Effects of Laughter Therapy on Life Satisfaction and Loneliness in Older Adults Living in Nursing Homes in Turkey: A Parallel Group Randomized Controlled Trial

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Abstract

Purpose: This study examined the effects of laughter therapy on life satisfaction and loneliness in older adults living in nursing homes.

Design: A single-blind, parallel-group, randomized controlled trial (ClinicalTrials NCT 03687788) with a pretest–posttest design was conducted.

Methods: There were 31 experimental participants and 31 controls. The experimental group received laughter therapy twice a week for 6 weeks, along with usual care. The control group received usual care only. Loneliness was measured with the De Jong Gierveld Loneliness Scale, and life satisfaction was measured with the Satisfaction With Life Scale.

Findings: After 6 weeks, there was a statistically significant difference in De Jong Gierveld Loneliness Scale total score between the two groups, and the subscale scores of the experimental group decreased.

Conclusions: Laughter therapy may reduce loneliness in older adults.

Clinical Relevance: Healthcare professionals, especially nurses, can potentially use laughter therapy to reduce loneliness in older adults.

Keywords: Laughter therapy; loneliness; nursing; nursing homes; older adults.

Introduction

Life Satisfaction and Loneliness Among Older Adults

The average life expectancy of the global population at birth was 71.4 years in 2015 (World Health Organization, 2015). In Turkey, life expectancy at birth was 78 years in 2017 (Turkish Statistical Institute, 2017). Life expectancy at older ages has increased over the past 5 years (Stropnik, 2018). Although the extension of life expectancy may be beneficial and desirable, knowing an individual's life expectancy does not provide us with any information on his or her life satisfaction (Dean, Grunert, Raats, Nielsen, & Lumbers, 2008). Life satisfaction is defined in terms of cognitive theory as an

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"individual's cognitive judgment about comparisons based on the compatibility of their own living conditions with the standards" by Diener, Emmons, Larsen, and Griffin (1985). It has been suggested that life satisfaction decreases with age, further decreasing as one's health deteriorates (Schilling, 2005). Factors such as marital status, educational status, emotional support, social support, health status, social interaction, leisure activity time, intergenerational relationships, mealtime interactions, better living conditions, and being exposed to trauma influence the life satisfaction of older adults (Didino et al., 2017; Fernández-Portero, Alarcón, & Padura, 2017; Ye, Chen, & Kahana, 2017). Another factor that affects the life satisfaction of older adults is loneliness (Andrew & Meeks, 2018). Loneliness is defined as the difference between the relationships an individual has and the relationships they desire to have (Sermat, 1978). Loneliness, which is quite common among older adults, is an important risk factor for mortality and functional decline (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015). Past studies have demonstrated statistically significant relationships between loneliness and older age, gender, educational level, income, maternal status, health status, functional status, self-reported health, hearing loss, family support, and chronic illness (Cohen-Mansfield, Hazan, Lerman, & Shalom, 2016; Hawkley & Kocherginsky, 2018; Shankar, McMunn, Demakakos, Hamer, Steptoe, 2017). It has been

suggested that psychological therapies such as mindfulness and stress reduction, reminiscence therapy, humor therapy, and cognitive and social support interventions are the most effective at reducing loneliness (Gardiner, Geldenhuys, & Gott, 2018). These therapies have been found to significantly reduce loneliness and to have a number of other positive effects in terms of improvements in social support, happiness, quality of life, and life satisfaction. In order for interventions to be successful, it is recommended that they involve activities that include adaptability, community involvement, and productive participation (Gardiner et al., 2018). One of the most effective types of interventions for reducing loneliness (Kuru Alıcı, Zorba Bahceli, & Emiroğlu, 2018) and increasing quality of life (Kuru Alıcı & Kublay, 2017) and thus life satisfaction are laughter therapy interventions.

