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Abdominal message therapy to solve constipation in patients with stroke

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Abstract
Stroke often leads to mobility impairments that adversely affect elimination, frequently resulting in constipation. This condition is a common complication among stroke patients due to prolonged immobilization and reduced physical activity. While pharmacological options exist, non-pharmacological interventions such as abdominal massage provide a viable and effective alternative. This case study aimed to evaluate the effectiveness of abdominal massage in managing constipation for a stroke patient experiencing immobilization. The subject, Mrs. F, presented with a defecation frequency of less than twice per week, hard stool consistency, and diminished bowel sounds (7 times/min). Her baseline Constipation Scoring System (CSS) score was 19. The intervention consisted of abdominal massage using effleurage and kneading techniques, administered for 15 minutes daily over three consecutive days. Post-intervention results demonstrated a gradual decrease in CSS scores alongside an increase in bowel sound frequency and improved patient comfort. By the third day, the patient successfully achieved defecation and flatus, although stool consistency remained firm. These findings suggest that abdominal massage is an effective, safe, and easily applicable complementary therapy for reducing constipation in stroke patients within nursing care settings.

Keywords: Abdominal message, complementary therapy, constipation, nursing care, stroke

Introduction

Stroke is defined as a rapidly developing clinical syndrome characterized by focal or global loss of central nervous system function due to the obstruction or disruption of cerebral blood flow (Prabhakaran et al., 2026). As the leading cause of disability and the third leading cause of death worldwide, stroke represents a significant global health burden (Qiu & Xu, 2020). According to the World Stroke Organization (2022), one in four people over the age of 25 will experience a stroke in their lifetime (Feigin et al., 2022). Globally, over 12.2 million new strokes occur annually, with ischemic strokes accounting for 62% of cases, while intracerebral and subarachnoid haemorrhages comprise the remainder of the 101 million people currently living with the aftermath of this condition. In the United States alone, approximately 795,000 individuals suffer from a new or recurrent stroke each year (Nouh et al., 2017). A similar upward trend is observed in Indonesia, where data from the Ministry of Health's Development Policy Board (2023) indicates a prevalence of 8.3 per 1,000 population. Within Central Java, stroke prevalence reached 3.8% in 2018, ranking as the fourth largest non-communicable disease (NCD) after hypertension, diabetes mellitus, and obesity. Local data further highlights this urgency; in 2020, Central Java recorded 43,567 cases, while Wonosobo Regency reported an incidence of 0.4%. Specifically, at PKU Muhammadiyah Wonosobo Hospital, stroke cases in 2024 reached approximately 544 cases, accounting for 3.6% of the hospital's total disease burden.

Among the various complications arising from stroke, gastrointestinal disturbances—specifically constipation—are highly prevalent, affecting 30% to 60% of patients (Kutsuna et al., 2025). Clinically defined as a reduction in defecation frequency to less than three times per week accompanied by excessive straining or hard, dry stools, constipation is particularly common in patients over the age of 65 (Bracci et al., 2007). In stroke populations, this condition is primarily driven by neurological impairment of the autonomic nervous system, which disrupts the parasympathetic innervation responsible for colonic peristalsis and intestinal wall tone (Tuz et al., 2022). Furthermore, decreased physical activity and prolonged immobilization significantly slow nerve impulses, while concurrent dysphagia (difficulty swallowing) often leads to inadequate fluid and fiber intake, further exacerbating stool impaction. The physiological consequences of constipation are particularly hazardous for non-hemorrhagic stroke patients. Straining during defecation triggers the Valsalva maneuver, a forced expiration against a closed airway that causes a sharp rise in intra-abdominal and intrathoracic pressure. This response leads to an acute increase in intracranial pressure (ICP), which is associated with poor clinical prognoses and an increased risk of mortality. Additionally, the chronic use of laxatives can lead to dehydration and impaired bowel function, creating a maladaptive cycle. Given that hospitalized stroke patients often suffer from hemiparesis or complete immobility, addressing constipation through safe nursing interventions is critical to preventing life-threatening secondary complications.

