Chapter 7
From Strain to Support: Integrating Technology and Therapeutics in Geriatric Pain and Mobility Care

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ABSTRACT

This chapter explores how innovative technologies and therapeutic strategies in moving and handling are transforming chronic pain management in gerontological nursing. With ageing populations worldwide, the prevalence of musculoskeletal conditions and mobility limitations among older adults is rising, presenting significant challenges for nurses in delivering safe, effective, and compassionate care. Drawing from interdisciplinary research and clinical best practices, this chapter highlights smart assistive devices, ergonomic interventions, AI-powered mobility tracking, and person-centered moving and handling techniques tailored to older adults with chronic pain. The chapter also aligns these innovations with Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 10 (Reduced Inequalities), underscoring the importance of sustainable and equitable healthcare advancements in gerontological nursing.

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1. INTRODUCTION

Chronic pain in older adults is a multifaceted and intricate issue, presenting a significant health challenge that affects their quality of life, functional capacity, and psychological well-being (Nomura et al., 2020). Research indicates that chronic pain prevalence among older adults is considerable, with rates often exceeding 50% in community-dwelling seniors and even higher in nursing home populations (Aftab et al., 2020). This demographic's experience of pain differs from that of younger individuals due to changes in pain perception, the presence of multiple comorbidities, and the use of various medications that can affect pain sensitivity and response (Nomura et al., 2020). As noted in recent studies, chronic pain often manifests in diverse forms, including musculoskeletal conditions, neuropathic pain, and pain associated with chronic diseases like arthritis and diabetes, compounding the challenge of appropriate management (Molyneux et al., 2018).

Additionally, the implications of chronic pain extend beyond the physical, significantly impacting mental health; depression and anxiety disorders are notably higher among older adults living with chronic pain (Schröeder et al., 2019). Such psychological outcomes have far-reaching consequences not only at an individual level, potentially leading to a cycle of disability and increased health care utilisation, but also at the societal level where the direct and indirect costs associated with chronic pain become substantial. Thus, addressing chronic pain in older adults requires a comprehensive, multidisciplinary approach that incorporates pharmacologic and non-pharmacologic strategies, tailored to the unique needs of this population (Schröeder et al., 2019).

In gerontological nursing, the importance of moving and handling is paramount (Reis da Silva, 2023a). Proper techniques not only ensure the safety and well-being of older adults but are essential in managing their pain effectively. Inappropriate moving methods can exacerbate pain and lead to further complications such as falls, which are a significant concern in geriatric care (Pyone et al., 2020; Reis da Silva, 2023b; Reis da Silva, 2024a). Proper biomechanical practices and the use of assistive devices can help reduce the risk of injury to both caregivers and patients, aligning with best practices in maintaining dignity and maximising functional independence in older adults (Molyneux et al., 2018). Nursing curricula have increasingly emphasised the integration of safe moving and handling practices, reflecting a growing recognition of their role in enhancing care quality and improving patient outcomes (Doku et al., 2020; Reis da Silva, 2024b; Reis da Silva, 2025a). Furthermore, trained care staff are crucial in implementing these techniques, particularly when supporting older adults who may lack the physical capability to manage pain or mobilise independently (Pyone et al., 2020).