Laughter Therapy and Older Adults

Laughter therapy that includes yoga breathing techniques and laughter exercises is considered to be an effective method of promoting laughter (Kataria, 2011). Although laughter can be explained using various theories, there are three main theories: theory of social superiority, cognitive–perceptual (incongruity) theory, and emotional theory. In the theory of social superiority, we laugh at the behavior of others and demonstrate our superiority over them (Morreall, 1983). According to cognitive–perceptual (incongruity) theory, people react to the situations that are contrary to their expectations by laughing (Gruner, 2000). In emotional theory, on the other hand, laughing is considered to be an outward expression of repressed feelings. According to Freud (1916), one of the greatest supporters of the emotional theory explanation, the end result of excess libidinal energy is laughter. Laughter is an emotional response that promotes the personal and social development of individuals and facilitates interaction with others (Hirosaki et al., 2013). This emotional reaction has a very positive effect on the health of older adults. Previous studies have shown that laughter increases quality of life, life satisfaction, happiness, positive mood, balance and flexibility, and immunoglobulin levels in older adults and decreases loneliness, negative mood, agitation, stress, and depression (Ellis, Ben-Moshe, & Teshuva, 2017; Kuru Alıcı & Kublay, 2017; Kuru Alıcı et al., 2018; Supriadi, Virgona, & Rahman, 2016). The previous studies were able to establish the positive effects of laughter therapy on the life satisfaction and subjective happiness (Ellis et al., 2017; Song, Park, & Park, 2013). It has been found that the frequency of laughing decreases with age (Mathieu, 2008). Older adults living in nursing homes have reported that laughter is very rare in their lives and that they mostly find themselves laughing while watching TV, reading books, or walking outside (Gonot-Schoupinsky & Garip, 2018). The use of laughter by geriatric

nurses is considered an important tool in stress management and the facilitation of the nursing process (Davidhizar & Schearer, 1992). Only a limited number of studies have examined laughter therapy and its use in geriatric nursing (Kuru Alıcı, 2017; McCreaddie & Wiggins, 2008). However, in light of the effectiveness of laughter therapy in increasing life satisfaction in older adults, further studies are warranted.

This study, which was a parallel-group, randomized controlled trial with a pretest–posttest design, was conducted to fill this gap by examining the effects of laughter therapy on life satisfaction and loneliness in older adults living in nursing homes in Turkey.

The following research questions were addressed in the study:

1. What is the effect of laughter therapy on the loneliness scores of older adults living in nursing homes in Turkey?

2. What is the effect of laughter therapy on the life satisfaction scores of older adults living in nursing homes in Turkey?

Materials and Methods

Design

This was an experimental study involving two parallel groups: an experimental group and a control group. It used a pretest and posttest randomized controlled design. A single-blinded, parallel-group randomized controlled trial was conducted to evaluate the effectiveness of laughter therapy on life satisfaction and loneliness in older adults living in nursing homes.

This clinical trial is registered at ClinicalTrials.gov (Ref. No. NCT03687788). Reporting adhered to the Consolidated Standards of Reporting Trials extension for parallel-group randomized trials (Moher et al., 2012) and the Template for Intervention Description and Replication checklist (Hoffmann et al., 2014).

Setting

The data were collected in a Nursing Home and Rehabilitation Centre in Hatay, which is affiliated with the Ministry of Family and Social Policies. The Nursing Home and Rehabilitation Centre is only one center, but dependent and independent older people can stay there in Turkey. The nursing center has a total capacity of 170 people and serves individuals aged 60 years and older. As in every state-owned nursing home, older adults have to pay a certain amount of money to reside in the facility. The personnel of the nursing home is composed of the nursing home manager, a social service worker, a psychologist, a doctor, a nurse, and the assistant staff. The nurses working in the nursing home are competent health professionals responsible for the care of older adults. In

Turkey, nurses must have a 4-year university degree to be able to work in a nursing home. Responsibilities of nursing home nurses include monitoring the vital signs of older adults; drug preparation and administration; and patient monitoring, feeding, dressing, wound care, and so forth. No social activities were organized by the institution at the time of the study.

Sample Size Calculation

A power analysis was conducted using G*Power 3.1.9.2 software (Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany) in order to calculate the required sample size (Faul, Erdfelder, Lang, & Buchner, 2007). When the power analysis was conducted with effect sizes obtained from other studies, the sample numbers were low (Kuru Alıcı et al., 2018; Shahidi et al., 2011). Therefore, in this study, we determined that each group should consist of 34 patients, with an effect size at 0.80 (high) and assuming 90% study power and 5% Type I error. The sample of the study consisted of 68 older adults.

