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Changes in the Mood and Emotion of Elderly Day Care Users Undergoing Tapping Touch and Laughter Yoga Intervention

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Abstract

Background: The present study was conducted to compare and examine the effects of tapping touch and laughter yoga for alleviating depression symptom and stress reactions among older adults requiring home care.

Methods: Tapping touch and laughter yoga were administered to 18 older adult day care users. We evaluated participants' emotional reactions via a two-dimensional mood scale and VAS before and after tapping touch and laughter yoga activities.

Results: Activity-based care utilizing tapping touch was effective for reducing feelings of stress, pain, anxiety, and tension by placing users in a more relaxed and stable state. Laughter yoga revealed no significant effects, with the exception of a tendency toward increased comfort.

Conclusion: Tapping touch was effective at reducing stress and pain in the present sample. Although laughter yoga was not similarly effective, there is a possibility that modifying its implementation could enhance its efficacy.

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Introduction

The number of people aged 65 or older requiring care in Japan was 5,691,000 (25.1%) as of 2013; this rate is expected to sharply increase to 7,020,000 by 2025 [1]. Such demographic changes pose difficulties to general societal health and well-being. Therefore, a policy was put forward in fiscal year 2015 upon revision of the long-term care insurance system to promote spontaneous participation, performance of users' activities, and transition to home care [2].

In promoting transition, the role of older adult day care facilities, whose focus is on exercise training programs supported by long-term care insurance, is being augmented. This is because such facilities play a major role in improving functioning among older adults requiring home care. In fact, these facilities promote increases in physical activity levels through exercise training and an opportunity to go out. Furthermore, programs promote reduction in family care burdens, thereby providing an important social resource for continuing home care.

Within older adult day care facilities, positive effects on motor functioning, such as fall prevention and improved balance, have drawn attention [3]. However, the positive impact of these programs on mood, emotions, and cognitive function should also be addressed. In fact, these facilities play a functional role in preventing the exacerbation of depression and dementia [4]. Recreational activities (such as music therapy, reminiscence, and playing games) contribute to the maintenance and enhancement of mental health [5].

As recreational activities require expert skills and preparation, coupled with a shortage of caregiving staff, these activities is presently performed by outside experts and volunteers. Under these circumstances, tapping touch [6] and laughter yoga [7], which require no special tools or expert skills, and can be easily performed in the ordinary course of activity implementation. As such, these activities are starting to gain footing within home care settings [8].

Tapping touch is an assistance technique, devised in 1999 by Dr. Ichiro Nakagawa, Director of the Institute of Holistic Psychology & Education, Japan. tapping touch utilizes the pulp of the fingers to touch body parts, such as the shoulders and back (in a light tapping manner), alternating between the right and left. tapping touch is effective in "reducing anxiety and tension," "enhancing positive emotions," and "deepening trust and physical contact" [9]. Neurophysiological research has revealed that Taping Touch facilitates the generation of alpha waves, which are an indicator of a relaxed state, and promotes the secretion of serotonin. Furthermore, studies have reported that a rhythmic touch of 10 minutes or longer, alternating between the right and left, is effective for relieving tension and pain, while also improving negative mood states [10, 11].

In contrast, laughter yoga is a method for enhancing health and was devised in 1995 by an Indian physician, Dr. Madan Kataria, and his wife, Madhuri Kataria. It is a form of physical exercise that incorporates laughter into yogic breathing techniques [12]. One of the characteristics of laughter yoga is that a practitioner performs aerobic exercise while consciously laughing. Laughter yoga is suitable for all ages, genders, and levels of disability. The practice comprises four basic elements (exercises that induce laughter, clapping and shouting, deep breathing, and playfulness) and produces a host of psychological benefits (e.g., refreshing one's mood through laughter, relieving tension, catharsis, and stress reduction) and social effects (e.g., promotion of social interaction by bringing people closer and enhancing camaraderie) [13]. Finally, continuous laughing for 15 to 20 minutes can increase secretion of dopamine and endorphins, along with increased blood flow to the brain [14].

