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The Impact of Physiotherapy on Anxiety and Depression in Chronic Pain Patients: A Prospective Study in a Saudi Tertiary Hospital

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Abstract:

Background: Chronic pain seldom occurs in isolation; it is often accompanied by anxiety and depression, each amplifying the other`s impact and ultimately eroding quality of life. Increasingly, physiotherapy is acknowledged as a discipline that can furrow both the body and the mind when faced with persistent pain.

Objective: This study aimed to assess whether an 8-week, structured physiotherapy programme could moderate anxiety, depression, pain intensity, and functional disability in adults presenting with chronic musculoskeletal pain at a tertiary Saudi Arabian referral centre.

Methods: Eighty patients participated in a prospective cohort study, attending two sessions per week that combined conventional physical rehabilitation with foundational psychological techniques. Change was quantified through the Hospital Anxiety and Depression Scale (HADS), Numerical Pain Rating Scale (NPRS), and Oswestry Disability Index (ODI), recorded at baseline and again after programme completion.

Results: Group-level analyses revealed pronounced and statistically robust shifts across all instruments. Mean anxiety scores fell by 3.8 points, depression by 3.9, NPRS by 2.8, and ODI by 10.7, each with p values less than 0.001.

Conclusion: The findings indicate that a physiotherapy intervention blending physical and psychological components can concurrent mental wellbeing and observable gains in pain and function for chronic pain patients. Integration of such psychologically informed methods into routine physiotherapeutic practice is therefore warranted.

Keywords: Physiotherapy, Chronic Pain, Anxiety, Depression, Biopsychosocial Model, Mental Health, Rehabilitation.

INTRODUCTION

Chronic pain is a widespread health challenge that touches millions, frequently co-occurring with anxiety and depression. These interlinked conditions form a resilient feedback loop, amplifying disability and undermining overall life satisfaction. In Saudi Arabia and the wider Gulf region, cultural attitudes, social dynamics, and fragmented health services deepen this burden, often steering individuals away from holistic, multidisciplinary management.

Physiotherapy is well established for enhancing movement and reducing physical discomfort, yet an expanding body of research shows it can also lift psychological symptoms in chronic-pain patients. One longitudinal trial documented marked reductions in both pain intensity and mood disturbances after participants completed a 57-week multidisciplinary regime (Myhr & Augestad, 2013). Likewise, systematic

reviews highlight that pairing physiotherapy with mental-health strategies—especially cognitive-behavioural therapy—strengthens outcomes (Alvarez et al., 2022; Hajihasani et al., 2019).

Although the physical benefits of physiotherapy are widely recognised, its effects on mental health have been studied far less, especially within Middle Eastern clinics. Recent trials that blended conventional physiotherapy with psychological input found detectable drops in anxiety and depression scores, hinting that treatment of the body may also lighten the emotional burden of chronic pain (Cuesta-Vargas & González-Sánchez, 2015; Wilson et al., 2017).

Against this backdrop, the present study sets out to measure how standard physiotherapy influences mental-health outcomes among chronic-pain patients at a large tertiary hospital in Saudi Arabia. By tracking shifts in anxiety and depression alongside improvements in physical function, the authors hope to build a clearer picture of how rehabilitation of the body can support healing of the mind in long-term pain disorders.

LITERATURE REVIEW

The bidirectional relationship between chronic pain and psychological distress-specially anxiety and depression-is widely acknowledged in clinical research. Persistent pain restricts movement, disrupts sleep, and erodes emotional resilience, thereby lowering quality of life. Because the problem is both physiological and psychological, health professionals increasingly favour treatment plans that blend physical therapies with cognitive and behavioural strategies.

Multidisciplinary Rehabilitation Programs

A pioneering trial explored an intensive 57-week multidisciplinary programme that united physiotherapy, psychology, and vocational support for participants with long-lasting musculoskeletal pain. Compared to a healthy reference group, patients in the intervention arm recorded significantly lower pain scores and less psychological distress at follow-up, underscoring the value of coordinated care in tackling the complex mechanisms that underlie chronic pain (Myhr & Augestad, 2013).

