

INTEGRATING ACUPUNCTURE AND LIFESTYLE EDUCATION FOR WOMEN WITH CHRONIC LOW BACK PAIN: A PEDAGOGICAL AND COMMUNITY-CENTERED APPROACH.

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Abstract

Chronic low back pain (CLBP) is a leading cause of disability worldwide, deeply affecting physical functioning, psychological well-being, and social participation. Traditional medical interventions often emphasise pharmacological management; however, nonpharmacological interventions such as acupuncture-based rehabilitation and lifestyle modification have shown considerable promise. This article synthesises contemporary and historical evidence on these interventions, examines their functional outcomes, and proposes an integrated pedagogical framework for enhancing adherence, community awareness, and sustainable behaviour change. By reframing CLBP management through educational and community lenses, this article suggests that combining multimodal rehabilitation with targeted educational initiatives can significantly improve functional outcomes and quality of life for women living with CLBP. Gaps in existing literature are particularly gender specific and comparative studies and context relevant research in low- and middle-income settings are identified. Implications for educators, community health practitioners, and policymakers are discussed.

Keywords: Chronic low back pain, acupuncture, lifestyle modification, functional outcomes, educational strategies.

Introduction

Chronic low back pain is more than a physical health problem; it is a lived human experience that disrupts daily routines, restricts mobility, and diminishes an individual's sense of autonomy and participation in life. Globally, low back pain is consistently among the top causes of years lived with disability, affecting millions across diverse cultural and socio-economic contexts (Hoy et al., 2014). For many women, the burden of chronic low back pain extends into caregiving roles, familial responsibilities, and economic

participation, creating multidimensional challenges that transcend biomedical explanations.

Although CLBP may originate from structural abnormalities, musculoskeletal strain, or injury, contemporary understandings emphasise that it often persists due to complex interactions among physiological, psychological, and social systems. Whereas traditional biomedical approaches focus narrowly on symptom suppression or structural correction, contemporary rehabilitation paradigms advocate

for integrative, biopsychosocial strategies that address the whole person. Among these, acupuncture-based rehabilitation and lifestyle modification have emerged as viable, nonpharmacological interventions with promising evidence for improving pain, function, and quality of life.

In educational and community contexts, the implications of effective CLBP management are far reaching. Schools, community centres, and health education programmes represent powerful platforms for promoting awareness, teaching self-management skills, and fostering environments that support sustainable behavioural change. To explore this integrative approach, this article examines empirical and theoretical literature, foregrounds the therapeutic mechanisms of acupuncture and lifestyle education, and proposes a pedagogically grounded framework for application in community settings.

Understanding Chronic Low Back Pain

Chronic low back pain is typically defined as pain in the lumbar region persisting for more than three months, a timeframe that transcends the expected healing period and signals potential maladaptive changes in pain processing. While acute low back pain may resolve with rest and conservative care, chronic presentations often involve central sensitisation, altered neuromuscular control, and psychological adaptations such as fear avoidance behaviours. Historically, pain was understood through a purely biomedical lens, where pain was considered a direct consequence of tissue damage. However, this model failed to explain why individuals with similar anatomical findings can experience vastly different pain intensities or levels of disability. The Gate Control Theory (Melzack & Wall, 1965) shifted this paradigm by introducing the concept that pain is modulated by neural gating mechanisms in the spinal cord,

influenced by sensory, cognitive, and emotional factors. Contemporary pain science expands this further through the biopsychosocial model, which situates CLBP within a dynamic interplay of biological processes, psychological states, and social contexts (Engel, 2019; Nicholas, 2022).

Importantly, chronic pain influences not only physical functioning but also psychological well-being and social participation. Persistent discomfort often leads to activity restriction, mood disturbance, and decreased engagement in life roles, a phenomenon commonly reported among women managing CLBP. Recognising this complexity is essential for designing effective interventions that move beyond symptom suppression to promote functional and psychosocial recovery.

Acupuncture Based Rehabilitation: Mechanisms and Evidence

Acupuncture represents a treatment modality rooted in traditional Eastern medical systems but increasingly supported by Western neurophysiological research. In its modern application, acupuncture involves the insertion of fine needles into specific points to stimulate sensory receptors and modulate pain pathways. Neuroimaging and electrophysiological studies reveal that acupuncture activates large diameter afferent fibers, which can "close the gate" at spinal synapses, reducing nociceptive transmission. Further, acupuncture appears to engage descending inhibitory systems from the brainstem, promoting the release of endogenous opioids and neurotransmitters that attenuate pain perception (Zhang et al., 2024).

Empirical evidence supports acupuncture's role in CLBP management. A large randomised clinical trial published in JAMA Network Open demonstrated that adults receiving acupuncture for chronic low back pain experienced significant reductions in pain

intensity and disability, with sustained benefits beyond the treatment period (DeBar et al., 2025). Similarly, systematic reviews indicate that acupuncture, when compared to sham or usual care, yields moderate improvements in pain and function.

Scholars emphasise that acupuncture should not be viewed as a standalone “miracle cure” but as a facilitative intervention: by reducing pain and muscle tension, it can enable patients to engage more effectively with active rehabilitation, such as exercise or motor retraining. Integrating acupuncture into broader rehabilitation frameworks may thus improve participation, adherence, and functional outcomes.