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Previous studies have shown that tapping touch and laughter yoga have positive effects on the mind and body. Furthermore, practitioners report, more often than not, that these activities are pleasant and enjoyable methods for reducing stress, improving their moods, and relieving tension, etc. [15]. However, such reports are based on anecdotal experience, and few experimental studies have been conducted on how these activities impacted the mood and emotions of older adults requiring care. Therefore, the present study was conducted to assess how older adult patrons (hereafter referred to as "users") of day care facilities in Japan benefit from tapping touch and laughter yoga in terms of emotional and mood outcomes.

Materials and Method

Research subjects

18 older adults requiring care and using day care services.

Period of study

January to March 2013

Period of study

Basic attributes: Age, gender and five levels of everyday life independence (criteria for determining potential dementia status as outlined by the Ministry of Health, Labour and Welfare, Japan). The five levels were determined using the following scale: I / II / III / IV / M. Larger levels indicate impediments to independence [16].

Two-Dimensional Mood Scale (TDMS-ST): Consists of eight items (six-point scale) and evaluates mood based on four factors: "activity," "stability," "comfort," and "alertness" [17].

Activity: Level of a psychological state, with comfortable excitement and unpleasant sedation as anchors on the scale. A lively state, with vitality, is indicated with a + score, and a lethargic state, with apathy, is indicated with a - score.
Stability: Comfortable sedation and unpleasant excitement are set as anchors. A relaxed and calm state is indicated with a + score, and an irritated or tense-nervous state is indicated with a - score.
Comfort: The comprehensive comfort level is anchored by pleasure and discomfort. A pleasant and positive mood is indicated with a + score, and an unpleasant negative mood is indicated with a - score.
Alertness: The comprehensive arousal level is anchored by excitement and sedation. An excited and active mood is indicated with a + score, and a drowsy and inactive mood is indicated with a - score.

The TDMS has a high correlation with the POMS anxiety scale and can effectively measure changes, over time, in mood caused by stress, depression, etc. [5]. We plotted the pre- and post- measurement results on a two-dimensional graph, with "activity" and "stability" as the two axes [18, 19].

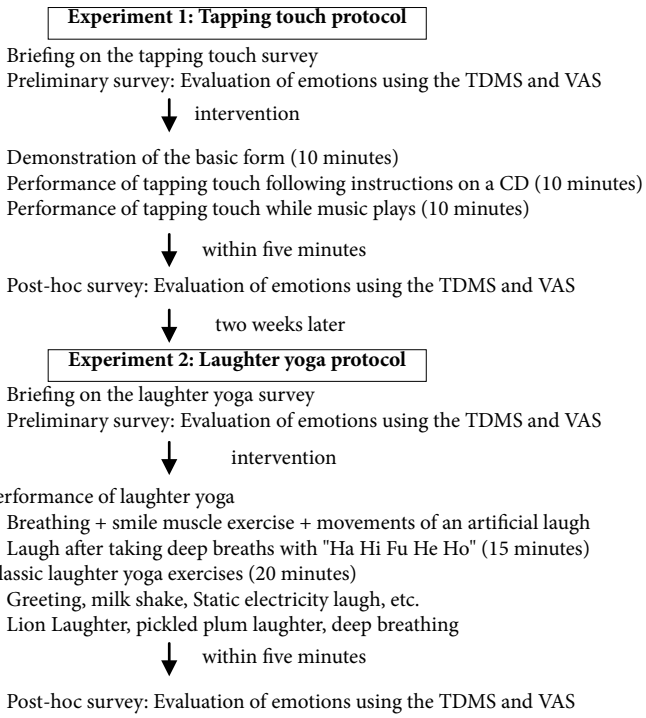
VAS emotions scale: A VAS (Visual Analog Scale) was used to measure emotional reactions with respect to six stressful emotions of pain, anxiety, depression, tension, guilt, and remorse on a scale from 0 to 10 (with 0 being the lowest and 10 being the highest).

Implementation of the intervention survey

Before the intervention survey, the researchers participated in a certified tapping touch instructor course. The researchers also obtained permission from Mr. Ichiro Nakagawa to give lectures and technical instructions, within research and educational settings, for non-commercial purposes. For laughter yoga, researchers attended a laughter yoga leader course certified by Dr. Kataria's School of laughter yoga.

