

Investigating the Psychosocial Impact of Chronic Low Back Pain on Patients Undergoing Physical Therapy

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Abstract:

Chronic low back pain (CLBP) is a prevalent condition with significant physical and psychosocial ramifications. This study investigates the psychosocial impact of CLBP on patients undergoing physical therapy. Utilizing a mixed-methods design, 120 participants were assessed for pain intensity, functional disability, psychological distress, and social functioning before and after a 12-week physical therapy intervention. Quantitative results indicated significant reductions in pain and disability, alongside improvements in anxiety, depression, and social functioning. Qualitative interviews further highlighted enhanced emotional well-being, coping strategies, and social interactions. These findings underscore the multifaceted benefits of physical therapy, emphasizing the need for holistic treatment approaches that address both physical and psychosocial dimensions of CLBP.

Keywords: Chronic low back pain, psychosocial impact, physical therapy, pain management, psychological distress, social functioning, mixed-methods study.

Introduction

Chronic low back pain (CLBP) is a pervasive and debilitating condition that affects millions of individuals worldwide. It is defined as pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal folds, with or without leg pain, that persists for 12 weeks or longer (Airaksinen et al., 2006). CLBP is not only a leading cause of disability but also a significant public health concern due to its high prevalence and substantial economic burden (Vos et al., 2012).

The repercussions of CLBP extend beyond physical suffering, significantly impacting the psychosocial well-being of affected individuals. Patients with CLBP often experience heightened levels of depression, anxiety, and stress, which can exacerbate the perception of pain and hinder recovery (Bair et al., 2003). Moreover, chronic pain can lead to a reduction in social activities and strained interpersonal relationships, contributing to a diminished quality of life (Smith & Zautra, 2008). Understanding these psychosocial dimensions is crucial for the holistic management of CLBP.

Physical therapy is a cornerstone in the non-surgical management of CLBP. Numerous studies have demonstrated its effectiveness in reducing pain and improving functional outcomes (Hayden et al., 2005). Physical therapy interventions, including manual therapy, exercise, and patient education, aim to restore movement, strengthen supporting muscles, and promote optimal function. However, the impact of these interventions on the psychosocial aspects of CLBP has not been as extensively studied.

The primary objective of this research is to investigate the psychosocial impact of CLBP on patients undergoing physical therapy. By examining factors such as psychological distress, social functioning, and quality of life, this study aims to provide a comprehensive understanding of how physical therapy can influence not just the physical, but also the emotional and social well-being of patients. Such insights are vital

for developing more effective, patient-centered treatment strategies that address all dimensions of health affected by chronic pain.

Literature Review

Chronic Low Back Pain (CLBP)

Chronic low back pain (CLBP) is a complex and multifactorial condition characterized by pain and discomfort in the lower back that persists for 12 weeks or longer. It is one of the leading causes of disability and impacts individuals worldwide. Epidemiological studies estimate that up to 84% of adults will experience low back pain at some point in their lives, and approximately 23% of these individuals will develop chronic symptoms (Hoy et al., 2014). The etiology of CLBP is often unclear, with a combination of physical, psychological, and social factors contributing to its persistence and severity.

Psychosocial Impact of CLBP

The psychosocial impact of chronic pain conditions, including CLBP, has been widely studied. Emotional distress, such as depression and anxiety, is prevalent among individuals suffering from CLBP. A meta-analysis by Linton and Bergbom (2011) found that individuals with chronic low back pain are at higher risk for both anxiety and depressive disorders, with the prevalence of depression being particularly high. The psychological burden of CLBP can exacerbate the perception of pain, creating a vicious cycle that hinders pain management and recovery (Von Korff & Simon, 1996).

Social consequences of CLBP include reduced participation in social activities, withdrawal from social interactions, and strained relationships with family and friends (Gatchel et al., 2007). Chronic pain can lead to significant lifestyle changes, limiting the ability to work, engage in recreational activities, and fulfill social roles, which in turn, contributes to feelings of isolation and frustration (Waddell et al., 1993). The negative impact on social functioning underscores the need for comprehensive treatment approaches that address both physical and psychosocial aspects of CLBP.

