

## **SURAT KETERANGAN**

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Judul : The potential of walnut oil with massage effleurage to prevent grade 1 decubitus wounds of bed rest patients

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No. Pemeriksaan : 2022.12.30.1142

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**Submission date:** 11-Dec-2022 12:08PM (UTC+0700)

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**File name:** Jurnal\_Ners\_Dan\_kebidanan.pdf (165.55K)

**Word count:** 3343

**Character count:** 17872



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**The Potential of Walnut Oil with Massage Effleurage to Prevent Grade 1 Decubitus Wounds of bed Rest Patients**



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**Article Information**

**History Article:**

Received, 21/09/2021  
Accepted, 20/11/2021  
Published, 15/12/2021

**Keywords:**

Decubitus, Effleurage Massage, Walnut Oil, Bed Rest Patients

**Abstract**

The main problem in decubitus patients is the risk of damage to skin integrity related to factors: immobility, decreased sensory perception, decreased tissue perfusion, decreased nutritional status, friction and pulling force, advanced age, and increased humidity. The decubitus is a problem faced by patients with chronic diseases, weak conditions, and patients who experience paralysis. This study aimed to analyze the potential of walnut oil in preventing grade 1 decubitus Wounds of bed Rest Patients. This study used a Quasi-Experimental design (pretest-posttest control group). The sample was 20 people, divided into 2 groups; treatment and control. The treatment group received effleurage massage with walnut oil given twice a day for 7 days, while the control group received pressure ulcers prevention treatment according to the SOP applied in the hospital. A total of 10 patients who received massage using walnut oil showed a p-value of 0.04 (<0.05), which meant that walnut oil massage was affected significantly in preventing pressure ulcers. In conclusion, decubitus wounds can be prevented by effleurage massage with walnut oil which is given regularly twice a day.

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DOI: 10.26699/jnk.v8i3.ART.p309–314

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P-ISSN : 2355-052X

E-ISSN : 2548-3811

## INTRODUCTION

Pressure ulcers or decubitus are serious problems that often occur in patients with impaired mobility, such as stroke patients, spinal injuries, or degenerative diseases. Skincare is the key to preventing pressure ulcers in bed rest patients. Several things cause pressure ulcers or decubitus; first, lack of mobilization. In accordance with the opinion of Corwin (2012), which said that decubitus ulcers can found in people who are treated in bed or have decreased mobilization.

The incidence of pressure ulcer is different in the clinical setting, but its incidence rate ranges from 4% to 38% in hospitalization wards and the mortality rate due to pressure ulcers and its associated secondary complications among the elderly is approximately 68% (James J, Evans JA, Young T, Clark M, 2010). The incidence of pressure ulcers in America, Canada, and England is 5%-32% (Spilsbury, 2015). In Korea, especially in the ICU, pressure ulcers have increased from 10.5%-45%(NPUAP-EPUAP, 2014). In Indonesia, pressure ulcers in patients treated in the ICU reach 33%(Kim, 2015). In RSUD Moewardi Solo, 38.18% of patients had pressure ulcers (Setiawan, 2015). At Home Health Nursing Care Prisma, it was found that 43% had pressure ulcers. Second, the limited facilities and infrastructure in the effort to prevent the occurrence of decubitus wounds. Thus, efforts to improve skin health in bed rest patients treated at home are very appropriate, starting with the patient starting the first time after the patient is discharged and requiring total assistance measures in overcoming their needs.

There are many problems with bed rest patients: lack of mobilization, lack of alternative preventive measures for skin health, lack of human resources, high workload, and high cost of care. The main causes of pressure ulcers are pressure and tissue tolerance. Prolonged pressure is a major cause of pressure ulcers because pressure can cause soft tissue ischemia. Pressure ulcers can occur in at least 2 days in bed rest patient (Setiani, 2014).

