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Combination of Massage Therapy and VCO to Reduce Fatigue and Increase Skin Moisture for Masseurs

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Abstract: Fatigue and skin moisture problems are commonly experienced by masseurs due to unnatural working postures, such as prolonged forward bending, as well as environmental conditions such as air-conditioned rooms that can affect skin hydration. If not properly managed, fatigue and decreased skin moisture may have adverse effects on the body. This study aimed to determine the effect of a combination of the Ali Satia Graha Body Fatigue Therapy Massage Method and Virgin Coconut Oil (VCO) on reducing fatigue and increasing arm skin moisture in masseurs. This research employed a pre-experimental design with a one-group pretest–posttest approach. The study initially involved 23 masseurs working in massage services, from which 12 respondents were selected using inclusion and exclusion criteria. The samples received massage treatment using VCO on the arms for 20 minutes. Arm fatigue was measured using the DASH questionnaire, while arm skin moisture was measured using the SK-IV Digital Moisture Monitor for Skin, both before and after the intervention. The results showed that the level of arm fatigue among masseurs decreased from 27.92 ± 2.234 to 17.00 ± 1.477 with a p-value < 0.000, while arm skin moisture increased from 40.08 ± 3.476 to 45.83 ± 3.589 with a p-value < 0.000. It can be concluded that the treatment had a significant effect on reducing fatigue and increasing skin moisture among respondents and therefore may serve as an alternative method to support fatigue recovery and improve skin hydration.

Keywords: Fatigue Massage Therapy, Virgin Coconut Oil, Fatigue, Skin Moisture

INTRODUCTION

The era of rapid change can have an impact on human life in various parts of the world, an impact that can be seen in the increasingly advanced mindset of humans. In this era, humans strive competitively to meet their needs, one of which is through work activities. Therefore, occupational safety and health in companies must be taken into account in order to create a comfortable, safe, and secure working environment. However, in Indonesia itself, OSH is considered less important and still lacks attention. If OSH were given more attention, workplace accidents could be prevented and reduced. Accidents that occur in companies do not happen by chance but can occur due to a lack of coordination during work activities (Zaman et al., 2022).

Occupational Diseases (PAK) are illnesses that can occur due to the influence of work and the work environment (Zaman et al., 2022). OIW are divided into several groups, such as diseases caused by work activities (physical, chemical, biological factors), vital organ systems (respiratory tract, skin diseases, psychological disorders, muscle and bone disorders), work-related cancers, and other diseases (Presidential Regulation No. 17 of 2019 on Occupational Diseases). Data from the Ministry of Health shows significant fluctuations from 2011 to 2014. In 2011, there were 57,292 cases of PAK, which increased to 60,322 cases in 2012. In 2013, there was a sharp increase in OWD cases, reaching 97,144 cases, before declining to 40,694 cases in 2014. This data reflects that OWD cases in Indonesia are a serious issue that requires attention (Kurniawidjaja & Ramdhan, 2019). Fatigue in massage therapists caused by continuous work in unnatural positions, such as bending over and standing for too long. Fatigue can have negative effects if not properly addressed, such as decreased performance and potential injury (Alwan, 2023). The Bureau of Labor Statistics (2016) revealed that injuries experienced by massage therapists stem from unnatural positions while working. Common injuries experienced by massage therapists include injuries to the upper extremities, such as the neck, back, waist, arms, and wrists. The International Labor Organization (ILO)(2016) shows that nearly 32% of workers worldwide experience fatigue caused by work, with 18.3-27% experiencing fatigue due to work, and the rate in the

industrial world reaching 45%. The International Labor Organization (2016) revealed that nearly 2 million workers worldwide are victims of workplace accidents due to the effects of fatigue.

Air conditioning (AC) is an artificial ventilation system designed to create comfortable conditions in the work environment, but continuous exposure to AC can have adverse effects on workers. AC is used to control indoor humidity by extracting moisture from the air to make it dry. If the skin is continuously exposed to AC, skin moisture will also decrease, causing a reduction in water content in the skin, resulting in dry, flaky, and cracked skin (Khan et al., 2018). Khan et al., (2018) revealed that exposure to air conditioning can have adverse effects on the human body, such as headaches, muscle pain, skin problems, sick building syndrome, and other diseases. Another study conducted by Amri, (2019) on 25 administrative staff members at Halu Oleo University revealed that exposure to air conditioning can have negative effects on the body, one of which is loss of skin moisture. Continuous exposure to air conditioning can absorb skin moisture, causing dryness. This study revealed that 10 people or 40% of respondents experienced dry skin problems. Masseurs who work in air-conditioned rooms for 8 hours in unnatural positions are at high risk of fatigue and skin moisture problems. Therefore, fatigue and skin moisture problems in masseurs must be avoided and immediately remedied so that therapists can maintain optimal performance.