Intervention protocol

Tapping touch and laughter yoga was performed two weeks after the training. Users practiced tapping touch and laughter yoga during an afternoon recreation hour (2 pm to 3 pm) while seated in wheelchairs or chairs. Users were asked to complete questionnaire forms on a TDMS for assessing subjective stress before and after each practice. Research collaborators provided one-on-one assistance to each user with weak eyesight and/or low manual dexterity.



Method for analysis

We compared post- and pre-emotional state values obtained from the TDMS-ST and subjective VAS using the Wilcoxon signed-rank test. The significance level was set at less than 5% ($p < .05$), while marginal significance is defined as less than 10% ($p < .10$).

Ethical considerations

The present study was approved by the Tsukuba International University Research Ethics Committee (notification No. 10) and the ethics committees of the research-collaboration facilities. The purpose of the study was explained to the research subjects, and their consent was obtained in writing.

Results and Discussion

Basic statistics

Users' mean age (n = 18) was 79.1 ± 7.3 years. The users comprised nine men and nine women. With respect to everyday life independence, there were eight users in rank I, six in rank II, and four

in rank III, with an overall mean of 1.8 ± 0.8. The mean number of months using day care services was 51.1 ± 38. The level of care required was 1 for three users, 2 for three users, 3 for nine users, and 4 for three users, with an overall mean of 2.7 ± 0.9.

Tapping touch results

When comparing changes in mood before and after tapping touch via the TDMS-ST, stability increased by 1.94 ± 3.03 ($p < .05$), indicating a relaxed and calm mood, while alertness decreased by 1.89 ± 3.30 ($p < .05$), indicating a drowsy and inactive state (Table 1). On a two-dimensional graph, there was an overall transition to the upper right, with 12 out of 18 users experiencing an increase in comfort (Figure 1). Furthermore, pain, anxiety, tension, and stress significantly decreased based on the VAS results (Table 2).

Laughter yoga results

When comparing changes in mood before and after laughter yoga via the TDMS-ST, comfort increased by 1.28 ± 5.56 ($p < .10$; Table 3). On the two-dimensional graph, there was an overall transition to the upper right, with 12 out of 18 users experiencing an increase in comfort (Figure 2). Furthermore, a significant increase in pain was observed based on evaluation via the VAS (Table 4).

Let me discuss the results shown above. For the tapping touch, there was an increase in users' stability, while alertness decreased, indicating a calmer mood. Additionally, stress, anxiety, and tension decreased, suggesting efficacy of the activity. However, we also observed that tapping touch led to a drowsy and inactive state immediately after engaging in the task. Therefore, tapping touch should not be performed before drinking water, eating meals, or bathing, as accidents could result (such as aspiration or drowning). Also, although 12 out of 18 users experienced an increase in comfort, 6 users experienced no increase, suggesting that there was individual variation in tapping touch efficacy. We believe this may be due to discomfort in tapping from the research staff. Given that not all individuals will be accepting of a manual touch intervention, future work could include the option of self vs. other-tapping so as to provide a more effective implementation.

While laughter yoga had no measurable effect on mood and emotional reactivity, there was a marginal increase in comfort. Additionally, we conducted a follow-up correlation analysis on the relationship between changes in comfort, everyday life independence, and gender (male: 0, female: 1), for the sample experiencing symptoms of dementia. Moderate positive correlations between 0.42 and 0.45 were observed. This suggests that men with high everyday life independence due to dementia experienced considerably lower

	Before		After		Z value [a)]	Amount of change [b)] M±SD		
	Median	Average	Median	Average				
Activity	2.00	2.33	3.00	2.39	-0.234	0.06	±	3.44
Stability	4.50	4.67	7.50	6.61	-2.272*	1.94	±	3.03
Comfort	7.00	7.00	10.00	9.00	-1.566	2.00	±	5.58
Alertness	-2.00	-2.33	-2.50	-4.22	-2.205*	-1.89	±	3.30

Table 1: Changes on the TDMS pre- and post-intervention (tapping touch).

