

Research Articles

Reducing the Risk of Decubitus in the Elderly with Back Massage Therapy using VCO (*Virgin Coconut Oil*)

Winda Agnia¹, Tetet Kartilah^{2*}

¹Nursing Department, Health Polytechnic Ministry of Health Tasikmalaya, Indonesia

²Nursing Department, Health Polytechnic Ministry of Health Tasikmalaya, Indonesia

*Corresponding author: tetetkartilah21@gmail.com

ABSTRACT

Background: Elderly people experience a natural decline in body function (aging process) over a long period of time. One of the problems that can occur in the elderly is pressure sores. The worldwide incidence of decubitus ulcers ranges from 1 to 56, with 60 to 90% occurring in people over 65 years of age. Skin care to prevent pressure sores is a back massage using VCO (*Virgin Coconut Oil*) as a moisturizer. **Purpose:** This study aimed to determine the effect of VCO (*Virgin Coconut Oil*) back massage therapy on the risk of pressure sores in the elderly at the Welas Asih Home, Tasikmalaya Regency. **Method:** The research design used was a quasi-experimental one-group pretest and posttest using quantitative methods. This study used the Braden Scale to measure the risk of pressure ulcers in respondents. The sample for this study consisted of 18 elderly people from Panti Welas Asih who met the inclusion criteria. This test was carried out twice a day for four consecutive days, from 3 May to 8 May 2023. An analysis was performed to determine the impact of this research using a paired sample t-test. **Results:** obtained p-value = $0.000 < \alpha$. α value = 0.05. **Conclusion:** Back massage therapy with VCO is effective in preventing the risk of pressure ulcers in the elderly at Panti Welas Asih.

Keywords: decubitus; elderly, massage, vco

INTRODUCTION

A person carrying on age experiences a natural decline in bodily functions (process aging) over some time. Aging is characterized by a decline in physiological function, decreased physical and mental abilities, and an increased risk of disease that can lead to death (1). One of the problems most common occurrence in the elderly is a pressure ulcer (decubitus). Along increase as you age, your skin gets worse prone to damage due to the thinning of subcutaneous tissue and decreased skin elasticity due to pressure and friction that occurs on the skin aging (2). The decline in physical function that occurs in the elderly can increase vulnerability to disease and limit or paralyze movement, thereby increasing the risk of decubitus ulcer (3). Wound bedridden is a disease in which the network in surroundings is damaged due to external pressure or friction which is excessive. According to the World Health Organization (WHO), the incidence of decubitus ulcers is still a serious problem, with global prevalence as big as 1% to 56%. Approximately 60-90% of patients aged over 65 years old suffer decubitus (4). The incidence of decubitus ulcers in Indonesia is 19-27% of all inpatients (5). According to data from Database Study Doctor General England, 11% of pressure ulcers occur in people of age.

People aged 70 to 75 years old are twice as likely to have decubitus as those with a person aged 55 to 69 years old (6).

Several incident decubitus ulcers in Europe range from 8.3% to 22.9%. Research in Pontianak, Indonesia, found that the incidence of decubitus ulcers is still very high, which is around 33.4 out of 105 total patients. In Indonesia, the incidence of decubitus ulcers is 19-27% of all inpatients (5). According to data from the UK General Practitioners Research Database, 11% of decubitus ulcers occur in people of age. Between the ages of 70 And 75 years, the risk of occurrence of ulcer decubitus is twice as high as compared age between 55 And 69 years (7). Prophylaxis which adequate naturally very required in treatment wound press. Various actions can be taken to prevent ulcer decubitus, including repositioning, mobilization, decompression, minimization risk, educating the patient, and maintaining skin (3).

AHCPR (American Health of Care Plan Resources) lists three categories of action that can be taken to prevent pressure ulcers. The first category is guarding the whole skin patient through maintenance skin, like massaging the back and changing the position of the sleep patient every two o'clock to avoid wound press, which reduces the risk happen wound press and risk formation of wound press. The second category is minimizing pressure external by using a mattress or placing sleep in accordance (with mattress decubitus) and guarding the surface place down while still dry. Category third is giving education about ulcer decubitus and prevention of ulcer decubitus to the client and his family (8). One of the treatments that can be taken to prevent pressure ulcers is back massage.