Non-pharmacological treatment methods for fatigue include acupuncture, hot compresses, cold compresses, massage therapy, and others. However, the most widely used treatment by the public is massage therapy or massage because it is considered more effective in alleviating fatigue (Putri, 2023) .Massage is the manipulation of tissue using the hands, which is beneficial for calming and reducing psychological stress. Massage manipulation can stimulate the release of endogenous hormones (endorphins, enkephalins, and dinorphins, cortisol, norepinephrine, and dopamine) (Best et al., 2008). Massage is divided into several types, including: sports massage, Swedish massage, circulo massage, and others (Novita Intan Arovah, 2015; Purnomo, 2015). One type of massage that can reduce fatigue is the Ali Satia Graha Body Fatigue Therapy Massage. Massage can be given to athletes and non-athletes alike, as the purpose of massage is to help speed up recovery when the body is fatigued (Graha, 2015). Research Results Graha & Yuniana, (2021) show that providing wellness massage treatment for muscle pain and tension complaints to massage therapists on the 4th floor of the Plaza has an effect on the recovery of muscle pain and tension. Providing wellness massage treatment to massage therapists can help reduce pain, help relax muscles, and thus restore fatigue. When giving a massage, it is best to use a lubricant. In this study, Virgin Coconut Oil (VCO) was used as a lubricant because it can reduce friction on the skin during massage.

Virgin Coconut Oil (VCO) is derived from coconuts that are processed without physical and biochemical processes, resulting in pure coconut oil that is low in fat and water and can be stored for more than 12 months. (Dwi Sutanto et al., 2021). VCO can be used as an analgesic, antipyretic, and anti-inflammatory agent (Rahman, 2017) Additionally, VCO contains antioxidants and vitamin E, which have positive effects on the skin, helping it stay youthful, healthy, and free from disease.

Research conducted by Daryaswanti, (2018)) revealed that VCO is proven effective in moisturizing the skin because the fatty acids in VCO help the skin retain water in the stratum corneum and reduce the evaporation process in the skin, which helps maintain skin moisture. Additionally, research conducted by Kurnia & Ayu (2020) indicates that VCO is effective in preventing pressure ulcers because it can enhance the body's resistance, accelerate metabolism, prevent the aging process, and help the skin remain moisturized.

Based on the initial observations and findings conducted by the researcher on masseurs at the Sports Injury Massage Therapy Service using the Ali Satia Graha Method, from August 1, 2024, to September 30, 2024, the researcher obtained the following information: (1) masseurs massage many patients and experience muscle fatigue, (2) masseurs often complain of pain and stiffness in their arms, (3) masseurs complain of skin moisture problems on their arms, (4) masseurs work in air-conditioned rooms.

Based on the description and observations made, the researcher intends to conduct a more in-depth study on "The Effect of Combining Ali Satia Graha's Body Fatigue Therapy Massage and Virgin Coconut Oil (VCO) on Reducing Fatigue and Increasing Skin Moisture in Masseurs' Arms."

METHODS

Research Design

This study uses a pre-experimental design with a one-group pretest and posttest system. This research was conducted at the Ali Satia Graha Sports Injury Massage Therapy Service Plaza UNY, Jl. Gejayan Affandi, Depok, Sleman, Yogyakarta from December 1, 2024, to January 31, 2025.

Population and Sample

The population in this study consisted of 23 masseurs working at the MTCO Ali Satia Graha Method Service, with inclusion and exclusion sampling techniques resulting in 12 masseurs.

