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Research Article

Slow-Stroke Back Massage Decreased Pain Intensity of Osteoarthritis for Geriatric In Community Area

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Abstract

Background

Geriatric is part of human process of life. They are in the decreased process of functional organ like neuromuscular and skeletal system. In the two part of body, pain something as problem for them. Pain is a production mechanism for body, arising when the tissue is damaged and causes the individual to react to the pain relief. Artificial pain is one of the common uncomfortable feeling of elderly in life.

Objectives

This research is to be aware of whether the influence of slow-stroke back massage against the intensity of osteoarthritis pain in the elderly people especially who are staying in the compound.

Design

The research design used is pre and post test group with control design. This design involves two groups of subjects, one in the give experimental treatment (intervention group) and the other is not in give anything (control group).

Setting

social orphanage Tresna home Gau Mabaji, Gowa recident, South Sulawesi Province Indonesia.

Participant

The participants in this study are all elderly who suffer from osteoarthritis in the social orphanage Tresna home Gau Mabaji residents of Gowa is 14 people as a treatment group and 14 people as a control.

Methods

This research is a quasi experiment with the design of pre and post test group with control design by using the total sampling where all clients who have pain in the back are 28 people as participants. Data collection carried out the act of slow-stroke back massage to the client with 6 meetings for 2 weeks

Result

The study result based on statistic test gave P-value is 0.00; it means that it is lower the alpha value. The correlation between slow-stroke massage with decreased the pain intensity to the geriatric accurately.

Conclusion

Slow-stroke massage is one of effective intervention can be conducted to the elderly or geriatric who has osteoarthritis in community area.

Keywords: Geriatric, Pain Intensity, Osteoarthritis, Slow-stroke back massage, Elderly Compound

Introduction

Geriatrics is part of the process of growing flowers. Humans do not suddenly become old, but develop from babies, children, adults and eventually grow old. This is normal with physical changes and behavioral behavior that happens to everyone as they reach a certain stage of chronological development. Elderly is a natural process in life created by god. All people will experience the process of becoming old which is old age as the last period of human life at the time a person experiencing gradual physical, mental and social decline. There is a need for healthcare system to support the individual rights and entitlements of patients regardless of cognitive impairment to dispel discriminatory practice and promote person centered care [1].

According to law No. 13 of 1998 on the welfare of the elderly in article 1 paragraph 2 which mentions that the age of 60 years is the old age. Aging is not an illness but it is the process of declining endurance in the face of stimulation from inside and outside the body [2]. In the Americas are about 37 million people who suffer from osteoarthritis in shaped number. This means 1 of 7 Americans suffer from Arthritis. In age group > 55 years people with more joint disorders in women and most joint pain forms of Osteoarthritis.

The prevalence of joint diseases in Indonesia is also quite high, amounting to 24.7% in elderly women 13.4%, and elderly men 11.3%. At the age of 45-54, it amounted to 37.2%, 55-64, 45-0%, the age of 65-74, 51.9% and the age of more than 75 for 54.8%. Joint diseases that are often experienced elderly are diseases of arthritis gout, osteoarthritis and rheumatoid arthritis.

Osteoarthritis is a degenerative disease all caused by many factors such as: allergic reaction, infection, genetic and the aging process. Osteoarthritis that is caused by the aging process because the bones start Loss of cartilage (bone tissue) that serves as a bearing between the bones and joints, which is then thinner, causing pain in the joints due to mild inflammation arising from the friction edges of the constituent bones Joints.

Pain makes the sufferer often afraid to move to interfere with daily activities and decrease its activity. In addition, by experiencing pain, it is enough to make patients frustrated in living their daily life and can lower its productivity. In addition, by experiencing pain, it is enough to make the patient frustrating in living his daily life so that it can disturb the patient's comfort. Therefore, the main therapy directed is to treat pain [3].

Slow-Stroke back massage is one of the techniques in delivering massages. The suction with lotion/balm provides a warm sensation by causing the dilation of local blood vessels. Vasodilation of blood vessels will increase blood circulation in the areas that are boosted so that cell activity and reduce pain and support the healing process. When individuals perceive a touch as a stimulus to relax, then there will be a response to relaxation, relaxation is crucial in raising comfort and freeing away from the fear and stress caused by a disease that is in the natural pain that is not comfortable [4].

