Indonesian Journal of Global Health Research
Volume 7 Number 2, April 2025
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

THE EFFECT OF EFFLEURAGE MASSAGE USING CANOLA OIL ON THE RISK OF PRESSURE ULCER IN STROKE PATIENT

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ABSTRACT
Stroke is a sudden disease that disrupts blood flow in the body, a brain condition causing disability, immobility, and prolonged paralysis, which reduces blood supply to tissues, especially in patients with prominent bones, increasing the risk of pressure ulcers. This study aimed to identify the effect of effleurage massage using canola oil on the risk of pressure ulcers in stroke patients at Kesdam Iskandar Muda Hospital. The study employed a Quasi-Experimental design with a pretest and posttest approach. The sampling technique used was non-probability sampling, specifically convenience sampling, with a total of 30 participants. The instrument used was the Braden Scale. Data were analyzed using a paired t-test. The study showed that the risk of pressure ulcers in ischemic stroke patients before the intervention was as follows: severe risk (70.0%), mild risk (20%), moderate risk (6.67%), and very severe risk (3.33%). After the intervention, the risk distribution changed to mild risk (60%), severe risk (33.33%), moderate risk (3.33%), and very severe risk (3.33%). Statistical analysis revealed a p-value of 0.001 (<0.05), indicating that effleurage massage using canola oil significantly affects the risk of pressure ulcers in stroke patients. This study confirms that effleurage massage using canola oil has a significant effect on reducing the risk of pressure ulcers in stroke patients.

Keywords: canola oil; effleurage massage; pressure ulcer; stroke

How to cite (in APA style)
Wiguna, R. N., Syah, A. Y., Tawar, R. M., Phonna, I. D., & Albani, S. (2025). The Effect of Effleurage Massage using Canola Oil on the Risk of Pressure Ulcer in Stroke Patient. Indonesian Journal of Global Health Research, 7(2), 1105-1112. https://doi.org/10.37287/ijghr.v7i2.4948.

INTRODUCTION

Stroke is a sudden condition that disrupts blood flow in the body, a brain disease that causes disability, neurological morbidity, and mortality (Brown, M., & Glassenberg, M, 1973). Stroke results in thousands of individuals becoming disabled and contributes to a significant proportion of global mortality (Wu, X., et al, 2013). The incidence of stroke is higher among middle-aged groups and the elderly over 65 years old (Schott, M., et al, 2018). In Europe, the prevalence of this disease is projected to increase by 30% in the coming decades, accompanied by an estimated 44% rise in healthcare costs (Fernandez R et al, 2020). In Asian countries, stroke prevalence has been reported to range between 45-471 per 100,000. In Indonesian hospitals, the mortality rate is approximately 15.4%. Stroke is the leading cause of death among stroke patients. In 2013, the prevalence of stroke was around 7%, increasing to 10.9% in 2018 (Riskesdas, 2018). The impact of stroke includes disability, stress, and depression (Laures-Gore, J. S., & DeFife, L. C.,2013). It significantly affects the economy due to physical disabilities, leading to loss of productivity (Yahya, T., et al, 2020). Reduced functional independence (Zhao, Y et al, 2022) and mobility impairments. Prolonged immobility and paralysis decrease blood supply to tissues, particularly in patients with protruding bones, increasing the risk of pressure ulcers (Zarei, E., et al, 2019). Pressure ulcers lower the quality of life, cause pain, and extend hospital stays (Graves, N., Birrell, F., & Whitby, M, 2005). On average, hospital stays have been reported to increase by four days (Briggs, M., et al, 2013).

