


The effect of laughter therapy on the quality of life of nursing home residents

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Aims and objectives. To evaluate the effect of Laughter therapy on the quality of life of nursing home residents.

Background. By improving the quality of life of residents living in nursing homes and allowing them to have a healthier existence, their lives can be extended. Therefore, interventions impacting the quality of life of older adults are of critical importance.

Design. Quasi-experimental design.

Method. The study was conducted between 2 March – 25 May 2015. The experimental group was composed of 32 nursing home residents from one nursing home, while the control group consisted of 33 nursing home residents from another nursing home in the capital city of Turkey. Laughter therapy was applied with nursing home residents of the experimental group two days per week (21 sessions in total). A socio-demographic form and the Short-Form Health Survey (SF-36) were used for data collection.

Results. After the laughter therapy intervention, general and subscales (physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and spiritual health) quality-of-life scores of residents in the experimental group significantly increased in comparison with the pretest.

Conclusion. Laughter therapy improved the quality of life of nursing home residents. Therefore, nursing home management should integrate laughter therapy into health care and laughter therapy should be provided as a routine nursing intervention.

Relevance to clinical practice. The results indicated that the laughter therapy programme had a positive effect on the quality of life of nursing home residents. Nurses can use laughter therapy as an intervention to improve quality of life of nursing home residents.

What does this paper contribute to the wider global clinical community

- It is known that the older adult population is increasing world-wide. For this reason, the number of residents living in nursing homes is also increasing. Previous research has determined that the quality of life of older adults who live in nursing homes is low.
- Interventions are needed to improve the quality of life of older adults.
- Our results indicated that laughter therapy increased the quality of life of nursing home residents.
- Nurses can use laughter therapy as an intervention to improve the quality of life of nursing home residents. Nursing administration can make arrangements to use laughter therapy in nursing homes and laughter therapy also can be integrated into nursing education.

Key words: laughter therapy, nursing, nursing home residents, older adult, quality of life

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Introduction

The World Health Organization (WHO) has stated that the population is increasingly ageing worldwide (WHO 2012). Two per cent of the total population was over the age of 60 in 2015; this rate is expected to increase by 3.2% every year (United Nations 2015). On the other hand, in Turkey, while the percentage of those aged 60 years or older in the total population was 8% in 2014, according to population projections, it estimated that this rate will rise to 10.2% in 2023 and 20.8% in 2050 (Türkiye İstatistik Kurumu 2014). A rapid increase in the aged population is related to various problems for older adults such as economic, environmental, social, health, housing and care issues (WHO 2015). In addition, lower quality of life among older adults is a major concern, because people tend to develop lower quality of life with age (Rejeski & Mihalko 2001). Moreover, research has determined that older adults who live in nursing homes experience more loneliness and have lower quality of life than those who live with their families (Drageset *et al.* 2008, Nikmat *et al.* 2013, Hedayati *et al.* 2014).

Background

Quality of life

Quality of life is an individual's perception of his/her life position in terms of aims, expectations and standards in their culture and values system (WHOQOL G 1995). Quality of life is a broad and complex concept influenced by physical, spiritual and social situations of individuals, personal faith, as well as relationship with the environment (WHO 1998). For this reason, it cannot be observed directly but can be measured by means of factors affecting it (Hanestad 1990). In quality-of-life research conducted with older adults, some individual factors such as age (Molzahn *et al.* 2010, Thompson *et al.* 2012), gender (Molzahn *et al.* 2010, Milte *et al.* 2015), education status and economic status (Baernholdt *et al.* 2012, Bielderman *et al.* 2015) had an effect on the quality of life of older adults. In addition, social factors such as family relationships (Langlois *et al.* 2013), social relations (Bilotta *et al.* 2012), loneliness (Theeke *et al.* 2012) and living alone (Bilotta *et al.* 2012), as well as living in a nursing home (Bilotta *et al.* 2011), health condition (Molzahn *et al.* 2010, Renaud *et al.* 2010, Baernholdt *et al.* 2012, Simpson *et al.* 2015), culture (Molzahn *et al.* 2011), physical activity (de Vries *et al.* 2012), free time for physical activity (Thompson *et al.* 2012, Langlois *et al.* 2013) and smoking (Thompson *et al.*

2012) were determined to be important variables affecting quality of life of older adults. Good quality of life is a necessity rather than a luxury for healthy ageing in all countries. Research has shown social support (Årestedt *et al.* 2013), better financial conditions and good relations with relatives (Webb *et al.* 2011) to be associated with increased quality of life among older adults. In addition, recent studies have indicated that initiatives such as pilates (De Siqueira Rodrigues *et al.* 2010), Tai Chi (Taylor-Piliae *et al.* 2014), yoga (Gonçalves *et al.* 2011), aerobic walking, exercise therapy (Awick *et al.* 2015), music, prayer, meditation, laughter and humour (Lindquist *et al.* 2013) can be used as interventions to improve the quality of life of older adults.