Physical Therapy Interventions for CLBP

Physical therapy is a cornerstone in the nonsurgical management of CLBP. Various forms of physical therapy, including exercise therapy, manual therapy, and patient education, have been shown to be effective in reducing pain and improving functional outcomes (Furlan et al., 2012). Exercise therapy, specifically strengthening and stability exercises, is widely recommended for CLBP patients and has been associated with significant improvements in pain and disability levels (van Middelkoop et al., 2010).

Manual therapy, which includes techniques like spinal manipulation and mobilization, is another common intervention. A systematic review by Bronfort et al. (2004) found that manual therapy can provide moderate relief from CLBP, particularly when combined with exercise. Patient education, focused on promoting self-management and understanding of CLBP, is an integral part of physical therapy that helps patients cope better with their condition).

Psychosocial Benefits of Physical Therapy for CLBP

The potential psychosocial benefits of physical therapy interventions for CLBP are increasingly being recognized. Studies suggest that physical therapy not only alleviates physical symptoms but also improves psychological outcomes. For example, a study by Alhowimel et al. (2018) demonstrated that patients who participated in a comprehensive physical therapy program reported reductions in depression and anxiety levels, alongside improvements in pain and physical function.

Moreover, physical therapy can enhance social functioning by enabling patients to resume daily activities and social interactions that were previously limited by pain. Improving physical capacity through targeted exercises can boost confidence and reduce the fear of movement, which is often a significant barrier for CLBP

patients (Alhowimel et al., 2018) These psychosocial improvements highlight the multifaceted role of physical therapy in the management of CLBP.

In summary, chronic low back pain is a prevalent and burdensome condition with significant psychosocial consequences. Physical therapy, through various modalities, offers effective relief from physical symptoms and has the potential to improve psychological and social well-being. However, further research is needed to fully understand the extent of these psychosocial benefits and to optimize treatment strategies for CLBP patients.

Methodology

Study Design

This research utilized a mixed-methods study design to comprehensively investigate the psychosocial impact of chronic low back pain (CLBP) on patients undergoing physical therapy. Both quantitative and qualitative data were collected to provide a nuanced understanding of the subject matter.

Participants

The study involved a total of 120 participants diagnosed with CLBP who were currently undergoing physical therapy at orthopedic outpatient clinic at rehabilitation department in military hospital. Participants were selected based on the following inclusion criteria:

- A diagnosis of chronic low back pain persisting for a minimum of 12 weeks.
- Age between 18 and 65 years.
- Currently receiving physical therapy interventions for CLBP.

Exclusion criteria included:

- Presence of any severe psychological conditions that would impede participation.
- Pregnant women due to the specific physiological changes related to pregnancy.
- Patients with specific spinal pathologies requiring surgical intervention.

Data Collection

Quantitative Data

- Surveys and Questionnaires Participants completed several standardized surveys at two time points - baseline (before starting physical therapy) and after 12 weeks of physical therapy intervention.
- Pain Intensity: Measured using the Visual Analog Scale (VAS).
- Functional Disability: Assessed using the Oswestry Disability Index (ODI).
- Psychological Distress: Evaluated using the Hospital Anxiety and Depression Scale (HADS).
- Social Functioning: Assessed using the Social Functioning subscale of the Short Form Health Survey (SF-36).

Qualitative Data

- Interviews: In-depth, semi-structured interviews were conducted with a subset of 30 participants selected via purposive sampling to gather detailed personal accounts of their experiences with CLBP and physical therapy. Interviews explored themes such as emotional impact, coping strategies, and changes in social interactions.

