

“I LOV U” Abdominal Massage to Reduce Constipation in Stroke Patients: A Case Study

Sigit Wicaksono¹, Nury Sukraeny^{2*}, Sarinti³

¹⁻³ Faculty of Nursing and Health Sciences, Universitas Muhammadiyah Semarang, Indonesia

*Corresponding Author: nury.sukraeny@unimus.ac.id ; Orcid ID: <https://orcid.org/0009-0001-3271-2649>

(Received: July 27,2026 Revised: August 11,2026 Accepted: August 12,2026)

ABSTRACT

Introduction: Ischemic stroke is a neurological disorder caused by impaired cerebral blood flow and may lead to various complications, including constipation. Constipation in patients with ischemic stroke is commonly associated with immobility, neurological impairment, and reduced physical activity, resulting in discomfort and delayed recovery. One non-pharmacological intervention that may help alleviate constipation is the "I LOV U" abdominal massage, which aims to stimulate intestinal peristalsis.

Objective: This case study aimed to describe the nursing care provided to patients with ischemic stroke experiencing constipation through the implementation of the "I LOV U" abdominal massage.

Methods: This descriptive case study employed a nursing care approach involving three patients with ischemic stroke and constipation who met the inclusion and exclusion criteria. The severity of constipation was assessed using the Constipation Assessment Scale (CAS). The "I LOV U" abdominal massage was administered for 15 minutes twice daily, 2 hours after breakfast and lunch, for 4 consecutive days.

Results: All participants demonstrated a reduction in CAS scores following the intervention. Subject 1 achieved defecation on the fourth day, whereas Subjects 2 and 3 were able to defecate on the third day after receiving the abdominal massage.

Conclusion: The “I LOV U” abdominal massage technique demonstrated potential in reducing constipation among patients with ischemic stroke., as evidenced by decreased CAS scores and successful defecation. This intervention may serve as a safe and effective independent nursing intervention for managing constipation in patients with ischemic stroke.

Keywords: ischemic stroke; constipation; abdominal massage; nursing care

INTRODUCTION

Stroke is a condition characterized by acute neurological dysfunction resulting from disturbances in the cerebral vasculature. Clinical manifestations of stroke may persist for more than 24 hours or, in some cases, for less than 24 hours with a risk of brain tissue damage (Dirren et al., 2025).. Ischemic stroke (NHS), also known as ischemic stroke, is caused by obstruction of cerebral blood flow due to thrombosis or embolism, leading to inadequate oxygen and nutrient supply to the brain. Clinically, it is characterized by weakness of one or more extremities or hemiparesis (Agustiani et al., 2023). The risk of stroke increases with advancing age due to reduced vascular elasticity, cardiovascular risk factors, and other physiological changes, making older adults the population most vulnerable to stroke (Maryani, 2023).

Stroke is one of the leading causes of morbidity and mortality worldwide and is frequently associated with secondary complications affecting multiple body systems, including the gastrointestinal system. Globally, an estimated 93.8 million individuals were living with stroke in 2021, with approximately 11.9 million new cases reported annually (Feigin et al., 2025). In Indonesia, the incidence of stroke has reached 638,178 cases, making it the leading cause of death and disability nationwide (SKI, 2023). Among the complications affecting other body systems, constipation is one of the most common gastrointestinal disorders observed in stroke patients, particularly among older adults. Constipation may worsen the patient's clinical condition, reduce comfort, and impede the rehabilitation process (Setyawati et al., 2025). Constipation is defined as difficulty in defecation, characterized by a bowel movement frequency of fewer than three times per week, hard stool consistency, and pain during straining (Riset et al., 2023). In patients with stroke, constipation may result from inadequate dietary fibre intake, reduced physical activity, insufficient hydration, electrolyte imbalance, medication side effects, and neurological or psychological impairments. The consequences of constipation include abdominal distension, fecal incontinence, anal fissures, haemorrhoids, back pain, and urinary tract dysfunction (Lafcı & Kaşıkçı, 2023).

The prevalence of constipation among stroke patients ranges from 30% to 55% during the first four weeks following stroke, with major risk factors including immobility, impaired activities of daily living, poor nutritional status, and the use of certain medications (Tian et al., 2025). Clinically, constipation is characterized by abdominal distension resulting from the accumulation of gas or fecal matter that is difficult to evacuate, leading to abdominal fullness, pain, reduced appetite, and decreased patient comfort. Furthermore, constipation has been associated with prolonged hospitalization, an increased risk of infection, and reduced quality of life among patients with stroke (Mohamed et al., 2023). Constipation management generally involves two approaches: pharmacological and non-pharmacological interventions. Pharmacological management, primarily through the administration of laxatives to facilitate bowel movements, remains the most commonly implemented treatment (Soputri et al., 2021). However, prolonged use of laxatives may lead to adverse effects, including dependency, intestinal mucosal damage, and fluid and electrolyte imbalances (Whorwell et al., 2024).