Laughter therapy

Laughter universally provides observable physiological advantages and has social functions (Pearce 2004). Laughter is primarily examined within three theories: superiority theory, incongruity theory and relief theory.

Superiority theory assumes that we reflect on our superiority by laughing at other people's unluckiness. Aristotle, Plato and Hobbes indicated that laughter involves finding and mocking imperfections in relationships between people (Morreall 1982). This theory was reformulated by Gruner in the 21st century, such that laughter requires a winner, a loser, incoherence in the present situation and an element of surprise (Morreall 1983, Gruner 2000, Mulder & Nijholt 2002). According to incongruity theory, laughter is a reaction to the violation of expectations. In incongruity theory, nonsense, unexpected events, discordant stress or irrelevant events are the basis for laughter. However, although this situation is necessary for laughter, it is not enough on its own (Hargie 1997, Kulka 2007). John Morreall (2011) describes the fundamental meaning of 'incongruity' as employed within incongruity theories as that which occurs when 'something or event we perceive or think about violates our normal mental patterns and normal expectations'. According to relief theory, laughter is generally accepted to involve nervous tension (Morreall 1983). According to Freud, psychic energy arises to overcome pent-up feelings about taboo topics such as death or sex. Moreover, laughter results not only when energy is released but also when one thinks about a taboo topic (Freud 1995).

Laughter therapy is an exercise composed of unconditional laughing exercises with yoga breathing techniques. It is a therapeutic method created by Dr Madan Kataria. Laughter therapy involves adding laughter exercises to yoga. During a session, laughter is feigned through physical

exercises, by providing contact with other members of the group and by playing children's games. Often, feigned laughter quickly turns into contagious laughter, because the human body cannot distinguish between fake laughter and real laughter (Kataria 2011). Humour and laughter are tools frequently used by healthcare personnel in the rehabilitation of disease related to stress and lifestyle and for the maintenance and improvement of health (Seaward 1992).

Laughter therapy has been used with different groups such as patients with type 2 diabetes (Hayashi *et al.* 2007), women receiving in vitro fertilisation (Chung 2011), breast cancer survivors (Cho & Oh 2011) and patients with atopic eczema (Kimata 2007). However, studies about the use of laughter therapy with older adults are limited and have not been conducted in Turkey. Thus, this is the first study conducted using laughter therapy in Turkey.

Methods

Design

For this study, a quasi-experimental design with pretest/posttest control group was used.

Sample and data collection

Sample

The study population comprised residents from two different private nursing homes. These nursing homes had the same organisational characteristics, management, social services care and care processes. G*Power was used to calculate the sample size. The estimated sample size was measured by predicting an average change in scores after therapy (experimental group before therapy 66.00 ± 11.84 , after therapy 79.94 ± 12.03 ; control group before therapy 67.19 ± 13.54 , after therapy 66.19 ± 11.17) (Cho & Oh 2011). It was calculated that 90% power could be achieved with a 95% confidence interval when 62 subjects (31 in each of the experimental and control groups) were selected. Exclusion criteria for participation were having severe hearing or perceptual deficits that impair communication, advance dementia, Alzheimer's disease, depression, uncontrollable diabetes, hypertensive disease and a surgical operation with risk of bleeding. Inclusion criteria were over age 50, maintaining independence in daily activities and agreeing to take part in the study. The study was carried out with 70 volunteer residents who met criteria for inclusion. Thirty-five residents from one nursing home formed the experimental group, while the control group was composed

of 35 residents from another nursing home. However, the experimental group was reduced to 32 residents because of the death of a participant and two residents who received treatment in an intensive care unit. In addition, the control group was reduced to 33 residents due to the death of one participant and another leaving the nursing home.

Data collection

The data were collected between 2 March – 25 May 2015. The socio-demographic form and the Medical Outcomes Study (MOS) 36-item Short-Form Health Survey (SF-36) were used for data collection.

Measures

Socio-demographic form

The socio-demographic form was created based on the literature and collected demographic information (gender, age, marital status, educational status, occupation, social security status, income status) (T.R. Prime Ministry State Planning Organization, 2007, Aksoydan 2009, Esendemir 2013, Hosseinpoor *et al.* 2013).