Pressure ulcers are wounds caused by sustained tissue deformation resulting from a combination of pressure, friction, temperature, and humidity (Kottner, J., Black, J., Call, E., Gefen, A., &

Santamaria, N, 2018). Localized damage to the skin or underlying soft tissue caused by prolonged pressure or friction on load-bearing areas, such as the buttocks, hips, heels, sacrum, spine, and elbows, of individuals who are immobile (or associated with medical equipment) (NHS Improvement, 2018). Potential risk factors for pressure ulcers include friction, shear, mobility, vascular disease, and perfusion problems (Anders J, et al, 2010). Pressure ulcers can be prevented with timely actions, such as providing frequent movement to the body to prevent prolonged tissue deformation (European Pressure Ulcer Advisory Panel, 2019). One instrument used to assess the risk of pressure ulcers is the Braden Scale, which is validated and reliable (Cronbach's Alpha > 0.7) for use. This instrument consists of 6 statement items. Each question is scored 1-4, with higher scores indicating a lower risk of pressure ulcers (A.Godic, B. Polisak, M. Adamic, & R. Dahmane, 2014). One factor that affects the reduction in the risk of pressure ulcers is massage (Park, S. H., Choi, Y. K., & Kang, C. B, 2015). The application of effleurage massage using canola oil. Effleurage massage reduces sympathetic system activity and increases parasympathetic system activity, leading to improved blood flow, skin elasticity, and tissue relaxation without causing pain, lightness, or side effects (Supa'At, et al, 2015).

Using oil during massage helps moisturize dry skin naturally, and dry skin can decrease skin elasticity, making it crucial to maintain skin moisture during massage using lotion or oil (Darmareja, R., Kosasih, C. E., & Priambodo, A. P, 2020). Canola oil is a good source of vitamins E and K (SR Legacy, 2019). Vitamin E is a classic antioxidant found in oil form and has been used in skin protection against skin infections (Agency for Health Care Policy and Research, 1992).Vitamin E has also been reported to play an important role in cardiovascular, neurological, and inflammatory diseases (H.Y., Tan, W.S.D., Liao, W., & Wong, W.S.F. 2016). The effleurage massage method involves stroking movements using the entire surface of the palm, which is applied to the body part being massaged. The shape of the palm and fingers always adjust to the body part being massaged. Effleurage technique performed on the limbs (extremities) should always be done with proper pressure, and each stroke should end at the lymph nodes (in the armpit for the upper limbs and the groin for the lower limbs). This study aimed to identify the effect of effleurage massage using canola oil on the risk of pressure ulcers in stroke patients at Kesdam Iskandar Muda Hospital.

METHOD

The design used in this study is a Quasi Experimental design with a pretest and posttest approach. The sampling technique used in this study is nonprobability sampling, specifically convenience sampling, by selecting samples based on the inclusion and exclusion criteria set by the researcher (Aryani, Widiyono, & Putra, 2022). The population in this study consists of all stroke patients at Kesdam Iskandar Muda Hospital, while the sample in this study includes stroke patients selected through random sampling using the Federer formula (Federer, W, 1991). Resulting in 30 respondents. The research instrument is the Braden Scale, which has a predictive validity correlation (r) of 0.74 and a reliability score (Cronbach's Alpha) of 0.83–0.94, indicating strong internal consistency. The inclusion criteria include respondents who are willing to participate, stroke patients hospitalized for more than 2 days and less than 5 days, experiencing bed rest, clients who have not developed ulcers but show redness on the skin (erythema), clients at risk for pressure ulcers (Braden Scale score < 18), and those without barriers to receiving pressure ulcer prevention care (e.g., lumbar injuries or fractures that have not been fixed, as they may worsen the patient's condition), and with body temperature within normal limits (36 to 37 degrees Celsius). The exclusion criteria include respondents who are unwilling to participate and stroke patients who have grade III or higher pressure ulcers.