a) Wilcoxon signed rank test, *: $p < .05$, **: $p <. 01$, b) after - before

	Before		After		Z value [a)]	Amount of change [b)] M ± SD		
	Median	Average	Median	Average				
Pain	5.00	3.56	0.00	1.44	-2.716**	-2.11	±	2.56
Anxiety	4.00	3.22	0.00	1.67	-2.212*	-1.56	±	2.52
Depression	0.50	2.00	0.00	1.22	-1.544	-0.78	±	1.81
Tension	2.00	2.39	0.00	0.61	-2.716**	-1.78	±	2.15
Guilt, remorse	0.00	2.22	0.00	1.61	-0.718	-0.61	±	4.10
Stress	3.50	3.28	0.00	1.17	-2.972**	-2.11	±	2.13

Table 2: Changes in emotions using the VAS pre and post-intervention (tapping touch).

a) Wilcoxon signed rank test, *: $p < .05$, **: $p <. 01$, b) after – before

	Before		After		Z value [a)]	Amount of change [b)] M ± SD
	Median	Average	Median	Average		
Activity	2.00	2.22	4.00	3.78	-1.607	1.56 ± 3.98
Stability	5.00	4.94	5.50	4.67	-0.103	-0.28 ± 2.51
Comfort	7.50	7.17	10.00	8.44	-1.660†	1.28 ± 5.56
Alertness	-3.00	-2.72	-1.50	-0.89	-1.610	1.83 ± 3.66

Table 3: Changes on the TDMS pre and post-intervention (laughter yoga).

a) Wilcoxon signed rank test, †: $p < .10$, b) after - before

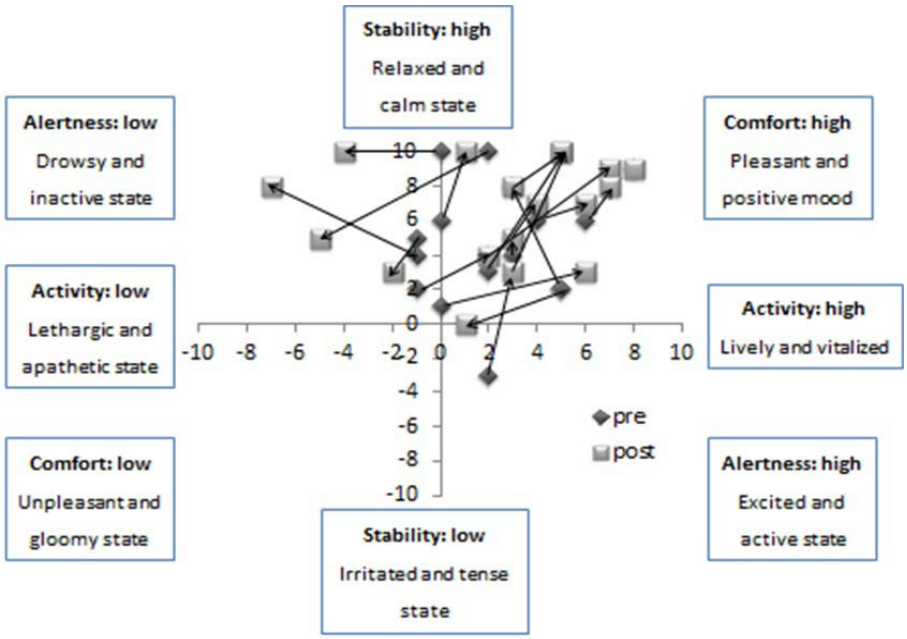


Figure 1: Changes on the TDMS pre and post-intervention (tapping touch).

