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ORIGINAL RESEARCH

EFFECT OF LAUGHTER THERAPY ON DEPRESSION LEVEL IN ELDERLY IN A NURSING HOME, NORTH SUMATRA, INDONESIA

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Abstract

Background: Depression level among elderly remains high in Indonesia. One of efforts to decrease depression is laughter therapy, which is assumed able to lower depression.

Objective: This study aimed to examine the effect of laughter therapy on depression level in elderly at Nursing Home of Binjai Integrated Social Service Unit for the Elderly, North Sumatra, Indonesia.

Methods: This was a quasi-experimental study with pretest posttest with control group design. Forty-two participants were selected using a purposive sampling, with twenty-one participants were randomly assigned in each group. An experimental group received one-hour laughter therapy for 3 times a week in 4 weeks, and a control group received usual care. Depression was measured using Geriatric Depression Scale-15. Data were collected from April to June 2018. Independent and dependent t-test were used for data analysis.

Results: Findings revealed that the level of depression in elderly significantly decreased in the experimental group ($p<.05$), but there was no significant change of it in the control group ($p=.648$). Between the two groups, there was a significant difference in depression level in elderly ($p<.05$).

Conclusion: Laughter therapy could reduce depression among elderly. Therefore, this therapy can be used as one of interventions in nursing practice, especially at nursing homes.

KEYWORDS
elderly; depression; laughter therapy; nursing homes

INTRODUCTION

Depression is the most common mental disorder among elderly worldwide (Babatsikou et al., 2017; Pae, 2017; Shaw, 2013). The prevalence of depression in the elderly in the community around the world ranges from 22 to 44%, especially in the elderly group of 60-69 years (Han et al., 2017; Pilania et al., 2017; Taamu et al., 2017). However, depression is the fourth leading cause of disability (Pae, 2017; Peltzer & Phaswana-Mafuya, 2013; Shaw, 2013). In Indonesia, depression occurred in 40% of patients with stroke, 35% of patients with cancer, 25% of patients with Parkinson's disease, 20% of patients with cardiovascular disease, and 10% of patients with diabetes (Taamu et al., 2017; Utami et al., 2018). It is about 5-15% of patients with depression commit suicide every year (Sihombing & Fahila, 2016; Utami et al., 2018). Similar with the setting of our study, which there is a high prevalence of depression in elderly with hypertension, diabetes and other chronic diseases at Binjai Integrated Social Service Unit for Elderly, North Sumatra Indonesia (Sihombing & Fahila,

2016). Therefore, it is very important to provide interventions to reduce depression problems.

The effective intervention in reducing depression in elderly is a combination of both biological and psychological interventions (Lionis & Midlöv, 2017; Ulahannan & Xavier, 2017). Laughter therapy is one of the interventions, which provides a good massage to all internal organs in reducing stress hormone level, increasing the circulation, and relaxing the muscle. Laughter therapy can make a person calm and comfortable (Han et al., 2017; Samodara et al., 2015).

Laughter therapy has been shown to increase happiness and reduce pain and anxiety among patients with postmastectomy (You & Choi, 2012). It is also proven to reduce depression and sleep among patient's long-term care at hospitals (Han et al., 2017), as well as to reduce blood pressure of patients with hypertension (Nurhusna et al., 2018). However, few studies that

have been found in the elderly with chronic diseases such as hypertension, diabetes mellitus, and rheumatoid, especially at nursing homes although depression is frequently occurred in these patients (Babatsikou et al., 2017). Therefore, this study aimed to determine the effect of laughter therapy on depression in the elderly people at Binjai Integrated Social Service Unit for the Elderly, North Sumatra, Indonesia.

METHODS

Study Design
This was a quasi-experimental study with pretest posttest with control group design. The purpose of this study will determine the effect of laughter therapy on depression in elderly people.

Participants
Participants were selected using a purposive sampling in Binjai Senior Integrated Social Service Unit, North Sumatra. The inclusion criteria of the sample were 1) elderly with depression, age between 60 to 79 years, capable to read and speak Bahasa Indonesia, and willing to participate in this study. A power analysis calculation for independent t-test, with the following parameters setting - the power of (1- β error probability) 0.80, a significant level $\grave{\alpha}$ value of 0.05, and effective size of (Cohen *d*) 0.80, yielded the sample size of 21 (Munro, 2001) for each group. Therefore, the total sample size was 42 participants, which were randomly assigned in each group. Participants with even numbers were put into a control group, while those with odd numbers went into an experimental group. There were 21 participants in each group.