SF-36 health survey

The SF-36 Health Survey was developed to measure quality of life related to health. Developed in 1992 by Ware, the SF-36 is a self-assessment scale (Ware & Sherbourne 1992) that comprises 36 questions within two domains, includes a physical component score and mental component score, and eight subscales including physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional and spiritual health (Ware & Gandek 1998). Subscales are scored between 0–100 points, with 100 representing good health condition and 0 representing bad health condition (Burholt & Nash 2011). The scale can be used as a measure of quality of life both before and after a treatment intervention.

The validity and reliability of the Turkish version of the SF-36 has been studied in many countries and was confirmed for a patient group with rheumatic illness by Koçyiğit *et al.* (1999). Internal consistency measured using the Cronbach's alpha coefficient for each subscale was found to be within 0.73–0.76 (Koçyiğit *et al.* 1999). Among cancer patients, a test–retest internal consistency Cronbach's alpha value of eight subscales was found (Pinar 2005). Yakar and Pinar (2013) re-examined the validity and reliability of the Turkish SF-36 and found a Cronbach's alpha value of 0.90 for the physical functioning subscale and 0.87 for the mental functioning subscale.

Pilot study

A small pilot study was performed to assess the content validity of the data collection forms and to evaluate the efficacy of the intervention at a private nursing home different from that of the study group. The researcher informed all participants about the aim of the study, and the pilot study was conducted with 10 nursing home residents who voluntarily agreed to take part in the research. Before the intervention, the socio-demographic form and SF-36 Health Survey were applied; each took 15 minutes to complete on average. Four sessions of laughter therapy were applied on 28 January and 29 January 2015. Following the therapy, the SF-36 Health Survey was administered again as a post-test. No changes were made to the study protocol as a result of the pilot study.

Laughter therapy programme

The researcher participated in a 'Laughter Yoga' course on 21 September 2014 and received a certificate for completion of the course. The laughter therapy programme was planned by the researcher. The programme comprised 21 sessions twice weekly. Each session took 30–45 minutes.

Sessions consisted of various combinations of the following:

- warm-up exercises (stretching of facial and body muscles) for 10 minutes
- hand clapping using the 1–2, 1–2–3, Ho–Ho, Ha–Ha–Ha rhythm
- deep breathing exercises
- laughter exercises (cell phone, admiration, hot soup laughter, hug laughter, bird laughter, dialogue with nonsense, speech exercises, laugh at one's own aches and pains exercises, milkshake laughter exercises, lion laughter, greeting laughter, argument laughter, bugi laughter techniques, brushing teeth and mouthwash exercises)
- watching a film (Patch Adams and Hababam Sınıfı)
- playing games (the first participant was asked to say her/his name, and then, the participant beside her/him was asked to share both her/his name and the name of the first participant; the children's game 'peekaboo')
- singing songs
- wishes (participants were asked to hold hands and make a wish and then to rejoice as if their wishes had come true after making a wish. It was observed that some older adults showed their happiness by smiling and others showed it by standing up)
- laughter meditation

When the sessions were completed, participation certificates were delivered to participants of the experimental and control groups for their attendance.

Data analysis

Means, standard deviations, frequencies, percentages, medians, minimums and maximums were the descriptive statistics calculated. Since the difference between the total scores of both the experimental and control group before and after laughter therapy showed normal distributions, these score differences were assessed by paired *t*-test. Mann–Whitney *U*-tests were used for some subscales (before laughter therapy: physical functioning, role functioning and emotional functioning; after laughter therapy: physical functioning, role functioning, emotional functioning, mental component score) that did not show a normal distribution. Independent two-sample *t*-tests were used for some subscales (before laughter therapy: bodily pain, general health, physical component score, mental health, social functioning, vitality, mental component score and total score; after laughter therapy: bodily pain, general health, physical component score, mental health, social functioning, vitality and total score) that showed a normal distribution. For all tests, $p < 0.05$ was the standard for statistical significance.

Ethical considerations

Hacettepe University Ethical Committee of Clinical Studies approved this study on 17 December 2014 (No. 16969557/18). Before the study began, all participants were informed about the study aim and procedures. Written informed consent was obtained from all participants.

Results

Socio-demographic characteristics of older adults who participated in the study are presented in Table 1. Half of the participants in the experimental group were women, and the other half were men, while the control group consisted of 15 women (45.5%) and 18 men (55.5%). Twenty-two (68.7%) residents in both the experimental and control groups were aged 60–79 years old. There were 16 widows (50%) in the experimental group and 15 widows (45.5%) in the control group. Most residents ($n = 10$, 31.3%) in the experimental group were high school graduates, while most ($n = 16$, 48.5%) participants in the control group were primary school graduates. For both the experimental and control groups, civil servant retirement funds were most common ($n = 13$, 40.6%; and $n = 13$, 39.4%; respectively). According to their own statements, 26 participants in the experimental group (90.6%) and 28 members of the control group (84.80%) had regular income.