Some researchers to treat pain with non pharmacological techniques has been done by one of them is the introduction of warts: slow-stroke back massage i.e. conduct massage of the back with a slow swipe to treat pain The osteoarthritis of this study was conducted by Mira Trihartini in 2008, in the orphanage Werdha Hargo Dedali. From the results of the study gained that the stimulation of the wart slow-stroke back massage can lower the pain intensity by 40%. The results showed that there was a significant influence on the administration of TSK SSBM (the technique of cutaneous stimulation: slow stroke back masse) was influential in lowering the intensity of lower back pain in the elderly.

The results of this research similar to the research conducted by Mira Trihartini in 2010 about the stimulation of wart slow-stroke back massage

with the effect of lowering the pain intensity of 40% in patients osteoarthritis, it is also in line with the research of Ni Made Dwi Anugraheni in 2011 about the influence of the giving back massage to the intensity of pain in the elderly with osteoarthritis and previously the pain intensity of the respondent with a percentage of 80% to 50% after administered Back massage. This is condemned by the of Gate control of Melzack and Wall in Potter-Perry (2006) to suggest that pain impulses can be arranged or inhibited in the pleated defensive mechanisms along the central nervous system.

Based on the data that get from social orphanage Tresna home Gau Maba-ji. Gowa resident in 2016, 97 elderly are 63 or (65%) Elderly women and 34 or (35%) Elderly male with osteoarthritis disease obtained 28 or (29%) elderly at the social orphanage Tresna Werdha Gau Mabaji Gowa Resident.

Purpose of Research

The purpose of the research is to influence of any slow-stroke back massage affect the pain intensity of osteoarthritis in the elderly. It is also to determine the intensity of osteoarthritis pain in the elderly before and after intervention of slow-stroke back massage identifying pain intensity of osteoarthritis before and after intervention of slow-stroke back massage and analyzed the effect of giving back massage to the intensity of osteoarthritis pain in the elderly.

Theoretical Concept

Osteoarthritis is derived from the Greek *osteo* which means bone, *arthro* meaning joints, and *itis* which means inflammation of the meskipus is actually a person who is osteoarthritis does not experience inflammation or only experiencing mild inflammation.

Osteoarthritis is a chronic joint disease that is marked by the presence of cartilage (cartilages) of joints and bones nearby. Cartilage and (the cartilage) are part of the joints that line the ends of the bones, to move the movements of the joints, abnormalities in the cartilage will result in bone friction with each other, resulting in symptoms of stiffness, pain and restriction Movement in Joints America College of Rheumatology (2011) provides osteoarthritis as a heterogeneous group of conditions leading to the signs and symptoms of the joint symptoms of this symptom marked by the presence of abrasion-prone joints and the presence of bone formation Irregulars on the joint surface. Pain is a typical symptom of the joints that experience osteoarthritis and the pain is heavier when the activity with the use of joints and pain is increasingly mild with rest.

According to Julijanto (2008) laymen often refer to osteoarthritis as a burial of joints. The term is actually not proper Karna on osteoarthritis does not occur in the process of the imshipment of joints, but depletion of cartilage or joint cartilage.

Osteoarthritis classification

Osteoarthritis classification According to its pathogenicity, osteoarthritis is classified into two, namely: primary or idiopathic osteoarthritis, which is the unknown osteoarthritis, which is why, attacks slowly but progressively and can Regarding from one joint usually affects the joints that bear weight such as knees and pelvis and can also attack the back, neck and fingers. Secondary osteoarthritis is osteoarthritis which is usually caused by the Truma (instability) which causes the wound in the joints (eg fractures and the surface of the joints are not aligned), due to loose joints, and surgery in the joints, causes other genetic factors and metabolic diseases.

A joint is where two or more bones are connected [5]. A slight exception (e.g. in skull and pelvic bones), the joints are designed to allow inter-bone movement and to compensate for shocks due to movements such as walking or repetitive movements resulting from movement such as walking or Repetitive movements.

