

The preliminary effects of laughter therapy on loneliness and death anxiety among older adults living in nursing homes: A nonrandomised pilot study

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Objectives: This study evaluated the preliminary effect of laughter therapy on the level of loneliness and death anxiety of older adults.

Methods: This was a quasi-experimental study with a nonequivalent control group pretest–posttest design. The study participants were older adults living in two nursing homes set up by foundations located in the capital of Turkey. A total of 50 older adults formed the intervention group ($n = 20$) and control group ($n = 30$). The intervention group received laughter therapy twice a week for 5 weeks. The control group received no intervention. Data were collected using a socio-demographic form, the De Jong Gierveld Loneliness Scale (DJGLS) and the Turkish Death Anxiety Scale (TDAS).

Results: After laughter therapy, the DJGLS total and subscale (emotional and social loneliness) scores decreased among older adults in the intervention group ($p < 0.005$). While there were no significant differences for overall TDAS, death uncertainty and pain subscales scores between the intervention and control group after laughter therapy, there was a significant decrease in TDAS exposure subscale scores of the intervention group ($p < 0.005$).

Discussion: The results suggest that laughter therapy can be used to decrease levels of loneliness and death anxiety among older adults living in nursing homes.

Implications for Practice: Anxiety regarding death and loneliness are important issues that affect quality of life in older adults. This first pilot study demonstrates the beneficial effects of laughter therapy on loneliness and death anxiety in nursing home residents. Nurses can incorporate laughter therapy into routine programmes in nursing homes.

KEYWORDS

death anxiety, laughter therapy, loneliness, nursing, older adults

1 | INTRODUCTION

The global proportion of the population aged 60 years and above was 12% in 2015 and is increasing annually (UN, 2015). According to population projections, the proportion of individuals aged 65 and older people was 8.3% in 2016 in Turkey (Türkiye İstatistik Kurumu,

2017). It is estimated that this proportion will increase to 10.2% in 2023 and 20.8% in 2050 (Turkish Statistical Institute, 2014). The rapid increase in older people populations leads to various national-level social, economic, political and health issues (Özkul & Kalayci, 2015). Although research recommends home care (Eric De Jonge et al., 2014; Haber, 2014), national and international data suggest

that the number of institutionalised older adults is too high to be ignored (Harris-Kojetin et al., 2016; Tarricone & Tsouros, 2008; Türkiye İstatistik Kurumu, 2014). Living in institutions can be a stressful life event for older adults that affects their biological and psychological health and social functioning (Rodin, 2014). One such negative effect of living in institutions is loneliness (Bilgili, Kitiş, & Ayaz, 2012), which is related to poor social and interpersonal skills (Saibran-Cook, 2009). Previous studies show that loneliness is very common among older adults and that it increases the risk of mortality (Steptoe, Shankar, Demakakos, & Wardle, 2013; Tilvis, Laitala, Routasalo, & Pitkälä, 2011). Research has determined that older adults who live in city centres (Erol, Sezer, Şişman, & Öztürk, 2016), are of advanced age (Bilgili et al., 2012; Dykstra, van Tilburg, & de Jong Gierveld, 2005; Softa, Öztürk, Dindaş, & Göçmen, 2015), live alone in their own houses (Kılıç, Karadağ, & Koçak, 2014), live in institutions (Bilgili et al., 2012), over longer terms (Mullins & Lopez, 1982) and have no income (Khorshid et al., 2004; Mullins & Lopez, 1982) experience more loneliness. Loneliness was also found to have negative effects on life satisfaction in older adults (Kapıkıran, 2016). Studies have found a positive relationship between loneliness and fear of death (Davis, Miller, Johnson, McAuley, & Dinges, 1992; Tomer, 2000). Further, death anxiety has a significant impact on the lives of older adults (Öztürk, Karakuş, & Tamam, 2011). Although anxiety about death has been shown to increase with age (Depaola, Griffin, Young, & Neimeyer, 2003; Mullins & Lopez, 1982), some studies found that anxiety about death decreased and remained unchanged after a certain period in older adults (Depaola et al., 2003; Russac, Gatliff, Reece, & Spottswood, 2007). Nonetheless, a large proportion of studies have shown that anxiety about death increases with age (Galt & Hayslip, 1998; Suhail & Akram, 2002). A meta-analysis showed that one-on-one and group interactions, home visits, social support and group activity reduce loneliness (Cattan, White, Bond, & Learmouth, 2005). Another study found that education about death reduces fear of death in old age (Hayslip, Galt, & Pinder, 1994). However, very few intervention studies have been conducted on reducing anxiety about death and loneliness in older adults (Luanaigh & Lawlor, 2008; Missler et al., 2012; White, Gilner, Handal, & Napoli, 1984). Therefore, research on new interventions aimed at reducing anxiety regarding death and loneliness are necessary.

2 | LAUGHTER THERAPY

Facilitating positive emotions in older adults is important; one practice that can achieve this is laughing (Meyer, Baumann, Wildgruber, & Alter, 2007). Laughter and humour appear to balance positive emotions and feelings in stressful situations that lead to negative emotions (Seaward, 1992). Laughter therapy comprises unconditional laughter and yoga breathing techniques; laughing is initiated through physical exercises involving physical contact with group members and by playing games. As the body cannot distinguish between real and fake laughing, the individual begins to laugh genuinely. Laughter therapy is also called laughter

What does this research add to the existing knowledge in gerontology?