Table 2 presents SF-36 scores before and after laughter therapy for the experimental and control groups. There was

Table 1 Descriptive characteristics of the study population

Characteristic	Experimental Group		Control Group	
	<i>n</i>	%	<i>n</i>	%
Gender				
Female	16	50.0	15	45.5
Male	16	50.0	18	55.5
Age				
50–59	3	9.4	6	18.2
60–69	13	40.6	9	27.3
70–79	9	28.1	13	39.4
80–89	7	21.9	5	15.2
Marital Status				
Single	2	6.30	7	21.2
Married	7	21.9	5	15.2
Widowed	16	50.0	15	45.5
Divorced	7	21.9	6	18.2
Education				
Illiterate	4	12.5	4	12.1
Literate	3	9.4	3	9.1
Primary school	5	15.6	16	48.5
Secondary school	4	12.5	4	12.1
High school	10	31.3	4	12.1
University	6	18.8	2	6.1
Occupational Status				
Sales and related	1	3.0	2	7.0
Casual worker	4	12.0	4	13.0
Professional	4	12.0	11	32.0
Civil servant	7	21.0	5	16.0
Unskilled worker	4	12.5	1	4.0
Unemployed	13	40.0	9	28.0
Social Security				
Social insurance institution	12	37.5	6	18.2
Green card	0	0.0	2	6.1
Self-employed institution	5	15.6	9	27.3
Retirement fund	13	40.6	13	39.4
No	2	6.3	3	9.1
Income Status				
Yes	29	90.6	28	84.80
No	3	9.4	5	15.20
Total	32	100.0	33	100.0

no significant difference ($p = 0.892$) between mean general quality-of-life scores for the experimental (89.32 ± 20.63) and control groups (90.06 ± 21.62). In addition, there was no significant difference between mean quality-of-life subscale scores of the experimental and control groups ($p > 0.05$). Therefore, before laughter therapy, quality-of-life scores of the experimental and control groups were similar. After laughter therapy, a statistically significant difference ($p < 0.01$) was found between mean general quality-of-life scores of the experimental group (125.18 ± 11.49) and control group (93.00 ± 20.78), respectively. Quality of life of the experimental group after

laughter therapy increased. After laughter therapy, a statistically significant difference was found between mean subscale scores for the experimental and control group ($p < 0.05$). All quality-of-life subscale scores of older adults in the experimental group increased after laughter therapy.

Discussion

Research evaluating the effect of laughter therapy on the quality of life of nursing home residents has been limited. In this study, the quality of life of nursing home residents increased after a laughter therapy intervention. Previous experimental and quasi-experimental studies have demonstrated that laughter therapy increases the quality of life and positive emotions of residents and that they feel better both physically and mentally after laughter therapy (Lebowitz 2002, Hirosaki *et al.* 2013, Ko & Hyun 2013, Ganz & Jacobs 2014, Cha & Hong 2015). Thus, findings of previous research are parallel to the findings of this study.

This study demonstrated a statistically significant difference between the physical functioning subscale scores of the experimental group before and after laughter therapy (Table 2). In a randomised controlled study by Keykhah-seinpoor *et al.* (2013), carried out with older adults with Parkinson's disease, a statistically significant difference in motor functions of older adults was found after a laughter therapy intervention. A Hatha Yoga programme, used with individuals aged 35–60 years old, positively affected the balance and elasticity of older adults (Galantino *et al.* 2004).

In this study, the experimental group's role-physical subscale scores were significantly different before and after the laughter therapy intervention (Table 2). Supekar *et al.* (2014) studied the role of laughter therapy clubs in increased social health and found significant differences between the role-physical subscale scores of the experimental and control groups. This result also supported the present research findings.

In this study, after laughter therapy, bodily pain subscale scores of residents were significantly different (Table 2). Tse *et al.* (2010) studied older adults in a nursing home and found that pain scores after a laughter therapy intervention decreased. In another study in which laughter therapy was applied, bodily pain of the experimental and control group showed statistically significant differences (Supekar *et al.* 2014), supporting the present study's results. Thus, it is possible that laughter therapy decreases nursing home residents' bodily pain through yoga exercises and regular exercise.