At Roemani Muhammadiyah Hospital Semarang, nurses commonly provide non-pharmacological interventions by educating patients and their families to increase dietary fibre intake and maintain adequate water consumption. An evidence-based nursing practice (EBNP) intervention that has been applied for constipation management is Swedish massage, a massage technique that utilizes gentle, rhythmic strokes to enhance blood circulation, relax the abdominal muscles, and promote intestinal motility. This technique helps reduce muscle tension and improve gastrointestinal function. However, Swedish massage requires specialized training for healthcare providers, making it more difficult to teach to family caregivers. A simpler non-pharmacological alternative that does not require

formal training is the "I LOV U" abdominal massage. Owing to its straightforward technique and gentle movements, this intervention can be easily performed by nurses or family caregivers without professional massage expertise, allowing it to be implemented more efficiently and practically (Fekri et al., 2021).

Massage is a complementary therapy that can stimulate intestinal peristalsis, activate the autonomic nervous system, strengthen the abdominal muscles, enhance digestive function, and promote relaxation of the anal sphincter, thereby facilitating defecation (Setyawati et al., 2025). One of the most widely used and easily applied abdominal massage techniques is the "I LOV U" massage, which follows the anatomical course of the colon through massage movements forming the letters "I," "L," and "U." This evidence-based non-pharmacological intervention has been shown to effectively reduce constipation among older adults following stroke and can be safely performed by family caregivers with minimal risk (Setyawati et al., 2025). Therefore, this study aimed to implement the "I LOV U" abdominal massage technique to reduce constipation among stroke patients receiving treatment at Roemani Muhammadiyah Hospital Semarang.

MATERIALS AND METHODS

This study employed a case study design with a nursing care approach encompassing patient identification, nursing assessment, nursing diagnosis, intervention planning, implementation, and evaluation. The study population consisted of all hospitalized stroke patients with constipation admitted to Sulaiman 3 and Sulaiman 4 wards at Roemani Muhammadiyah Hospital, Semarang. Three patients with ischemic stroke (NHS) and constipation were included as the study subjects. Participants were selected using a purposive sampling technique.

The inclusion criteria were: (1) age >65 years; (2) diagnosis of ischemic stroke for more than 72 hours; (3) Constipation Assessment Scale (CAS) score >5; and (4) Glasgow Coma Scale (GCS) score >7. The exclusion criteria included a history of abdominal or pelvic surgery, gastrointestinal disorders such as pancreatitis, peptic ulcer disease, or gastrointestinal malignancy, and the presence of abdominal wall ulcers or wounds.

The "I LOV U" abdominal massage is a simple and gentle abdominal massage technique commonly used to relieve abdominal tension and improve gastrointestinal motility (Fekri et al., 2021). Before the intervention, constipation severity was assessed using the Constipation Assessment Scale (CAS). Participants were positioned comfortably in the supine position and instructed to relax while the researcher provided a direct explanation of the massage procedure.

The massage was performed using the dominant hand in a paddle-shaped position with moderate pressure, following clockwise circular movements along the anatomical direction of the large intestine. The massage sequence consisted of the following patterns: the letter "I" was traced along the descending colon in the left abdominal quadrant; the letter "L" extended from the lower right quadrant across the transverse colon to the upper left quadrant; the letter "O" involved circular movements around the umbilical region; and the letter "U" repeated the pathway of the "L" and "I" strokes, following the course of the ascending to descending colon. Each massage session lasted approximately 15 minutes and was performed twice daily (2 hours after breakfast and lunch) for four consecutive days or until the participant achieved spontaneous bowel evacuation. Constipation severity was reassessed using the CAS before each intervention session.

The Constipation Assessment Scale (CAS) was used as the outcome measure to objectively assess constipation severity based on patients' reported symptoms. The instrument consists of eight symptom indicators: loss of appetite, headache, decreased energy or fatigue, abdominal fullness, pain during defecation, abdominal bloating, the urge to defecate without successful bowel evacuation, and prolonged defecation time. Each item is scored on a three-point scale: 0 (no problem), 1 (some problem), or 2 (severe problem). The total score is interpreted as follows: 0–2 indicates no constipation, 3–6 mild constipation, 7–10 moderate constipation, and 11–16 severe constipation (McMillan & Williams, 1989).