Procedure

1. Initial Assessment: All participants were initially assessed to gather baseline data on pain intensity, functional disability, psychological distress, and social functioning.
2. Physical Therapy Intervention: Participants underwent a standardized 12-week physical therapy program, which included a combination of exercise therapy, manual therapy, and patient education sessions. Each participant received individualized care plans tailored to their specific needs and progress.

3. Follow-Up Assessment: After 12 weeks, participants completed the same set of surveys as in the baseline assessment to evaluate changes over time.

4. Interviews: In-depth interviews were conducted with the subset of 30 participants post-intervention to collect qualitative data on their personal experiences and perceived benefits of physical therapy.

Data Analysis

Quantitative Analysis

- Descriptive statistics were used to summarize demographic and baseline characteristics of the participants.
- Paired t-tests were conducted to compare baseline and post-intervention scores on VAS, ODI, HADS, and SF-36.
- Multiple regression analysis was performed to identify predictors of changes in psychological distress and social functioning.

Qualitative Analysis

- Thematic analysis was employed to analyze interview transcripts . Two independent researchers coded the data and identified recurring themes related to the psychosocial impact of CLBP and the benefits of physical therapy.
- Discrepancies in theme identification were resolved through discussion and consensus.

Ethical Considerations

The study was approved by ethics committee. Informed consent was obtained from all participants prior to their inclusion in the study. Participants were assured of their right to withdraw from the study at any time without any negative consequences to their ongoing treatment.

Findings

Quantitative Results

Demographic Characteristics

The study included 120 participants. The demographic characteristics are summarized in Table 1.

Characteristic	Value
Age (Mean \pm SD)	45.7 \pm 12.3 years
Gender	58% Female, 42% Male
Duration of CLBP	24.3 \pm 13.2 months
Employment Status	65% Employed, 35% Unemployed

Pain Intensity and Functional Disability

Table 2 shows the changes in pain intensity and functional disability scores from baseline to post-intervention.

Measure	Baseline (Mean \pm SD)	Post-Intervention (Mean \pm SD)	p-value
Visual Analog Scale (VAS)	7.4 \pm 1.2	4.6 \pm 1.5	< 0.001
Oswestry Disability Index (ODI)	42.5 \pm 11.7	25.8 \pm 10.6	< 0.001

Psychological Distress and Social Functioning

Table 3 provides the changes in psychological distress and social functioning scores.

Measure	Baseline (Mean \pm SD)	Post-Intervention (Mean \pm SD)	p-value
Hospital Anxiety and Depression Scale - Anxiety (HADS-A)	10.2 \pm 4.1	7.1 \pm 3.8	< 0.001
Hospital Anxiety and Depression Scale - Depression (HADS-D)	9.6 \pm 4.5	6.5 \pm 3.9	< 0.001
Social Functioning (SF-36 subscale)	48.3 \pm 10.2	62.7 \pm 12.4	< 0.001

Qualitative Results

Thematic analysis of the interviews revealed the following key themes:

1. Emotional Impact of CLBP
2. Coping Strategies
3. Perceived Benefits of Physical Therapy
4. Changes in Social Interactions

Participants' Replies

1. Emotional Impact of CLBP

- Depression and Anxiety: "Living with constant pain was breaking me down. Every day felt like a battle, and I often found myself feeling hopeless and anxious about the future."

- Loss of Identity: "I used to be so active, always on the move. But with this pain, I felt like I lost a part of myself. It's hard to accept this new version of me."

2. Coping Strategies

- Adapting Daily Activities: "I had to learn to pace myself and take breaks more often. Adapting my routine helped manage the pain better."

- Seeking Support: "Talking to family and joining support groups helped me a lot. Knowing that I'm not alone in this made a big difference."

3. Perceived Benefits of Physical Therapy

- Reduction in Pain: "The exercises and treatments really helped in managing my pain. I feel more in control now."

- Improvement in Mobility: "I can move more freely and do things I couldn't do before. It's like getting a part of my life back."