Integration of Mental Health in Physiotherapy Practice

In everyday clinical settings, physiotherapists are gradually weaving mental health principles into standard rehabilitation routines. A recent systematic scoping review found that practitioners routinely add relaxation techniques, mindfulness exercises, and brief cognitive interventions to conventional movement training when managing conditions such as low back pain and fibromyalgia. This emerging practice pattern reflects a deliberate move toward more holistic therapy that addresses both body and mind. (Alvarez et al., 2022).

Cognitive Behavioral Therapy (CBT) in Physiotherapy

The addition of cognitive-behavioral therapy to physiotherapy has generated encouraging results in clinical practice. A systematic review conducted by Hajihasani and colleagues reported that patients with chronic low back pain who received the combined approach experienced lower levels of depression and pain intensity, as well as noticeable gains in functional performance and overall quality of life (Hajihasani et al., 2019).

Multimodal Physiotherapy Programs

Multimodal physiotherapy merges targeted exercise, educational workshops, and psychological support within a single course of treatment, and studies suggest this blend markedly enhances health-related quality of life. In an 8-week program for patients with chronic musculoskeletal disorders, participants showed statistically significant improvements in both physical function and mental well-being when baseline and follow-up scores were compared (Cuesta-Vargas & González-Sánchez, 2015).

Psychologically Informed Physiotherapy (PIP)

Exploratory qualitative work on psychologically informed physiotherapy indicates that individuals do not only regain movement but also develop stronger emotional resilience and better coping techniques. Many

patients stated that the PIP model clarified the psychosocial drivers of their pain, leading to an increased sense of agency and, consequently, improved management of symptoms (Wilson et al., 2017).

Contrasting Findings in Refugee Populations

Some investigations report neutral or modest outcomes. For instance, a randomized controlled trial with Syrian refugees found that participation in group physiotherapy sessions did not yield statistically significant reductions in pain or mental-health symptoms. Nevertheless, participants expressed high satisfaction, pointing to the possibility that a more individualized or culturally sensitive model might be warranted (Hasha et al. 2020).

Taken together, these studies position physiotherapy as an intervention that, while grounded in physical rehabilitation, can also serve psychological needs in chronic-pain patients. This broader purpose underscores the justification for exploring comparable results within Saudi Arabias distinctive sociocultural environment.

METHODOLOGY

Study Design and Setting

This prospective cohort investigation took place in a tertiary-care facility in Saudi Arabia from August 2024 through February 2025. Its primary aim was to assess how a structured physiotherapy regimen influences anxiety and depressive symptoms among individuals suffering from chronic-pain syndromes.

Participants

Patients were recruited from the outpatient physiotherapy clinic. Eligibility required adults aged eighteen to sixty-five with chronic, musculoskeletal pain lasting at least three months and an active physiotherapy referral. Individuals with pre-existing psychiatric diagnoses, significant cognitive deficits, or concurrent psychological intervention were excluded. Eighty consenting participants ultimately constituted the study sample.

Intervention

All enrolled patients completed a uniform eight-week programme that included twice-weekly treatment sessions. Each meeting incorporated manual techniques, supervised therapeutic exercises, postural and movement education, and structured relaxation activities. Basic psychologically informed principles-goal setting, reassurance, and pain-related education-were woven into the sessions as ancillary support.

Data Collection

Outcome measures were recorded at baseline and again immediately following the eight-week intervention. Anxiety and depression were quantified using the Hospital Anxiety and Depression Scale (HADS), pain intensity was captured on the Numerical Pain Rating Scale (NPRS), and functional disability was evaluated with the Oswestry Disability Index (ODI).

Data Analysis

Descriptive statistics were employed to summarize participant demographic and clinical characteristics. To assess changes over the course of the study, paired t-tests compared pre- and postintervention scores for anxiety, depression, pain intensity, and disability. Statistical significance was set at p less than .05. Analyses were conducted using SPSS software, version 26.

Ethical Considerations

The study was approved by the hospital's Institutional Review Board. All participants provided written informed consent prior to participation. Confidentiality and anonymity were strictly maintained throughout the study.

FINDINGS

A total of eighty individuals with long-standing musculoskeletal pain completed the eight-week physiotherapy programme. The group had a mean age of forty-five-years-three-months (standard deviation eleven-point-two years), and included slightly more than half females. Every participant finished both baseline and post-intervention assessments using accepted clinical outcome measures.