This case study was conducted in accordance with established ethical principles and received ethical approval from the Nursing and Health Research Ethics Committee, Faculty of Nursing and Health Sciences, Universitas Muhammadiyah Semarang (UNIMUS) (Approval No. 022/KE/11/2025). The study adhered to the ethical principles of respect for human dignity, privacy and confidentiality, justice, and inclusiveness. Written informed consent was obtained from each participant after providing a clear explanation of the study objectives, procedures, potential risks, and benefits. Participants were informed that their involvement was entirely voluntary and that they could withdraw from the study at any time without any consequences for their treatment. To ensure confidentiality, participants' identities were anonymized in all reports and publications, and all collected data were securely maintained. Equal opportunity to participate was provided without discrimination based on social or economic background.

Potential benefits and risks were carefully considered. The "I LOV U" abdominal massage was regarded as a safe, low-risk, and effective non-pharmacological intervention for reducing constipation in patients with ischemic stroke, with anticipated benefits outweighing any minimal risks through improvement of bowel function and overall quality of life. The case study presents the complete nursing care process, including assessment, nursing diagnosis, intervention, implementation, and evaluation. Data were analyzed descriptively and presented in tables and graphs to illustrate changes in constipation severity following the implementation of the "I LOV U" abdominal massage intervention.

RESULTS

This case study was conducted in the Sulaiman 3 and Sulaiman 4 inpatient wards at Roemani Muhammadiyah Hospital, Semarang, from December 12 to December 24, 2025. Three subjects who met the eligibility criteria were included in the study. The inclusion criteria were age >65 years, diagnosis of ischemic stroke (NHS) for more than 72 hours, a Constipation Assessment Scale (CAS) score >5, and a Glasgow Coma Scale (GCS) score >7. Subjects with a history of abdominal or pelvic surgery, gastrointestinal disorders (e.g., pancreatitis, peptic ulcer disease, or gastrointestinal malignancy), or abdominal wall ulcers were excluded. Initial assessment indicated that all three subjects experienced constipation. The subjects' characteristics are presented in Table 1.

Table 1. Subjects' Characteristics

Characteristic	Subject 1	Subject 2	Subject 3
Age (years)	69	66	68
Sex	Male	Male	Male
Duration since NHS diagnosis	2 months	3 days	3 days
CAS score	10	8	7
GCS score	15	15	15

All subjects were older adults (>65 years), male, and had been diagnosed with ischemic stroke for more than 72 hours. Based on the CAS assessment, all subjects were classified as having moderate constipation at baseline.

Subject 1

Subject 1 complained of generalized weakness involving both upper and lower extremities, predominantly on the left side, fatigue, involuntary tremor of the right hand, and absence of bowel movement for three days. The subject had a GCS score of 15 and a CAS score of 10. The medical history included bilateral hemiparesis for two months, hypertension, Parkinson's disease, and previous smoking. Vital signs were as follows: blood pressure 138/79 mmHg, pulse 60 beats/min, body temperature 36.6°C, respiratory rate 20 breaths/min, and oxygen saturation 97–98% with oxygen supplementation at 3 L/min via nasal cannula.

Assessment of nutritional and fluid intake revealed a daily fluid intake of approximately 1 L and three meals per day, with approximately half of each meal consumed. Usual bowel habits were once every 2–3 days, and the subject had never used laxatives. Physical examination demonstrated abdominal distension, bowel sounds of 20/min, dullness on percussion, and a firm abdomen on palpation. Functional assessment showed complete dependence (Barthel Index = 0) and Katz Index grade G (dependent in all six functions). Neuromuscular examination revealed bilateral limb weakness with Medical Research Council (MRC) muscle strength scores of 4/4/2/2/3/3/2/2.

Subject 2

Subject 2 reported bilateral limb weakness for two days before hospital admission, dyspnea, and no bowel movement for three days. The subject had a GCS score of 15 and a CAS score of 8. The medical history included diabetes mellitus, hypertension, chronic kidney disease requiring haemodialysis twice weekly (Wednesday and Saturday) for two years, and previous smoking.

Vital signs were blood pressure 189/78 mmHg, pulse 84 beats/min, body temperature 36.1°C, respiratory rate 24 breaths/min, and oxygen saturation 98% with oxygen supplementation at 3 L/min via nasal cannula. Daily fluid intake was approximately one to two glasses, while food intake consisted of three meals per day with approximately half of each meal consumed. The usual bowel movement frequency was once every one to two days.