- This is the first study that evaluated effects of laughter therapy on loneliness and death anxiety among older adults living in nursing homes.
- This study demonstrated the beneficial effects of laughter therapy on loneliness and death anxiety in nursing home residents. Further, no negative effects or complaints regarding the laughter therapy programme were reported by participants.
- It is recommended that the laughter therapy programme be incorporated as an activity in nursing homes or community-settings to promote the health of community-dwelling older adults.

What are the implications of this new knowledge for nursing care with older people?

- Laughter therapy is a safe, inexpensive and suitable activity for older people.
- Nurses can incorporate this intervention into routine programmes in nursing homes and be easily trained to deliver this potentially effective intervention for older people.

How could the findings be used to influence policy, practice, research or education?

- Nurses can use laughter therapy as an intervention for 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.
- Further research is needed to evaluate the effectiveness of laughter therapy on loneliness and death anxiety among older adults.
- Randomised controlled studies with a larger sample size are needed to examine the effectiveness of laughter therapy on loneliness and death anxiety among older adults.

yoga (Kataria, 2005). Although various theories of laughter may be found in academic literature, laughter is primarily defined within three theories: superiority theory, incongruity theory and relief theory (Buijzen & Valkenburg, 2004). Superiority theory assumes that we reflect on our superiority by laughing at other people's un-luckiness (Morreall, 1982). According to Gruner, laughter requires a winner, a loser, incoherence in the present situation and an element of surprise (Gruner, 1997; Morreall, 1983; Mulder & Nijholt, 2002). In incongruity theory, nonsense, unexpected events, discordant stress, or irrelevant events are the basis for laughter

(Hargie, 1997). Relief theory maintains that laughter is a hydraulic explanation by which psychological tension is reduced. Laughter, according to relief theory, results from a release of nervous energy derived from feelings about taboo topics such as death or sex (Freud, 1995; Morreall, 1983). Many studies have highlighted the benefits and positive effects of laughter therapy. The results of a systematic review have led to its implementation in many fields such as oncology, allergy, dermatology, immunology, chest disease, cardiology, rehabilitation, public health and clinical and medical psychology (Mora-Ripoll, 2011). Laughter therapy has been found to decrease blood protein levels in diabetic patients (Hayashi et al., 2007), reduce latex allergy reactions of newborns (Kimata, 2007), and improve quality of life after breast cancer treatment (Eun & Ei, 2011). Studies on the use of laughter therapy among older adults are limited; however, laughter therapy has been shown to have a positive effect on depression (Ko & Youn, 2011), anxiety (Ganz & Jacobs, 2014), quality of sleep (Jung, Youn, Cho, Lee, & Lee, 2009; Ko & Youn, 2011) and quality of life (Kuru & Kublay, 2017) in older adults.

No studies have examined the effect of laughter therapy on the level of loneliness and death anxiety among older adults, both

globally and in Turkey. Therefore, this study attempted to evaluate the effect of laughter therapy on the level of loneliness and death anxiety among older adults in Turkey.

3 | MATERIAL AND METHODS

3.1 | Study design

This was a quasi-experimental study with a nonequivalent control group pretest–posttest design.

3.2 | Study setting and sample

Nursing homes are organised by the Ministry of Family and Social Policies in Turkey. In addition to the nursing homes of the Ministry of Family and Social Policies, there are five private nursing homes, nursing homes set up by foundations and associations, and nursing homes affiliated with minorities. Foundation and association nursing homes are established by foundations, which are legal entities set up by an individual, family, or a group of individuals. Two nursing homes attached to the Ministry of Family and Social Policies gave