Techniques and Instruments

This study used *the SK-IV Digital Moisture Monitor For Skin* instrument and the DASH questionnaire. Data collection began with an allergy test by applying VCO to the back of the respondent's hand and waiting for 30 minutes; if the respondent experienced itching, the procedure was not continued. After the allergy check, respondents completed a medical record form and then underwent a pretest to assess levels of fatigue and skin moisture. The combined manipulation of massage and VCO was then applied to the arm using 5 cc/ml of VCO per arm for 20 minutes. The final stage was the posttest, which measured arm fatigue levels and skin moisture. Based on the study conducted by Kristanti et al., (2021), the validity test of the DASH questionnaire in patients with carpal tunnel syndrome showed good validity and reliability. The validity of the DASH questionnaire ranged from high ($0.60 < r < 0.80$) to very high ($0.80 < r < 1.00$), and the reliability coefficient of the DASH questionnaire was greater than 0.676. The SK-IV Digital Moisture Monitor for Skin has been inspected and calibrated by the manufacturer, so additional calibration testing was not required.

Data Analysis Techniques

The data analysis techniques used in this study include descriptive analysis, normality tests, homogeneity tests, and paired sample t-tests. The data analysis technique used was descriptive analysis. Descriptive analysis is a statistical method used to identify and describe sample data. A normality test was employed to determine whether the distribution of the analyzed data was normal. Normality was tested using the Shapiro–Wilk test; if the p-value ≥ 0.05, the data were considered normally distributed, whereas if the p-value < 0.05, the data were considered not normally distributed (Nuryadi et al., 2017). A homogeneity test was conducted to determine whether the samples were homogeneous. The criterion for homogeneity was met when the "based on mean" value was > 0.05, while data were considered not homogeneous if the "based on mean" value was < 0.05 (Nuryadi et al., 2017). A difference test was carried out to determine whether the hypothesis was accepted by comparing the difference between the means of two normally distributed datasets. The hypothesis was accepted if the significance value was $p < 0.05$ and rejected if the significance value was $p > 0.05$ (Nuryadi et al., 2017).

RESULT AND DISCUSSION

Arm Fatigue and Moisture Data

Table 1. Pre-test and Post-test Data on Arm Fatigue

Variabel	Min	Max	Mean	SD
Pretest	24	31	27.92	2.234
Posttest	14	20	17.00	1.477

Table 1 shows that the pretest data for arm fatigue obtained a minimum pretest score of 24 and a maximum pretest score of 31, with a mean score 27.92 and a standard deviation of 2.234. The post-test data for arm fatigue showed a minimum post-test score of 14 and a maximum post-test score of 20, with an average score of 17.00 and a standard deviation of 1.477.

Table 2. Pre-test and Post-test Data on Arm Skin Moisture

Variabel	Min	Max	Mean	SD
Pretest	32	45	40,08	3,476
Posttest	38	50	45,83	3,589

At thickness 4, the pretest data for skin moisture on the arm showed a minimum pretest value of 32 and a maximum pretest value of 45, with an average value of 40.08 and a standard deviation of

3.476. For the posttest data on arm skin moisture, the minimum posttest value was 38 and the maximum posttest value was 50, with an average value of 45.83 and a standard deviation of 3.589.

Normality Test

Table 3. Results of Pretest and Posttest Normality Test Data for Arm Fatigue and Skin Moisture

	Shapiro-Wilk			Keterangan
	Statistic	**N**	**Sig.**	
Fatigue	0,142	12	0,200	Normal
Skin moisture	0,167	12	0,200	Normal

Based on the normality test above using Shapiro-Wilk, the significant value p>0.05 shows that the test data above is normally distributed.

Homogeneity Test

Table 4. Test of homogeneity of skin fatigue and moisture

df1	df2	sig	Note
1	22	0.121	Homogeneous

Based on the results of the homogeneity test, skin fatigue and moiture have a sig. value greater than 0.05 (0.121>0.05), so it can be conclude that the data is homogeneous.

Paired Test

Table 5. Results of the paired sample t-test for pretest and posttest fatigue

Variable	Mean	N	Sig. (2-tailed)	Note
Fatigue	10,917	12	0,000	Significant
Skin moisture	-5,750	12	0,000	Significant

Based on the paired sample t-test data, which shows, the significance value is p<0.05, so it can be concluded that the hypothesis is accepted.

Fatigue is a common phenomenon in the body where the body experiences a decrease in its ability to perform work. Fatigue can be caused by workloads or daily activities, characterized by muscle pain, decreased work motivation, muscle cramps, and reduced alertness while working, which can increase the risk of workplace accidents (Mustofani, 2020; Wisesa, 2020).