RESULT

The study was conducted from September 23 to November 11, 2024, involving 30 stroke patients at Kesdam Iskandar Muda Hospital. The results of the study are as follows:

Table 1.
Respondent characteristics (n= 30)

Respondent characteristics	f	%
Age		
Early adulthood (26–35)	2	6.7
Late adulthood (36–45)	4	13.3
Early elderly (46–55)	14	46.7
Late elderly (56–65)	8	26.7
Elderly (>65)	2	6.7
Gender		
Male	11	36.7
Female	19	63.3
Education		
Junior High School	5	16.7
Senior High School	24	80.0
Bachelor's Degree	1	3.3
Marital Status		
Single	2	6.7
Married	23	76.7
Widowed/Widower	5	16.7
Type of Stroke		
Hemorrhagic Stroke	0	0.0
Ischemic Stroke	30	100.0
Stroke Attack Status		
First attack	28	93.3
Sequela attack	2	6.7

Based on Table 1, the respondent characteristics show that the majority of the respondents are female, with 19 individuals (63.3%). In terms of age, most respondents are in the early elderly group (46-55 years) with a percentage of 46.7%. The respondents' education is dominated by high school graduates (80.0%), while only one respondent holds a bachelor's degree (3.3%). The marital status of the majority of respondents is married (76.7%). Regarding the type of stroke, all respondents (100.0%) have ischemic stroke, with no cases of hemorrhagic stroke detected. Most respondents experienced their first stroke attack (93.3%), with a few cases of sequelae attacks (6.7%).

Table 2.
The Effect of Effleurage Massage Using Canola Oil on the Risk of Pressure Ulcers in Stroke Patients

Variabel	Mean	Std. Deviation	Mean Difference	95% Convidence Interval Lower Upper	Nilai *P*
Effleurage Massage with Canola Oil: Before Intervention After Intervention	-56,806	22,270	3,712	64,340 - 49,271	0,001

Based on Table 2, it can be seen that there is a difference or effect of Effleurage Massage Using Canola Oil before and after the intervention. After analyzing with a paired t-test, the p-value obtained is 0.001 < 0.05, meaning there is an effect of Effleurage Massage Using Canola Oil on the Risk of Pressure Ulcers in Stroke Patients at Kesdam Iskandar Muda Hospital, Banda Aceh.

DISCUSSION

Based on the research findings, it was found that the majority of respondents were female, with 19 people (63.3%). This research data aligns with the findings of Branyan & Sahrobji (2024), where the female gender influences ischemic stroke, particularly due to the reduction in hormones in women who experience menopause or are in early old age (In Neuroscience Program, 2024). Women are more likely to experience ischemic stroke than men, especially due to gender-specific risk factors, such as pregnancy complications and menopause. Women also have a higher risk of post-stroke disability, depression, and worse long-term outcomes (Eng et al, (2024). This is also in accordance with the research by O'Reilly & D McCullough (2021), who state that while men have a higher incidence of stroke at a younger age, women are more likely to experience stroke after menopause due to hormonal changes, vascular factors, and lifestyle factors (Meaghan Roy-O'Reilly & Louise D McCullough. 2018). Hormonal changes, particularly during menopause, and vascular risk factors such as hypertension influence the risk of stroke in women.The average age of respondents was mostly in early old age, with 14 people (38.9%) in the 46-55 year age group. The youngest respondent was 26 years old, while the oldest was over 65 years old. This result is almost identical to the research conducted in the United States by Annie et al. (2020), which showed that ischemic stroke patients were aged between 44-48 years, with an average age of ≤ 50 years (Annie., et al, 2020). A study by Furlan et al. (2021) also concluded that ischemic stroke was more commonly experienced by men at the age of 53 and by women at the age of 48 (Furlan et al, 2021). The increasing number of early elderly respondents experiencing ischemic stroke is related to age factors (Keller et al, 2019) mentioned that the elderly group has a higher prevalence of plaques in the aortic complex (67.3%) compared to those in the middle-aged group (30.9%).