Efforts to reduce complications, especially pressure ulcers, can be done first in the nurse's role. First, to overcome low patient safety assurance when being treated, efforts are made to treat preventive measures by carrying out nursing care with quality standards. Second, alternative actions are due to the high cost of care and limited infrastruc-

ture to take preventive measures, such as the limited number of special beds for bed rest sufferers to prevent action. It is necessary to improve the quality of life in patients on bed rest from various alternative actions. (Potter & Perry, 2015) states that there are 3 main areas of nursing intervention in the prevention of pressure sores, namely: (first) skin care which includes hygiene care and topical administration, (second) mechanical precautions and surface support which includes the use of bedding, providing therapeutic positions and mattresses and (third) education

Many studies have mapped the problems of hospitalized patients. (Widasari, 2012) found that early prevention of skincare in bed rest patients could prevent pressure ulcers. The skincare, first by keeping the skin clean and dry, using a skin cleanser with a balanced pH. Protects skin from exposure to excessive moisture by applying a topical to reduce the risk of pressure damage. The use of skin moisturizers to moisturize dry skin reduces the risk of skin damage(EPUAP, NPUAP, & PPPIA, 2014). Efforts to maintain or improve elasticity of skin tissue, prevent skin from being dry or excessively moist, and maintain skin hygiene supports maximal pressure ulcer prevention interventions . (Potter & Perry, 2015)

Walnut oil can be a solution because it can be used as a natural moisturizer that can be used on all skin types(Istia, 2015). The use of skin moisturizers to moisturize dry skin to reduce the risk of skin damage (EPUAP et al., 2014). According to the Registered Nurses Association of Ontario in Syapitri, Siregar, University of North Sumatra 19 & (Syapitri, Siregar, & Ginting, 2017) one of the interventions in maintaining skin integrity is by providing moisturizing lubricants such as lotions, creams and low alcohol ointments or using skin protective barriers such as liquid barrier films, transparent films and hydrocolloids

At the same time, walnut oil contains elements of antioxidants and omega 3. Thus, walnut oil helps skin stay young, healthy, and free from disease. When added to the diet, the antiseptic fatty acids in walnut oil help prevent fungal and bacterial infections or are applied directly to the skin. For open wounds, walnut oil protects wounds from bacteria, dust, and viruses and accelerates wound healing by improving antioxidants, sterols (steroid alcohol), magnesium, and vitamins A, B, C, D, E, and others. walnut are good for skin health because they are

easily absorbed by the skin and contain vitamin E. Vitamin E (tocopherol) can function as a natural antioxidant (Hamidah, Kusnandar, & Gusdinar, 2019). The chemical compounds contained in walnuts are tocopherol, flavonoids, tannins, including folic acid. In addition, walnuts also contain squalene compounds that function to maintain skin moisture, smooth the skin, and protect against radiation effects. Mituhu et al. (2011) stated that back massage could change pressure and improve blood circulation in depressed areas to prevent decubitus. This study aimed to analyze the potential of walnut oil in preventing grade 1 decubitus Wounds of bed Rest Patients.

**METHOD**

The design used Quasi-experimental (pretest-posttest control group). The number of samples was 20 people, divided into two groups, namely treatment, and control. The inclusion criteria was patients who had been immobilized for more than two

days, there were no grade 2-4 decubitus wounds. The treatment group received effleurage massage with walnut oil given twice a day for seven days, while the control group received pressure ulcers prevention treatment according to the SOP applied from the hospital. The data collection instrument in this study used a questionnaire for the characteristics of the respondents, including age, gender, and weight. The observation sheet is a pressure ulcers risk assessment sheet using the Norton scale. The data analysis used univariate and bivariate analysis. The univariate analysis used for data on the percentage of respondents' characteristics based on age, gender, and the average score distribution on the Braden scale, Applied paired t-test for comparison of pretest and posttest scores on day 7 of the control group. The exclusion criteria were that the subject had fractures, lesions, and decubitus wounds since being treated from the hospital.