The primary etiologies of constipation include physical inactivity, inadequate fiber and fluid intake, and age-related physiological changes. In stroke patients, prescribed mobility restrictions further suppress intestinal peristalsis, while psychological stress and various pharmacological side effects exacerbate the condition. While standard management often relies on pharmacological agents—such as bulk-forming laxatives, stool softeners (Docusate Sodium), and osmotic laxatives (Magnesium Sulfate)—non-pharmacological approaches like mobilization, fluid management, and toileting regimens are equally essential. Among these, abdominal massage emerges as a highly effective complementary therapy (Gu et al., 2023). By applying rhythmic, clockwise pressure following the anatomical path of the ascending, transverse, and descending colon, this technique stimulates the parasympathetic nervous system. This stimulation reduces abdominal muscle tension, enhances intestinal secretions, and facilitates sphincter relaxation. As a low-cost, independent intervention with minimal side effects, abdominal massage accelerates the defecation reflex through alternating cycles of direct pressure and relaxation. Despite these benefits, clinical observations at PKU Muhammadiyah Wonosobo Hospital reveal that constipation in stroke patients often remains inadequately managed, leading to severe straining, abdominal bloating, and diminished quality of life. Nurses, serving as both educators and primary care providers, play a pivotal role in implementing such evidence-based interventions. Consequently, the author conducted a case study to evaluate the 'Application of Abdominal Massage Therapy to Overcome Constipation in Stroke Patients at PKU Muhammadiyah Wonosobo Hospital.

Case Description

The clinical assessment was initiated on May 19, 2025, utilizing the 13 NANDA Domains to provide a comprehensive overview of the patient's health status. The subject, Mrs. F, is a 43-year-old female admitted to the hospital with a primary diagnosis of stroke, presenting with right-sided hemiparesis and generalized physical weakness. At the time of the initial assessment, her vital signs indicated severe hypertension (220/122 mmHg) and tachycardia (117 bpm), although her respiratory rate and oxygen saturation remained within normal limits. Her medical history was significant for chronic hypertension with irregular adherence to primary care follow-up. Subjectively, Mrs. F reported significant abdominal fullness and discomfort, noting that she had not had a bowel movement for three days—a marked departure from her pre-hospitalization baseline of one soft stool per day. Objective clinical examination of the abdomen further corroborated the patient's subjective complaints. Physical inspection revealed a convex, distended abdominal contour, while auscultation identified diminished bowel sounds at a frequency of 7 times per minute. Palpation confirmed a firm abdominal wall with localized tenderness, and percussion yielded a dull or "faint" sound over the colon. To quantify the severity of the condition, the Constipation Scoring System (CSS) was applied, resulting in a baseline score of 19. This score, exceeding the clinical threshold of 15, confirmed a diagnosis of constipation secondary to immobilization and autonomic dysfunction associated with her stroke.

The nursing intervention focused on a 15-minute abdominal massage therapy, administered once daily for three consecutive days. The procedure followed a standardized eight-step mechanical stimulation protocol: longitudinal upward and downward strokes, effleurage (circular rubbing), and specialized palmar kneading. This kneading followed the anatomical route of the large intestine, moving from the ascending colon on the right to the descending colon on the left to facilitate the physical transit of faecal matter. This evidence-based approach, as supported by Lisnawati (2024), was designed to stimulate the parasympathetic nervous system, thereby reducing muscle tension and promoting the defecation reflex. The clinical evaluation demonstrated a positive correlation between the intervention and the resolution of symptoms. After the first session, the patient reported increased abdominal comfort and a "heartburn" sensation indicative of stimulated peristalsis. By the second day, flatus was reported, and bowel sound frequency showed a marked increase. On the third day of the application, the patient successfully achieved defecation. While the stool consistency remained firm, the objective CSS score showed a steady decline throughout the treatment period. Final assessments revealed that bowel sounds had normalized to 11 times per minute and abdominal tenderness had significantly subsided. These outcomes indicate that abdominal massage is a highly effective, non-pharmacological nursing intervention for managing constipation in stroke patients.