Physical examination demonstrated abdominal distension, bowel sounds of 18/min, dullness on percussion, and a firm abdomen on palpation. Functional assessment indicated severe dependency (Barthel Index = 25) and Katz Index grade C (independent in four functions except bathing and one additional function). Neuromuscular examination revealed bilateral limb weakness with MRC muscle strength scores of 3/3/3/3/4/4/3/2.

Subject 3

Subject 3 complained of left-sided limb weakness for three days and absence of bowel movement for three days. The subject had a GCS score of 15 and a CAS score of 7. The medical history included hypertension, diabetes mellitus, and previous smoking. Before transfer to the inpatient ward, the subject had been admitted to the intensive care unit for one day because of decreased consciousness.

Vital signs included blood pressure 128/93 mmHg, pulse 102 beats/min, body temperature 36.1°C, respiratory rate 20 breaths/min, and random blood glucose level of 140 mg/dL. Daily fluid intake was approximately 1 L, with three meals per day and approximately half of each meal consumed. The subject's usual bowel habit before hospitalization was once daily.

Physical examination revealed abdominal distension, bowel sounds of 20/min, and dullness on percussion. Functional assessment showed moderate dependency (Barthel Index = 65) and Katz Index grade C (independent in four functions except bathing and one additional function). Neuromuscular examination demonstrated left-sided limb weakness with MRC muscle strength scores of 555/444/555/444.

The primary nursing diagnosis established for all subjects was Constipation (SDKI D.0049) related to impaired physical mobility. Major defining characteristics included the absence of bowel movements for more than two days and abdominal distension. Minor defining characteristics included decreased appetite associated with abdominal fullness. Reduced physical activity was evidenced by decreased muscle strength and dependence on caregivers for activities of daily living. Constipation was identified as the priority nursing diagnosis because of its potential to impair patient comfort and interfere with the rehabilitation process. All subjects reported abdominal discomfort due to the inability to defecate.

The primary nursing intervention was the "I LOV U" abdominal massage (SIKI I.04155). The intervention protocol included assessment of each subject's clinical condition and medical history, evaluation of constipation severity using the CAS, determination of intervention eligibility, explanation of the purpose and expected benefits of the therapy, positioning the subject in a relaxed supine position, and administration of the "I LOV U" abdominal massage for 15 minutes. The intervention was provided to subjects who had not experienced bowel movements for more than three days, with the expected outcome of restoring spontaneous defecation.

The intervention was administered twice daily (two hours after breakfast and two hours after lunch) for a planned duration of four consecutive days. However, the duration varied according to each subject's clinical response. Subject 1 received the intervention for three days (six sessions) before achieving spontaneous bowel evacuation, whereas Subjects 2 and 3 required only two days (four sessions). Constipation severity was reassessed using the CAS before each treatment session.

All subjects provided informed consent for the intervention, remained cooperative throughout the study, and appeared relaxed during each 15-minute massage session. The implementation was facilitated by the simplicity of the technique, which can be performed independently by family caregivers without specialized training and requires only baby oil as a massage lubricant.

The clinical response differed slightly among subjects; however, all subjects achieved spontaneous bowel evacuation following the intervention, indicating that the "I LOV U" abdominal massage was effective as a non-pharmacological approach for managing constipation. The changes in constipation severity before and after the intervention are presented in Table 2.

Table 2. Changes in Constipation Assessment Scale (CAS) Scores Before and After the "I LOV U" Abdominal Massage in Subjects with Ischemic stroke and Constipation

Subject Study	Instrument CAS Score						
	Day-1		Day-2		Day-3		Day-4
	09.00	14:00	09.00	14:00	09.00	14:00	09:00
Subject 1	10	9	10	9	9	9	2 (defecation [+])
Subject 2	8	7	8	7	2 (defecation [+])	-	-
Subject 3	7	6	7	6	2 (defecation [+])	-	-

As shown in Table 2, all subjects presented with moderate constipation before receiving the intervention, although baseline CAS scores varied. Following repeated "I LOV U" abdominal massage, constipation severity gradually decreased in all subjects. Subject 1 achieved spontaneous bowel evacuation on the third day of treatment, whereas Subjects 2 and 3 achieved bowel evacuation on the second day. These findings suggest that the "I LOV U" abdominal massage was effective in reducing constipation among subjects with ischemic stroke.