**RESULT**

**Table 1 Description and Frequency Based on Age, Weight, and Decubitus Scores in The Treatment and Control Groups**

|                      | Data Respondents |    | Control Groups Treatment Groups |    |
|----------------------|------------------|----|---------------------------------|----|
|                      | Freq             | %  | Freq                            | %  |
| Age                  |                  |    |                                 |    |
| 20 – 40 years old    | 1                | 10 | 1                               | 10 |
| 41 – 60 years old    | 4                | 40 | 3                               | 30 |
| 61 – 80 years old    | 5                | 50 | 6                               | 60 |
| Weight               |                  |    |                                 |    |
| Underweight          | 2                | 20 | 3                               | 30 |
| Normal Overweight    | 4                | 40 | 2                               | 20 |
| Decubitus Scores     | 4                | 40 | 5                               | 50 |
| Low Risk (> 18)      | 8                | 80 | 9                               | 90 |
| Medium Risk ( 14-18) | 2                | 20 | 1                               | 10 |
| High Risk ( 10-14)   | 0                | 0  | 0                               | 0  |
| Very High Risk (<10) | 0                | 0  | 0                               | 0  |

Source: Primary Data

Table 1 shows that in the experimental group, 20% of patients affected by decubitus were 61-80 years old, 30% of whom were 41-60 years old, and 20% were 20-40 years old. In the control group, 30% of patients affected by decubitus were aged 61-80 years, 40% were aged 41-60 years, and 10% were aged 20-40 years.

In the control group, 50% were 61 – 80 years old, 40% were 41 – 60 years old, and 10% were

20-40 years old. In the treatment group, 60% were aged 61 – 80 years, 30% were aged 41 – 60 years, and 10% were aged 20 – 40 years. In the control group, 40% of them were obese, 40% of them were normal, and 20% of them were thin. In the treatment group, 50% had fat bodies, and 30% of them had thin bodies, 20% were normal.

The above shows that before massaging with walnut oil, the majority, 80% of bedridden patients

of the control group, had a low risk of decubitus (>18), 20% of bedridden patients had a medium risk of decubitus (14-18), and the majority 90% of the

bedridden patients in the treatment group had a low risk of decubitus (>18), 10% of the bedridden patients had a medium risk of decubitus (14-18).

**Table 2 Comparison of Scores Before and After (day 1 and day 7) in The Control and Experimental Group**

| Group        | Dekubitus |     |             |     |        |      | p-value |
|--------------|-----------|-----|-------------|-----|--------|------|---------|
|              | dikubitus |     | Normal skin |     | amount |      |         |
|              | f         | %   | f           | %   | f      | %    |         |
| Intervention | 1         | 10% | 9           | 90% | 10     | 100% | 0,003   |
| Control      | 6         | 60% | 4           | 40% | 10     | 100% |         |
| amount       | 7         | 35% | 13          | 65% | 20     | 100% |         |

Source: Primary Data

The results in Table 2 can be seen that in the intervention group patients who were given efflurage massage with walnut oil, only 1 person (10 %). This incidence was much lower than in the control group who were not given efflurage massage with walnut oil, who experienced pressure sores as many as 9 people (90 %). The results of the Chi Square test using Fisher Exact obtained a p-value of 0.003. Because the p-value (0.003) < (0.05), it can be concluded that there is a significant effect of massage efflurage with walnut oil on the prevention of pressure sores in bedrest patients.

**DISCUSSION**

**Characteristics of Subjects**

Subjects in the treatment group and control group were more respondents between 61 - 80 years involved in this study because many elderly patients were post-MRS with immobilized conditions and were treated at home during the study. So, when the sample selection is made, the chance of the sample being selected becomes more significant for respondents of that age. In addition, respondents classified as elderly at home depend on care, including mobilization, so that the elderly do not move if there is no help from their family. Old age has a great potential for pressure ulcers due to skin changes related to age, namely, reduced subcutaneous fat tissue, reduced collagen and elastin tissue, decreased efficiency of capillary collaterals in the skin so that the skin becomes thinner and brittle (Zulfa, Citra, & Nurfadhilah, 2018)

**5** In the elderly, the skin experiences a decrease in epidermal thickness, dermal collagen, and tissue

elasticity. The skin is more often dry as a result of loss of sebaceous and sweat gland activity. Cardiovascular changes result in decreased tissue perfusion. Atrophy of muscle and bone structure is the focus of attention. Decreased sensory perception and reduced ability to adjust one's position contribute to prolonged pressure on the skin. Therefore, the elderly is more susceptible to pressure ulcers that cause pain and reduce life quality. This study also shows the number of respondents with bodyweight classified as fat from both the treatment and control groups. So, the elderly has difficulty moving independently because older adults are very dependent on their family members to make movements. Obese patients are often difficult to treat because of additional weight, and patients breathe not optimally when lying on their side (Kim, 2015). In obese people, adipose tissue is more difficult to fuse, which causes fat tissue to lack blood supply to send and affect nutrients to the skin, which, if left for too long, will result in skin discoloration.

