depression severity, quality of life, and increases societal cost[11-15] The generalized anxiety disorder (GAD)-7, developed by Spitzer et al is a

quick, valid, and efficient tool for screening and assessing GAD severity in clinical and research settings.[16,17] The WHOQOL-BREF assesses quality of life across four domains, and the visual analogue scale (VAS) measures pain intensity.[18,19] This research investigates depression, anxiety, and quality of life in individuals with CLBP. It utilizes the WHOQOL-BREF, GAD-7, PHQ-9, and VAS questionnaires to assess these factors and pain severity. This study aimed to assess the depression, anxiety and quality of life in patients with CLBP in rural population.

METHODS

This cross-sectional, descriptive study, conducted over six months November 2021 to April 2022 at Dr. APJ Abdul Kalam College of Physiotherapy, PIMS, Loni, aimed to investigate depression, anxiety, and quality of life in individuals with CLBP. Utilizing convenient sampling, 60 participants aged 18-59, diagnosed with CLBP for over three months and experiencing pain exceeding 5 on the Visual Analogue Scale (VAS), were recruited. Primary data was collected through self-administered questionnaires, including the Patient Health Questionnaire (PHQ-9) for depression, Generalized Anxiety Disorder Screener (GAD-7) for anxiety, and the WHOQOL-BREF Questionnaire for quality of life. The VAS was employed to assess pain severity. Exclusion criteria included systemic diseases, fibromyalgia, history of back surgery, primary psychiatric disorders, and inability to comprehend questionnaires.

Ethical approval

The study protocol was reviewed and approved by the Institutional Ethics Committee of Dr. A.P.J. Abdul Kalam College of Physiotherapy, PIMS, Loni (Approval No.: PIMS/DR.APJAKCOPT/ICE/2021/700).

Sample size and sampling technique

A sample size of 60 participants was determined based on convenience sampling. Although no formal power analysis was performed, the sample was deemed adequate for descriptive analysis in a pilot rural population study. Future studies should consider larger sample sizes based on prevalence estimates and power calculations.

Procedure

After obtaining approval from IEC, participants were selected on the basis of inclusion and exclusion criteria. The informed written consent was explained and obtained from the participants regarding the procedure prior to the study. Patient information sheet was provided to 60 participants (CLBP) who were explained about assessment. Assessment of each participant was done in detail as per the format by researcher. Pain intensity was assessed first through VAS. Further assessment of depression, anxiety, and quality of life by using PHQ 9, GAD 7 and WHOQOL-BREF Questionnaire scales respectively. The questionnaire for the same was provided and data was noted. Analysis was done using SPSS windows 28.0.1.0 version.

RESULTS

The mean age of participants was 40.4±10.59 years, indicating a middle-aged population. The mean VAS score was 7.15±1.16, reflecting a high level of chronic pain. The PHQ-9 mean score was 22.95±2.68, indicating severe depression across the cohort. The mean GAD-7 score was 17.33±3.18, suggesting high levels of anxiety. Quality of life domain scores were notably low in physical health (14.3±3.11) and psychological well-being (14.05±2.23), confirming compromised well-being. The social relationships (11.92±2.03) and environmental domains (25.17) also showed moderate impairment.

Table 1: Mean and standard deviation of age, VAS, PHQ 9, GAD-7, WHOQOL -BREF physical health, psychological, social relationships, environment.

	Mean	STDV
AGE	40.4	10.59
VAS	7.15	1.16
PHQ 9	22.95	2.68
GAD 7	17.33	3.18
Physical health	14.3	3.11
Psychological	14.05	2.23
Social relationships	11.92	2.03

Table 2: Result of PHQ-9 showing patients' total no. of and their depression severity.

PHQ-9	Number of patients	Depression severity
Mild depression	0	4.99
Moderate depression	0	
Moderately severe depression	6	
Severe depression	54	
Environment	25.17	

Table 3: Result of GAD-7 questionnaire showing the total no. of patients and their severity of anxiety.