Lifestyle Modification: Active Rehabilitation and Self Management

Lifestyle modification encompasses a spectrum of behaviour based interventions targeting physical activity, posture education, ergonomics, and daily habits. Central to this approach is structured exercise (including stretching, strengthening, core stabilisation, and motor control training) which has consistently demonstrated benefits for individuals with CLBP. Meta-analysis reveals that exercise programmes improve muscular strength, enhance spinal flexibility, and reduce pain intensity more effectively than passive treatments alone (Hayden et al., 2021; Gordon & Bloxham, 2022).

Beyond physical outcomes, exercise fosters psychological resilience. Regular activity increases self-efficacy, confidence in one’s ability to engage in movement despite discomfort, and reduced fear avoidance beliefs that perpetuate inactivity and deconditioning. The Social Cognitive Theory situates self-efficacy as a critical determinant of behaviour change, highlighting the importance of mastery experiences, observational learning, and

supportive environments in sustaining active self-management.

Lifestyle interventions also include education about daily postures, lifting techniques, ergonomic adjustments, and strategies for pacing activities. In community settings, particularly in low- and middle-income regions, such knowledge empowers individuals to adapt their routines in ways that protect spinal health while accommodating occupational and domestic demands.

Integrative Approach: Synergy between Acupuncture and Lifestyle Education

When combined, acupuncture and lifestyle modification represent a multimodal approach that addresses both pain and functional capacity. Pain relief facilitates participation in active rehabilitation, while improved physical capacity reinforces psychological confidence and engagement. Together, these interventions support broader participation in life roles and improve overall quality of life.

Quality of life in CLBP must be understood as a multidimensional construct encompassing physical comfort, emotional wellbeing, social engagement, and independence. Persistent pain can erode participation in meaningful activities, diminish social roles, and reduce opportunities for community involvement. Interventions that improve functional capacity while simultaneously addressing behavioural and educational needs offer the best prospects for meaningful improvement.

To conceptualise these interactions, the following framework illustrates how interventions (acupuncture and lifestyle modification) influence functional outcomes and how educational strategies can amplify these effects to enhance quality of life.

Educational and Community Implications

Viewing CLBP management through a pedagogical lens foregrounds the role of knowledge, skills, and behaviour change. Educational strategies can take multiple forms:

Community Awareness Programmes: These initiatives educate women and families about CLBP, symptom recognition, self-management strategies, and how to integrate recommended exercises into daily routines. Community workshops, local radio programmes, and peer support groups can reinforce positive behaviours and reduce stigma.

Teacher and Trainer Education: Physical Education teachers, community health workers, and fitness trainers can be equipped with evidence based knowledge about CLBP, rehabilitation exercises, and educational techniques to support individuals in their learning and adherence.

School-Based Programmes: Embedding back-health education into school health curricula can cultivate lifelong preventive habits, postural awareness, and active lifestyles from a young age.

Behavioural Skill Training: Adult learning principles such as goal setting, self-monitoring, and feedback can enhance self efficacy. Modeling, motivational interviewing, and culturally relevant examples increase relevance and impact.

In each of these arenas, educational content must be tailored to cultural contexts. In many Nigerian and African communities, beliefs about pain and activity may influence engagement. Understanding local values, language expressions, and common daily activities helps educators design interventions that resonate and are more likely to be adopted.

Empirical Evidence: Functional Outcomes and Effectiveness

Several empirical studies support the effectiveness of acupuncture and lifestyle modification.

Despite progress, significant gaps remain. Few studies directly compare acupuncture based rehabilitation with lifestyle modification within the same population, making it difficult to draw definitive conclusions about relative effectiveness. Most investigations focus on pain intensity rather than higher order functional outcomes such as agility, strength, or quality of life. Research is also disproportionately conducted in high income countries, limiting generalisability to low resource contexts where socio-cultural, economic, and health system factors play critical roles.

Furthermore, women who often balance productive, reproductive, and caregiving roles are underrepresented in CLBP research. Gender specific studies that account for biological, psychosocial, and cultural nuances are needed to design interventions that are responsive to women's lived realities.

Finally, the role of adherence, motivation, and contextual barriers is insufficiently explored. Understanding how educational and community factors influence participation and sustainability is essential for translating clinical effectiveness into real world impact.

Conclusion

Chronic low back pain is a complex, multifaceted condition that requires more than biomedical treatment. Acupuncture based rehabilitation and lifestyle modification offer complementary pathways to improve physical and psychological outcomes. When situated within an educational and community framework, these interventions

gain greater relevance and sustainability. Knowledge transfer, skill building, and supportive environments empower women to engage actively in their rehabilitation, enhancing functional capacity and quality of life.

By foregrounding pedagogical strategies alongside evidence based rehabilitation, this article highlights the importance of integrating health education into community and school settings. Future research should prioritise gender specific comparative studies, explore the educational determinants of adherence, and design culturally relevant programmes that bridge clinical insight with lived experience. In doing so, we can move toward more holistic, equitable, and human centred approaches to managing chronic low back pain.

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