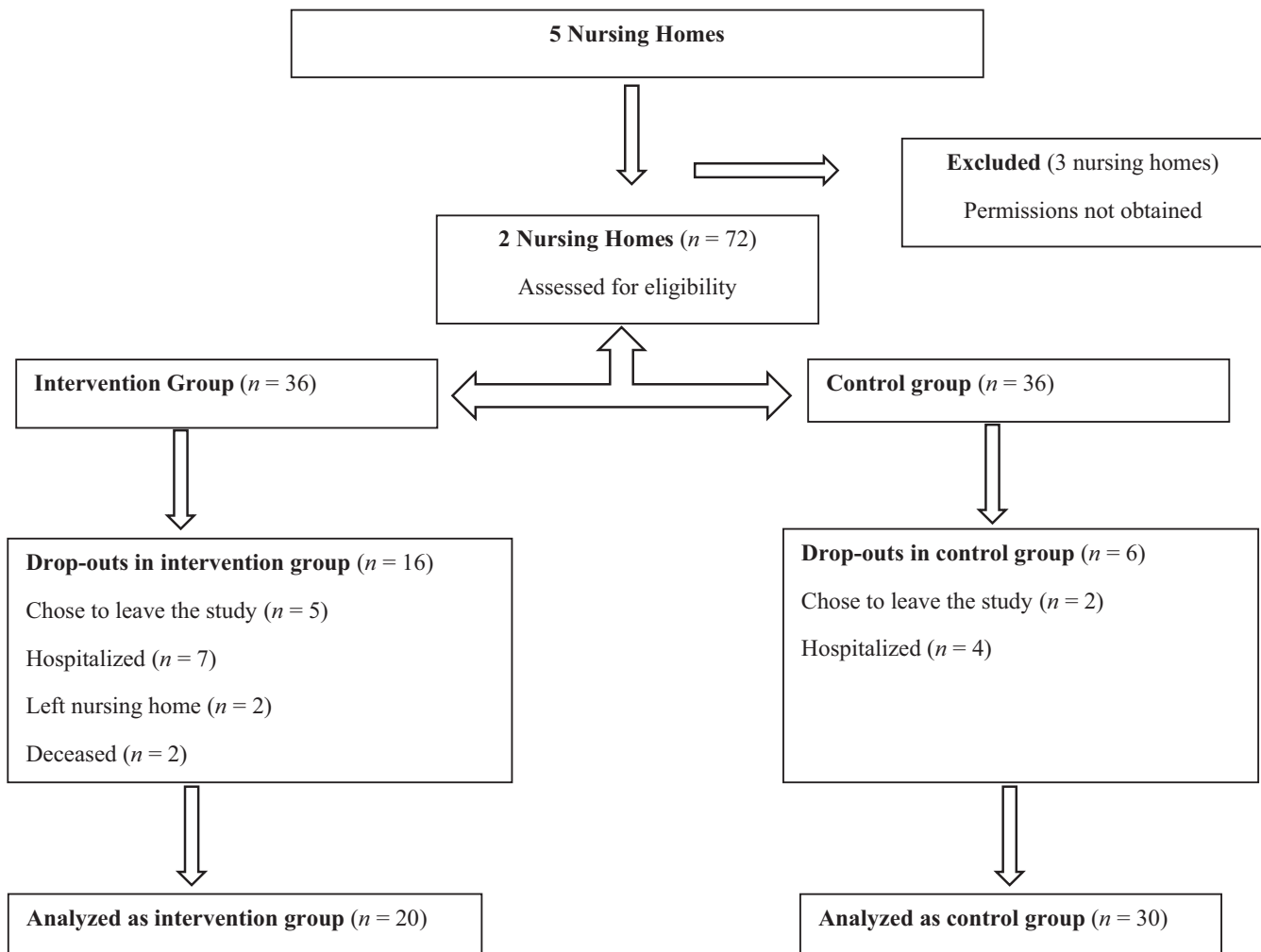


FIGURE 1 Participant recruitment flowchart

permission for this study. Two nursing homes run by foundations granted permission after clarifying the study goals. Thus, participants were older adults living in two nursing homes run by foundations located in Ankara, Turkey. The admission criteria for both nursing homes was age 50 or older. Both nursing homes had two managers, a social worker, a psychologist, a doctor and three nurses. These nursing homes had identical organisational characteristics, management, social services care and nursing care processes. The study took place in two large group activity rooms in the nursing homes that had adequate space.

The sample size was determined using a power of 99% and an alpha-value of 0.05; the power analysis was conducted using the G*Power program, version 3.1.7, and was based on participants' loneliness scale scores.

The study sample comprised 72 older adults who met the eligibility criteria and agreed to participate in the study. For inclusion, participants had to be aged 65 years or older and able to maintain independence in daily activities. The exclusion criteria were as follows: having severe hearing or perceptual deficits that impaired communication, dementia, Alzheimer's disease, depression, uncontrolled diabetes, hypertensive disease and surgical operations with the risk of bleeding. Eligibility judgements were made by a medical doctor and the authors.

The experimental group comprised 36 older adults from one nursing home and the control group comprised 36 older adults from the second nursing home. Of the 72 older adults included in the study, 22 were excluded from each group because they left the study before its conclusion (Figure 1): eleven older adults were hospitalised, seven decided to leave the study, two died and two left the nursing home. Thus, the study was completed with a total of 50 older adults in two groups.

The characteristics of older adults were similar in terms of gender, age and marital and educational status across both groups (gender, $\chi^2 = 0.013$, $p = 0.908$; age, $\chi^2 = 0.548$, $p = 0.760$; marital status, $\chi^2 = 0.149$, $p = 0.700$; educational status, $\chi^2 = 1.851$, $p = 0.869$).

3.3 | Ethical considerations

This study observed the principles of the Declaration of Helsinki. The study was approved by the institutional review board of the two nursing homes. Informed consent was obtained after participants verbally agreed to participate in the study. They were also informed that they could withdraw from the study at any time without stating a reason. The study was also approved by the Ethical Commission of Hacettepe University, Ankara, Turkey (05.01.2017;35853172/431-69). Written informed consent was obtained from older adults.

3.4 | Measures

Data were collected using a sociodemographic form prepared by the researchers based on previous literature, as well as the De Jong Gierveld Loneliness Scale (DJGLS) and the Turkish Death Anxiety Scale (TDAS).

The sociodemographic form comprised 7 items on older adults' gender, age, marital status, educational status, occupation, social security status and income status (Aksoydan, 2009, 2009; Esendemir, 2013, 2013; Hosseinpoor, Bergen, & Chatterji, 2013; Hosseinpoor et al., 2013; T.R. Prime Ministry State Planning Organization, 2007).

The DJGLS was originally developed by De Jong-Gierveld and Kamphuis (1985) and revised by De Jong Gierveld and Van Tilburg (1999). The 11-item DJGLS consists of two subscales: six negatively framed items measure emotional loneliness and five positively framed items measure social loneliness. The sum of these two subscales constitutes the general loneliness score. It uses a Likert-type scale wherein positive items are scored 0 = yes, 1 = more or less and 2 = no, and negative items are scored inversely, 2 = yes, 1 = more or less and 0 = no. Total scores can range 0–22 with a higher score denoting more severe loneliness. The DJGLS was tested for validity and reliability within the Turkish population by Akgül and Yeşilyaprak (2015), with Cronbach's alpha reliability coefficient of 0.85. In this study, Cronbach's alpha was 0.85.

The TDAS, developed by Sarıkaya and Baloğlu (2016), includes 20 items scored on a 5-point Likert scale ranging from 0 (never) to 4 (always). The scale has three subscales: death uncertainty, exposure and pain factors, the sum of which constitutes the general death anxiety score. Total scale scores can range 0–80, with higher scores indicating higher levels of death anxiety. None of the items require reverse scoring. This scale was tested for validity and reliability within the Turkish population, yielding a Cronbach's alpha reliability coefficient of 0.95 in the original study and 0.93 in this study.