This study also shows the number of respondents who have a decubitus score with low risk. This score is adjusted to the inclusion criteria are respondents who have not experienced decubitus. Subjects in the treatment group received efflurage massage with walnut oil given twice a day for seven days. Subjects in this study amounted to 20 people based on the criteria determined by the researcher, each treatment was given two times a day for seven days. Meanwhile, the control group was only treated in bed without being given efflurage massage with walnut oil. According to the research of Darmaja et al., 2020 giving a massage with oil carried out for

at least three consecutive days has a positive effect on decubitus wounds.

### **The Potential of Walnut Oil can Prevent Decubitus Wounds of Bed Rest Patients**

From the study results, it is known that after being given effleurage massage therapy with walnut oil for seven days with twice a day after bathing in the morning and evening in the intervention group, there was a decrease in the risk of decubitus events. Furthermore, it was proven on the 7th day that the risk of decubitus events decreased with skin conditions, softer, increased elasticity, and skin colour does not change along with no changes in skin temperature in areas of pressure. Thus, although several factors can cause decubitus ulcers, immobility, friction, and decreased patient activity levels, one factor influences the risk of decubitus ulcers. Therefore, these factors will affect skin moisture due to pressure, increasing skin maceration, causing the epidermis to be more easily eroded and inhibiting blood flow (Kozier, 2010)

According to the researcher's assumption that the physical condition is not stable due to illness, post-treatment from the hospital, age, excess weight, and the risk of diabetes from the results of the decubitus score assessment, no good attention by the family, the nurse who treat. Therefore, it will cause the skin integrity to be damaged, and pressure ulcers are common in patients who are on prolonged bed rest. The researchers provided an intervention to prevent pressure ulcers or decubitus with massage effleurage with walnut oil. Prevention of pressure ulcers can be done in various ways. Heineman (2010) describes the procedure for preventing pressure ulcers by citing the clinical practice guideline of America Health of Care Plan Resources (AHCPR) that the interventions that can be used to avoid pressure ulcers fall into three categories. Another nursing intervention is by using an anti-decubitus mattress (Rustina, 2016), Decubitus can also be prevented by providing adequate nutrition (Tianingsih, 2010).

When combined with changing positions regularly (every 2-4 hours), giving massage becomes an effective method of preventing pressure ulcers. Massage is given gently with small circular motions. The composition of walnut oil consists of triglycerides, fatty acids, and non-glycerides as minor components. Minor components of vegetable oil are phospholipids, tocopherols, flavonoids, phenolic com-

ponents, pigments (carotenoids and chlorophyll), sterols, free fatty acids, diglycerides, and monoglycerides. Several minor components are essential for the stability and flavour of walnut (Djarkasi, Raharjo, Noor, & Sudarmadji, 2016). For example, the flavonoid content in walnut oil has antioxidant, hepatoprotective, anti-inflammatory, antibacterial and anticancer activity, while some have antiviral activity (Kumar & Pandey, 2013). In addition, the content of tannins has a cardioprotective effect and functions as a vasodilator.

### **CONCLUSION**

This study revealed that massage effleurage with walnut oil for seven consecutive days with a time of administration two times a day after bathing in the morning and evening is very effective in preventing the risk of decubitus in patients who are on bed rest. Nurses can perform this action on patients treated in the ICU who are on bed rest or patients in the ward who are immobilized.

### **SUGGESTION**

In patients who are bed rest and have a risk of decubitus, should be prevented by passive mobilization and blood circulation by massage. In addition, depressed skin is treated with skin care using ingredients that can moisturize the skin, one of which is walnut oil.

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