

The Effect of Oxytocin Massage on The Depression Level of Elderlies

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Abstract

Elderly is a part of growth and development process. Along with age, elderly's movement become more and more limited because of disease or the decrease of body's ability. Because of the change of physical, biological, psychological, and social aspects, elderly can experience depression. Depression is the most common mental disorder and the easiest to overcome in elderly's life, but often undetectable and cannot be overcome. One of the management of non-pharmacological therapy to lower the expression level is oxytocin massage. The aim of this research was to analyze the effect of oxytocin massage on the depression level of elderlies. The research design was pre experimental with One Group Pre-Test Post-Test Design. The population of this study was 43 people. The sampling technique was Total Sampling and the number of sample was 11 people, who are suitable with the inclusion criteria. Elderly's depression level was measured by using Geriatric Depression Scale questionnaire. Based on the research result of Wilcoxon Signed Rank Test statistical analysis, the p value was $0,03 < 0,05$. It showed that oxytocin massage could lower the depression level. Median value of pre-test and post-test decreased from 9,00 to 4,00. From the research result, it could be concluded that oxytocin massage could lower the depression level of elderly, so that oxytocin massage could be one of independent nursing intervention to heal depressed elderlies.

Keywords: Depression, Oxytocin Massage, Elderly.

I. INTRODUCTION

Elderly is the condition when somebody reaches 60 years old. When somebody enters the elderly phase, adaptation to the physical, mental, and social changes will be done. As a natural process, human development since the earliest period until the elderly phase is a fact which cannot be avoided. Unpreparedness and the effort against changes in elderly will only place the individual in the awry position and finally can be the source of stress accumulation (Indriana, 2010). Along with age, elderly will experience degenerative process from physical and mental aspects. The decrease of physical condition in elderlies will lead to the condition which prone to various diseases, and even functional disorders. Elderly's diseases are not only affect the physical condition but also the psychic condition (Sudirman, 2011). In the index of global elderly citizens (Data Help Age International, 2014), Indonesia ranks to 71st of 96 countries, far behind Thailand (36th position), Philippines (44th position), and Vietnam (45th position) which means Indonesian elderlies tend to increase in number each year. In 2020, the number of Indonesian elderly is predicted to reach 28.8 million or 11.34% with life expectance around 71.1 years (Hamid, 2007). Based on the data of World Health Organization (WHO) in 2011, around 121 million of world's elderlies were depressed; with the prevalence of 10-25% in women and 5-12% in men. The incidence of suicide that was caused by depression was 850,000 each year. Based on Riskesdas data in 2013, national prevalence of depression disorder reached 35% and women has higher prevalence of 37%. Elderly's populations who have major depression were predicted around 1-4%. Minor depression had the prevalence of 4-13%. The prevalence data in Indonesia is high. The depression prevalence of elderlies in primary health service was 5-7%, meanwhile 13.5% of them received home nursing service (Sappaile, 2013).

The increasing number of elderly will add more complex problems if not addressed immediately, especially in the health field; since elderly is a maturity period of size and function that shows deterioration along with time. Elderly faces more health problems that needs a good care, as it is known that entering elderly phase is identical to the decrease of body's immunity and experience of degenerative diseases (Rosita, 2012). The decrease of elderly's condition will cause a change in psychological aspect, related to the personality condition of the elderly. Elderly can be disappointed or upset to their child or family. As it is known, elderly should be gathering with the family. But when placed in a nursing home, elderly will feel away from family, wasted and marginalized from loved ones. Elderly who lives in a nursing home will show some changes in their behaviors like upset, lack of patience, angry, nervous, and silent. The change of coping strategy with that condition will give stress to the elderly. Protracted stress will cause depression, and even increase the risk of suicide (Rosita, 2012). The weight of stress depends on one's valuation to the stress. Untreated stress can lead to physical, emotional, intellectual, and interpersonal symptoms (Prabowo, 2007). An elderly will be very prone to health disorders, one of them is depression caused by stress in coping with the change of life, and what called as golden age. The changes are retirement, disease, or physical inability, placement in a nursing home, death of spouse, and the need of treating a sick spouse. The death of family and friends caused sorrow and reminds the elderly to their old age, and the lack of social support (Nevid

et al., 2005). That statement is supported by the research of Henuhili (2004). The most common mental disorder of elderly was depression, that is 20.2%. Depression disorder was found around 25% among the elderlies in the community. High amount of stressor and unpleasant events in life can cause the elderly to feel anxious, lonely, until depression (Wirasto, 2007).