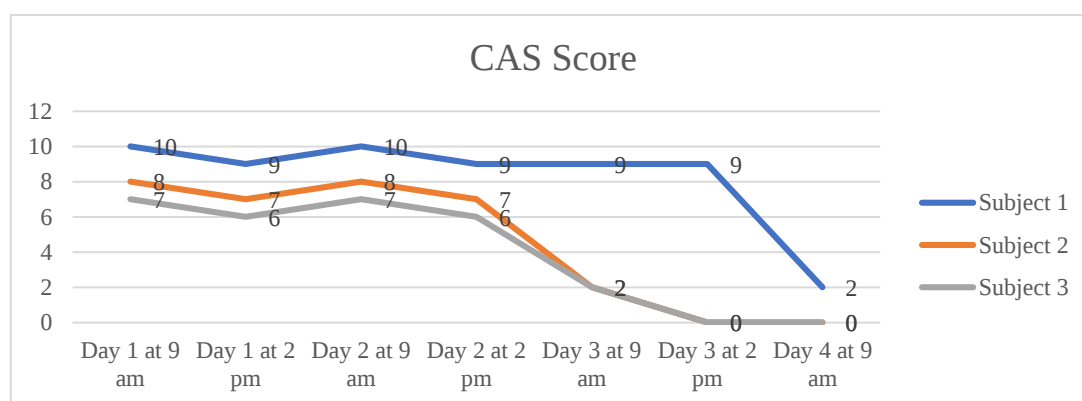


Figure 1. Constipation Assessment Scale (CAS) Scores Before and After the "I LOV U" Abdominal Massage in Subjects with Ischemic stroke and Constipation

Overall, all subjects experienced a progressive reduction in constipation severity following repeated administration of the "I LOV U" abdominal massage, as demonstrated by the gradual decline in CAS scores. Although the time required to achieve spontaneous bowel evacuation varied among subjects, all subjects showed clinically meaningful improvement, supporting the effectiveness of this non-pharmacological intervention in alleviating constipation in patients with ischemic stroke.

DISCUSSION

All three subjects were diagnosed with ischemic stroke (NHS) and experienced constipation. Stroke frequently results in secondary complications affecting multiple body systems, including the gastrointestinal system, where constipation is among the most common complications. In patients with NHS, constipation is often difficult to prevent because one of the principal contributing factors is

reduced physical mobility. Decreased bowel movement frequency not only causes discomfort but may also interfere with the rehabilitation process. Although all subjects had the same primary diagnosis, the duration of stroke differed. Subject 1 had a two-month history of NHS, whereas Subjects 2 and 3 had been diagnosed only three days before enrolment. This difference may explain why Subject 1 had the highest baseline CAS score (10, indicating moderate constipation) and required a longer time to achieve spontaneous defecation, which occurred on the third day after initiation of the "I LOV U" abdominal massage intervention. These findings are consistent with previous research demonstrating that patients with a longer history of NHS are at greater risk of developing constipation than those with more recent stroke onset (Linghu et al., 2025).

Previous studies have also suggested that constipation in patients with stroke is closely associated with impaired autonomic nervous system regulation of gastrointestinal motility. Neurological damage following stroke may reduce the defecation reflex and slow intestinal peristalsis, resulting in harder stools that are more difficult to evacuate. This condition is further exacerbated by reduced physical mobility during hospitalization, which contributes to delayed colonic transit and an increased risk of constipation (Mohamed et al., 2023). The findings of the present case study support previous evidence indicating that patients with NHS are particularly susceptible to constipation because of impaired physical mobility, neuromuscular dysfunction of the gastrointestinal tract, and altered bowel elimination patterns during hospitalization (Setyawati et al., 2025).

The intervention in this case study was implemented exclusively in male subjects. This decision was based on the researcher's sex and institutional ethical policies, including the SIRSMA code of ethics applied at Roemani Muhammadiyah Hospital, Semarang. These regulations were intended to preserve ethical standards, subject comfort, and privacy during the provision of nursing care. Regarding sex as a risk factor for NHS, previous studies have reported inconsistent findings. Some studies have indicated that men are at greater risk of stroke because of lifestyle-related risk factors, particularly smoking (Rissanen et al., 2024). However, a global epidemiological analysis conducted in 2021 demonstrated that the prevalence of ischemic stroke varies according to both age and sex. Before approximately 45–49 years of age, stroke prevalence is reported to be higher among women than men. In contrast, among middle-aged and older adults (approximately 40–79 years), ischemic stroke is more prevalent in men. Beyond the age of 80 years, stroke becomes more common in women, primarily because of their longer life expectancy. These findings indicate that although men experience NHS more frequently during middle and older adulthood, the proportion of women with NHS increases in advanced age (Liu et al., 2025).