- Enhanced Mental Health: "Physical therapy didn't just help with my pain but also improved my mood. I feel more positive and less anxious."

4. Changes in Social Interactions

- Increased Social Engagement: "Before therapy, I avoided social gatherings because of the pain. Now, I feel more confident to go out and meet people."

- Strengthened Family Relationships: "My family noticed the change in me. We spend more quality time together now that I'm not constantly in pain."

Discussion

Interpretation of Results

This study aimed to investigate the psychosocial impact of chronic low back pain (CLBP) on patients undergoing physical therapy. The findings from both quantitative and qualitative data provide compelling evidence that physical therapy significantly enhances not only the physical but also the psychological and social well-being of individuals suffering from CLBP.

Physical Improvements

The significant reductions in pain intensity, as measured by the Visual Analog Scale (VAS), and improvements in functional disability, as evaluated by the Oswestry Disability Index (ODI), align with previous research demonstrating the efficacy of physical therapy in managing CLBP (Furlan et al., 2012; Hayden et al., 2005). Exercise therapy and manual therapy, core components of the intervention, likely contributed to these positive outcomes by promoting muscle strength, flexibility, and overall functional ability (van Middelkoop et al., 2010).

Psychological Benefits

More importantly, this study highlights the substantial psychological benefits of physical therapy, evidenced by significant reductions in anxiety and depression scores on the Hospital Anxiety and Depression Scale (HADS). These findings support Linton and Bergbom's (2011) assertion that chronic pain is closely linked with psychological distress. Participants in this study reported feeling more in control of their pain and consequently experiencing reduced emotional burden, confirming the bidirectional relationship between pain and psychological health (Von Korff & Simon, 1996).

Social Functioning Improvements

The improvement in social functioning, as indicated by the higher scores on the SF-36 Social Functioning subscale, underscores the role of physical therapy in enhancing patients' quality of life. The qualitative data complements these findings, revealing that many participants experienced increased social engagement and stronger family relationships post-therapy. This is consistent with previous studies that have shown how managing physical symptoms can positively impact social interactions and reduce feelings of isolation (Gatchel et al., 2007; Waddell et al., 1993).

Comparison with Previous Studies

The results of this study are consistent with previous findings that physical therapy is effective in reducing pain and disability associated with CLBP (Hayden et al., 2005; Bronfort et al., 2004). However, our study extends the current understanding by providing a comprehensive view of the psychosocial benefits of physical therapy. While previous research has predominantly focused on physical outcomes, this study integrates both quantitative and qualitative data to highlight the broader impacts on psychological distress and social functioning.

Implications for Practice

The findings of this study have significant implications for clinical practice. Physical therapists should be aware of the profound psychosocial benefits that their interventions can offer to patients with CLBP. Incorporating components such as patient education and psychological support into the therapy regimen can further enhance these benefits. Additionally, a multidisciplinary approach involving psychologists and social workers may be beneficial in addressing the multifaceted needs of CLBP patients (Gatchel et al., 2007).

#Limitations and Future Directions

Despite the promising findings, this study has several limitations. The sample size, although adequate, may limit the generalizability of the results to a broader population. Additionally, the study relied on self-reported measures, which can be subject to bias. Future research should aim to include larger, more diverse populations and consider longitudinal designs to assess the long-term benefits of physical therapy on psychosocial outcomes.

Further investigation into the specific elements of physical therapy that most effectively address psychological and social dimensions of CLBP is warranted. Studies exploring the integration of cognitive-behavioral therapy (CBT) with physical therapy could provide deeper insights into holistic treatment approaches.

Conclusion

In conclusion, this study demonstrates that physical therapy offers significant psychosocial benefits for patients with chronic low back pain. Reductions in pain and disability were accompanied by improvements in psychological well-being and social functioning, highlighting the multifaceted role of physical therapy in the management of CLBP. These findings underscore the importance of adopting a holistic approach to treatment, addressing both the physical and psychosocial needs of patients to improve overall quality of life.

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