Non-pharmacological management is highly recommended because long time administration of chemical medicines can cause side effects which endanger the administrator, such as kidney disorder (Yosep, 2007). One of the ways to lower the elderly's depression level is oxytocin massage. Oxytocin release can be triggered if the elderly feels satisfied, happy, self-confident and other positive feelings. Those feelings will make the oxytocin reflex to work (Mandalawangi, 2013). Oxytocin massage is the massage on 7th cervical vertebrae until the scapula, speeding up the action of parasympathetic nerves and stimulates the posterior pituitary to produce oxytocin (Purnama, 2013). The other advantage of oxytocin massage is that oxytocin massage is easier to do and have no side effect (Purnama, 2013). Besides that, the other advantage of oxytocin massage is allowing the patient to relax, reducing stress by developing trust between the masseuse and the patient, encouraging the body to produce oxytocin, and suppressing the treatment cost.

The results of preliminary study conducted by researchers on April 12, 2017 at Tresno Mukti Nursing Home in Turen, Malang Regency, based on interviews with employees on duty said that the numbers of elderly in the nursing home were 43 people and there were about 7 elderlies who were depressed. This is because the elderly feel sad, feel hard, feel his life is useless, fail, despair and regret and some even withdraw and often restless. The manager's effort in dealing with this problem was to provide drugs, such as sedatives. Based on the background, the problem of this research can be stated as follows "is there any effect of oxytocin massage on depression level in elderly at Tresno Mukti Nursing Home, Turen, Malang regency?"

II. METHODS

This research design was pre-experimental with one group pretest & posttest without control design. This research was done at Tresno Mukti Nursing Home in Turen, Malang Regency, on June 2017. The population in this study was 43 elderlies in Tresno Mukti Nursing Home. The sampling technique used in this research was Total Sampling, and the sample number was 11 people who are suitable with the inclusion criteria. The questionnaire used in this research was Mini Mental State Examination questionnaire (Folstein, 1975) and Geriatric Depression Scale (Sherry, 2012). In the data collection step, the research subjects filled the questionnaire that has been provided by the researcher, with the supervision of nursing home's employees. At the end of the data collection step, 11 questionnaires were filled. No invalid data because all of the questions were answered by the research subjects. The depression level variable was categorized to no signs of depression (0-4), mild depression signs (5-8), medium depression signs (9-11), and severe depression signs (12-15) (Sherry, 2012). The results of measurement in this study was categorical data so that refers to Nugroho (2014) data presented in the form of frequency and percentage. The data analysis was using Wilcoxon Signed Rank Test.

III. RESULT

Table 1. Frequency Distribution of Respondent's Characteristics

Characteristics	f	%
Age		
60-70 years	2	18.2
71-80 years	6	54.5
≥ 81 years	3	27.3
Sex		
Male	5	45.5
Female	6	54.5
Education		
Elementary School	3	27.3
Junior High School	1	9.1
Senior High School	7	63.6
Occupation History		
Teacher	2	18.2
Entrepreneur	5	45.4
Others (garage, nursing home caretaker, journalist)	4	36.4

Reasons of Living in the Nursing Home

Characteristics	f	%	
No one who guards	4	36.4	
No one who takes care	6	54.5	
Neglected by family	1	9.1	
Period of Living in the Nursing Home			
3 months – 1 year	7	63.6	
>1 year – 5 years	3	27.3	
>5 years	1	9.1	
Receiving Drug Therapy			
Ever have a therapy	Quit 5 days ago	7	63.6
In a therapy	Serotonin like (Amitriptilin, Diazepam, Alprazolam, Lorazepam, Bromazepam)	0	0
	Non serotonin (amlodipin, allopurinol, <i>glibenclamide</i> , <i>piroxicam</i>)	4	36.4
Comorbidities			
Hypertension		4	36.4
Diabetes Mellitus		3	27.2
Osteoarthritis		2	18.2
Depression		1	9.1
Cataract		1	9.1
Problems			
No problem		5	45.5
Conflict with nursing home mate		1	9.1
Missing the family		3	27.2
Easily provoked		2	18.2

Table 2. Cross Tabulation of Depression Level Before and After Oxytocin Massage

Depression Level (Pre Test)	Depression Level (Post Test)				Total	%
	No Sign of Depression	Mild Depression Signs	Medium Depression Signs	Severe Depression Signs		
No Depression	0	0	0	0	0	0
Mild Depression Signs	5	0	0	0	5	45.4
Medium Depression Signs	1	3	0	0	4	36.4
Severe Depression Signs	0	0	2	0	2	18.2
Total	6	3	2	0	11	100
%	54.5	27.3	18.2	0		100