3.5 | Intervention

The primary investigator (PI) was a certified laughter yoga instructor who conducted the intervention. The intervention group received laughter therapy twice a week for 5 weeks. Control-group participants did not receive the intervention. Data were collected from both groups by another researcher using the following schedule: participants completed the sociodemographic form during the first interview and completed the DJGLS and TDAS twice: during the first interview (pretest) and after 10 applications of the intervention (posttest).

Laughter therapy was conducted by the PI 2 days a week with one application during each session. The programme was planned by the researcher and involved performing yoga breathing and physical exercises as well as laughter therapy. The programme continued for 5 weeks for a total of ten applications; the therapy was administered between 15:00 and 16:00 p.m. Each session was 35–40 min long.

3.6 | Laughter therapy programme

At the first meeting, the PI explained the effects of laughter and showed a video of practical laughter therapy that the participants could understand easily.

The sessions consisted of various combinations of the following:

- Introduction including “say hello to each other” and “clap hands using the ‘1–2, 1–2–3, Ho–Ho, Ha–Ha–Ha’ rhythm”
- Warm-up exercises (stretching of facial and body muscles)
- Deep breathing exercises
- Laughter exercises (milkshake laughter exercises, lion laughter, cell phone, hot soup laughter, hug laughter, bird laughter, dialogue with nonsense, speech exercises, laugh at one’s own aches and pains exercises, greeting laughter and bugi laughter techniques)
- Playing games (wherein the first participant is asked to say her/his name, followed by the participant beside her/him being asked to share both her/his name and the name of the first participant)
- Singing songs loudly
- Playing with balloons
- Wishes (participants were asked to hold hands and make a wish and then rejoice as if their wishes had come true)

The sessions concluded with a laughter meditation session that took 5 min.

3.7 | Data analysis

Data from all 50 participants were analysed using IBM SPSS (version 23.0, IBM Corporation, Armonk, NY, USA). The Kolmogorov–Smirnov normality test was applied to scale and subscale scores for further analyses. All scores were found to meet normality assumptions ($p > 0.05$) and parametric tests were used for comparison. Paired sample *t*-test was used to analyse the difference between two dependent groups, and the independent sample *t*-test was used to analyse differences between two independent groups. The relationship between two independent categorical variables was examined using a chi-square test. *p*-values less than 0.05 were considered significant.

4 | RESULTS

Participants’ sociodemographic characteristics are presented in Table 1. More than half of the participants in the control (53.3%) and intervention groups (55.0%) were women. Participants in the control (56.7%) and intervention groups (65.0%) were aged 65–75 years, and most were single and had graduated at least primary school. The chi-square test revealed no significant differences between the groups in terms of demographic characteristics ($p > 0.05$).

Table 2 presents a comparison of the intervention and control groups according to DJGLS total and subscale scores. At the baseline, that is, before the laughter therapy intervention, no significant differences ($p = 0.209$) in mean DJGLS scores were observed between the intervention (17.95 ± 2.704) and control groups (16.77 ± 3.510).

However, a statistically significant difference ($p < 0.001$) between mean DJGLS scores of the intervention (7.15 ± 1.755) and control groups (15.63 ± 5.027) was observed after the intervention. Median DJGLS scores were significantly lower in the intervention group than in the control group (Table 2). After therapy, the social

TABLE 1 Sociodemographic characteristics of the study population

	Control n (%)	Intervention n (%)	<i>p</i>
Gender			
Female	16 (53.3)	11 (55.0)	0.908
Male	14 (46.7)	9 (45.0)	
Age			
65–75	17 (56.7)	13 (65.0)	0.760
76–86	8 (26.7)	5 (25.0)	
87–97	5 (16.7)	2 (10.0)	
Marital status			
Single	21 (70.0)	15 (75.0)	0.700
Married	9 (30.0)	5 (25.0)	
Education			
Illiterate	3 (10.0)	1 (5.0)	0.869
Literate	5 (16.7)	2 (10.0)	
Primary school	18 (60.0)	13 (65.0)	
Secondary school	1 (3.3)	2 (10.0)	
High school	2 (6.7)	1 (5.0)	
University	1 (3.3)	1 (5.0)	
Total	30 (100.0)	20 (100.0)	

loneliness score was significantly lower in the intervention group (3.10 ± 1.553 , $p < 0.001$) than in the control group (6.90 ± 3.100). Posttherapy, the emotional loneliness score was significantly lower ($p < 0.001$) in the intervention group (4.05 ± 1.538) than in the control group (8.73 ± 2.599) (Table 2).

Table 3 presents a comparison of the intervention and control groups according to TDAS total and subscale scores. No significant differences in TDAS overall and subscale scores between the intervention and control groups were found at baseline ($p > 0.05$) (Table 3). At postintervention, while there was no significant difference ($p > 0.05$) between the groups for overall TDAS and death uncertainty and pain subscale scores, a significant difference was observed for the exposure subscale scores between the intervention and control groups: after therapy, the exposure subscale score in the intervention group was significantly lower (20.87 ± 8.299 , $p < 0.05$) than in the control group (25.50 ± 2.982) (Table 3).

5 | DISCUSSION

To the best of our knowledge, no studies about the effect of laughter therapy on levels of loneliness and death anxiety among older adults have been conducted globally or in Turkey. Therefore, the discussion of our research findings is limited.