Instrument
Geriatric Depression Scale-15 (GDS-15) Indonesian version (Soejono et al., 2009) was used to measure depression of elderly people. The GDS-15 Short Form was adopted from Kurnianto et al. (2011). The GDS -15 Short Form has a level of accuracy 84% of sensitivity and 95% of specificity. The GDS-15 Short Form includes 15 items, which the scores range from 0 to 15, and ware classified into three group level of depression: minor (<5), mild (5-9), and severe (10 – 15). A higher score indicates a higher level of depression.

Intervention
Laughter therapy developed by Kataria (2010) was adopted in this study, which consisted of heating stage, core stage, and closing stage. There are 17 resistance, namely step 1,2,3: warming-up, step 4: excited laughter, step 5: laughter greetings, step 6: laughing award, step 7: one meter laughter, step 8:

milkshake laughter, step 9: silent laughter, step 10: humming laughter with closed lips , step 11: swing laughter, step 12: lion laughter, step 13: mobile laughter, step 14: rebuttal laughter, step 15: forgive laughter, step 16: gradual laughter, and step 17: heart-to-heart laughter. This therapy was performed 3 times a week for 4 weeks. The intervention was done by the researchers.

The control group received usual care, including a physical examination / vital sign, measurement, advice on medication and best way to follow treatment regimen related to their medical condition. The intervention in the control group was done by medical doctors and nurses.

Ethical Consideration
This study was ethically approved by Sari Mutiara Indonesia University. The study permission was also obtained from the Social Department of Medan city and Binjai Senior Integrated Social Service Unit. Prior to data collection, the researchers met in-charge nurses at nursing home, and explained about the objectives, benefits, and procedures of the study. The researchers also explained to participants that the participations in this study was voluntarily. An informed consent was signed if the participants agreed to join the study.

Data Collection
Data were collected from April to June 2018 at Binjai Senior Integrated Social Service Unit, North Sumatra. Data related to depression were collected by the researchers.

Data Analysis
The normality of the data was tested by using Shapiro Wilk, and it is found that the data was normally distributed. Independent t-test was used to compare the effect of laughter therapy on depression between the groups, and dependent t-test was used to compare the effect within-group.

RESULTS

Table 1 shows that the average of age of the participants was 64.45 years (SD= 5.29) in the experimental group and 64.46 years (SD= 4.42) in the control group. The majority of the participants in both groups were female, and classified as a widow. Most of participants were Muslim (90.4%). Majority of participants held elementary school as their educational background. There was no significant difference in demographic characteristics in elderly between two groups.

Table 1 Statistics and percentages of participants' demographic characteristics in both experiment and control groups (*N*=42)

Participants' characteristics	Experimental group (*n*=21)		Control group (*n*= 21)		Statistics	*P*-value
	N	%	N	%		
Gender						
Male	13	61.9	11	52.4	.177[b]	.674
Female	8	38.1	10	47.6		
Age (years)	Mean ± SD (64.45 ± 5.29)		Mean ± SD (64.46 ± 4.42)		-.012[a]	.998
Marital status						
Widow	17	80.9	19	90.4	1.856[b]	.173
Married	4	19.1	2	9.6		

Table 1 Statistics and percentages of participants' demographic characteristics in both experiment and control groups (*N*=42) (Cont.)

