Music and video music therapy are effective in reducing stress among elderly at Yogyakarta Social Service Center of Tresna Werdha, Abiyoso Pakem Unit, Sleman regency

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ABSTRACT

Background: The elderly will experience several physical and psychological changes. Such problems will inevitably lead to stress in the elderly. The prevalence of stress events in the elderly in Indonesia is 8.34% and at Yogyakarta Social Service Center of Tresna Werdha, Abiyoso Pakem Unit, Sleman is 38.4%. If left unchecked, stress can result in a prolonged depression. This study aims to identify the effectiveness of music and music video on stress in the elderly at Yogyakarta Social Service Center of Tresna Werdha, Abiyoso Pakem Unit, Sleman.

Methods: A quasi-experimental study with Pre-and Post-test without control design were conducted. The number of respondents was 24, whereas taken by Simple Random Sampling approach. The music intervention was given to the 12 respondents and music video

intervention to the 12 respondents. Stress was measured using DASS. Data were analyzed using paired T-test to determine the effectiveness of therapy and Independent T-test to evaluate the differences in therapy using SPSS version 17 for Windows.

Results: Based on age, the respondents with 60-74 years were predominant (83.3%). Most of the respondents were female (79.2%). The analysis using Paired T-test indicated that there was a significant relationship of music therapy on the elderly (P<0.05). In addition, a significant result in reducing stress was also found in the music-video group on the elderly (P<0.05).

Conclusion: Music and music video therapies are effective to reduce stress in the elderly.

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INTRODUCTION

According to WHO, the elderly population in Southeast Asia amounted to 8% or about 142 million people. In 2000, the population of elderly was around 5,300,000 (7.4%) of the total population, while the population of elderly in 2010 amounted to 24,000,000 (9.77%) of the total population, and the population of elderly in 2020 is predicted to reach 28,800,000 (11.34%) of the total population.[1] The population of the elderly is predicted to be around 80,000,000 in 2020 triple from 2000 in 2050.[1]

The life expectancy in Indonesia has increased from 68.6 years to 70.8 years of and the rate is projected to reach 72.2 years in 2030-2035. The result of the 2010-2035's population projection shows that Indonesia will enter the ageing period in which 10% of the population will be in the age of 60 years old or above in 2020.[1] The highest percentage of the elderly is in Yogyakarta Special Region (13.4%). The population of elderly in Yogyakarta Special Region keeps increasing, and there were 3,457,491 of elderly who reside in Yogyakarta Special Region.[2]

Sleman Regency has a population with the highest average of life expectancy in Indonesia. The life expectancy of the people in Sleman

Regency reached 75.1 years. The life expectancy in Yogyakarta Special Region was 73.2 years. The number of advanced age population (45-59 years old) amounted to 53,146 people and the elderly (>60 years old) amounted to 55,967 people of 1,090,567 of the total population.[2] The preliminary study conducted in Abiyoso Unit of BPSTW Yogyakartaof Pakem – Sleman has acquired the data in which there were126 elderly consists of 44 men and 82 women, and the elderly in BPSTW aged > 60 years old.

An intervention by using music has long been used in improving the health quality of patients. Music is sophisticated and effective in improving the health dimensions, namely psychology, physiology, and spirituality of an individual. The music that can be used in music intervention is classical. Classical music will enhance the sense of comfort in an individual.[3,4]

Classical music by Mozart is one of the classical music that is excellence on its clarity, and the simplicity of the noises can be captured easily by the brain.[3,4] Music is relaxing by blocking the sensation of stress from an undesired thing such

as the outside stressor by orientating the mind to focus on music. Playing music is the most common thing to do in giving music intervention toward the patients. Using CD or MP3 can be a natural choice in intervening patients who have psychological disorders.[3,5]

Based on those above, this study aims to evaluate the music and video music therapy in reducing stress among elderly at Yogyakarta Social Service Center of Tresna Werdha, Abiyoso Pakem Unit, Sleman regency

METHOD

A quasi-experimental study was conducted using intervention toward a subject with or without a group. Randomization was carried out to include the subject to the treatment or control group.[6,7] The design used in this research was Pre- and Post-Test without control group in which every group was given with intervention without the comparison group.[6,7]

The population in this research was the entire elderly reside in Social Service Center of Tresna Werdha Yogyakarta of Abiyoso Unit, Pakem – Sleman with a total of 126 elderly and 50 people as the attainable population with 30 depressed elderly as the target population which counted as 24 respondents; 12 elderly with music therapy and the other 12 elderly with music-video therapy.