IV. DISCUSSION

A. Depression Level Before Oxytocin Massage Application

Based on the data shown in Table 2, most of the research subjects could be categorized in mild depression signs (5 people or 45.4%), 4 people with medium depression signs (36.4%), and severe depression signs (2 people or 18.2%). This can be affected by some factors, such as:

Age: based on the data shown in Table 1, most of the research subject's age was 71-80 years old (6 people or 54.5%). This is because elderly have lost their spouse, family or child who is busy with a job, lack of communication with friends in the nursing home, and no one who takes care of the elderly. According to Veer-Tazelaar (2007), mild depression signs in the elderly have high prevalence and tend to increase along with age. Elderly with the age of 75 years old or more tend to experience depression compared to elderly below 75 years old. The proportion of depressed elderlies was dominated by elderly above 65 years old. Based on Ericson's Theory of Development, elderly in this age will experience integrity versus despair phase. Elderly tends to reflect their live to the past. Those who fail at this phase will feel that their live is wasted and guilty. They will feel the

bitterness of live and despair. Those who succeed this phase will reflect success and failure they have ever experienced.

Sex: based on the data shown in Table 1, most of subject's sex was female (6 people or 54.5%). Depressed female elderly dominated the population, compared to depressed male. According to Nugroho (2000), depression is a symptom occurs in the menopause period. This explains why depression is more often in or dominated by female. There is a prediction that female is more often in searching medication so that depression becomes more detectable. This is in accordance with the statement of Suardiman (2011), that life expectance in female is higher than that it male, so that there is more female elderly. Based on the GDS score of 11 people in post-test, it was shown that most elderly experience a decrease of depression level (6 people or 54.5%), who are female. One of the depression's causes is biological factor. Serotonin neurotransmitter is one of biological element that affects depression in elderly. Researchers from Montreal Neurological Institute in Canada reported that the ability of male's and female's brain to produce serotonin is different. Serotonin is chemical substance released by the body into brain cells, functioned as a messenger in the brain related to emotion. Serotonin's level of a depressed person is lower than in normal condition. In the normal condition, male and female's brain have balanced level of serotonin. However, male's brain is 52% faster than female's in producing serotonin. This is why female is easier to be depressed (Syamiah, 2010). During the massage, female can talk, be happy and satisfied, becomes more open and friendly to the researcher so that emotional transfer in female is easier than that in male. The effect of massage lowers the depression level in elderly. Meanwhile, male during the massage are mostly silent and not wanting to talk.

Education: based on data shown in Table 1, it can be known that most of elderly's educational background is senior high school (7 people or 63.6%). From the GDS score in post-test, most of elderly were graduated from senior high school, and the other were from junior high school and elementary school (4 people or 36.4%). According to Notoatmodjo (2003), someone with higher educational background could give rational explanations to a problem so that suppress the risk of depression. Besides, they can motivate themselves so that they have more potential than those with lower educational background. Someone who graduated from senior high school have better way of thinking, more mature and easier in receiving information. They have more knowledge, more rational in making a decision. This will increase academic grades, and lower the score of GDS, so that the massage produces effective therapeutic effect.

History of Occupation: based on data shown in Table 1, it can be known that most of the elderly's history in occupation is entrepreneur (5 people or 45.5%). Unemployment is one of depression's risk factor. Hudak and Gallo (2010) mentioned that psychosocial change occurs mostly after a person retired. Things that will happen after retirement are: loss of financial source, loss of status (position), loss of friend (relation), and sense of awareness of mortality. From the observation result, it could be known that elderly can adapt to their current condition, develop their skills such as making embroidery and get additional income.

Reasons to Live in the Nursing Home: based on data shown in Table 1, it can be known that most of elderly's reason to live in the nursing home is no one taking care (6 person or 54.5%). According to Utomo (2012), each elderly has different reasons about why they ended up living in nursing home. One of the reasons is no one taking care of the elderly. But it should be noted that family as the main component in relational organization still be the first choice of elderly to talk to, and to show affection between family members. Affection from the family will help the elderly to adapt and become peaceful, not feeling neglected by the family. Therefore, they can do their daily activities well. Elderly who were forced to live in the nursing home will not have that kind of support. The lack of family support will make elderly feel depressed and neglected by the family, so that they tend to become more difficult in doing daily activities. Based on interview with one of the research subject, there are three factors contributing to subject's stay in Nursing Home. The first factor was the death of spouse. In accordance with the statement if Craig (1996), elderly will experience loss of their spouse, and this was truly happened to the research subject, forcing her to stay in Nursing Home after the death of her husband. Her first child lives in other town and the second child works abroad. So that nobody takes care of her. The other factor was health. Along with age, her health decreased. Subject could no longer work; she also suffers from cataract so that she decided to live in a nursing home.

