

The Effects of Hand Massage Using Aroma Essential Oil and Music Therapy on Anxiety and Sleeping for Elderly Women in the Sanatorium

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Abstract

This study investigated the caring effect of hand massage using aroma essential oil and music therapy on an anxiety and sleeping for the 72 elderly comprising of groups I (24 elderly) and II (25) and a control group (23) living in the sanatorium. The group I was given with hand massage using aroma essential oil and music therapy at the same time twice a week, for 4 weeks, while group II was with only hand massage using aroma essential oil and the control group was with none. Despite no difference between beforehand between group I and II, the average anxiety scores (AAS) of the group I has statistically significantly reduced; AAS of the group I has reduced by 4 from beforehand 53 to afterward 49, while group II by 1 from 52 to 51. However, there was no significant difference in improvement in sleeping among groups. This study demonstrates that non-medicated, hand massage using aroma essential oil coupled with music therapy can be effective for relieving the anxiety of the elderly living in the sanatorium.

Keywords: Hand massage, Essential oil, Music therapy, Anxiety, Sleep

1. Introduction

1.1. Necessity of Study

This as the average lifespan is prolonged, the elderly population is rapidly increasing, leading to the issue of senior citizens in the aging society [1]. In Korea, the elderly over 65 year of age shares 7.2% of the overall population. It is estimated that Korea would enter the aged society in 2018 and the super-aged society in 2050 that likely will share 14.3% and 38.2% of the population, respectively [2]. The 5th Study of Korea National Health and Nutrients, increase in chronic diseases for 65 year-olders or older would dramatically increase the socioeconomic burden [3]. Combined with such such rapid growth in the elderly population, social and environmental changes arisen from women's social activities and family nucleation, the more elderly women would be admitted to senior care [4]. Elderly people in the facility experience anxiety when adjusting themselves because of strange surroundings and negative consciousness about the facilities. Their anxiety gets more severe as getting older [1]. In addition, the elderly in the sanatorium suffers more from sleeping disturbance and have lower quality of sleeping compared to those who are in their homes [5].

Given that sleeping and relaxation are important for the elderly and alternative therapies such as massage [4-6], and music therapy [7] are recommended as ways to efficiently relieve such anxiety and bad sleep problems of the elderly. Massage is considered a safe way to, prior to medical therapy, soothe physio-psychological stresses

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such as pain, anxiety and sleep disturbance with no side effect [8]. Moreover, aromatherapy is practiced as a holistic therapy to improve one's physical, emotional, and spiritual wellbeing. It uses therapeutic components of the oil, which is extracted from the flowers, stalks, leaves and roots of natural plants[9]. Aroma massage, an aggressive form of contact, is a well-known complementary therapy used in clinical practice. It stimulates blood circulation in muscle and other soft tissue, promotes relaxation, and reduces stress[10]. Recently, hand massages have gained in popularity over full-body massage. A hand massage can deliver a lot of emotion and meaning through the practitioner's hands since it is an easier area to access and activates a wide space in the cerebral cortex.

Though music therapy has also positive effects in the overall social and emotional areas such as their action, relieving tension and social interchange [11], it has been tested mostly for the elderly women with dementia or stroke, but rarely for those who normally age in the sanatorium.

Considering rapid transition into super-aging society, which may lead more elderly women to enter the facilities and to experience more stresses, an active intervention is needed to relieve their anxiety and sleep disturbance of the elderly women in the facilities. Avoiding excessive movement or locomotion is preferred and therefore music therapy and/or aromatherapy hand-massage could be an alternative way for this purpose.

Previous research into aromatherapy hand massage has examined its effects on anxiety and depression[4], stress response, and sleep[12]. Similarly, research on music therapy in which the effects of music therapy and rhythmic movement on quality of life, blood pressure, and upper extremity muscle strength in the elderly in nursing facilities has been conducted[13]. However, few studies have analyzed the effects of aromatherapy hand massage combined with music therapy on anxiety and sleep among elderly women in facilities.

Therefore this study investigated to see if hand massage using aroma oil with or without music therapy improves an anxiety and sleep disturbance of the elderly women in the facilities.

1.2. Purpose of Study

This study is to see if hand massage using aroma essential oil and music therapy can relieve an anxiety and sleep disturbance of the elderly people in the facilities.