All subjects presented with moderate constipation characterized by infrequent bowel movements and difficulty during defecation. These findings indicate impaired bowel elimination, which contributes to patient discomfort. The primary nursing diagnosis established for all subjects was constipation related to impaired physical mobility, supported by the Constipation Assessment Scale (CAS), a validated instrument for assessing constipation severity (McMillan & Williams, 1989). In all three subjects, constipation was considered a consequence of NHS-associated mobility impairment and had the potential to negatively affect both rehabilitation outcomes and overall patient comfort. The implementation of the "I LOV U" abdominal massage in this case study highlights the important role of nurses in delivering evidence-based nursing (EBN) interventions for the management of constipation.

The principal intervention used to address constipation in the three subjects was the "I LOV U" abdominal massage. Following the intervention, constipation improved in all subjects, as evidenced by successful spontaneous bowel evacuation. The time required to achieve defecation differed among

subjects, occurring on either the second or third day after initiation of the intervention. These differences may be explained by variations in individual clinical conditions and baseline constipation severity. The present findings are consistent with previous studies reporting that the "I LOV U" abdominal massage facilitates bowel movements by stimulating intestinal peristalsis, thereby promoting fecal transit through the colon and facilitating defecation. Moreover, this intervention is simple to perform, requires no specialized equipment, and can be taught to family caregivers for continued home-based care, making it a practical and cost-effective non-pharmacological nursing intervention (Wang et al., 2020).

The "I LOV U" abdominal massage was administered twice daily, two hours after breakfast and two hours after lunch, with a planned intervention period of four consecutive days. However, the duration varied according to each subject's response. Subject 1 required three days of intervention before achieving bowel evacuation, whereas Subjects 2 and 3 responded more rapidly and achieved spontaneous defecation after two days intervention. These differences suggest that the therapeutic response to abdominal massage varies among individuals. Nevertheless, all subjects eventually achieved bowel evacuation following the intervention, supporting the clinical usefulness of the "I LOV U" abdominal massage in reducing constipation. These findings are consistent with previous studies demonstrating that abdominal massage administered for 15 minutes twice daily effectively promotes defecation in patients with stroke (Setyawati et al., 2025).

The response to the intervention varied according to each patient's clinical characteristics. Differences in CAS scores before and after treatment, as well as the time required to achieve bowel evacuation, may have been influenced by habitual bowel patterns before illness, physical mobility, dietary intake, and fluid consumption. Furthermore, variations in therapeutic response may have been associated with the presence of comorbidities, including hypertension, diabetes mellitus, and chronic kidney disease. These conditions may influence metabolic function, fluid balance, and bowel elimination, thereby affecting the response to constipation management. Although all subjects demonstrated clinical improvement, the timing of bowel evacuation differed among individuals. Similar findings have been reported by previous studies, which showed that the "I LOV U" abdominal massage effectively reduced constipation despite variation in the timing of defecation among subjects (Maryani, 2023).

The "I LOV U" abdominal massage is a simple and gentle abdominal massage technique designed to relieve abdominal tension and promote digestive function (Fekri et al., 2021). Physiologically, the massage follows the anatomical course of the colon, facilitating the movement of fecal matter toward the rectum. Mechanical stimulation of the abdominal wall is believed to enhance parasympathetic nervous system activity, thereby increasing intestinal peristalsis. In addition, the rhythmic and gentle massage promotes relaxation of the intestinal smooth muscles and anal sphincter, facilitating defecation and reducing abdominal discomfort. Consequently, this intervention improves gastrointestinal motility, facilitates bowel evacuation, and alleviates constipation symptoms in patients with NHS. Therefore, the "I LOV U" abdominal massage may be considered a safe, effective, and easily applicable non-pharmacological nursing intervention for constipation management in clinical practice (Maryani, 2023).

Evaluation of the intervention demonstrated that Subject 1 required a longer time to achieve spontaneous defecation, occurring on the third day of treatment. This delayed response may be attributed to the longer duration of NHS, complete dependence in activities of daily living, and a higher baseline CAS score (10), indicating more severe impairment of intestinal motility. In contrast, Subjects 2 and 3 achieved bowel evacuation on the second day, likely because of their more recent stroke onset,

better mobility status, and relatively regular bowel habits before hospitalization. These findings suggest that the effectiveness of the "I LOV U" abdominal massage may be influenced by differences in individual clinical characteristics. Similar observations have been reported in previous studies, which identified stroke duration, mobility level, and functional status as important determinants of constipation severity and treatment outcomes (Maryani, 2023). In all subjects, repeated application of the "I LOV U" abdominal massage resulted in a gradual reduction in CAS scores until constipation resolved following spontaneous defecation. These findings are also consistent with previous studies demonstrating that the intervention effectively reduces CAS scores and accelerates bowel evacuation in patients with NHS. In addition to its effectiveness, the intervention is non-pharmacological, safe, simple to perform, requires no specialized equipment, and can be taught to family caregivers as part of continuing home care (Suantika, 2025).