Period of Living in the Nursing Home: based on the data shown in Table 1, it can be known that most of respondents had lived in this nursing home for 3 months until 1 year (7 people or 63.6%). According to the research of Moniung et al. (2015), elderly who are forced to live in a nursing home will feel worthless, blaming himself, and feeling neglected by the family. The difference of depression level is caused by the difference of elderly's adaptability, both physically and mentally. Elderly who couldn't adapt with the officer or with the other elderly will cause an emotional change. This can lead to anxiety and if this is not properly addressed, will lead to

depression. Elderly who lives in nursing home usually find it difficult to adapt to a flexible social role. The elderly will feel alien to their new social environment if the elderly are transferred to a nursing home, where they have never lived before. There, they met many friends of different age as well as the nature and character. According to Hurlock (1980), one of the mental changes that occur in elderly is mentally rigid that they also need more effort to adapt to the new situation of nursing home. It is usually caused by a mismatch of traits and characters in each individual. Both of them inhibit positive affection and emotion as well as elderly's cognitive evaluation so that they become not prosperous.

Experience of Receiving Drug Therapy: based on the data shown in Table 1, it can be known that the characteristics of respondents based on their experience of drug therapy and stopped since 5 days ago (7 people or 63.6%). Giving drugs or therapy for elderly can cause a lot of trouble, because some drugs often interact. The pathologic conditions in elderly tend to make them consume more drugs than younger patients so they have a greater risk of experiencing adverse side effects and drug interactions. Diseases in elderly often occur in many organs so that drug administration is often being poly pharmacy. Poly pharmacy means the use of multiple drugs at once in a patient, more than is really needed to be associated with the expected diagnosis. Among the many drugs swallowed, there must be drug interactions that some of them can be serious and often lead to hospitalization or death. This incidence is more common in elderly patients who usually suffer more than one disease. The main diseases that attack the elderly are hypertension, heart failure and infarction and heart rhythm disorders, diabetes mellitus, impaired kidney function and liver. In addition, there are also situations that often interfere with the elderly such as impaired cognitive function, balance the body, sight and hearing. (Darmojo, 2009). During the implementation of the intervention, the elderly who previously took the drug 5 days earlier no longer took the drug so that the effect of massage can be felt by the elderly. After the massage, elderly feels comfortable and relax. Although a small percentage of elderly are on medication but the drug consumed is not included in serotonin like.

Comorbidities and Problem Faced: based on the data shown in Table 1, it can be known that most of elderly's comorbidity is hypertension (4 people or 36.4% and most of them are currently having no problem (5 people or 45.5%). The change of body system in elderly can trigger the stress. People with disease history tend to have physical and psychological stress. This is caused by the reaction of stress and assumed to be the main cause (Kushariyadi, 2010). Many studies have shown that health problems in the elderly can cause depression (Miller, 2004). Based on the results of this study, health problems experienced by the elderly in Tresno Mukti Nursing Home, Turen Malang Regency in general are stroke, hypertension, and Diabetes Mellitus (DM). Physical diseases that can cause depressive symptoms are metabolic disease, endocrine disease, neurological disease, cancer, heart and pulmonary disease, blood vessel disorder, and anemia (Stanley, 2007). Later on, the research results of Chang-Quan et al. (2009) suggest that there are several chronic diseases that are a risk factor for increased depression, stroke, and loss of hearing function, loss of vision function, heart disease, and chronic pulmonary disease. The disease will cause physical discomfort, meanwhile problems faced cause a psychological discomfort, so that it cause depressed condition in elderly. The emergence of various diseases in the elderly occur due to decreased organ function, so that elderly who have certain diseases and are facing problems are more likely to develop depression.

B. Depression Level After Oxytocin Massage Application

Based on the data shown in Table 2, after intervention of oxytocin massage most of the research subject show no sign of depression (6 people or 54.5%), followed by mild depression signs (3 people or 27.3%), and severe depression signs (2 people or 18.2%). From the interviews with the subjects of the study, most of the women (4 people or 66.7%) who are initially felt tense, anxious, missed their families, and have many thoughts could became comfortable, relaxed, and happy after the massage. This affects the feeling of the subject during the massage. They were happily telling a story, more open, familiar with the masseuse and researcher so that their tense became relaxed and the effects of massage can provide comfort for the subject. Meanwhile male subjects tend to be more silent during the massage.