Etiology of Osteoarthritis

Etiology or the cause of the degenerative disease in this joint is not yet known for sure but many factors that cause the disease: gender both male and female may suffer from this disease. Before age 45 years, more men than women suffer from osteoarthritis [6]. At the age of 45-55 years the prevalence of osteoarthritis in both equals. However, after 55 years of osteoarthritis is often suffered by women [5].

The main difference in incidence between men and women is related to the areas affected by osteoarthritis. In women, joints often affected by osteoarthritis are the distal interphalangeal joint, the proximal interphalangeal joint, the first Carpometacarpal joint, the metatarsophalangeal joint, the hips (at age 55-64 years), and the knee (at the age of 65-74). While in men aged 65-74 years, hips and knees are more often affected by osteoarthritis than women [5].

Age

Age is the primary determinant of osteoarthritis. Osteoarthritis is often suffered by the elderly, although younger people can also suffer the same. In men who are less than 45 years old, osteoarthritis occurs mainly related to the history of trauma that has. Based on radiographic evidence, in individuals aged 45-65 years there are 30% of osteoarthritis cases, and at the age of over 80 years there are more than 80% cases.

Race

The prevalence and pattern of joint involvement of osteoarthritis differs in each race, knee Osteoarthritis appears more common in women with Afro-American races. Meanwhile, according to Shiddiqui (2008) when it was built with a white race, blacks of South Africans, Chinese people, Indian and Native Americans had a prevalence of low hip osteoarthritis.

Previous trauma History

Trauma is to a previously occurring joint, commonly resulting in a form of a trauma or an effect that has been affected against articular cartilage, ligaments, or meniscus that causes the joint Biomechanika to become abnormal, and triggers premature degeneration.

Genetic

Genetic in the gene setting of cartilage joints will increase the risk of osteoarthritis in a person.

Obesity

Osteoarthritis is more common in people who are obese than those who are thin because they are associated with a large stress mechanism on the body's support joints. The joints of the lower limbs, knees and hips, every day receive a considerable burden from human daily physical activity. For example, when humans stand on both feet, the knee joint receives a 2-time weight of the human body (not half the body weight as we expect based on logical mathematical calculations). At the time of standing with one leg, the burden of one leg, the burden received by the knee joint by 4 times the weight (not one time body weight) and upon landing back after the knee-throwing bore a burden of 8 times the weight of human body. Therefore, weight loss that exceeds the ideal weight, will add weight received by the knee and hip joints.

Work

Osteoarthritis is more common in their job of giving the blood pressure of certain joints. The type of work also affects which joints are likely to be affected by osteoarthritis. For example on a sewing worker, osteoarthritis is more common in the knee area, whereas in building laborers often occur waist areas.

Pathophysiological Osteoarthritis

Degenerative joint disease is a chronic, uninfamed, slow progressive disease, which seems to be an aging process, prone to decreased joints and degeneration accompanied by new bone growth at the edges of the joints.

The process of degeneration is caused by the process of solving chondrocytes which is an important element prone to joints. The breakdown is suspected of being initiated by certain biomechanical stress. The production of lysosomal enzymes causes the onset of the protein polysaccharide that forms the matrix around the chondrocytes resulting in cartilage damage. The joints that are most commonly exposed are joints that must bear weight, such as hips, knees and vertebral columnar, distal and proximate interphalangeal joints.

Osteoarthritis in some instances will result in limited movement. This is due to the pain that is experienced or caused by narrowing of the joint space or the lack of use of the joints. Degenerative changes that result from certain events such as joint injuries to joint deformities congenital and other joint inflammatory diseases will cause trauma to the intrinsic cartilage and extrinsic as to cause a fracture of the ligament or a change in joint metabolism that ultimately results in cartilage erosion and destruction, the bones become thick and occurs narrowing of the joint cavity causing pain, leg Deformities, the presence of Hypertropi or nodulus.

Slow-stroke back massage

Slow-Stroke back massage is one of the techniques in delivering massages with Usapan. The suction with lotion/balm gives a warm sensation by causing the dilation of local blood vessels. Vasodilation of blood vessels will increase blood circulation in the areas that are carried out so that the cell activities and reduce pain. When individuals perceive a touch as a stimulus to relax, then the response will appear relaxation, relaxation is crucial in increasing comfort and freeing away from the fear and stress caused by a disease that is in the natural pain that is not as relaxing [4].