GAD 7	Number of patients
Minimal anxiety	0
Mild anxiety	2
Moderate anxiety	8
Severe anxiety	50

Out of 60 patients 54 participants (90%) experienced severe depression, 6 participants (10%) had moderately severe depression. No cases of mild or moderate depression were reported. This finding demonstrates a high burden of depression among rural CLBP patients, emphasizing the mental health toll of chronic pain.

Table 4: Representation of domain wise QOL of patients.

	Physical health (Mean)	Psychological (Mean)	Social relationships (Mean)	Environment (Mean)
Poor QOL	50 (14.3)	40 (14.05)	11.9	25.17
Good QOL	10 (35)	20 (30)	15	40

Total 50 patients (83.3%) showed severe anxiety, 8 patients (13.3%) had moderate anxiety, only 2 patients (3.3%) reported mild anxiety. No participants had minimal or no anxiety. These results reflect that anxiety is nearly universal and severe in patients with CLBP, underlining the need for integrated psychological support.

In the physical health domain, 50 participants (83.3%) had poor quality of life (QOL). In the psychological domain, 40 participants (66.6%) had poor QOL. The social relationships and environmental domains were relatively less affected, though still impaired. This suggests that CLBP predominantly affects physical and psychological well-being, while some protective social/environmental factors may be present in the rural community.

DISCUSSION

The present research was designed to screen the psychosocial load - depression, anxiety and QOL - of patients with CLBP in a rural Indian group. The findings were alarming as the levels of psychological distress were as high as 82.5 percent, and the physical and psychological domains of QOL had a high level of impairment. These results remain congruent with already available studies, but they also draw focus to peculiarities of the situation in the rural communities where mental health services are not abundant enough and often underutilized.

Depression and CLBP

The PHQ-9 scores in the current study indicated that 90 percent of subjects had experienced severe depression, and the rest of the 10 percent had moderately severe depression. Such findings highlight the severe psychological impact to be found in chronic pain. The existing literatures have repeatedly determined the bi-directional association between chronic pain and depressive symptoms. Another research, conducted by Robertson et al, showed a powerful connection between CLBP and depression among young adults in Canada and stated that depressive symptoms not only worsen the process of experiencing pain but also slow down the recovery of functional experience.[6]

On the same note, Bair et al claimed that major depression is very common in patients with chronic musculoskeletal pain, including CLBP, where depression causes increased pain and leads to disability.[7] The description of the severity of depression identified in the present sample of rural populations might be explained by poor mental health, lack of mental health education, stigmatization, and limited access to mental health services, which is characteristic of other low-income areas as well by Lobo et al.[8] Furthermore, according to the participants, the depressive manifestations of hopelessness, sleep disturbance, and low energy are common and known to interfere with the process of pain perception and coping by Malhi et al.[9]

Anxiety in CLBP

The GAD-7 scores also were above-par, whereby 83.3 percent of the respondents demonstrated severe anxiety, 13.3 percent and 3.3 percent demonstrated moderate and mild anxiety, respectively. These observations support the findings by Asmundson et al who reported that chronic pain and anxiety could have a similar nervous mechanism especially through the disregulation of the hypothalamic-pituitary-adrenal (HPA) axis.[10]

Additionally, the interdependent nature of pain and anxiety was well explained by Kroenke et al, which showed that besides increasing the levels of pain there are also anxiety symptoms, which cause the catastrophic thinking and avoidance behaviors, contributing to a poorer physical functioning.[11] The common experiences that were reported by participants in this study were excessive worrying, fatigue, irritability, difficulty in concentrating, which are typical characteristics of the generalized anxiety disorder, which is quite common in people with ongoing pain.

Quality of life and CLBP

The WHOQOL-BREF questionnaire gave an idea concerning the impact of CLBP in many aspects of life. Impairment was severe in the physical health aspect, where QOL was poor in 83.3 per cent of the patients. The items that feature in this domain are pain intensity, energy levels, mobility, and medication dependence. Hong et al state that physical health is the worst affected area of people with CLBP, and it is mainly influenced by constant discomfort, limited mobility, and exhaustion.[12] These correlate with the results of the given study as nearly 50 percent of the participants answered that pain significantly distorted the functioning in the daily life, and more than a third of the studied population answered that they had no energy to fulfill routine duties.