Participants' characteristics	Experimental group (*n*=21)		Control group (*n*= 21)		Statistics	*P*-value
	N	%	N	%		
Religion						
Islam	19	90.4	20	95.2	.191[b]	.662
Christian	2	9.6	1	4.8		
Educational level						
Elementary school	12	57.1	13	62.0	2.941[b]	.401
Junior high school	2	9.6	6	28.5		
Senior high school	7	33.3	2	9.5		

Note: a= independent t-*test*, b = chi square test value, M = Mean, SD = Standard Deviation

Table 2 Depression level between experiment and control group (*N*=42)

Group	Pretest		Posttest		t	*P*-value (*Dependent -t-test*)
	M	SD	M	SD		
Experimental group	8.89	1.251	6.48	1.447	-4.146	.000
Control group	8.67	1.281	8.92	1.180	-.240	.648
P-value (*Independent t-test*)	.812		.000			

Table 2 shows that only those who received laughter therapy in the experimental group had a significant effect on depression (*p*< .05), not for those in the control group (*p*> .05). It was also a significant difference of mean score of depression of participants between the experimental group and the control group after given intervention (t = -4.146, *p*< .05), with mean scores of depression of the experimental group and the control group were 6.48 (SD=1.477) and 8.92 (SD = 1.180), respectively. This result has shown that depression level in participants in the experimental group after receiving laughter therapy was lower than those who did not receive it.

DISCUSSIONS

This study examined the effect of laughter therapy on depression in elderly at Binjai Senior Integrated Social Service Unit, and the result showed that depression of elderly decreased after receiving laughter therapy 3 times a week for 4 weeks. In this study, laughter makes the participant feel good, and this positive feeling remains with them even after the laughter subsides. Humor helps them keep a positive, optimistic outlook through difficult situations, disappointments, and loss. More than just a respite from sadness and pain, laughter gives them the courage and strength to find new sources of meaning and hope. Even in the most difficult of times, a laugh or even simply a smile can go a long way toward making them feel better. And laughter is contagious by just hearing laughter primes their brain and readies them to smile and join in the fun. Therefore, laughter therapy reduces depression in elderly.

This study was similar with previous studies, which found that laughing could increase the ability to control a negative situation like stress and depression (Cha & Hong, 2015; Han et al., 2017; Ko & Youn, 2011; Ulahannan & Xavier, 2017). It also involves facial muscles and organs in the body, such as the heart, lungs, and involves the chest, diaphragm, and stomach, which the movement will provide a stimulus to the brain to suppress epinephrine and cortisol secretion and encourage the release of the hormone endorphin which causes feelings of calm, pleasure, happy and comfortable (Astuti, 2011; Kataria, 2010; Lee et al., 2013; Nurwela et al., 2017). Previous studies also found that feeling happy caused by laughter therapy can be a perception of pleasant sensation experiences (Lee et al., 2013; Ulahannan & Xavier, 2017), and make a person calm and comfortable (Han et al., 2017).

In addition, laughing together can strengthen relationships (Robinson et al., 2019). Shared laughter is one of the most effective tools for keeping relationships fresh and exciting (Robinson et al., 2019). All emotional sharing builds strong and lasting relationship bonds, but sharing laughter also adds joy, vitality, and resilience (Gilliam, 2019). And humor is a powerful and effective way to heal resentments, disagreements, and hurts. Laughter unites people during difficult times (Ulahannan & Xaviour, 2017). Humor and playful communication strengthen our relationships by triggering positive feelings and fostering emotional connection (Robinson et al., 2019). When people laugh with one another, a positive bond is created. This bond acts as a strong buffer against stress, disagreements, and disappointment (Nurwela et al., 2017). Humor and laughter in relationships allow people to be more spontaneous. Humor gets people out of their head and away from their troubles. Laughter helps people forget resentments, judgments, criticisms, and doubts (Robinson et al., 2019).

Limitation of the study
First, the intervention in this study was provided over four-week period by giving laughter therapy on a one-to-one basis as well as on a group basis, therefore, generalization of the results would be limited. Second, the decrease of depression levels after laughter therapy was 2.41 score. Possible factors would be caused by: 1) the grade of chronic disease, 2) difference in an individual's economic status, 3) knowledge, and 4) family support. However, assessment of the grade of the disease and an individual's economic status was not performed in this study.

CONCLUSION

Laughter therapy can be used as one of interventions to reduce depression in elderly. It is a simple intervention that all people can do easily anywhere. It is therefore suggested that laughter therapy can be a part of nursing intervention in reducing depression. Nurse educators should incorporate laughter therapy in the theoretical and practical learning of student nurses to extend their knowledge and skills in depression management.

Authors Contribution
RS is the chairman of the research, contributed in analyzing data, and writing the research project. RG is the co-chairman of the research contributed in collecting data.

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