This research used simple random sampling as the sampling technique namely the method of sample collection that is simple and done randomly with an assumption that specific characteristics owned by the population are not considered in the research.[6,7] Simple random sampling technique uses drawings. The selection of the name was performed by entering the names of the elderly who will be treated with music and music-video therapies which later being drawn. The first 12 respondents whose the names have been drawn out of were the respondents with music therapy treatment, 12 names after the first drawing were the respondents with music-video therapy. The inclusion criteria were respondents who experience stress which acquired through a screening by using DASS (Depression Anxiety Stress Scale) with >14 of score, willing to become the respondent, have good hearing (reviewed by whispering), have good vision (reviewed by asking if the elderly are used to watch television and read newspaper), following the entire therapy sessions implemented by the researcher. The exclusion criteria were respondent with mental disorders, respondents with stroke or degenerative diseases which make the respondents uncooperative.

This research used a statistical test of paired T-test in which Shapiro-Wilk's normality test has been done in prior toward the data. The data tested were the level of stress (numeric), and two paired groups. All of the data were analyzed using SPSS version 17 for Windows software.

RESULTS

According to Table 1, the characteristic of the majority of respondents are at the age of 60-70 years which amount to 20 respondents (83.3%), four respondents (16.6%) are in the age of 71-80 years old, and the majority of respondents are female which amount to 19 respondents (79.25%), five respondents are male (20.8%) (Table 1).

According to Table 2, the stress scores before the intervention is performed on music group with 12 respondents show 15.9 of mean with 14.00 of minimum value, 18.00 of maximum value, and 1.24 of the standard deviation. The stress scores before the intervention are performed on the music-video group, with 12 respondents show 15.5 of mean with 14 minimum value, 17 maximum value, and 1.16 of the standard deviation (Table 2).

According to Table 2, the stress scores after the music intervention was performed show 12.08 of mean with 10 minimum value, 15 maximum value, and 1.83 of the standard deviation. The stress scores after the music video intervention show 11.83 of mean, 8 minimum value, 15 maximum value, and 2.12 standard deviation.

According to Table 3, the effectiveness of music therapy toward the stress on the elderly in BPSTW Yogyakarta's Unit of Abiyoso Pakem – Sleman indicates significant (P<0.05). This condition shows that there was a significant impact of music therapy on the elderly in BPSTW Yogyakarta's Unit of Abiyoso Pakem – Sleman (Table 3).

In Table 3, the effectiveness of music video therapy toward the stress of the elderly in BPSTW Yogyakarta's Unit of Abiyoso Pakem, Sleman indicates significant (P<0.05). This result shows that there was a significant impact of music video therapy toward the stress on the elderly in BPSTW Yogyakarta's Unit of Abiyoso Pakem, Sleman (Table 3).

DISCUSSION

The stress scores of respondents before the music intervention was 15.9, and before the music video intervention was 15.5. The mean acquired before the intervention is performed toward the entire elderly in BPSTW Yogyakarta's Unit of Abiyoso Pakem – Sleman indicated that they have stress.

Table 1   The characteristic of respondents based on age and sex

Characteristics	Music Group (n=12)	Music-Video Group (n=12)	Total	
			N	%
Age				
60-74	10	10	20	83.3
75-84	2	2	4	16.6
Sex				
Female	9	10	19	79.2
Male	3	2	5	20.8

Table 2   The Stress Scores of the Elderly in Pre and Post Music and Music Video Interventions

Groups	n	Mean	Min	Max	Std. Deviation
Pre-Test Intervention					
Music	12	15.9	14	18	1.24
Music-Video	12	15.5	14	17	1.16
Post-Test Intervention					
Music	12	12.08	10	15	1.83
Music-Video	12	11.83	8	15	2.12

Table 3   The effectiveness of music and music-video therapy toward Stress level

Groups	Mean Difference	Standard of Deviation	p-value
Music			
Pre-test	3.42	1.44	0.000
Post-test			
Music-Video			
Pre-test	3.25	0.97	0.000
Post-test			

The theory shows that stress is a condition when the body is responding to environmental reactions considered by an individual as a challenge and threat which might disrupt the balance of the individual.[8-10] The stress condition of the elderly in BPSTW Yogyakarta's Unit of Abiyoso Pakem – Sleman is based on the theory which mentions that stress is a response toward environmental reactions considered by the individual as a threat.

The responses of the elderly who experience stress in this research were impatient, easily offended, and temperamental. The stress situations which usually occur based on DASS are temperamental, easily agitated, and hard to rest; these situations are the condition experienced by the elderly when they stress.[8-10] The psychological symptoms of stress will cause the emotional state, easily bored, sensitive/easily offended, give up easily, impatient and temperamental.[8-11]

The research results indicated that the stress in the group given with music therapy has decreased from before to after the intervention. The research results showed that music therapy is significant in reducing stress on the elderly. The difference of mean in pre and post-therapy was 3.25, with 12.08 as the mean after the therapy. Some of the elderly expressed that they feel relaxed and contended after the intervention. The theory shows that the technique of stress reduction, such as listening to music is one of the methods to reduce stress.[11,12] The theory also indicates that music therapy is the utilization of music to facilitate specific changes in behaviour, feeling, and physical.[4,13] These changes experienced by the elderly after three times of intervention in three consecutive days by listening to music i.e., classical music of Mozart. The music with medical meaning is traditional because it has wonderful magnitudes in health science, such as soft and well-organized tone, providing stimulation of alpha waves, calmness, and helping the hearing to be more relaxed. These conditions which make the elderly to feel comfortable and reduce the stress conditions such as temperamental, impatient, and hard to rest, thus, the stress scores on the elderly who receive music intervention have decreased.