1.3. Hypothesis

1.3.1. Hypothesis 1

There will be differences in the degrees of anxiety between the group treated with both hand massage using aroma essential oil and music therapy and the group treated with hand massage using aroma essential oil only.

1.3.2. Hypothesis 2

There will be differences in hours of sleep between the group treated with both hand massage using aroma essential oil and music therapy and the group treated with hand massage using aroma essential oil only.

1.4. Definition of Terms

Hand Massage using Aroma Essential Oil is used for massaging with effleurage, friction and petrissage on wrists, palms, back of hands and fingers for 5 minutes, respectively, with soft and slightly pressing acts, using aroma essential oil, a mixture of 2mL camomile oil, 2mL lavender oil, 100mL of jojoba oil.

Music Therapy is used to improve and sustain mental and physical health. The elderly people of Korea prefer popular songs to instrumental performances. Chosen favorite top 3 songs according to preference were given through cassette player and earphone [15].

2. Research Method

2.1. Research Design

After obtaining IRB approval of S University in Seoul 2013, the study subject was sampled from three institutes and randomly distributed into the experimental groups I, II and the control group. The group I received hand massage using aroma essential oil and music therapy at the same time twice a week, for 4 weeks, while group II was given with only hand massage using aroma essential oil and the control group was with none of them.

Table 1. Research Design

	Pre-test	Treatment	Post-test	Pre-test	Treatment	Post-test
Group I	Ye ₁₁	Xe ₁₂	Ye ₁₂			
Group II	Ye ₂₁	Xe ₂₂	Ye ₂₂			
Control				Yc ₁₁	Xc ₁₁	Yc ₁₂

Ye₁₁, Ye₁₂, Ye₂₁, Ye₂₂, Yc₁₁, Yc₁₂ = anxiety, sleep
Xe₁₂= hand massage using aroma essential oil and music therapy
Xe₂₂= hand massage using aroma essential oil
Xc₁₁= None

2.2. Sampling of Research Subject

The study subjects are the elderly people who lived from July 1, 2013 to August 30, 2013 in 5 elderly sanatorium and nursing homes in Seoul and Gyeonggi-do, who

- 1) was at least 60 years old or older,
- 2) has not received aromatherapy hand-massage,
- 3) has not received music therapy,
- 4) do not have any allergy on aroma or any open wound in their hands,
- 5) has no disease in sense of smell or mental disorder,
- 6) can communicate, understand the study and voluntarily agreed to it

Total 72 subjects from 5 facilities were randomly assigned to three groups (24 to group I, 25 to group II, 23 to control). Subjects from each facility had all three groups.

2.3. Research Procedure

Prior to this study, research assistants were trained with an hand massage using aroma essential oil education 2-hour courses, twice, from a professional, licensed massager, and then practiced for a month in the same way. Three selected assistants performed the therapy for all the subjects throughout the study. The group I received music on the earphone and hand massage using aroma essential oil at the same time twice a week, for 4 weeks, while group II was given with only hand massage using aroma essential oil and the control group was with none. Questionnaire on the general features as well as their anxiety and sleeping was conducted before and after therapy indicated.

2.4. Analysis of Data

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 20.0. Descriptive statistics for mean and standard deviation were used.

Comparisons between pre and post anxiety scores and sleeping time were undertaken. For the 4weeks before and after hand massage using aroma essential oil and music therapy, an average of anxiety scores and sleeping time taken per time period was calculated to get symmetric data then compared over the two time periods with F-test.

3. Result

3.1. General Characteristics of Subjects

This study targeted elderly women in sanatorium who were divided into 3 groups: Group I- the participants were treated with hand massage using aroma essential oil and music therapy, Group II-the participants were treated with hand massage using aroma essential oil only, and the control group. The χ^2 test analysis, which was conducted to assess the general characteristic differences among the three groups, showed no statistically significant differences in age, marital status, the final level of education, or religion($p>.05$). The three groups were shown to be identical on all of these factors.

In a question regarding their general health status, as assessed by the health-related characteristics of the participants, "good" was a common response from the participants of all three groups. The χ^2 test analysis, which was conducted to examine the differences in disease-related characteristics among the three groups, showed no statistically significant differences among the three groups on any of the disease-related characteristics ($p>.05$). The three groups were shown to be identical concerning these factors (Table 2).