Skin moisture is the level of water in the skin. When the water content in the skin is low, it can cause dry skin. The normal water content in the skin is 10% in the outer layer and 30% in the inner layer ((Tricaesario & Widayati, 2016). Skin moisture can be influenced by several factors such as the environment, age, nutrition, and lifestyle. Dry skin is characterized by dry, flaky skin that is easily wrinkled, dull, and more sensitive (Camilion et al., 2022; Hikmawati et al., 2017).

This study was conducted to determine the effect of the combination of Ali Satia Graha's Body Fatigue Massage Therapy and Virgin Coconut Oil (VCO) on the level of fatigue and skin moisture of masseurs' arms. This study used a pre-experimental research design with a one-group pretest and posttest design, which is a single-group study with a pretest and posttest without a control group.
Based on the results of the above study, the Asymp. Sig. value for fatigue data was 0.000 (p<0.05) and for skin moisture data, the Asymp. Sig. value was 0.000 (p<0.05). Based on these values, it can be interpreted that there is a significant difference between the pretest and posttest. The combination of Ali Satia Graha's Body Fatigue Therapy Massage and Virgin Coconut Oil (VCO) is beneficial for reducing fatigue levels and increasing skin moisture on masseurs' arms. The results of this study are also consistent with previous with previous studies conducted by Ambarwati et al., (2021 46-52) that massage is effective in reducing lactic acid levels and accelerating recovery time from fatigue caused

by physical activity. In a study conducted by (Daryaswanti et al., 2018), skin massage combined with VCO has benefits for moisturizing the skin, increasing comfort, and improving sleep quality. Massage itself has good benefits for the skin, such as helping to remove dead skin cells and revitalizing hair follicles, sweat glands, and sebaceous glands, which will work better because they are free from blockages.

Body Fatigue Therapy Massage using the Ali Satia Graha method has benefits for addressing muscle disorders such as stiffness in the legs and feet, abdominal and facial muscles, arms and hands, as well as the back and head (Graha, 2000). Massage has several effects on the body, including physiological and mechanical effects. The physiological effects that can be felt by the body are that massage can help reduce swelling through increased blood and lymph flow, inhibit pain stimuli and increase endogenous morphine hormones, increase muscle relaxation and reduce tension, increase ROM, and speed up recovery time. Additionally, the mechanical effects that can be felt include strengthening the skin and aiding the natural healing process of tissues. The stretching effect during massage helps maintain the mobility of the skin tissue and the underlying tissue layers (Arovah, 2010).

Body Fatigue Therapy Massage using the Ali Satia Graha Method employs friction (rubbing) and effleurage (stroking) techniques. The friction (rubbing) technique is useful for eliminating myogillosis or residual energy combustion in the body that is located in the muscles, causing muscle hardening or contraction. Furthermore, the effleurage (stroking) technique is beneficial for helping to transport metabolic waste in the body and reducing inflammation in the muscles (Graha, 2000).

Ali Satia Graha's Body Fatigue Massage Therapy Manipulation method begins with the application of VCO, followed by manipulation using a combination of stroking and rubbing techniques on the arm muscles using the thumb, with pressure adjusted according to the thickness of the muscle. VCO is used as a lubricant because it has a high fatty acid content, in the form of lauric acid, phenolic content, and high antioxidants which, when applied to the skin, have an effect on body tissue, especially connective tissue, which can increase skin strength and elasticity (Amin, 2024). VCO also has good spreadability on the skin, does not inhibit skin respiration, and has good emollient properties.

Many factors contribute to fatigue and dry skin, such as work, physical activity, lifestyle, and more. There are many existing methods to reduce fatigue levels and increase skin moisture, one of which is massage therapy combined with VCO, as the combination of massage and VCO can be beneficial for reducing fatigue levels and increasing skin moisture in the masseur's arms.

CONCLUSION

The combined treatment of Body Fatigue Massage Therapy using the Ali Satia Graha method and Virgin Coconut Oil (VCO) has a significant effect on the physical condition of masseurs. The results of the study showed that the level of arm fatigue among masseurs decreased from 27.92 ± 2.234 to 17.00 ± 1.477 with a p-value < 0.000, while the skin moisture of the masseurs' arms increased from 40.08 ± 3.476 to 45.83 ± 3.589 with a p-value < 0.000. It can be concluded that the treatment had a significant effect on reducing fatigue and increasing skin moisture in the respondents, and thus may serve as an alternative method to aid fatigue recovery and improve skin hydration.

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