The result of the previous study showed that relaxing music could reduce stress and help relaxation.[4,14] According to the result of the previous study, playing music to someone can reduce the stress that being experienced so the person can have excellent and healthy psychosocial conditions. The result of the previous study showed that tambourine music therapy could reduce stress level and significantly effective in reducing stress as well treating depression on the elderly.[15] Based on the previous study and the conducted research, playing music to someone in a specific form could contribute to the reduction of the experienced stress

Mozart's music was effective in reducing stress on the elderly.[16] This research explained that listening to Mozart's classical music could affect body, mind, and emotion which can give tranquillity and peacefulness when mental activities increase as well as capable of reducing tension due to stress. Based on the previous study and the conducted research, music used in the therapy process conceives a power that affects the mental health of an individual, so it can provide the sense of calm in body, mind, and emotion which eventually able to reduce the stress of an individual.

In the previous study, SALAM AKTIF as the modification of a deep breath, music, and progressive muscle relaxation can reduce blood pressure on the elderly.[17] According to the previous study and the conducted research, music has

an impact on blood pressure because high blood pressure is one of the outcomes caused by stress. The music given toward the elderly provides calm and relaxing effects, so they could reduce stress which also affects the decreasing level of blood pressure.

The other research explained that listening to Mozart's classical music will generate the stimulation of hypothalamus activity. Thus, it inhibits the release of corticotropin-releasing factor (CRF) that constrains the anterior pituitary, which releases adrenocorticotropic hormone while preventing adrenal glands from releasing stress hormones such as cortisol, adrenalin, and noradrenaline.[18] The other research explained Mozart's music repairs the dopaminergic neurotransmission, regulates and/or affects various brain functions, and perhaps, due to that matter, is adequate to relieve symptoms of some diseases that involve dopaminergic neurotransmission.

The research result of the group provided with music video therapy showed that the stress has reduced from before to after the intervention. The decrease is referring to Table 3 in which 0.000<0.05 of p-value has been acquired, which indicates that music video therapy is significant in reducing stress on the elderly. The difference of mean after the music video therapy was 3.75 whereas after the intervention about 11.83. The music video is a music which has the elements of sound and image, for instance, video recorder, various movie sizes, vocal slide, and others. In this research, music was played with landscape images which can produce pleasuring and calming responses toward the respondents. This condition reduced the stress condition of the elderly. The process of listening to music of Mozart was similar to music video; thus, the entering process of music stimulates of hypothalamus activity will inhibits the release of corticotropin-releasing factor (CRF) that constrains the anterior pituitary which releases adrenocorticotropic hormone while preventing adrenal glands from releasing stress hormones such as cortisol, adrenalin, and noradrenaline.[18] The only difference is that landscape images were added to the music video as the means for distraction so it will support the inhibition of adrenal glands to produce stress hormones such as cortisol, adrenaline, and noradrenaline.

This condition is consistent with the previous study about the effectiveness of music video therapy which significant in treating sleep disturbances of the elderly.[19] The conducted research did not only study about the changes in sleeping but also study the depression on the elderly who in his study can effectively or significantly control their depression even in the first day of the intervention.

The previous study indicated that a video which combined with visualization techniques generated amazing performance and provided an example of how watching a video could improve confidence and motivation.[20]

The elderly who participate in music video therapy were very enthusiastic because they were happy of looking the images presented in the video. Stress is an unpleasant situation in which the condition of stressed elderly will make them temperamental and easily offended, in that case, watching and listening to fun music video will reduce the stress experienced by the elderly. The result of the previous study showed that a music video which made with contrast images would stimulate the emotion of the person who watches the video.[19]

CONCLUSION

The mean stress score after music intervention was performed on the elderly in BPSTW Yogyakarta's Unit of Abiyoso Pakem – Sleman was shown getting lowered after intervention. A similar result also found in the mean stress score after music video intervention was getting reduced among the elderly in BPSTW Yogyakarta's Unit of Abiyoso Pakem – Sleman. Music therapy with classical music of Mozart can be made as the option to be played toward the elderly, and music therapy with video can be a therapy to reduce stress on the elderly. The elderly participated routinely in music therapy conducted in BPSTW Yogyakarta's Unit of Abiyoso Pakem - Sleman.

CONFLICT OF INTEREST

There is no competing interest regarding the manuscript.

ETHICAL CONSIDERATION

Ethics approval has been obtained from the Ethics Committee of Universitas Respati Yogyakarta, Yogyakarta, Indonesia prior to the study being conducted.

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AUTHOR CONTRIBUTION

All of the authors are equally contributed to the study from the conceptual framework, data gathering, data analysis, until reporting the results of study.

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