Table 2. Homogeneity Test for General Characteristics and Disease of Subjects

		(N=72)					
Characteristics	Categories	Total (N=72) n(%)	Exp. I (n=24) n(%)	Exp. II (n=25) n(%)	Cont. (n=23) n(%)	χ^2	<i>p</i>
Age(year)	≤65	23(32.0)	7(29.2)	8(32.0)	8(34.8)	0.81	.932
	66~69	25(34.7)	8(33.3)	9(36.0)	8(34.8)		
	≥70	24(33.3)	9(37.5)	8(32.0)	7(30.4)		
Marital status	Marriage	52(72.2)	17(70.8)	19(76.0)	16(69.6)	0.65†	
	Single	20(27.8)	7(29.2)	6(24.0)	7(30.4)		
Education	≤Middle school	30(41.7)	11(45.8)	10(40.0)	9(39.1)	2.81	.243
	≥ High school	42(58.3)	13(54.2)	15(60.0)	14(60.9)		
Religion	No	23(31.9)	8(33.3)	8(32.0)	7(30.4)	0.53†	
	Yes	49(68.1)	16(66.7)	17(68.0)	16(69.6)		
Pre-facilities of family living	Alone	49(68.1)	17(70.8)	16(64.0)	16(69.6)	1.84	.897
	Life partner	6(8.3)	3(12.5)	2(8.0)	1(4.3)		
	Son family	10(13.9)	3(12.5)	4(16.0)	3(13.1)		
	Daughter family	5(6.9)	1(4.2)	2(8.0)	2(8.7)		
	Others	2(2.8)	0(0.0)	1(4.0)	1(4.3)		
Admission	≤2	31(43.0)	10(41.7)	11(44.0)	10(43.5)	3.784	.445

period(yr)	3~4	29(40.3)	9(37.5)	10(40.0)	10(43.5)		
	≥5	12(16.7)	5(20.8)	4(16.0)	3(13.0)		
Smoking	None	69(95.8)	23(95.8)	24(96.0)	22(96.0)	1.083	.475
	Half pack/day	3(4.2)	1(4.2)	1(4.0)	1(4.0)		
	1 pack/day	0(0.0)	0(0.0)	0(0.0)	0(0.0)		
	>1 pack/day	0(0.0)	0(0.0)	0(0.0)	0(0.0)		
Chronic disease	No	5(6.9)	2(8.3)	2(8.0)	1(4.3)	0.865	.412
	Yes	67(93.1)	22(91.7)	23(92.0)	22(95.7)		
Perceived health status	Bad	14(19.4)	4(16.7)	5(20.0)	5(21.7)	0.42†	
	Good	52(72.2)	17(70.8)	19(76.0)	16(69.6)		
	Very good	6(8.3)	3(12.5)	1(4.0)	2(8.7)		

†Fisher's exact test.

Despite no difference between the average anxiety scores (AAS) beforehand between group I and II, the AAS of the group I has statistically significantly reduced; AAS of the group I has reduced by 4 from beforehand 53 to afterward 49, while group II by 1 from 52 to 51[18]. However, there was no significant difference in sleeping score among groups. This study demonstrates that non-medicated, hand massage using aroma essential oil coupled with music therapy can be effective and efficient for relieving the anxiety of the elderly living in the sanatorium.

Table 3. The Comparison of Anxiety and Sleep Variables among Three Groups

Variables	Categories	(N=72)		F	p
		Group I (n=24) M±SD	Group II(n=25) M±SD		
Anxiety	Pre-test	53.00±8.23	52.00±7.42	-2.83	.007
	Post-test	49.00±7.51	51.00±5.65		
Sleep hour	Pre-test	8.50,21	8.42,24	4.29	.373
	Post-test	8.70,11	7.96,31		

Group I = hand massage using aroma essential oil and music therapy

Group II = hand massage using aroma essential oil

3.2. Test of Hypothesis

3.2.1. Hypothesis 1

‘There will be differences in the degrees of anxiety between the group treated with both hand massage using aroma essential oil and music therapy and the group treated with hand massage using aroma essential oil only.’

Anxiety scores from the group treated with both hand massage using aroma essential oil and music therapy were 53.00 ± 8.23 in the Pre-test and 49.00 ± 7.51 in the Post-test. Anxiety scores from the group treated hand massage using aroma essential oil only were 52.00 ± 7.42 in the Pre-test and 51.00 ± 5.65 in the Post-test. Since there was a significant difference($F=-2.83, p=.007$), Hypothesis 1 was adopted.