At postintervention, the DJGLS scores as well as social and emotional loneliness subscale scores of the intervention group were significantly lower than that of the control group ($p < 0.001$). Prior

TABLE 2 Comparison of intervention and control groups according to their total and subscales scores on the De Jong Gierveld Loneliness Scale (DJGLS)

	Group	Before intervention			After intervention		
		n	X ± SD	t; p	n	X ± SD	t; p
DJGLS score	Control	30	16.77 ± 3.510	-1.275; 0.209	30	15.63 ± 5.027	7.237; 0.000*
	Intervention	20	17.95 ± 2.704		20	7.15 ± 1.755	
Subscales							
Social loneliness	Control	30	7.40 ± 2.430	-0.793; 0.432	30	6.90 ± 3.100	5.063; 0.000*
	Intervention	20	7.90 ± 1.744		20	3.10 ± 1.553	
Emotional loneliness	Control	30	9.37 ± 1.938	-1.313; 0.195	30	8.73 ± 2.599	7.234; 0.000*
	Intervention	20	10.05 ± 1.572		20	4.05 ± 1.538	

* $p < 0.001$.**TABLE 3** Comparison of intervention and control groups according to their total and subscale scores on the Turkish Death Anxiety Scale (TDAS)

	Group	Before intervention			After intervention		
		n	X ± SD	t; p	n	X ± SD	t; p
TDAS score	Control	30	54.47 ± 20.594	-1.144; 0.258	30	56.83 ± 18.892	-0.636; 0.528
	Intervention	20	61.45 ± 21.941		20	60.20 ± 17.492	
Subscales							
Death uncertainty	Control	30	22.77 ± 15.238	-0.880; 0.383	30	24.00 ± 14.762	0.297; 0.768
	Intervention	20	26.70 ± 15.845		20	22.70 ± 15.722	
Exposure	Control	30	20.00 ± 9.146	-1.044; 0.302	30	20.87 ± 8.299	-2.389; 0.021*
	Intervention	20	22.75 ± 9.089		20	25.50 ± 2.982	
Pain	Control	30	11.70 ± 1.208	-1.107; 0.274	30	11.97 ± 0.183	-0.814; 0.420
	Intervention	20	12.00 ± 0.000		20	12.00 ± 0.000	

* $p < 0.05$.

experimental and quasi-experimental research on laughter therapy with older adults has noted higher levels of positive emotions and improved self-reported subjective judgements of physical and psychological functioning (Ganz & Jacobs, 2014; Hirosaki et al., 2013; Konradt, Hirsch, Jonitz, & Junglas, 2013; Kuru & Kublay, 2017; Lebowitz, Suh, Diaz, & Emery, 2011; Mathieu, 2008; Tse et al., 2010). Laughter therapy is a group intervention that requires social participation (Kataria, 2005). In previous studies, group interventions have been shown to have beneficial effects in alleviating loneliness of older adults (Cattan et al., 2005; Savikko, Routasalo, Tilvis, & Pitkälä, 2010). Given that doing things together and feeling like part of a group increases general well-being, positive emotions and interactions among older adults, we can infer that it also decreases loneliness.

In this study, there were no significant differences in general TDAS, death uncertainty and pain scores in the intervention and control groups after laughter therapy ($p > 0.05$). However, death exposure scores of the intervention group were significantly lower than that of the control group ($p < 0.05$). Laughter therapy may result in physiological changes such as the release of endorphins; moreover, it may help in coping with depression and anxiety (Berk, Felten, Tan, Bittman, & Westengard, 2001). Death anxiety

is related to emotional, cognitive, experiential, developmental and sociocultural shaping, and is a source of motivation. Death anxiety can relate to stressful environments, the experience of unpredictable circumstances, diagnosis of a life-threatening illness or the experience of a life-threatening event, and experiences with death and dying (Lehto & Stein, 2009). Laughter therapy helps increase positive emotions for older people. Its benefits depend not only on the expression of laughter itself, but also on the underlying positive emotion. It allows a person to enjoy his/her real self and dispels brooding (Ripoll & Casado, 2010). Nurses can use laughter therapy and can incorporate it into routine programmes in nursing homes for older people. Collectively, this research suggests that studies that evaluate the effectiveness of therapies and interventions among older adults, including laughter therapy, are needed.

6 | CONCLUSIONS

Laughter therapy helped to lower general loneliness as well as emotional and social loneliness among older adults. While it did

not help to reduce death anxiety, death uncertainty and pain scores, exposure factors were significantly lower in the intervention group after laughter therapy. The results suggest that laughter therapy can be used to lower levels of loneliness and death anxiety among older adults living in nursing homes. Considering that this is a pilot study, randomised controlled studies with a larger sample size are needed to evaluate the effectiveness of laughter therapy on loneliness and death anxiety among older adults.

6.1 | Strengths and limitations

A strength of the present study was that a large sample of older persons participated. It is known that recruiting older persons to participate in research studies is challenging. Collaboration between nursing home management, nurses and researchers is very important for this type of research. However, when they are willing to support an intervention, older people are eager to participate. Another strength was that we gained the trust of the older adults before the intervention by going to the nursing homes and joining routine activities with them over a 2-week period. Further, at the beginning of the study, the older adults felt shame while laughing. Therefore, researchers should be encouraged to support laughing among older people.

In terms of limitations, the small sample size and quasi-experimental research design limited the generalisability of the findings. This pilot study was undertaken in older adults living in nursing homes, so the results may not be generalisable to the adult population and should therefore be interpreted with caution. Nonetheless, this study is the first to test the effectiveness of laughter therapy on reducing loneliness and death anxiety among older adults.