Inclusion and Exclusion Criteria

In order to be included in the study, 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, or surgical operations with the risk of bleeding. Eligibility was determined by a medical doctor and the researchers. Of the 68 older adults who participated in the study, data from six were excluded from the analysis for the following reasons (Figure 1): four were hospitalized, one decided to cease participation, and one died. Thus, the data from 62 participants (31 in the experimental group and 31 in the control group) were analyzed. There were no statistical differences between the experimental and control groups in terms of sociodemographic characteristics (Table 1).

Randomization and Blinding

A total of 68 older adults (34 in each group) were randomly selected from among 80 older adults in the nursing home, who were evaluated for their suitability for the study. In order to ensure randomization, a stratified sampling method (by gender) was first applied. In order to ensure equal distribution in terms of gender in each group, two groups were formed as women and men. After the stratification process, five blocks consisting of six older
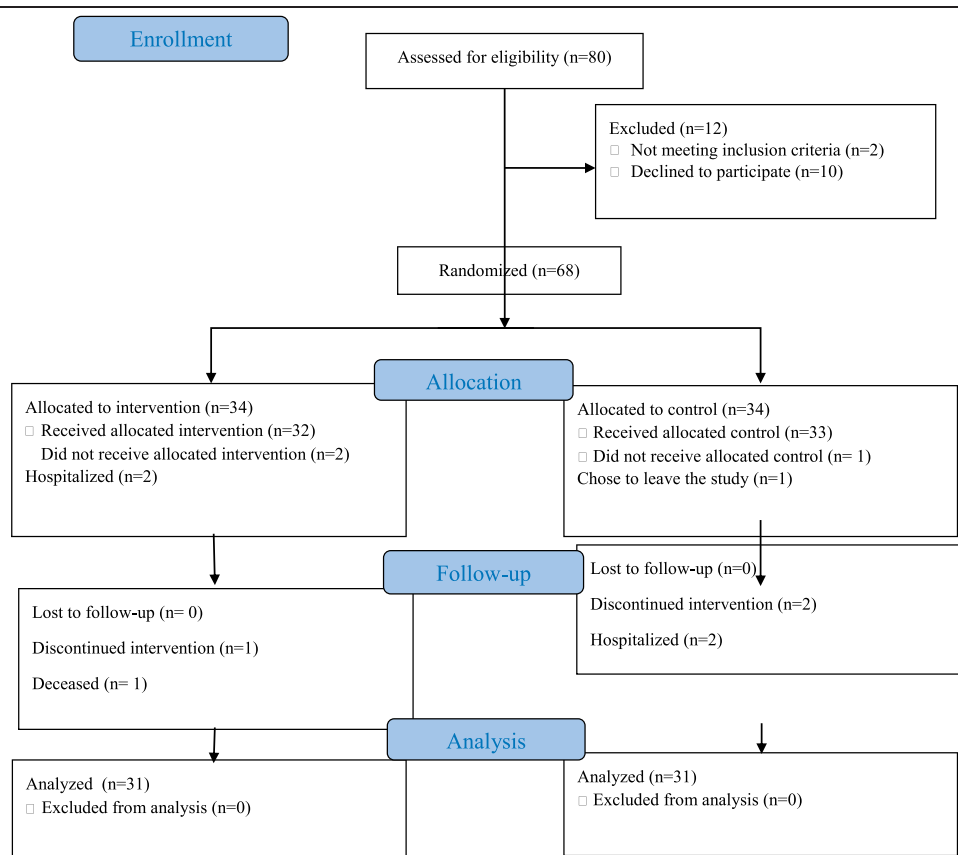

Figure 1. Participant Flow Diagram.