Discussion

The clinical assessment of Mrs. F revealed a significant elimination disorder characterized by bed-bound immobility, total dependence on caregivers for daily activities, and a defecation frequency of less than twice per week. Objective clinical data included difficult fecal expulsion, hard stool consistency, and diminished intestinal peristalsis, as evidenced by a bowel sound frequency of only 7 times per minute. To quantify these symptoms, the Constipation Scoring System (CSS) was utilized. This validated scale ranges from 0 to 30, where a score exceeding 15 indicates clinically significant constipation. A higher CSS score directly correlates with increased symptom severity, providing a standardized basis for evaluating the patient's condition. Based on these findings, a nursing diagnosis of Constipation related to physical immobilization was established. This diagnosis is rigorously supported by both subjective and objective data that align with the Indonesian Nursing Diagnosis Standards (SDKI, 2018), specifically regarding reduced defecation frequency, prolonged straining, and decreased peristaltic activity. According to Maslow's Hierarchy of Needs, addressing this elimination disorder is a high priority. Elimination is categorized as a fundamental physiological need; therefore, its management is essential before higher-level needs can be addressed. In this case, the patient's

primary triggers for constipation were a lack of physical activity and stroke-induced motion restrictions, both of which significantly suppressed colonic motility. In accordance with the Indonesian Nursing Intervention Standards (SIKI/PPNI, 2018), nursing interventions are treatments based on clinical judgment aimed at achieving specific patient outcomes. The primary intervention selected for Mrs. F was abdominal massage therapy. The goal of this intervention was to improve fecal elimination, with the expected outcome criteria being an increased frequency of defecation, a reduction in straining and discomfort, improved stool consistency, and a return of intestinal peristalsis to normal limits. By integrating evidence-based massage techniques into the care plan, the nurse actively addresses the physiological root of the patient's elimination distress.

The therapeutic efficacy of abdominal massage in managing constipation is deeply rooted in its physiological impact on the gastrointestinal system. The mechanical action of 15-minute effleurage sessions over three consecutive days serves as a potent stimulus for the parasympathetic nervous system. This activation promotes the relaxation of smooth muscles within the digestive tract, enhances intestinal motility, and increases the secretion of digestive fluids. Furthermore, the systematic pressure helps relax the anal sphincter, thereby facilitating the movement of fecal matter through the colon. In the case of Mrs. F, these physiological responses were clearly observed; by the second day of intervention, the patient reported increased abdominal comfort and frequent flatus, both of which are clinical indicators of returning bowel function and stimulated peristalsis.

Similarly, the positive progression observed in Mrs. F—from a baseline bowel sound frequency of 7 times/minute to 11 times/minute by the third day—aligns with these broader statistical trends. Although Mrs. F's stool consistency remained firm on the third day, her successful defecation and reduced Constipation Scoring System (CSS) score confirm that the intervention effectively bypassed the barriers of immobilization-induced constipation. Their quasi-experimental study involving 60 respondents utilized a Mann-Whitney statistical analysis, which revealed a significant difference in constipation levels between the control and intervention groups. By comparing the results of Mrs. F's case to such large-scale studies, it becomes evident that abdominal massage is not merely a comfort measure but a statistically significant clinical intervention. The subjective relief reported by the patient, paired with the objective increase in bowel sounds and the reduction of abdominal tenderness, underscores the reliability of this non-pharmacological approach. In conclusion, the evaluation of Mrs. F's nursing care demonstrates that abdominal massage, when performed according to Standard Operating Procedures (SOP), is a safe and effective method for treating constipation in stroke patients.

Conclusion

The application of abdominal massage therapy for three consecutive days proved to be an effective non-pharmacological intervention for managing constipation in stroke patients with impaired mobility. Prior to the intervention, the patient exhibited significant clinical indicators of constipation, including a high Constipation Scoring System (CSS) score of 19, diminished bowel sounds, and abdominal distension. Following the systematic implementation of the 15-minute massage protocol—incorporating effleurage and kneading techniques—there was a marked improvement in the patient's clinical status. Objective evaluation revealed an increase in bowel sound frequency, a reduction in abdominal tenderness, and the successful resumption of the defecation reflex by the third day. These findings align with current research indicating that mechanical abdominal stimulation triggers the parasympathetic nervous system and enhances colonic motility. Consequently, abdominal massage is recommended as a safe, low-cost, and independent nursing intervention that should be integrated into standard stroke rehabilitation protocols to prevent life-threatening complications associated with the Valsalva maneuver and increased intracranial pressure.

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