Massage has many benefits for the body's organ systems, among others: Improves nerve function, skin function, tissue, and bone growth, and increases muscle tissue (9). Massage can be done by applying lotion to the skin as a moisturizer. The lotion is usually used as an intermediate moisturizer other than pure coconut oil, olive oil, Nigella sativa oil, massage oil, and coconut oil (10). One of the advantages of VCO (*Virgin Coconut Oil*) compared to other lotions VCO is effectively used as a moisturizer or humectant, increasing skin moisture and accelerating wound healing (11). VCO contains lauric and oleic acids which have skin-softening properties and contain small amounts of MCFA (acid fat chain medium) so it is easily absorbed by the skin surface. VCO also contains vitamin E which acts as a cell membrane stabilizer that protects cells from free radicals and keeps fat (12). The composition of VCO includes saturated fatty acids consisting of lauric, myristic, capric, palmitic, caprylic, and caproic acids. Saturated fatty acids contain oleic and palmitoleic acids (1). The purpose of this research is to analyze the effect of back massage therapy with VCO (*Virgin Coconut Oil*) on the risk of decubitus in the elderly at the Welas Asih Nursing Home, Tasikmalaya Regency. The difference between this study and previous studies is the research object used. In previous studies, the research objects were conducted on patients who suffered from stroke and the author has not found any research conducted on the elderly.

METHOD

The design used in this research is *a quasi-experimental one-group pretest-posttest* with quantitative methods. This research was conducted at the Welas Asih Nursing Home Kp. Pengkolan RT. 05/01 Cikadongdong Village, Singaparna District, Tasikmalaya Regency for 6 days starting from 3-8 May 2023. This action was given for 3-5 minutes with a frequency of 2x a day for 4 consecutive days using 2-3 ml of VCO. The VCO used by researchers is made

from natural coconut without any mixture obtained at the nearest store. The population in this study was all elderly people with dependencies in the Welas Asih Nursing Home, Tasikmalaya Regency. The number of samples used in this research was 16 respondents with an anticipated dropout of 10%, resulting in 18 respondents. The sampling technique used is *non-probability sampling* with *simple random sampling*, which provides equal opportunities for each population. Researchers took samples randomly using a simple lottery without paying attention to status or level. The variable used in this study was back *massage* with VCO as the independent variable, and risk of pressure ulcers as the dependent variable. Data collection was carried out using the Braden scale instrument to measure the risk score of pressure ulcers for each respondent. Braden scale calculation is done by assessing 6 categories, namely sensory perception, moisture, activity, mobility, nutrition, and friction. Each category has a minimum value of 1 and a maximum of 4 so that the minimum score for decubitus is 6 and the maximum score is 24 with the interpretation is 6-9 very high risk, 10-12 high risk, 13-14 medium risk, 15-18 low risk, and 19-23 no risk. Data analysis was carried out using univariate analysis to determine the frequency distribution of respondent characteristics and bivariate analysis using *paired sample T-tests* to analyze the effect of providing the intervention. This research has passed an ethical review with No. DP.04.03./16/051/2023.

RESULTS

Table 1 presents the frequency distribution of respondents' characteristics based on age, the majority of whom are 60-74 years old, namely 17 respondents with a percentage of 94.4%, the characteristics of respondents based on gender, the majority of whom are male, 11 people (61.1%) and characteristics Based on comorbidities, the majority of respondents had a stroke, amounting to 10 people (55.6%).

Table 1. Distribution of respondent characteristics

Characteristics	Frequency	Percentage (%)
Age		
60-74	17	94.4%
75-90	1	5.6%
>90	0	0%
Total	18	100
Gender		
Man	11	61.1%
Woman	7	38.9%
Total	18	100
Concomitant Diseases		
Strokes	10	55.6%
Heart	2	11.1%
Gout	1	5.6%
There isn't any	5	27.8%
Total	18	100

Table 2. The difference in mean risk scores for pressure ulcers before and after intervention

	Average	Median	Std. deviation	Min	Max
Pretest	12.44	12.00	1,504	10	15
Posttest	14.61	14.00	1,577	13	18

Table 2 presents the difference in the average risk score for pressure ulcers before the intervention, namely 12.44 (high risk), and the average risk score for pressure ulcers after the intervention, namely 14.61 (medium risk), so the difference in the average risk score for pressure ulcers before and after the intervention is 2.17.

Table 3. Mean difference test

		Paired Samples Statistics				
		Average	N	Std. Deviation	Std. Error Mean	p value
Pair 1	Pretest- Posttest	2,167	18	0,786	0,185	0,000

Table 3 above presents the results of the analysis of differences in mean risk scores for pressure ulcers before and after being given back *massage intervention* with VCO which shows a p -value = 0.000. Based on Table 3, the results show that the average difference in decubitus risk scores before and after the intervention was given was 2.17.