Table 1 Sociodemographic Characteristics

Characteristics	Control Group	Experimental Group	p
Age	73	72.4	
Gender, n (%)			.820
Female	15 (48.4)	15 (48.4)	
Male	16 (51.6)	16 (51.6)	
Marital status, n (%)			.745
Single	2 (9.5)	3 (9.7)	
Married	29 (90.5)	28 (90.3)	
Education, n (%)			.860
Illiterate	7 (22.6)	8 (25.8)	
Literate	9 (29.0)	9 (29.0)	
Primary school	7 (22.6)	6 (19.4)	
Secondary school	5 (16.1)	5 (16.1)	
High school	3 (9.7)	3 (9.7)	
SWLS	10.77	11.70	.559
Low	22 (71.0)	21 (68.0)	
Medium	7 (22.5)	8 (25.5)	
High	2 (6.5)	2 (6.5)	
DJGLS	16.55	17.06	.397
Low	5 (16.0)	4 (12.0)	
Medium	10 (32.0)	12 (38.7)	
High	16 (52.0)	15 (49.3)	

Note. SWLS = Satisfaction with Life Scale; DJGLS = DeJong Gierveld Loneliness Scale.

adults and one block consisting of four older adults were formed using a permuted blocked randomization method. The generated blocks were then randomly assigned to the experimental and control groups using a random number table generated by a statistician in the computer environment (http://www.randomizer.org). Randomization was carried out by a statistician who was not one of the researchers in order to prevent bias and ensure confidentiality during the randomization phase. Also, to further ensure confidentiality, each older adult was assigned a random numeric code, and the results were reported to the researchers in closed opaque envelopes. The closed opaque envelopes were numbered in random order by the researchers and given to an assistant researcher (a nurse who worked at the nursing home who had agreed to take part in the study).

Pretest and posttest data were collected by the assistant researcher who was blinded to the identity of the members of each group. The collected data were entered into the computer by the assistant researcher. The assistant researcher was provided with training on how to collect the data from the participants and how to transfer the data to the computer by the researchers through face-to-face meetings held 3 days a week.

The analysis of the data coded according to the groups was made by a statistician. After the statistical analyses were completed and the research report was written, the assistant researcher explained the coding for the experimental and control groups. In this way, single-blindness was achieved.

Participant Involvement

Prior to the start of the study, opinions of the social service worker and the assistant researcher (the nurse working in the nursing home) were sought. After obtaining information on the daily activities of the older adults and their availability, the days and the hours the study would be carried out were determined.

Intervention

Experimental Group Condition

A laughter therapy intervention was developed and applied by the primary investigator (PI). The PI was a certified laughter yoga instructor. The experimental group received laughter therapy twice a week for 6 weeks. The residents of the nursing home had breakfast between 7:00 a.m. and 9:00 a.m. in the morning. According to the information obtained from the specialists working at the institution, the residents appeared to be more energetic between 10:00 a.m. and 12:00 p.m. after breakfast and participated in group activities during that time of the day. For this reason, the PI applied the laughter therapy to those in the experimental group between 10:00 a.m. and 11:00 a.m. The therapy sessions were held in a spacious meeting room with a projector and a sound system on Mondays and Fridays, as appropriate.

Each laughter therapy session consisted of four parts. The first part consisted of warm-up exercises, which included gentle stretching and hand clapping. The warm-up exercises were performed for 10 min. The second part included deep breathing exercises and hand clapping, which were performed for 5 min. The third part involved children's games and laughter exercises. Typical games and exercises performed included milkshake laughter, boogie boogie laughter techniques, 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, argument laughter, and teeth brushing and mouthwash exercises. The sessions included a combination of different games and exercises, which were performed for a total of 15 min. The last part included breathing exercises and meditation, which were performed for 10 min.

Control Group Condition

The control group did not take part in the laughter therapy intervention. This group received the usual care (no therapy), which consisted of routine nursing care and access to geriatric consultation at the center. During the sessions, the control group continued their daily routine.

Ethical Considerations

Permission to carry out the study was obtained from the Ministry of Family and Social Policies and from Hatay Nursing Home and Rehabilitation Centre. The study was also approved by the research ethics committee of Mustafa Kemal University in Turkey (2017/185). Prior written informed consent was obtained after the participants verbally agreed to participate in the study. They were informed that they could withdraw from the study at any time without stating a reason.