The research findings show that the risk of pressure ulcers (decubitus) in ischemic stroke patients before the intervention of Massage Effleurage with Canola Oil was mostly high risk, with 21 people (70.0%). This percentage suggests that immobility and paralysis over an extended period reduce blood supply to the tissue, thereby increasing the risk of pressure ulcers in the respondents. After the intervention of Massage Effleurage using Canola Oil at the Kesdam Iskandar Muda Hospital in Banda Aceh, most respondents were classified as having low risk, with 18 people (60.0%). The risk of pressure ulcers decreased significantly after the intervention, with the assumption that the patients had not previously received effleurage massage using canola oil. Massage effleurage reduces sympathetic system activity and enhances parasympathetic system activity, improving blood circulation, skin elasticity, and tissue relaxation, without causing pain, is light, and has no side effects. The use of oil during massage helps hydrate dry skin naturally, and dry skin can reduce its elasticity, so it is essential to maintain skin moisture using lotion or oil during massage (Bai *et al*, 2024). Canola oil is a good source of vitamins E and K. Vitamin E is another classic antioxidant found in oils and has been used to protect the skin from infections. Vitamin E has also been reported to play a vital role in cardiovascular, neurological, and inflammatory diseases.

This aligns with the findings of Darmareja, Kosasih, Priambodo (2020), which state that effleurage massage using VCO significantly affects the reduction of the risk of pressure ulcers . According to Saragih N (2020), to maintain the integrity of the skin of patients with long-term bed rest, nursing interventions like bed rest care and the application of olive oil can be provided (Petra saragih N, 2019). AA, Supriyadi, Dwiningsih SU (2023) stated that to maintain the skin health of stroke patients with immobility, slow massage using virgin coconut oil (VCO) can be performed. Effleurage massage with VCO can be an intervention that helps maintain skin hydration and improve blood circulation in immobile patients (Az Zahra AA, Supriyadi & Dwiningsih SU, 2023). Effleurage massage therapy with virgin coconut oil is a safe, effective treatment without side effects (Santiko, S., & Faidah, N, 2020). This is consistent with the findings of

Zhang & Yue (2015), who stated that effleurage massage has benefits in improving circulation, warming muscles, and stimulating physical relaxation. Effleurage massage has been proven to improve circulation to tissues and maintain skin moisture, which can prevent tissue hypoxia, the primary cause of pressure ulcers (Zhang, Q., Sun, Z., & Yue, J, 2015). A study by Nuzulullail et al. (2023) found that providing Massage Effleurage (ME) with Virgin Coconut Oil (VCO) had a positive effect in reducing the pressure ulcer risk score in bedridden patients (Nuzulullail, et al, 2023). Similarly, research by Wahyudi, W. T., & Savage, E. (2023) showed that providing Massage Effleurage (ME) with Virgin Coconut Oil (VCO) positively affected reducing the risk of pressure ulcers in immobilized patients (Wahyudi WT & Savage E, 2023)Effleurage massage using virgin coconut oil has become an effective complementary therapy to reduce pressure ulcer risk in stroke patients (Putra., Kurnia & Armiyati, 2024)Djamaludin, Chrisanto, & Risnarita (2024) also found that using effleurage and petrissage with VCO helps reduce the risk of skin/tissue integrity issues by improving skin health and moisture in stroke patients (Djamaludin., Chrisanto & Risnarita, 2024). Mayanih (2023) also found that olive oil application affects the risk of pressure ulcers in bedridden patients (Mayanih, 2023).

CONCLUSION

Based on the research results and discussion regarding the effect of effleurage massage using canola oil on the risk of pressure ulcers in stroke patients at Kesdam Iskandar Muda Hospital in Banda Aceh, it can be concluded that effleurage massage using canola oil has an effect in preventing the risk of pressure ulcers in stroke patients in this area. It is hoped that the findings of this study can serve as an intervention to prevent pressure ulcers in stroke patients. This study emphasizes the importance of paying attention to the condition of stroke patients with mobility impairments to minimize potential risk factors for pressure ulcers.

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