DISCUSSION

The results of the analysis of respondent characteristics based on age show that the majority of respondents are aged 60-74 years. One of the changes that can be clearly seen in the aging process occurs in the integumentary system. The skin on an elderly person's body will appear wrinkled as they enter old age (13). Thinning and decreased skin elasticity also appear to occur in the elderly, so those aged >65 years are more susceptible to pressure ulcers. Apart from the integument, another function that decreases muscle function, causes people who have entered old age to experience immobilization and are unable to carry out their usual activities (13). This incident will cause the elderly to experience a lot of friction which can cause pressure ulcers. According to the researchers' analysis, someone aged >60 years is categorized as elderly and will experience aging which will be seen in several changes in body function, both physical and physiological. Aged 60 years will experience various setbacks in body systems and functions. Cell regeneration in the skin will slow down during the aging process, the skin will become thinner and the collagen content decreases so that skin elasticity also decreases (14). This is in line with research conducted by Najihah *et.al* in 2020 regarding the application of EBNP (*Evidence-Based Nursing Practice*) providing repositioning and *massage* for 7 days to reduce the degree of pressure sores. This research had a significant effect, namely a decrease in the diameter of decubitus wounds in respondents. The research conducted involved respondents aged 79 years (14).

The results of this study show that there are more males than females. Based on this data, according to the results of observations made by researchers, the majority of male respondents had the habit of smoking well before entering old age and even now. According to Okarianti (2019), men tend to be indifferent to health and do not care about the symptoms they feel before the disease gets worse (15). The results of this research are in line with research conducted by Dene (2020) in his research which noted that there were more men than women, namely 9 people and 6 women. However, this research is different from the research conducted by Diah (2016) in the analysis conducted by De (2020) which noted that the majority of respondents at risk of developing pressure ulcers were women with a percentage of 52.9% (8).

Based on the results of several studies, it can be concluded that gender is not a trigger for pressure ulcers. This is the same as Syafitri's (2017) statement which states that gender is not a triggering factor decubitus (14).

The highest number of respondents with comorbidities was stroke. The type of disease suffered can generally be a direct trigger for pressure ulcers, especially diseases related to the nervous system. Disorders of the nervous system can generally cause reduced sensitivity so that the body cannot respond to painful stimuli (3). This is in line with research conducted by Sulidah & Susilowati (2017) in their research on the prevention of pressure ulcers, stating that disease can be a cause of the risk of pressure ulcers. One example of a disease that can trigger pressure ulcers is stroke and diabetes mellitus. Nerve damage will cause sensory abilities to decrease and this condition will definitely increase the risk of developing pressure ulcers. Apart from sensory disturbances, stroke can also cause weakness in some extremities, resulting in immobilization and increasing the risk of pressure ulcers (16). Diseases other than neurological diseases, although they do not directly affect immobilization, still aggravate the condition of the elderly, putting them at risk of experiencing decubitus (1).

The results of the analysis of differences in mean risk scores for pressure ulcers showed that the average pressure score for respondents before the intervention was given was 12.44 (score <13). This score is included in the severe risk classification according to the Braden scale with a range of 10-12. According to Andi et al (2018), pressure ulcers are caused by several factors, one of which is old age and immobility which often occurs in patients with nervous system disorders such as stroke (17). In line with the research results obtained, the characteristics of the respondents in this study were all aged > 60 years and most of them had stroke comorbidities, namely 10 people and 5 respondents who did not have comorbidities (18). However, old age is a risk factor for developing pressure ulcers, so even without comorbidities, with increasing age, respondents are still susceptible to developing pressure ulcers. This, the elderly with comorbidities is one of the things that further aggravates the risk of pressure ulcers among respondents in this study.

This is in line with research conducted by Siska (2019) before being given *massage intervention* with olive oil, almost all respondents had a pressure ulcer risk score of 10-12, which means they experienced a serious risk of developing pressure ulcers (1). The average risk score for pressure ulcers in respondents after the intervention mostly increased. Based on Table 2., the average risk score for pressure ulcers after the intervention was 14.61, which means that the risk score for pressure ulcers after being given the intervention experienced an increase in score, which means a decrease in risk (improved condition is indicated by an increased score). The interpretation of this score is the moderate risk with a range between 13-14. *Massage* is a healing process that is safe, effective, efficient, and without side effects. One of the benefits of back *massage* is improving blood circulation. *Massage* is usually done using *lotion*, one of which is VCO (*Virgin Coconut Oil*). VCO has various benefits, including the content of vitamin E which functions as a natural antioxidant to help protect cell structures and skin from exposure to free radicals (19). This is in line with research conducted by Santiko (2020) after being given *massage effleurage* intervention with VCO, 22 respondents (95.7%) did not experience pressure ulcers, and only 1 person (4.3%) experienced decubitus (15).