Effect on Anxiety and Depression

Hospital Anxiety and Depression Scale (HADS) scores revealed a statistically significant drop in both anxiety and depression by the end of therapy. Mean anxiety scores fell from eleven-point-two (SD three-point-one) to seven-point-four (SD two-point-six), and depression ratings decreased from ten-point-eight (SD two-point-nine) to six-point-nine (SD two-point-five). In each case the change was significant at $p < 0.001$.

Effect on Pain and Disability

Pain intensity showed a parallel improvement. Numerical Pain Rating Scale (NPRS) values declined from a pre-intervention mean of six-point-seven (SD one-point-five) to three-point-nine (SD one-point-two). Functional disability, measured with the Oswestry Disability Index (ODI), also changed favourably, dropping from thirty-eight-point-five (SD seven-point-two) to twenty-seven-point-eight (SD six-point-three). Both results remain statistically significant with $p < 0.001$.

Table 1: Pre- and Post-Intervention Outcome Measures

Variable	Pre-Intervention Mean (SD)	Post-Intervention Mean (SD)	Mean Difference	p-value
HADS - Anxiety	11.2 (3.1)	7.4 (2.6)	-3.8	<0.001
HADS - Depression	10.8 (2.9)	6.9 (2.5)	-3.9	<0.001
NPRS - Pain	6.7 (1.5)	3.9 (1.2)	-2.8	<0.001
ODI - Disability	38.5 (7.2)	27.8 (6.3)	-10.7	<0.001

These results indicate that physiotherapy significantly improved both physical and psychological outcomes among chronic pain patients over the study period.

DISCUSSION

This investigation indicates that an eight-week course of physiotherapy meaningfully lowered anxiety and depressive symptoms, pain intensity, and self-reported functional limitation among patients with chronic musculoskeletal discomfort. The results reinforce an expanding body of literature suggesting that therapy grounded in a biopsychosocial model can generate both mechanical and psychological gains when delivered consistently.

The declines in anxious and depressive scores mirror those documented by Myhr and Augestad (2013), who observed similar benefits after extended, team-based rehabilitation for individuals with longstanding pain. Alvarez et al. (2022) further noted that contemporary physiotherapists routinely embed educational and cognitive measures—tools parallel to those used in the present study—thereby broadening the scope of traditional physical management.

Deliberately embedding cognitive-behavioral elements such as practical goal-setting, normalization of symptoms, and guided reassurance may have underpinned the psychological progress recorded in the trial. This proposition is substantiated by Hajihasani et al. (2019), who found that combining cognitive-behavioral therapy with standard physical interventions raised mood and quality-of-life indices among subjects with persistent low back pain.

Moreover, the substantial reductions in pain intensity and functional disability observed in this cohort lend further support to multimodal physiotherapy protocols. Cuesta-Vargas and González-Sánchez (2015) as well as Wilson et al. (2017) reported comparable findings, emphasising that the systematic integration of physical training, educational sessions and psychosocial support within a single programme enhances clinical benefit. Nevertheless, the literature is not entirely unanimous in favour of such a consolidated strategy. Hasha et al. (2020), in a study conducted with Syrian refugees, detected no meaningful improvement in mental health indicators after group-based physiotherapy, prompting speculation that cultural beliefs and wider contextual variables modulate treatment responsiveness. This observation underlines the necessity of customising rehabilitation plans to the distinctive psychosocial landscape of each patient cohort, a consideration that is especially pertinent within the culturally plural and rapidly modernising health system of Saudi Arabia.
Taken together, these findings reinforce the argument for expanding the scope of physiotherapy to address both somatic and psychological well-being. Adopting a biopsychosocial perspective is particularly relevant in tertiary-care hospitals, where the concerted efforts of physicians, physiotherapists, psychologists and allied specialists can synergistically elevate patient outcomes.

CONCLUSION

This investigation demonstrates that physiotherapy generates meaningful improvements in both the physical and psychological domains of individuals with chronic musculoskeletal pain. When basic psychological techniques were incorporated into standard physiotherapeutic procedures, participants experienced significant decreases in anxiety, depressive symptomatology, pain severity, and disability-related functional limitation. Such results lend empirical support to theiegelss the biopsychosocial framework advocated for contemporary physiotherapy, particularly in tertiary-care environments. Continued research should address the durability of these gains over time and examine whether more sophisticated, culturally-adapted psychological components produce additional advantages.

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