Implication for practice

- Anxiety regarding death and loneliness are important issues that affect quality of life of older adults.
- This first pilot study demonstrates the beneficial effects of laughter therapy on loneliness and death anxiety in nursing home residents.
- Nurses can incorporate laughter therapy into routine programme in nursing home.

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CONFLICT OF INTERESTS

None.

AUTHOR CONTRIBUTIONS

Study design and conception: NKA, PZB and ONE; Data collection: PZB; Application of laughter therapy: NKA; and Manuscript preparation and analysis: NKA, PZB and ONE.

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REFERENCES

- Akgül, H., & Yeşilyaprak, B. (2015). Yaşlılar İçin Yalnızlık Ölçeğinin Türk Kültürüne Uyarlaması: Geçerlilik ve Güvenlilik Çalışması. *Yaşlı Sorunları Araştırma Dergisi*, 8(1), 34–35.
- Aksoydan, E. (2009). Are developing countries ready for ageing populations? An examination on the socio-demographic, economic and health status of elderly in Turkey. *Turkish Journal of Geriatrics*, 12(2), 102–109.
- Berk, L. S., Felten, D. L., Tan, S. A., Bittman, B. B., & Westengard, J. (2001). Modulation of neuroimmune parameters during the eustress of humor-associated mirthful laughter. *Alternative therapies in health and medicine*, 7(2), 62–72.
- Bilgili, N., Kitiş, Y., & Ayaz, S. (2012). Yaşlılarda yalnızlık, uyku kalitesi ve etkileyen faktörlerin değerlendirilmesi. *Turkish Journal of Geriatrics*, 15(1), 81–88.
- Buijzen, M., & Valkenburg, P. M. (2004). Developing a typology of humor in audiovisual media. *Media Psychology*, 6(2), 147–167. https://doi.org/10.1207/s1532785xmep0602_2
- Cattan, M., White, M., Bond, J., & Learmouth, A. (2005). Preventing social isolation and loneliness among older people: A systematic review of health promotion activities. *Aging and Society*, 25, 41–67. <https://doi.org/10.1017/S0144686X04002594>
- Davis, S. F., Miller, K. M., Johnson, D., McAuley, K., & Dinges, D. (1992). The relationship between optimism-pessimism, loneliness, and death anxiety. *Bulletin of the Psychonomic Society*, 30(2), 135–136. <https://doi.org/10.3758/BF03330419>
- De Jong Gierveld, J., & Van Tilburg, T. (1999). Living arrangements of older adults in the Netherlands and Italy: Coresidence values and behaviour and their consequences for loneliness. *Journal of Cross-cultural Gerontology*, 14(1), 1–24. <https://doi.org/10.1023/A:1006600825693>
- De Jong-Gierveld, J., & Kamphuis, F. (1985). The development of a Rasch-type loneliness scale. *Applied psychological measurement*, 9(3), 289–299. <https://doi.org/10.1177/014662168500900307>
- Depaola, S. J., Griffin, M., Young, J. R., & Neimeyer, R. A. (2003). Death anxiety and attitudes toward the elderly among older adults: The role of gender and ethnicity. *Death Studies*, 27(4), 335–354. <https://doi.org/10.1080/07481180302904>
- Dykstra, A. P., van Tilburg, T. G., & de Jong Gierveld, J. (2005). Changes in older adult loneliness. *Research on Aging*, 27(6), 725–747. <https://doi.org/10.1177/0164027505279712>
- Eric De Jonge, K., Jamshed, N., Gilden, D., Kubisiak, J., Bruce, S. R., & Taler, G. (2014). Effects of home-based primary care on Medicare costs in high-risk elders. *Journal of the American Geriatrics Society*, 62(10), 1825–1831. <https://doi.org/10.1111/jgs.12974>
- Erol, S., Sezer, A., Şişman, N. F., & Öztürk, S. (2016). Yaşlılarda yalnızlık algısı ve yaşam doyumu. *Gümüşhane University Journal of Health Sciences*, 5(3), 60–69.
- Esendemir, S. (2013). *Determinants of the applications to the institutional care in Turkey: Darulaceze example*. (Doctorial Thesis).
- Eun, O. C., & Ei, H. (2011). Effects of laughter therapy on depression, quality of life, resilience and immune responses in breast cancer survivors. *Korean Society of Nursing Science*, 41(3), 285–293.