The benefits of coconut oil have been widely studied for skin health. The fatty acids contained in coconut oil, especially lauric and oleic acids, have moisturizing and antimicrobial

properties so they are safe and effective as a *moisturizer* by increasing skin hydration. VCO applied to massage the back can increase blood circulation. *Medium Chain Fatty Acids* (MCFA) molecules are easily absorbed by the skin surface. The lubricating effect of coconut oil will prevent the skin from being massaged from friction injuries due to the massage being carried out. The lauric and oleic acids in VCO have properties that can soften the skin. Apart from being effective and safe to use as a moisturizer and increasing skin hydration, the lauric and oleic acids in VCO have also been proven to accelerate the healing of wounds on the skin (20). This is to Bryant's (2007) statement in Santiko (2020) which states that moisturizer will maintain hydration of the outer skin so that it can minimize the effect of friction on the skin. When added to food or applied directly to the skin, the antiseptic fatty acids contained in VCO can help prevent fungal and bacterial infections. The fatty acids contained in VCO do not directly function as antimicrobials when applied to the skin, but instead form free fatty acids such as those contained in sebum (sebum contains uric acid and lactic acid) which will react with bacteria. Skin (16). Providing interventions, namely providing back massage using VCO topically for 3-5 minutes with a frequency of 2x a day for 4 consecutive days. This timing is in line with research conducted by Suharto, in his research on the effect of VCO administration on the incidence of pressure ulcers in stroke patients which was conducted for 4 days. The results of the study provided good results so that VCO administration with massage within 4 days was said to be effective in preventing decubitus.

Based on the results of bivariate analysis using *paired sample T-test*, it showed that there was a significant difference between the results before and after being given back *massage intervention* with VCO. Proven by the $p\text{-value} = 0.000 < \alpha$ means that there was a significant difference between before and after the intervention in the risk score for pressure ulcers. So it can be concluded that providing back *massage therapy* with VCO on the risk of pressure ulcers in the elderly has a significant influence. The results of this study support the research results of Ni Made et al (2022) who stated that VCO with *massage* can be used as an independent nursing intervention in interventions to prevent pressure sores or pressure sores in patients who are at risk of developing pressure ulcers with the Braden scale score being 21 (mild risk) from a score of 12 (severe risk) (21). The results of this study are in line with research conducted by Dene, (2020) research stating that there is an effect of topical administration of VCO on changes in the integrity of skin tissue in pressure wounds (decubitus) in patients who are at risk of developing decubitus as shown in the results of the analysis of the difference in score 2, 4 with $p\text{-value} = 0.001 (p < 0.05)$ (14).

CONCLUSION

There was a significant difference between the risk score for decubitus before and after being given the back *massage intervention* with VCO, where before the intervention was given, the average risk score for decubitus was 12.44 (high risk) and after being given the intervention the score was 14.61 (medium risk) which means H_a is accepted and H_0 is rejected. This means that there is a difference in the mean risk score of pressure ulcers before and after being given back *massage therapy* with VCO (*Virgin Coconut Oil*) on the risk of pressure ulcers in the elderly at the Welas Asih Nursing Home, Tasikmalaya Regency, so this research has a positive influence.

Future researchers can carry out further research regarding the effect of giving back *massage* with VCO by using a larger sample and adding a control group so that the results obtained are more accurate, using other different aspects or instruments for measuring the risk of pressure ulcers and adding influencing variables such as BMI, environmental conditions and length of immobilization.

CONFLICT OF INTEREST

In preparing this work the author has no conflict of interest with other parties and no affiliation or connection with any entity or organization that raises questions of bias in the discussion and conclusions of the writing.