Female subjects said that oxytocin massage is quite useful to lower their depression level. Initially, they when they feel anxious and tense, they ended up asking drugs to the nurses. After they knew the advantage of the massage, they said it was better than drinking medicines. Oxytocin massage could be an alternative to be performed by nurses or nursing home officers. Oxytocin massage technique used by the therapist included: instruct the elderly to take their upper clothes off, sit in a comfortable chair while their hands folded on a table. Their head should be bowed. Baby oil was applied to their backs. The therapist then searched for the 7th cervical vertebrae. The therapist massaged that spot from the top to bottom until the bust line. The massage was done in 5 minutes. From the observation result, during the intervention subjects were very excited and happy. They obey every steps of the massage. During the massage, subjects were happily told a story so that they feel comfortable. Massage

therapy is not only reducing stress and help the body to be relaxed, but every touch of the masseuse will build an alliance between the therapist and the patient. This way, the body will release oxytocin and develop trust. This will make the subject feel comfortable, relaxed, and excited after the massage.

This result was supported by the research result of Vallbo et al. (1999) that explained that touch, massage, or low intensity stimulation will activate the A- β fibers and slow conduction of C fibers in the body related to the release of oxytocin from the posterior pituitary. Activation of A- β fibers and C fibers induce the change in insular cortex, which is the brain part related to the emotion and tactile stimuli interpretation. This result was also supported by the research of Morhen et al. (2012), proven that women who received Swedish massage around their back area from the neck until below the scapula for 15 minutes could increase the oxytocin level in the blood, lower the level of ACTH, nitrite oxide, and lower the level of beta-endorphine.

According to Greenstein & Diana (2010), back massage causes stimulation in spinal cord. Spinal cord connects the cranial nerves and the peripheral nervous system. All up and down communication of spinal cord lies on the tractus ascendant that deliver signals from the afferent input to the brain. Grisea substance that lies in the middle of spinal cord contains interneuron connector that lies between afferent input, efferent output, and efferent neuron's cell body. Afferent and efferent fibers that each of them carries signals from and to the spinal cord become one spinal nerve. These nerves are attached to the spinal cord in pairs along the cord. Inhibitory neurons and excitatory cholimergetic neurons make synaptic contact with the neuron that secrets oxytocin in the paraventricular and supraopticus nucleus. Then the hypothalamus produces oxytocin hormone and it flows into the posterior pituitary. Carter (2014) also explained that positive social behavior; physical or emotional attachment can affect the release of oxytocin. Stimulation of touch, warmth, olfactory sensation, mild suppression and massage can stimulate increased release of oxytocin in the blood circulation and in cerebrospinal fluid.

C. The Effects of Oxytocin Massage on Elderly's Depression Level

Based on the data shown in Table 3, it can be known from the Wilcoxon Signed Rank Test results that significance value (p) was 0.003 ($p < 0.05$) and the Z value was -3.002. So it can be concluded that there is an influence of oxytocin massage to elderly's depression level. The median value before the implementation of oxytocin massage was high (9.00). After the oxytocin massage was implemented, the median value decreased to 4.00. From the results of this test, it could be known that the oxytocin massage lowers the elderly's depression level. The decrease of GDS value after the implementation of oxytocin massage was influenced by the following factors during the massage, patient did not consume anti-depressant drugs, respondents were not visited by their families, and elderly did not get any GMO therapy, as well as social support from the other occupants of the nursing home.

Massage therapy can be used as an alternative of depression management. Massage allows smooth blood circulation, improve metabolic processes, stimulate neural tissue, provide a feeling of comfort, fresh and warmth to the body, able to express their feelings, and able to positively affect emotions and mood. Laura (2009) suggested that massage could release oxytocin production in the hypothalamus. It will be released to the brain or to the circulation along with the pulse by sensory stimulation and serves as a neurotransmitter that can reduce stress-related activation so that the effects of massage can be effective.

V. LIMITATION

The limitation of this research, Oxytocin hormone level before and after intervention conducted was not measured, hence we will not discuss Oxytocin Massage and its effect on Oxytocin hormone level.

VI. CONCLUSION

The conclusion of this research are: 1) The depression level of elderly before getting the oxytocin massage is mostly included in the category of mild depression signs, 2) The depression level of elderly after receiving the oxytocin massage mostly falls into the category of no depression, 3) Oxytocin massage affected the decrease of elderly's depression signs in Tresno Mukti Nursing Home, Turen, Malang Regency. This was proven by the research result that the elderly as the research subject felt comfortable during the massage, which is the success requirement of oxytocin massage.

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