Data Collection

Data were collected from February 2018 to April 2018. The primary outcomes were assessed at baseline (pretest) and at the end of the intervention (posttest) period (Week 6). To collect data, a personal information form was used together with the De Jong Gierveld Loneliness Scale (DJGLS) and the Satisfaction With Life Scale (SWLS).

The personal information form contained seven items on gender, age, marital status, educational status, occupation, social security status, and income status. The DJGLS was originally developed by De Jong Gierveld and Kamphuls (1985) and revised by De Jong Gierveld and van Tilburg (1999). The 11-item DJGLS consists of two subscales: emotional loneliness and social loneliness. 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. Responses are based on a Likert-type scale. Total scores can range from 0 to 22, with a higher score denoting more severe loneliness. The DJGLS has been tested for validity and reliability in the Turkish population by Akgül and Yeşilyaprak (2015) and was found to have a Cronbach's alpha reliability coefficient of .85. In this study, Cronbach's alpha was .87.

The SWLS was developed by Diener et al. (1985). This scale has a one-factor structure and consists of five items that evaluate life satisfaction of individuals in general. Responses are based on a 5-point Likert scale. The total score ranges from 5 to 25, and a higher scale score indicates a higher level of life satisfaction. The SWLS was tested for validity and reliability in the Turkish older adult population by Durak, Senol-Durak, and Gencoz (2010) and was found to have a Cronbach's alpha reliability coefficient of .72. In this study, Cronbach's alpha was .82.

Data Analysis

Descriptive statistics were calculated for the sociodemographic characteristics of the study population. The Kolmogorov–Smirnov normality test was applied to the scales and subscale scores for further analyses. Before and after laughter therapy, the differences between the total scores of both the experimental and control groups showed normal distributions ($p > .05$). Parametric tests were used for comparison. The paired-sample t test was used to analyze the difference between the total scores of both the experimental and control groups before and after laughter therapy showed normal distributions. The independent-sample t test was used for subscales (emotional and social loneliness) that showed a normal distribution. Cohen's d was calculated, and for all the tests, statistical significance was set at $p < .05$. All statistical analyses were carried out in SPSS v21 (IBM Corp., Armonk, NY).

Results

Data on the sociodemographic characteristics of the participants are presented in Table 1. The mean age of the control group was 73.6 years, and the mean age of the experimental group was 72.4 years. Approximately half of the participants in the control (51.6%) and experimental (51.6%) groups were male. The majority of the participants in the control (90.5%) and experimental (90.3%) groups were married. Most of the older adults (75%) in the control and experimental groups were literate and had college-level education. The chi-square test revealed no significant differences between the groups in terms of demographic characteristics ($p > .05$).

Table 2 presents a comparison of the experimental and control groups according to SWLS scores. At baseline (i.e., before the experimental group had undergone the laughter therapy intervention), no significant difference ($p = .559$) was observed between the experimental (11.70 ± 3.21) and control (10.77 ± 4.14) groups in terms of mean life satisfaction score. After the laughter therapy intervention, no statistically significant difference ($p < .972$, $d = 0.006$) was observed between the mean SWLS scores of the experimental (11.67 ± 4.19) and control (9.63 ± 3.027) groups.

Table 2 Comparison of Satisfaction With Life Scale Score Before and After Intervention

	Group		Before Intervention			After Intervention		Cohen's d
		n	X ± SD	t; p	n	X ± SD	t; p	
Satisfaction With Life Scale	Control	31	10.77 ± 4.14	0.109; .559	31	9.63 ± 3.027	0.036; .972	0.006
	Experimental	31	11.70 ± 3.21		31	11.67 ± 4.19		0.006

Table 3 Comparison of De Jong Gierveld Loneliness Scale Score Before and After Intervention