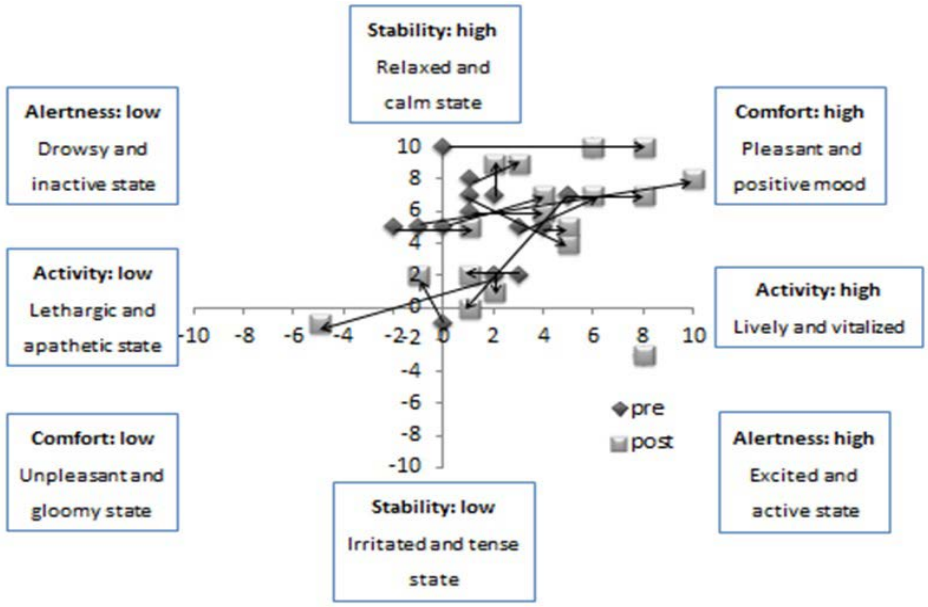


Figure 2: Changes on the TDMS pre and post-intervention (laughter yoga).

	Before		After		Z value [a)]	Amount of change [b)] M ± SD
	Median	Average	Median	Average		
Pain	0.00	2.00	2.00	2.61	-1.761†	0.61 ± 1.42
Anxiety	1.00	1.89	0.00	1.33	-1.300	-0.56 ± 1.71
Depression	1.00	2.39	0.00	2.39	0.000	0.00 ± 1.94
Tension	2.50	2.28	2.00	2.22	-0.171	-0.06 ± 1.27
Guilt, remorse	0.00	2.17	0.00	1.56	-1.625	-0.61 ± 1.50
Stress	3.00	3.56	3.00	3.39	-0.281	-0.17 ± 2.46

Table 4: Changes in emotions using the VAS pre and post-intervention (laughter yoga).

a) Wilcoxon signed rank test, †: $p < .10$, b) after – before

comfort levels. We believe this may be due to older Japanese men having a strong sense of resistance to laughing out loud in public [20]; therefore, these men may have felt strong discomfort with the activity. Hence, it may be possible to enhance laughter yoga effectiveness by easing men into the activity, first by the implementation of artificial laughter and gradually inducing natural laughter or by providing feedback on the exercise's efficacy.

Although results of the present study revealed effectiveness of tapping touch, it is difficult for users with upper limb physical dysfunction to participate. In contrast, such users are able to take part in laughter yoga. Also, the effects of care can be efficiently and effectively provided to users by selecting participants who are supervised by an overwhelmingly limited number of caregiving staff [21].

A key aspect of the present study was assessing coordination between tapping touch and laughter yoga as a synergistic implementation within day care facilities. In these facilities, group rehabilitation exercise is usually incorporated within the schedule. Here, we can expect effects to be enhanced as compared to when practicing either tapping touch or laughter yoga alone (i.e., tapping touch may be effective for reducing stress while laughter yoga may be effective in enhancing comfort). Pleasant and positive emotions increase motivation to continue any activity, particularly through activation of reward system areas in the brain [22]. Additionally, there are users that refuse to take part in rehabilitation exercises for a variety of reasons, including stress and physical pain. We believe performing tapping touch before a rehabilitation routine may reduce users' stress and pain, which could lead to spontaneous participation.

A few study limitations should be noted. Given that the present study was conducted on just one sample of 18 users, we must be cautious in determining the generalizability of the present findings. Going forward, it is necessary to compare and examine various forms of activity interventions that take place within older adult day care settings, assess the efficacy of various combinations, and address effects on several additional outcomes, including cognitive function and motivation for rehabilitation.

Conclusions

- Activity care involving tapping touch was effective for shifting users' mood into a calmer and more stable state, while also reducing feelings of stress, pain, anxiety, and tension.
- Activity care involving laughter yoga did not have a significant effect on users' mood and/or emotional states.
- Although there was a marginal increase in pain after laughter yoga, there was also a marginal increase in comfort. Therefore, it may be possible to verify laughter yoga's effectiveness by introducing the activity in more manageable stages.

Conflict of Interests

The authors declare that they have no competing interests.

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