- Freud, S. (1995). Three contributions to the theory of sex. A. A. Brill (Ed.), *The basic writings of Sigmund Freud* (pp. 550–579). New York, NY: Modern Library.
- Galt, C. P., & Hayslip, B. (1998). Age differences in levels of overt and covert death anxiety. *Omega*, *37*, 187–202. <https://doi.org/10.2190/UOM0-BWMV-WF6F-U4DH>
- Ganz, F. D., & Jacobs, J. M. (2014). The effect of humor on elder mental and physical health. *Geriatric Nurse*, *35*(3), 205–211. <https://doi.org/10.1016/j.gerinurse.2014.01.005>
- Gruner, C. R. (1997). *The game of humor: A comprehensive theory of why we laugh*. USA and London: Transaction publishers.
- Haber, D. (2014). *Health care for an aging society: Cost-conscious community care and self-care approaches*. New York: Taylor & Francis.
- Hargie, O. (Ed.) (1997). *The handbook of communication skills*. New York: Psychology Press.
- Harris-Kojetin, L., Sengupta, M., Park-Lee, E., Valverde, R., Caffrey, C., Rome, V., & Lendon, J. (2016). Long-term care providers and services users in the United States: Data from the national study of long-term care providers, 2013–2014. *Vital Health Statistics*, *3*(38), 1–118.
- Hayashi, T., Urayama, O., Hori, M., Sakamoto, S., Nasir, U. M., Iwanaga, S., ... Murakami, K. (2007). Laughter modulates prorenin receptor gene expression in patients with type 2 diabetes. *Journal of psychosomatic research*, *62*(6), 703–706. <https://doi.org/10.1016/j.jpsychores.2007.01.010>
- Hayslip, B., Galt, C. P., & Pinder, M. M. (1994). Effects of death education on conscious and unconscious death anxiety. *OMEGA - Journal of Death and Dying*, *28*(2), 101–111. <https://doi.org/10.2190/687A-B2KM-0HPW-D95F>
- Hirosaki, M., Ohira, T., Kajiura, M., Kiyama, M., Kitamura, A., Sato, S., & Iso, H. (2013). Effects of a laughter and exercise program on physiological and psychological health among community-dwelling elderly in Japan: Randomized controlled trial. *Geriatrics & Gerontology International*, *13*(1), 152–160. <https://doi.org/10.1111/j.1447-0594.2012.00877.x>
- Hosseinpour, A. R., Bergen, N., & Chatterji, S. (2013). Socio-demographic determinants of caregiving in older adults of low-and middle-income countries. *Age and Ageing*, *42*(3), 330–338. <https://doi.org/10.1093/ageing/afs196>
- Jung, H. W., Youn, C. H., Cho, N. R., Lee, M. K., & Lee, J. B. (2009). The effect of laughter therapy on sleep in the community-dwelling elderly. *Korean Journal of Family Medicine*, *30*(7), 511–518. <https://doi.org/10.4082/kjfm.2009.30.7.511>
- Kapikiran, Ş. (2016). Yaşlılarda Yalnızlık İle Yaşam Doyumu Arasındaki İlişki: Sosyal Desteğin Aracılık Rolünün Sınanması. *Yaşlı Sorunları Araştırma Dergisi*, *9*(1), 13–25.
- Kataria, M. (2005). *Laugh for no reason*. India: Madhuri International.
- Khorshid, L., Eşer, İ., Zaybak, A., Yapucu, Ü., Arslan, G. G., & Çınar, Ş. (2004). Huzurevinde Kalan Yaşlıların Yalnızlık Düzeylerinin İncelenmesi. *Turkish Journal of Geriatrics*, *7*(1), 45–50.
- Kılıç, S., Karadağ, G., & Koçak, S. H. (2014). Evde Yaşayan Yaşlıların Yalnızlık ve Depresyon Düzeyleri İle Yaşlılık Algılarının İncelenmesi. *Türk Geriatri Dergisi*, *17*(1), 70–76.
- Kimata, H. (2007). Laughter elevates the levels of breast-milk melatonin. *Journal of Psychosomatic Research*, *62*, 699–702. <https://doi.org/10.1016/j.jpsychores.2006.12.007>
- Ko, H. J., & Youn, H. C. H. (2011). Effects of laughter therapy on depression, cognition and sleep among the community-dwelling elderly. *Geriatrics & Gerontology International*, *11*(39), 267–274. <https://doi.org/10.1111/j.1447-0594.2010.00680.x>
- Konradt, B., Hirsch, R. D., Jonitz, M. F., & Junglas, K. (2013). Evaluation of a standardized humor group in a clinical setting: A feasibility study for older patients with depression. *International journal of geriatric psychiatry*, *28*(8), 850–857. <https://doi.org/10.1002/gps.3893>
- Kuru, N., & Kublay, G. (2017). The effect of laughter therapy on the quality of life of nursing home residents. *Journal of Clinical Nursing*, *26*, 3354–336. <https://doi.org/10.1111/jocn.13687>
- Lebowitz, K. R., Suh, S., Diaz, P. T., & Emery, C. F. (2011). Effects of humor and laughter on psychological functioning, quality of life, health status, and pulmonary functioning among patients with chronic obstructive pulmonary disease: A preliminary investigation. *Heart & Lung: The Journal of Acute and Critical Care*, *40*(4), 310–319. <https://doi.org/10.1016/j.hrtlng.2010.07.010>
- Lehto, R., & Stein, K. (2009). Death anxiety: An analysis of an evolving concept. *Research and Theory for Nursing Practice: An International Journal*, *23*(1), 23–41. <https://doi.org/10.1891/1541-6577.23.1.23>
- Luanagh, C. Ó., & Lawlor, B. A. (2008). Loneliness and the health of older people. *International J Geriatric Psychiatr*, *23*(12), 1213–1221. <https://doi.org/10.1002/gps.2054>
- Mathieu, S. I. (2008). Happiness and humor group promotes life satisfaction for senior center participants. *Activities, Adaptation & Aging*, *32*(2), 134–148.
- Meyer, M., Baumann, S., Wildgruber, D., & Alter, K. (2007). How the brain laughs: Comparative evidence from behavioral, electrophysiological and neuroimaging studies in human and monkey. *Behavioural brain research*, *182*(2), 245–260. <https://doi.org/10.1016/j.bbr.2007.04.023>
- Missler, M., Stroebe, M., Geurtsen, L., Mastenbroek, M., Chmoun, S., & Van Der Houwen, K. (2012). Exploring death anxiety among elderly people: A literature review and empirical investigation. *OMEGA - Journal of Death and Dying*, *64*(4), 357–379. <https://doi.org/10.2190/OM.64.4.e>
- Mora-Ripoll, R. (2011). Potential health benefits of simulated laughter: A narrative review of the literature and recommendations for future research. *Complementary Therapies in Medicine*, *19*, 170–177. <https://doi.org/10.1016/j.ctim.2011.05.003>
- Morreall, J. (1982). A new theory of laughter. *Philosophical Studies*, *42*(2), 243–254. <https://doi.org/10.1007/BF00374037>
- Morreall, J. (1983). *Taking laughter seriously*. Albany: Suny Press.
- Mulder, M. P., & Nijholt, A. (2002). *Humour research: State of art (No. TR-CTIT-02-34)*. Enschede, Holland: University of Twente, Centre for Telematics and Information Technology.
- Mullins, L. C., & Lopez, M. A. (1982). Death anxiety among nursing home residents: A comparison of the young-old and the old-old. *Death Education*, *6*(1), 75–86. <https://doi.org/10.1080/07481188208252117>
- Özku, M., & Kalayci, I. (2015). Türkiye’de yaşlılık çalışmaları. *Sosyoloji Konferansları*, *52*, 259–290.
- Öztürk, Z., Karakuş, G., & Tamam, L. (2011). Yaşlı bireylerde ölüm kaygısı. *Anadolu Psikiyatri Derg*, *2*(1), 37–43.
- Ripoll, R. M., & Casado, I. Q. (2010). Laughter and positive therapies: Modern approach and practical use in medicine. *Revista de Psiquiatria y Salud Mental (English Edition)*, *3*(1), 27–34. [https://doi.org/10.1016/S1888-9891\(10\)70006-9](https://doi.org/10.1016/S1888-9891(10)70006-9)
- Rodin, J. (2014). *Health, control, and aging* (pp. 139–165). The Psychology of Control and Aging. New York: Psychology Press.
- Russac, R. J., Gatliff, C., Reece, M., & Spottswood, D. (2007). Death anxiety across the adult years: An examination of age and gender effects. *Death Studies*, *31*, 549–561. <https://doi.org/10.1080/07481180701356936>
- Saibran-Cook, K. (2009). The Role of Relational Competence as a Predictor of Loneliness in Older Adults. [Dissertation]. USA: Utah University.
- Sarıkaya, Y., & Baloğlu, M. (2016). The development and psychometric properties of the Turkish death anxiety scale (TDAS). *Death studies*, *40*(7), 419–431. <https://doi.org/10.1080/07481187.2016.1158752>
- Savikko, N., Routasalo, P., Tilvis, R., & Pitkälä, K. (2010). Psychosocial group rehabilitation for lonely older people: Favourable processes and mediating factors of the intervention leading to alleviated loneliness. *International journal of older people nursing*, *5*(1), 16–24. <https://doi.org/10.1111/j.1748-3743.2009.00191.x>