	Group	Before Intervention			After Intervention			Effect Size
		n	X ± SD	t; p	n	X ± SD	t; p	Cohen's d
De Jong Gierveld Loneliness Scale	Control	31	16.55 ± 3.45	3.145; .397	31	14.56 ± 4.03	18.036; .000***	3.23
	Experimental	31	17.06 ± 2.74		31	6.12 ± 2.44		
Social loneliness subscale	Control	31	7.48 ± 2.62	2.025; .293	31	6.70 ± 3.15	9.000; .000***	1.61
	Experimental	31	7.25 ± 1.84		31	3.16 ± 1.41		
Emotional loneliness subscale	Control	31	10.12 ± 1.56	11.547; .095	31	9.72 ± 2.25	22.464; .000***	4.03
	Experimental	31	9.80 ± 1.37		31	2.96 ± 1.49		

***$p < .001$.

Table 3 presents a comparison of the experimental and control groups based on DJGLS total and subscale scores. At baseline, no significant differences ($p = .397$) were observed in mean DJGLS scores between the experimental (17.06 ± 2.74) and control (16.55 ± 3.45) groups. However, a statistically significant difference ($p < .001$, $d = 3.23$) was observed between the mean DJGLS scores of the experimental (6.12 ± 2.44) and control (14.56 ± 4.03) groups after the intervention. The median DJGLS scores were significantly lower in the experimental group than in the control group (Table 3).

After the therapy, the social loneliness score was significantly lower ($p < .001$, $d = 1.61$) in the experimental group (3.16 ± 1.41) than in the control group (6.70 ± 3.15). Furthermore, the emotional loneliness score was significantly lower ($p < .001$, $d = 4.03$) in the experimental group (2.96 ± 1.49) than in the control group (9.72 ± 2.25) after the intervention (Table 3). Figure 2 presents SWLS and DJGLS results before and after the intervention. The intervention carried out in this study had no negative effects, and no participants were harmed during the study.

Discussion

This is the first single-blinded, parallel-group randomized controlled experimental study to investigate the effect of laughter therapy on loneliness and life satisfaction. According to the results of the study, the loneliness scores of the older adults in the experimental group significantly decreased after laughter therapy, whereas the life satisfaction scores did not change. In another study evaluating the effect of laughter therapy on loneliness in older adults, a decrease in loneliness scores was observed after the therapy (Kuru Alıcı et al., 2018). Past studies have revealed that laughter therapy strengthens interpersonal relationships in older adults and increases social interaction, group interaction, happiness, optimism, and general well-being (Deshpande & Verma, 2013; Dziegielewski, 2003; Santos, Moro, & Jenaro, 2018), effects that may contribute to reducing loneliness in older adults. Furthermore, because laughter therapy is conducted as a group activity and requires regular participation, the older adults in our study who participated in the therapy may have felt that they were part of a group, which may have played a role in reducing their loneliness.

Life satisfaction, an important indicator of individual well-being, plays an important role in positive aging. One previous study demonstrated the positive effects of laughter therapy on life satisfaction and subjective happiness in older adults aged 60 years and older who had been practicing laughter therapy for the past 6 months (Ellis et al., 2017). Similarly, another study found that participation in a happiness and humor group played a significant role in increasing life satisfaction among a population of older adults (Song et al., 2013). However, this study and another study found that laughter therapy did not have a statistically significant effect on life satisfaction in older adults (Shahidi et al., 2011). These differing results may be due to cultural differences and demographic factors.

Study Limitations

This study had some limitations. First, the study was carried out at a single institution. Second, the study population was composed of older adults, and some of the participants did not finish the study due to unforeseen reasons such as illness and death.