General health subscale scores of the experimental group were found to be significantly different after the laughter therapy intervention (Table 2). Ghodsbini *et al.* (2015)

Table 2 Short-Form Health Survey (SF-36) scores of the experimental and control groups before and after the laughter therapy intervention

SF-36 Scale	Experimental Group		Control Group		P value
	Pretest	Post-test	Pretest	Post-test	
Physical Functioning	21.63 ± 5.99	26.28 ± 3.97	21.76 ± 6.03	21.57 ± 5.31	0.000
Role Functioning	5.16 ± 1.68	7.62 ± 1.18	4.88 ± 1.57	5.09 ± 1.80	0.000
Bodily Pain	6.28 ± 2.75	10.18 ± 1.14	6.61 ± 2.24	7.60 ± 2.34	0.000
General Health	14.91 ± 3.56	18.18 ± 2.45	15.48 ± 3.76	14.93 ± 3.59	0.000
Physical Component Score	47.97 ± 10.69	62.28 ± 6.65	48.73 ± 10.87	49.21 ± 10.40	0.000
Mental Health	19.5 ± 6.04	25.40 ± 3.73	19.27 ± 5.65	17.9 ± 6.27	0.000
Emotional Functioning	3.84 ± 1.22	5.71 ± 0.728	3.88 ± 1.31	3.87 ± 1.36	0.000
Social Functioning	6.03 ± 2.20	9.12 ± 9.50	6.12 ± 1.40	6.66 ± 1.97	0.000
Vitality	12.00 ± 4.97	20.18 ± 3.93	12.06 ± 6.47	11.87 ± 6.04	0.000
Mental Component Score	41.38 ± 12.25	60.43 ± 7.22	41.33 ± 12.84	40.33 ± 13.36	0.000
General Score	89.34 ± 20.63	125.18 ± 11.49	90.06 ± 21.62	93.00 ± 20.78	0.000

evaluated the effect of laughter therapy on the general health of older adults and found that general health scores were significantly different after laughter therapy. Similarly, another study found a direct relationship between health status and humour, thus suggesting humour as a method to help older adults to stay healthy (Celso *et al.* 2003).

The spiritual health subscale of the SF-36 evaluates the calm, happy, relaxed, nervous and depressed moods of individuals. In this study, the spiritual health subscale of nursing home residents increased after the intervention. Lee and Eun (2011) assessed the relationships between sleeping, depression and pain on the quality of life of older adults living in long-term nursing homes. A significant effect of laughter therapy was found for depression. In studies of laughter therapy activities with patients with depressive symptoms, a decrease in depression and bad mood of older adults was seen after laughter therapy (Hirsch *et al.* 2010, Konradt *et al.* 2013).

The role-emotional subscale scores were also shown to differ after laughter therapy (Table 2). Likewise, research has shown statistically significant decreases in anxiety levels of older adults after laughter therapy (Houston *et al.* 1998, Marzali *et al.* 2008). Krebs *et al.* (2014) evaluated the effect of laughter therapy on the behaviours of older adults and found a decrease in stress scores when spiritual condition and energy significantly were increased. This research supports the findings of the present study.

Although old age brings about physical constraints, older adults can still be active (Lewis 2003). In this study, social functioning of residents increased after the intervention. An increase in interactions among older adults has been shown in studies evaluating laughter therapy (Everard *et al.* 2000, Low *et al.* 2013). Laughter therapy performed as a group activity also increases interactions among older adults (Kataria 2011).

In this study, the vitality subscale scores of residents in the experimental group were significantly different after laughter therapy (Table 2). Deshpande and Verma (2013) study, which reviewed the effect of quality-of-life therapy on happiness and life satisfaction, found that life satisfaction and happiness scores of older adults in an experimental group were significantly higher than those in a control group. In other research, negative feelings scores after laughter therapy were lower and life satisfaction scores were higher (Song *et al.* 2013).

Conclusion

In this study, after laughter therapy, quality-of-life total and subscale scores (physical functioning, role-physical, role-emotional, bodily pain, general health, spiritual health, social functioning, vitality) increased among residents living in a nursing home. According to these results, it can be said that laughter therapy can be used to increase the quality of life of nursing home residents. Future research to evaluate the effect of laughter therapy on the quality of life of residents should employ a randomised control group experimental design. In addition, a wider sample of participants from nursing homes with different socio-cultural structures will aid generalisability of findings.

Relevance to clinical practice

The results indicated that the laughter therapy programme had a positive effect on the quality of life of nursing home residents. Nurses can use laughter therapy as an intervention to improve the quality of life of residents living in nursing homes.

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Contributions

NK: Study design; data collection and analysis; and manuscript preparation. GK: Study design and manuscript preparation.

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Conflict of Interest

No conflict of interest has been declared by the authors.

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