Overall, the "I LOV U" abdominal massage successfully reduced constipation severity in all subjects with ischemic stroke. The findings of this case study emphasize the importance of incorporating the "I LOV U" abdominal massage as a holistic, evidence-based nursing intervention that prioritizes patient safety, clinical effectiveness, and quality of life. This technique may serve as an independent nursing intervention for managing constipation in patients with NHS while simultaneously improving patient comfort and supporting the rehabilitation process.

CONCLUSIONS

The implementation of the "I LOV U" abdominal massage in subjects with ischemic stroke (NHS) and constipation resulted in a reduction in Constipation Assessment Scale (CAS) scores following the intervention and was accompanied by successful spontaneous bowel evacuation. These findings suggest that the "I LOV U" abdominal massage is a safe and effective nurse-led, non-pharmacological intervention for the prevention and management of constipation in patients with ischemic stroke. Given its simplicity, low cost, and ease of implementation, this technique may be incorporated into evidence-based nursing practice to improve bowel function, enhance patient comfort, and support the rehabilitation process in patients with ischemic stroke.

Acknowledgement

We like to convey our sincere gratitude to all participants and colleagues who dedicated their time and effort to project.

Funding Source

This study did not receive financial support from any institution or sponsor.

Availability of data and materials

The datasets generated and analysed during this study are available from the corresponding author upon reasonable request.

Authors' contributions

Conceptualization, study design, and writing the first draft and framework: NS, SW; Data collection: SW, NS and W; Data analysis: NS, SW and S; Final approval: NS, SW and S.

Conflict of Interest

There is no conflict of interest in this research.

REFERENCES

- Agustiani, S., Deschara, A., Program Studi Ilmu Keperawatan, M., Citra Delima Bangka Belitung, S., Pinus, J. I., Pedang, K., Pinang, P., & Bangka Belitung, K. (2023). Pengalaman Keluarga dalam Merawat Pasien Stroke. *Jurnal Penelitian Perawat Profesional*, 5(2), 677–690. <https://doi.org/10.37287/JPPP.V5I2.1538>
- Dirren, E., Escribano Paredes, J. B., Klug, J., Barthoulot, M., Fluss, J., Fracasso, T., Kurian, G. K., Machi, P., Niederhauser, J., Suppan, L., Sztajzel, R. F., Bijlenga, P., & Carrera, E. (2025). Stroke Incidence, Case Fatality, and Mortality Using the WHO International Classification of Diseases 11: The Geneva Stroke Study. *Neurology*, 104(5). <https://doi.org/10.1212/WNL.00000000000213353>
- Feigin, V. L., Brainin, M., Norrving, B., Martins, S. O., Pandian, J., Lindsay, P., F Grupper, M., & Rautalin, I. (2025). World Stroke Organization: Global Stroke Fact Sheet 2025. *International Journal of Stroke : Official Journal of the International Stroke Society*, 20(2), 132–144. <https://doi.org/10.1177/17474930241308142>
- Fekri, Z., Aghebati, N., Sadeghi, T., & Farzadfard, M. taghi. (2021). The effects of abdominal “I LOV U” massage along with lifestyle training on constipation and distension in the elderly with stroke. *Complementary Therapies in Medicine*, 57. <https://doi.org/10.1016/j.ctim.2021.102665>
- Lafci, D., & Kaşıkçı, M. (2023). The effect of aroma massage on constipation in elderly individuals. *Experimental Gerontology*, 171. <https://doi.org/10.1016/j.exger.2022.112023>
- Linghu, L., Huang, Y., Qiu, L., Wang, X., Zhang, J., Ma, L., Li, chenglian, & Wang, L. (2025). Exploring stroke risk factors in different genders using Bayesian networks: a cross-sectional study involving a population of 134,382. *BMC Public Health*, 25(1). <https://doi.org/10.1186/S12889-025-23946-Z>
- Liu, J., Xu, A., Zhao, Z., Ren, B., Gao, Z., Fang, D., Hei, B., Sun, J., Bao, X., Ma, L., Zheng, X., Wang, Y., Ren, H., Wang, G., Zhu, L., & Zhang, J. (2025). Epidemiology and future trend predictions of ischemic stroke based on the global burden of disease study 1990-2021. *Communications Medicine*, 5(1). <https://doi.org/10.1038/S43856-025-00939-Y>