3.2.2. Hypothesis 2

'There will be differences in hours of sleep between the group treated with both hand massage using aroma essential oil and music therapy and the group treated with hand massage using aroma essential oil only.' Average hours of sleep from the group treated with both hand massage using aroma essential oil and music therapy were 8.50 ± 3.21 in the Pre-test and 8.70 ± 3.11 in the Post-test. Sleep hours from the group treated with hand massage using aroma essential oil only were 8.42 ± 3.24 in the Pre-test and 7.96 ± 2.31 in the Post-test. Since there was no statistically significant difference ($F=4.29$, $p=.373$), Hypothesis 2 was rejected (Table 3).

4. Discussion

The results indicate that hand massage using aroma essential oil plus music therapy can effectively relieve an anxiety but not sleep disturbance. Relating to this study, it has been known that hand massage using aroma essential oil is effective for relieving pain and depression but not anxiety of terminal cancer patients [15]. In addition music therapy effectively relieves depression but not pain of terminal cancer patients. Hand massage could lessen mental anxiety of the elderly people with dementia [5].

Lack of improvement in sleeping disturbance in this study was consistent with the result of a previous report in that hand massage was ineffective for sleeping disorder for cancer patients' [16]. In contrast, another study demonstrated that hand massage using aroma essential oil significantly increased the sleeping quality of hospitalized elderly people [17].

During the aromatherapy hand massage and music therapy, we observed that facial expressions of the participants were becoming increasingly softened, and some said that they had fallen asleep without noticing, as their minds were eased by the massage and music. In addition, as they were allowed to choose the music according to their preferences, some responded that they were happy to listen to the music they liked. As time went by, the participants opened their minds and expressed themselves, and most of them felt relaxed and comfortable, showing positive attitudes during the massage and music therapy. These beneficial effects occurring through the hand massage using aroma essential oil and music therapy, led to mood reactivation and allowed the participants to experience and realize their inner realities and achieve emotional well-being. Most of the participants changed emotionally in a positive way. We believe that consistent follow-up studies are required in order to thoroughly assess their mood states or psychological aspects. Therefore, continuous studies need to be done in order to determine whether the degree of anxiety is reduced by hand massage using aroma essential oil and music therapy in the elderly. Additionally, research expanding the findings of these beneficial effects by extending the execution time of the hand massage using aroma essential oil and music therapy also needs to be conducted. Research into the effects of music therapy on anxiety and depression while controlling for variables that may affect patients' anxiety and sleep will also be needed.

In essence, this study signifies the possibility of hand massage using aroma essential oil and music therapy for relieving anxiety of the elderly women with similar ages despite considerable variations among subject's medical and mental condition. Several factors such as current disease, intervention and medication could influence the outcome. Selection of music repertoire personalized to each patient, and development hand massage skill is likely more effective, necessitating further study.

5. Conclusion and Suggestion

This study is to see if hand massage using aroma essential oil and music therapy can relieve an anxiety and sleep disturbance of the elderly women in the sanatorium.

Subjects are total 72 from 5 facilities were randomly assigned to three groups (24 to group I, 25 to group II, 23 to control). Period of collecting data is from July 1, 2013 to August 30, 2013. For the data analysis, we used SPSS WIN VER. 20.0.

The results of this study were as follows.

The hypothesis 1: "There will be differences in the degrees of anxiety between the group treated with both hand massage using aroma essential oil and music therapy and the group treated with hand massage using aroma essential oil only" was accepted ($F=2.83$, $p=.007$).

The hypothesis 2: "There will be differences in the hours of sleep between the group treated with both hand massage using aroma essential oil and music therapy and the group treated with hand massage using aroma essential oil only," was rejected ($F=4.29$, $p=.373$).

These results confirmed that hand massage using aroma essential oil and music therapy are effective measures for reducing anxiety among elderly women in sanatorium.

Based on the above results, we propose the following:

First, hand massage using aroma essential oil and music therapy must be conducted with elderly women living in sanatorium who suffer from certain degrees and types of diseases.

Second, studies should be conducted in the future using a variety of measures and examining the effectiveness of these therapies on anxiety among the elderly.

Third, studies with larger numbers of participants should be conducted in order to better generalize the results.

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