Method of Research

This research is quantitative using QUASI experiment Research, the plan seeks to reveal causation by involving control groups in addition to the experimental group [7]. The research design used is pre and post test group with control design. This design involves two groups of subjects, one in the give experimental treatment (intervention group) and the other is not in give anything (control group).

Table1: Design Framework Research

Subject	Pre test	Intervention	Post test
K-A	0 X		01-A
K-B	0 X		01-B
Time 1	Time 2		Time 3

The samples in this study are all elderly who suffer from osteoarthritis in the social orphanage Tresna home Gau Mabaji residents of Gowa is 14 people as a treatment group and 14 people as a control. All data gathered from the participants with informed consent which are signed by them.

Result

Osteoarthritis Pain Intensity Value

Table 2: Distribution of osteoarthritis pain intensity before and after a Slow-Stroke Back Massage, the social orphanage Tresna Werdha Gau Mabaji resident of Gowa 2018 (n = 28)

Variable	n	Mean	SD	Min-Mak	Min-Mak	95% CI
Intervention						
Before	14	5,50	1,019	4-7	4-7	4,91-6,09
After	14	2,58	1,016	1-4	1-4	1,98-3,16

Control						
Before	14	5,43	1,284	3-7	3-7	4,69-6,17
After	14	4,86	2,928	3-7	3-7	4,11-5,60

According to the 5.6 table, the average Osteoarthritis pain in the intervention group before treatment is 5.50 with the standard deviation of 1.019 pain at least 4 with the highest pain intensity of 7 of the results Extima interval 95% which is believed that prior pain treatment in the intervention group 4.91-6.09 whereas after treatment of the average value of osteoarthritis pain in the group of interventions 2.58 with a standard deviation of 1.016 with the lowest pain 1 with the most pain intensity The highest of 4 of the results of an extima interval of 95% that the pain is 1.98-3.16.

While the average intensity of osteoarthritis pain in the control group before the 5.43 treatment with standard deviation of 1.284. The lowest osteoarthritis pain Intensity 3 and the highest pain at 7. From interval estimation results can be concluded that 95% is believed that osteoarthritis pain intensity ranges from 4.69 to 6.17. Whereas after treatment the average value of pain intensity 5.43 with deviation standard 1.284 low pain intensity is 7 to 18. From interval estimation results can be concluded that 95% is believed that osteoarthritis pain 4.11 to 5.60.

Table 4: homogeneity based on gender and education

Variable	Group Intervention		Group Control		Total		22 P Value
	n	%	n	%	n	%	
Sex							
Female	14	60.9	9	39.1	23	100	0.041
Male	0	0	5	100	5	100	
Level of Education							
No Educated	4	40.6	6	60.0	10	100	
Junior School	3	100	0	0.0	3	100	
Total	14	50	14	50	28	100	

According to the table above shows that the results of the equality test with osteoarthritis pain intensity against slow-stroke back massage, sex and level of education tested with (CHI-Square) both in the control group and the intervention group Has $p > 0.05$. It was concluded that the characteristics of respondents showed no differences or equivalents, in the intervention or control group.

c. Osteoarthritis Pain Intensity Value

Table 5: Distribution of pain intensity osteoarthritis before and after Slow-Stroke Back Massage.

Variable	n	Mean	SD	Min-Mak	95% CI
Intervention					
Before	14	5,50	1,019	4-7	4,91-6,09
After	14	2,58	1,016	1-4	1,98-3,16
Control					
Before	14	5,43	1,284	3-7	4,69-6,17
After	14	4,86	2,928	3-7	4,11-5,60

According to the table above, the average Osteoarthritis pain in the intervention group before treatment is 5.50 with the standard deviation of 1.019 pain at least 4 with the highest pain intensity of 7 of the results Extima interval 95% which is believed That prior pain treatment in the intervention group 4.91-6.09 whereas after treatment of the average value of osteoarthritis pain in the group of interventions 2.58 with a standard deviation of 1.016 with the lowest pain 1 with the most pain intensity The highest of 4 of the results of an extima interval of 95% that the pain is 1.98-3.16.