REFERENCE

1. Safitri R. Pengaruh Tindakan Terapi Massage Punggung Terhadap Penurunan Skala Nyeri Haid Pada Siswi SMA Negeri 8 Samarinda. Vol. 12, Teaching and Teacher Education. 2018. 1–17 p.
2. Ryan, Cooper, Tauer. Konsep Lanjut Usia. Pap Knowl Towar a Media Hist Doc. 2018;12–26.
3. Amirsyah M, Amirsyah M, Putra MIAP. Ulkus Dekubitus pada Penderita Stroke. Kesehatan Cegahum. 2020;2(03):1–8.
4. Agus Salim Thamrin AM, Halim W, Fandy M. Studi Kasus Dekubitus Pada Penderita Tirah Baring yang Dirawat di RSUD Anutapura Palu Tahun 2018. Med Alkhairaat J Penelit Kedokt dan Kesehat. 2019 Dec 31;1(3):89–94.
5. Badrujamaludin A, Melanie R, Nurdiantini N. The effect of mobilization and massage on preventing the risk of pressure ulcers in bed rest patients. Holistik J Kesehat. 2022;15(4):610–23.
6. Sitepu DTB. Efektivitas Penggunaan *Virgin Coconut Oil* (VCO) terhadap Pencegahan Pressure Ulcers (Luka Tekan). Politeknik Kesehatan Kemenkes Medan; 2020.
7. Ahyar H, Maret US, Andriani H, Sukmana DJ, Mada UG, Hardani, S.Pd. MS, et al. Buku metode penelitian kualitatif & kuantitatif. 2020. 245 p.
8. Adevia, Dewi NR, Ayubbana S. Implementation Of Massage Effleurage Using VCO (*Virgin Coconut Oil*) To Prevent Decubitus In Stroke Patients In The Nerve Room General Hospital Ahmad Yani Metro. J Cendikia Muda. 2022;2(1).
9. Fajri Hasibuan C, Nasution J, Biologi Universitas Medan Area F. Making *Virgin Coconut Oil* (Vco) Using Traditional Methods, Faculty of Engineering, Medan Area University. 2018;1:128–32.
10. Astuti Y, Raudatul F. Massage *Virgin Coconut Oil* (VCO) untuk Mencegah Luka Dekubitus Derajat I pada Pasien Stroke Non Hemoragik Massage *Virgin Coconut Oil* (VCO) to Prevent Grade I Decubitus Injuries in Non Hemorrhagic Stroke Patients Pendahuluan Stroke adalah penyakit sere. 2019;1:20–6.
11. Dewi NMLK. Description of the Behavior of Elderly Diabetes Mellitus Patients in Baler Bale Agung Village, Negara District, Jembrana Regency. Poltekkes Kemenkes Denpasar; 2021.
12. Purnamasari KD. Gambaran Penerapan Terapi Pijat Oksitosin Pada Ibu Post Partum. J Midwifery Public Heal. 2020;2(1):31–6.

13. Okatiranti O, Sitorus RE, Tsuawabeh D. Risiko Terjadinya Dekubitus Berdasarkan Tingkat Ketergantungan Pasien di Ruang Perawatan Neurologi. *J Keperawatan Padjadjaran*. 2015 Apr 10;1(3).
14. Sumah DF. Keberhasilan Penggunaan *Virgin Coconut Oil* secara Topikal untuk Pencegahan Luka Tekan (Dekubitus) Pasien Stroke di Rumah Sakit Sumber Hidup Ambon. *J Kedokt dan Kesehat*. 2020;16(2):93–102.
15. Puspitasari N. Hubungan Antara Faktor Resiko Dengan Kejadian Dekubitus Pada Lansia Di Panti Werdha Dewanata Cilacap. *Jurnal*. 2018;Universitas Muhammadiyah Purwokerto.
16. Shuk-Fan T, Joanne Y, Kit-Lun Y, Marcus Chun-Wah Y. Pressure Ulcer Wound Care for Elderly in Home: A Case Report. *J Dermatology Res Ther*. 2016;2(3).
17. Basuki K. Case Study. *J Online Int Nas*. 2019;7(1):1689–99.
18. Rizkiana J. The Effect of Back Massage Therapy on the Sleep Quality of the Elderly at the Tresna Werdha Social Service Center, Budi Luhur Unit, Kasongan, Bantul, Yogyakarta. Universitas Aisyiyah Yogyakarta; 2018.
19. Negari PM, Rakhmawati N, Agustin WR. Pengaruh Massage Effleurage dengan Olive Oil (Minyak Zaitun) Terhadap Pencegahan Dekubitus pada Pasien Bedrest di Ruang HCU Anggrek 2 RSUD Dr. Moewardi. *Univ Kusuma Husada Surakarta*. 2022;23:1–12.
20. Nadukkandiyil N, Syamala S, Saleh HA, Zadeh KA, Valappil SA, Elsayed SA, et al. Implementation of pressure ulcer prevention and management in elderly patients : a retrospective study in tertiary care hospital in Qatar. *Aging Male*. 2020;23(5):1047–53.
21. Kustina DSW, Samiasih A, Rosidi A. Skin Care with Almond Oil Reduces Decubitus Risk Status. *J Keperawatan dan Kesehat Masy Cendekia Utama*. 2022;11(1).