- Seaward, L. B. (1992). Humor's healing potential. *Health Progress*, 73, 66–70.
- Softa, H. K., Öztürk, A., Dindaş, İ., & Göçmen, M. (2015). Kastamonu 1no'lu Aile Sağlığı Merkezine Başvuran Yaşlıların Yalnızlık Düzeyini Etkileyen Bazı Faktörlerin İncelenmesi. *Yaşlı Sorunları Araştırma Dergisi*, 8(2), 88–97.
- Stephens, A., Shankar, A., Demakakos, P., & Wardle, J. (2013). Social isolation, loneliness, and all-cause mortality in older men and women. *Proceedings of the National Academy of Sciences*, 110(15), 5797–5801. <https://doi.org/10.1073/pnas.1219686110>
- Suhail, K., & Akram, S. (2002). Correlates of death anxiety in Pakistan. *Death Studies*, 26, 39–50. <https://doi.org/10.1080/07481180210146>
- Tarricone, R., & Tsouros, A. D. (2008). *Home care in Europe: The solid facts*. Milan: WHO Regional Office Europe.
- Tilvis, R. S., Laitala, V., Routasalo, P. E., & Pitkälä, K. H. (2011). Suffering from loneliness indicates significant mortality risk of older people. *Journal of Aging Research*, 534781, <https://doi.org/10.4061/2011/534781>
- Tomer, A. (Ed.) (2000). *Death attitudes and the older adult: Theories, concepts, and applications*. USA: Psychology Press.
- T.R. Prime Ministry State Planning Organization. (2007). The Situation of Elderly People in Turkey and National Plan of Action on Ageing. Available at: http://www.monitoringris.org/new/admin/documents/tools_nat/trk.pdf (accessed 17 September 2016).
- Tse, M. M., Lo, A. P., Cheng, T. L., Chan, E. K., Chan, A. H., & Chung, H. S. (2010). Humor therapy: relieving chronic pain and enhancing happiness for older adults. *Journal of Aging Research*, 2010, 343574.
- Türkiye İstatistik Kurumu [Turkish Statistical Institute]. İstatistiklerle yaşlılar [Elderly statistics] 2014. www.tuik.gov.tr/IcerikGetir.do?istab_id=265. 2014 Accessed 12 September 2016.
- Türkiye İstatistik Kurumu [Turkish Statistical Institute]. İstatistiklerle yaşlılar [Elderly statistics] 2016. <https://www.tuik.gov.tr/PreHaberBultenleri.do?id=27595>. 2016 Accessed 10 March 2018.
- United Nations. Department of Economic. (2015). *World population prospects: The 2015 revision*. New York, United Nations Publications.
- White, P. D., Gilner, F. H., Handal, P. J., & Napoli, J. G. (1984). A behavioral intervention for death anxiety in nurses. *OMEGA - Journal of Death and Dying*, 14(1), 33–42. <https://doi.org/10.2190/CENT-9FMU-H61E-8BHE>

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