Conclusion

The results of this randomized controlled study investigating the effects of laughter therapy on loneliness and life satisfaction in older adults living in a nursing home have indicated that the therapy led to a decrease in the loneliness levels of the older adults in the experimental group; however, it had no effect on their life satisfaction levels. According to these results, it is suggested to use laughter therapy to reduce loneliness in older adults living in nursing homes. Laughter therapy as a group activity has implications for rehabilitation nurses and other healthcare professionals, emphasizing their preventive role for older adults. Nursing that promotes rehabilitation maintains or restores functional ability and increases life satisfaction as
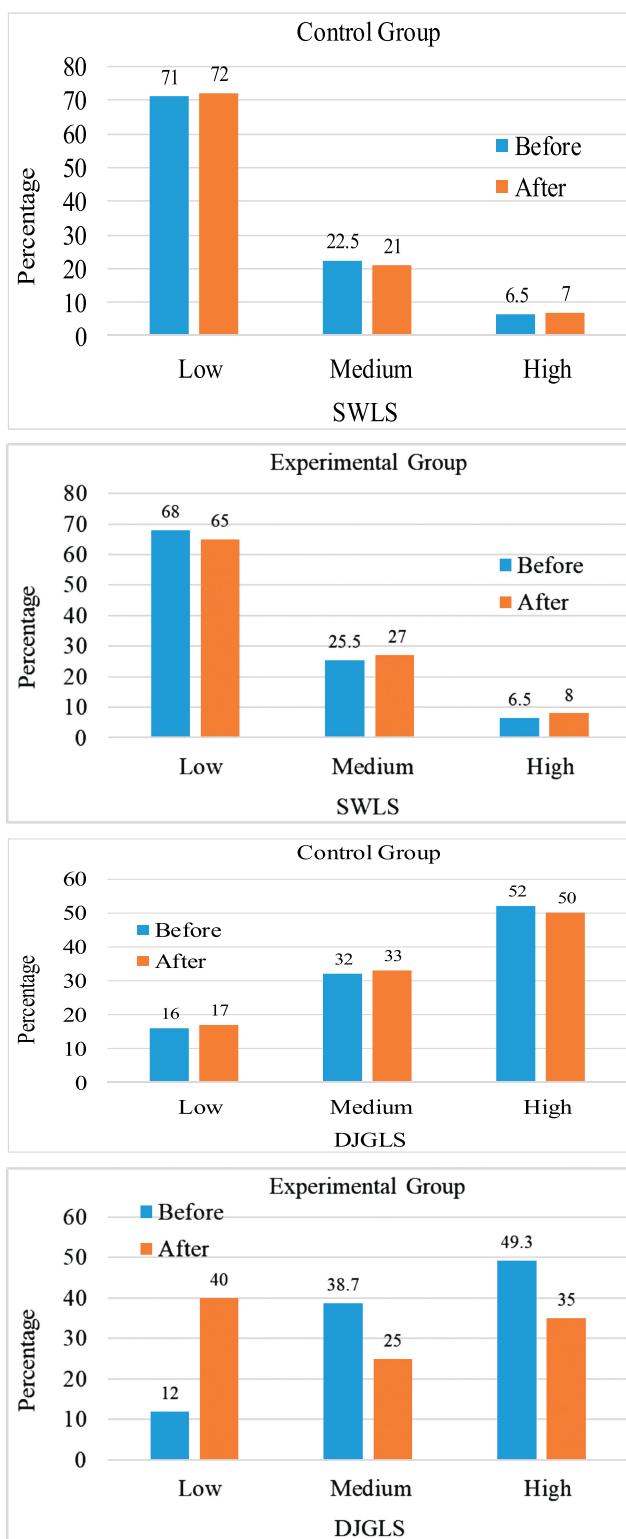
Figure 2. Satisfaction With Life Scale (SWLS) and De Jong Gierveld Loneliness Scale (DJGLS) results before and after the intervention.

Key Practice Points

- It is suggested to use laughter therapy to reduce the loneliness levels of older adults living in nursing homes.

- Laughter therapy applied to older adults may improve their personal relationships, enabling them to feel part of a group and increasing their functional performance.

- Healthcare professionals working with older adults, especially nurses, can use laughter therapy to decrease loneliness.

prevent isolation and support their independence. Rehabilitation nurses in residential settings should foster the development of intervention programs in the future.

In addition to reducing loneliness, laughter therapy improves communication between older adults, contributes to their socialization, and is cost-effective. Thus, it could be used as a nursing intervention in nursing homes. Nurses working in nursing homes can easily integrate laughter therapy into the daily group activities of older adults. These nurses should also be encouraged to pursue certificates in laughter therapy.

Conflict of Interest

The authors declare no conflicts of interest.

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well as physical and social well-being. Health promotion through primary prevention, as well as preventing complications for those with existing disabilities, is essential to the role of the rehabilitation nurse. The purpose of rehabilitation in older adults staying in nursing homes is to

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