Even in the psychological field, 66.6 percent of patients were identified to have low QOL. This area evaluates self-esteem, body image and being able to enjoy life. Prior studies have shown similar results. As an example, Fernandez et al in their longitudinal twin study pointed out that psychological distress, which consists of depression and anxiety, has significant negative impacts on

psychological well-being among CLBP patients.[13] In this case, the vast majority had a poor sense of self-worth, discontented with a sense of self, and could not derive any meaning out of life, therefore, adding to this poor psychological condition.

Surprisingly, the social relationship domain was not severely impacted, and many respondents showed moderate and good satisfaction. The latter may be explained by powerful family and community bonds that exist in the rural Indian environment and act as a preventative measure against social loneliness and mental distress. Another finding made by Skevington et al was that collectivist cultures tend to exemplify improved social outcome even during chronic illnesses.[14] The social and cultural focus on communal familiar units, social community involvement, and role identification might offer emotional security that will aid the patients to be socially active regardless of their ailment conditions.

The environmental sector was not as devastated but was put under a lot of pressure as the physical and psychological sector. Dissatisfaction with physical conditions of living was indicated in 26.6 percent of patients and dissatisfaction with available means of transport was reported in 25 percent of patients. Such results indicate the structural insufficiency of rural infrastructure, which is indirectly affecting health outcomes revealed by Gameroff and Olfson (2006) in their studies of pain and psychosocial resources in underserved groups.[15]

Interpretation in context of the biopsychosocial model

There is a strong interconnection between pain, mood disorders, and the quality of life in CLBP, and this fact made the biopsychosocial model of pain more relevant, as it stresses the interdependence of biological, psychological, and social parameters. The outcomes of this survey are indicative of the reality that chronic pain is not a one-dimensional phenomenon but rather a complex situation that requires cross-dimensional treatment.

In India the rural healthcare system is most of the times without mental health professionals and that is why psychological conditions in patients who are already having chronic diseases are undiagnosed and untreated. Alhowimel et al noted that the early psychological assessment and intervention are important when it comes to the overall improvement of the outcomes of pain.[16] As experienced in the current study, the lack of psychological intervention resulted in such occurrences as pain causing mental illness which subsequently enhanced pain sensation.

Table 5: Summary of comparative findings.

Parameter	Present study findings	Comparison with previous studies
Depression	90% severe depression (PHQ-9)	Robertson et al, Bair et al: high comorbidity of CLBP and depression.[6,8]
Anxiety	83.3% severe anxiety (GAD-7)	Kroenke et al, Asmundson et al: anxiety increases pain severity.[10,14]
Physical QOL	83.3% poor QOL	Hong et al: Most impaired domain in CLBP.[1]
Psychological QOL	66.6% poor QOL	Fernandez et al: Psychological distress leads to impaired QOL.[15]
Social QOL	Moderately affected	Skevington et al: Better preserved in collectivist societies.[18]
Environmental QOL	Partially affected	Gameroff et al: Linked to healthcare access, transport, and housing.[12]

This study was proved to be safe by the participants. There were certain limitations in the study which needs to be considered like the sample size was small and healthy group was not added in the study to compare the effects.

CONCLUSION

Thus, after analyzing the results, it is concluded that there is relationship between depression, anxiety, and QOL with CLBP. Therefore, taking this study into account, we understood that while assessing the CLBP patient every health professional should consider assessing depression and anxiety; and treatment should not only focus on pain but also should focus on other psychological illness. So, simultaneous treatment for CLBP and psychological disorders (depression and anxiety) should be given. Regular assessment and follow-up should be taken in case of CLBP. As rural population is not aware of seriousness of psychological illness and their impact on day-to-day life, there is a need of spreading awareness among the people. Psychological counseling should be integral part of conventional CLBP treatment. Eventually, there will be positive impact on QOL.

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