Test Homogeneity

a. Variable homogeneity based on age

Table 3: test of homogeneity based on age pain intensity before Slow-Stroke Back Massage

Variable	n Mean	SD P - value
Age Intervention	14	74,07 8,957 0.859
Control	14	73,57 5,331
Pain Intervention	14	5,50 1,019 0.872
Osteoarthritis Control	14	5,43 1,284

Table above shows that the test results of the age of respondents in the intervention group with an average of 74.07 with a standard deviation of 8.957 while the average control group 73.57 with a standard deviation 5.331 can be concluded that the characteristics Respondents at the age showed no difference or equivalent in the intervention or control group had $p > 0.005$. It was concluded that the characteristics of respondents showed no differences or equivalents, as well as intervention and control groups.

b. Test homogeneities based on the intensity of osteoarthritis pain

While the average intensity of osteoarthritis pain in the control group before the 5.43 treatment with standard deviation of 1.284. The lowest osteoarthritis pain Intensity 3 and the most high pain 7. From interval estimation results can be concluded that 95% is believed that osteoarthritis pain intensity ranges from 4.69 to 6.17. Whereas after treatment the average value of pain intensity 5.43 with deviation standard 1.284 low pain intensity is 7 to 18. From interval estimation results can be concluded that 95% is believed that osteoarthritis pain 4.11 to 5.60.

Bivariate Analysis

Bivariate analysis aims to test the research hypothesis, that is, Slow-stroke back massage therapy before the bivariate analysis, first carried out test normality data flexibility intensity osteoarthritis before and after Done Slow-stroke back massage. Data can be said to be a normal distribution when P-value is > 0.05 . If the data is normal distribution then used parametric test IE paired sample T-Test, but if the data is not normal then used nonparametric test is Wilcoxon. The average difference in the intensity of the pain of osteoarthritis before and after in the control group.

The average analysis of osteoarthritis pain before and after the slow-stroke back masses in the intervention group.

Table 6: Average analysis intensity of osteoarthritis pain before and after at the intervention group.

Variable	n	Mean	SD	95% CI	T	Df	p Value
Intervention							
Before	14	5,50	1,019	2,232-3,625	9,081	13	0.000
After	14	2,57	1,016				

Based on the table above shows the average intensity of osteoarthritis pain in the intervention group before the slow-stroke back massage is a 5.50 with a standard deviation of 1.019, while the average pain intensity after a slow-stroke Back Massage is 2.57 with standard deviation 1.016. The results of the statistical test obtained the value $P = 0.000$ then it can be concluded that there is a significant difference between the intensity of osteoarthritis pain before and after the slow-stroke back massage in the intervention group.

The average difference in pain intensity before and after in the control group

Table 7: Average analysis of the intensity of osteoarthritis pain before and after treatment in the control group.

Variable	n	Mean	SD	95% CI	T	df	p Value
control							
Before	14	5,43	1,284	-198-945	3,309	13	0.006
After	14	4,86	1,292				

Based on the table above shows the average pain intensity in the control group before the slow-stroke back massage is a 5.43 with a standard deviation of 1.284 whereas the average intensity of osteoarthritis pain after a slow-stroke back is performed Massage is 4.86 with the standard deviation 1.292. With the test results statistic obtained $p = 0.006$ then it can be concluded that there is no significant difference between the pain intensity before and after the slow-stroke back massage in the control group.

To find out the presence of average healing intensity of osteoarthritis pain between the intervention group and the control group. Measurements were conducted using the independent statistic Test T-Test.

Table 8: Effect of osteoarthritis pain intensity analysis after Slow-Stroke Back Massage in group intervention and control

Variable	n	Mean	SD	P Value
Post intensity analysis				
Intervention	14	2,57	1,016	0.000
Control	14	4,86	1,292	

According to table above showed the average pain in pain intensity after treatment in the intervention group was 2.57 (SD = 1.016) While the average pain intensity in the control group was 4.86 (SD = 1.292). Statistical test results obtained a value $P = 0.000$, it can be concluded that there is a significant difference between the pain intensity after the slow-stroke back massage in the intervention and control group.