- McMillan, S. C., & Williams, F. A. (1989). Validity and reliability of the Constipation Assessment Scale. *Cancer Nursing*, 12(3), 183–188. <https://doi.org/10.1097/00002820-198906000-00012>
- Mohamed, W. A., Ali, J. S., El-Deen, J. A. G., & Nesnawy, S. (2023). Effect of abdominal massage technique on constipation for post stroke patients: As a preventive measure. *International Journal of Advance Research in Medical Surgical Nursing*, 5(1), 101–111. <https://doi.org/10.33545/SURGICALNURSING.2023.V5.I1B.123>
- Riset, A., Azzahra, J., Aryanti Bamahry, K. R., Ardhani Pratama, A., & Purnamasari, R. (2023). Hubungan Asupan Serat dengan Kejadian Konstipasi pada Mahasiswa Fakultas Kedokteran Universitas Muslim Indonesia Angkatan 2020. *Fakumi Medical Journal: Jurnal Mahasiswa Kedokteran*, 3(1), 72–79. <https://doi.org/10.33096/FMJ.V3I1.181>
- Rissanen, I., Basten, M., Exalto, L. G., Peters, S. A. E., Visseren, F. L. J., & Geerlings, M. I. (2024). Sex differences in modifiable risk factors for stroke incidence and recurrence: the UCC-SMART study. *Journal of Neurology*, 271(6), 3347–3358. <https://doi.org/10.1007/S00415-024-12268-6>
- Setyawati, S., Rizal, A., & Afrina, R. (2025). Efektifitas Pijat Perut Teknik “I Lov U” Dan Minum Air Hangat Pada Pasien Stroke Non Hemoragik Dengan Derajat Konstipasi Di Ruang Cherry Rsud Cengkareng Tahun 2024. *Jurnal Intelek Dan Cendekiawan Nusantara*, 2(4), 7122–7138. <https://jicnusanantara.com/index.php/jicn/article/view/4952>
- Soputri, N., Lado, W. O., Panjaitan, M., & Keperawatan, F. (2021). EFEKTIFITAS KONSUMSI AIR BENING DAN CARICA PAPAYA L SEBAGAI TERAPI ALAMIAH UNTUK MENGATASI KONSTIPASI. *Jurnal Skolastik Keperawatan*, 7(2), 83–91. <https://doi.org/10.35974/JSK.V7I2.2467>
- Suantika, P. I. (2025). Overcoming Constipation in Stroke Patients Using the I Love You and Swedish Massage Techniques. *Jurnal Keperawatan Komprehensif (Comprehensive Nursing Journal)*, 11(1), 47–55. <https://doi.org/10.33755/jkk.v11i1.762>
- Tian, X., Li, L., Chen, J., & Guo, X. (2025). Incidence, risk factors, and prognosis of constipation in acute ischemic stroke: A prospective, observational study. *Journal of Clinical Neuroscience*, 137. <https://doi.org/10.1016/j.jocn.2025.111337>
- TIM PENYUSUN SKI 2023 DALAM ANGKA. (2023). *Survei Kesehatan Indonesia: Dalam Angka*. BKKP KEMENKES.
- Maryani, T. W. I. (2023). CASE REPORT: TINDAKAN MASASE ABDOMINAL DENGAN TEKNIK “I LOV U“ UNTUK PENCEGAHAN KONSTIPASI PADA PASIEN STROKE NON HEMORAGIK DI RUMAH SAKIT SWASTA

- PURWODADI. *STIKES Bethesda Yakkum Yogyakarta*, 3(1), 7–13.
<https://jurnal.stikesbethesda.ac.id/index.php/p/article/view/456>
- Wang, Q. S., Liu, Y., Zou, X. N., Ma, Y. L., Liu, G. L., & Liu, G. L. (2020). Evaluating the Efficacy of Massage Intervention for the Treatment of Poststroke Constipation: A Meta-Analysis. *Evidence-Based Complementary and Alternative Medicine : ECAM*, 2020. <https://doi.org/10.1155/2020/8934751>
- Whorwell, P., Lange, R., & Scarpignato, C. (2024). Review article: do stimulant laxatives damage the gut? A critical analysis of current knowledge. *Therapeutic Advances in Gastroenterology*, 17, 17562848241249664.
<https://doi.org/10.1177/17562848241249664>