Discussion

Based on pooled T test results The data can be concluded that there is a significant difference in the pain intensity of the respondent before and after on the group intervention and control with slow-stroke back massage. Dianti social Tresna home gau Mabaji .resident of Gowa with the result of $P\text{-value } 0.000 < \alpha (0.05)$ and can be concluded that there is a slow-stroke influence back massage to the intensity of osteoarthritis pain in the elderly and the results of this research in line with the study of Trihartini in PTSW Jara Mara Pali Singaraja On February 10, 2014, The number of elderly Dipanti 72 people with the number of males 18 people and the elderly female 54 people, from the total amount of 37 elderly people experiencing lower back pain. Efforts that had been made by the elderly before to cope with the Nyerinya. The result of the statistical test in the control group is the result of a sig (2-tailed) is 0.13 (P-value) which means the value of $p > 0.05$ so that the acceptable H_0 means there is no difference in the pain intensity before and after in the control group. Meanwhile, in the treatment group, the result of sig (2-tailed) is 0.025 (P-value) which means the value of $p < 0.05$ so that the zero hypothesis (H_0) is rejected which means that the administration of SSBM lowers lower back pain intensity in the elderly.

The results of the study, in line with research found by Niken Ayu Mema Eka Sari (2011), in the Research of Kusyanti (2006) that Slow-stroke back massage is one technique of giving massages with a gently fade by giving lotion/balm will give a warm sensation and dilation of local blood vessels vasodilatation of local blood vessels will increase the blood predate in the area that is wiped so that cell activity increases and will reduce pain and support the process Wound healing, and when the individual responds to a touch of stimulus to relax then it will appear a response of relaxation, relaxation is essential to increase in comfort and free yourself from stiffness and stress with unrelaxing pain [4].

It is supported by the theory Gate control of Melzack and Wall in Potter & Perry (2006) suggesting that pain impulses can be arranged or inhibited by defense mechanisms along the central nervous system. The theory says that pain is delivered when a defence is opened and impulses are inhibited when a defence is closed the defence is the basis of pain relief theory. Some research to treat pain with nonpharmacological techniques has been carried out one of them is the introduction of warts: slow-stroke back massage is the provision of back massages with slow strokes to treat pain Osteoarthritis. The research was conducted by Ni Anugrahaeni in 2008 in the orphanage Werdha Hargo Dedali. From the results of research gained that the stimulation of warts. Slow-Stroke back massage can lower

the pain intensity by 40%.

It can also be seen in terms of age, the respondents are the most 56-91 years. Very influential at the intensity of osteoarthritis pain, it shows that the older the respondents' age then the increasing osteoarthritis pain, age is a major determinant to osteoarthritis, osteoarthritis is more often suffered by people Elderly, although younger people can also suffer the same. In men who are less than 45 years old, osteoarthritis occurs mainly related to the history of trauma that has. Based on radiological evidence, in individuals aged 45-65 years there are 30% cases of osteoarthritis, and at the age of him over 80 years there are more than 80% of cases.

According to the research, that slow-stroke back massage is one of the techniques in giving a warm sensation by causing dilation of blood vessels will increase blood circulation in the area that is boosted and will appear response relaxation, Relaxation is essential in enhancing comfort and freeing up from stiffness and stress due to unselfish pain and by conducting slow-stroke back massage therapy with regular routine pain in osteoarthritis.

1 Summary

Based on the results of the study on the influence of Slow-stroke back massage to the intensity of osteoarthritis pain in the elderly Dipanti social Tresna home Gau Mabaji resident of Gowa. Then the conclusion can be drawn as follows:

1. The results of the study gained that the average pain intensity before 5, 500 with pain intensity after 2.57 intervention with statistical test results obtained the value of P value 0.000 can be conclude that there is a difference in pain intensity reduction Osteoarthritis before and after the Slow-stroke back massage.
2. Based on the results of data can be concluded that there is a significant difference in the pain intensity of respondents before and after the intervention group and control with slow-stroke back massage Dipanti social Tresna home gau Mabaji resident of Gowa with P-value $0.000 < \alpha (0.05)$ then Ho reject.
3. There is a difference in the giving of Slow-stroke back massage to the intensity of osteoarthritis pain in elderly dipanti social Tresna home gau Mabaji resident of Gowa [8-25].

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Declaration of Conflicting Interests

None

Abbreviation

None

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Appendix A. Supplementary Data

There is no supplementary material related to this article.

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