

ORIGINAL ARTICLE

BEHAVIORAL AND SOCIAL SCIENCES

Effect of group play therapy as holistic geriatric interventional modality on feelings of loneliness among older people: A randomized control trial

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Received: 14 September 2023

Revised: 27 July 2024

Accepted: 11 August 2024

Aim: Previous research has identified loneliness as a significant social stressor among the older adult population, and highlights the scarcity of empirical research on the efficacy of group play therapy as a method for addressing loneliness in this demographic. This study aimed to explore the impact of group play therapy on reducing feelings of loneliness among older individuals.

Methods: A randomized clinical trial was carried out in 2018 on 60 older adult participants from two governmental health centers in Mashhad, Iran. The intervention group received adult-centered play therapy for 12 sessions over 6 weeks, with each session lasting 60 min. The therapy protocol combined traditional and modern games, structured into three stages: warm-up, working and closing. The University of California, Los Angeles (UCLA) scale was used to measure feelings of loneliness at baseline and after the intervention. Data analysis was carried out using SPSS version 21.

Results: There was a significant decrease in feelings of loneliness in the intervention group compared with the control group ($P < 0.001$). Additionally, a significant difference in feelings of loneliness was observed within the intervention group between baseline and follow up ($P < 0.001$).

Conclusions: Group play therapy, involving a combination of traditional and modern games, can reduce feelings of loneliness among older adults. This method can promote healthy aging and improve mental health issues, such as loneliness, among older people. These findings can be utilized in healthcare centers and nursing homes for older adults.
Geriatr Gerontol Int 2024; ●●: ●●–●●.

Keywords: loneliness, older people, play, play therapy.

Introduction

People are living longer worldwide. By 2050, the world's population aged ≥ 60 years is expected to reach 2 billion, up from 900 million in 2015.^{1,2} With this increase in the proportion of older people, their health problems, particularly mental and social health issues, have gained importance. Reduced social communication, loss of relatives, and mental and physical illnesses make achieving a healthy aging experience a major challenge, leading to several social stressors, with loneliness being one of the most significant.³

Trial Registration: This study (no.IRCT20170619034650N1) was registered with the Iranian Registry of Clinical Trials on 02/01/2018.

Loneliness is the feeling of being alone, regardless of the amount of social contact.⁴ It has been classically defined as a subjectively experienced aversive emotional state related to the perception of unfulfilled intimate and social needs.^{5–7} Factors leading to loneliness include feelings of isolation and lack of participation in social activities.⁸ Aging can cause various health problems, such as physical, mental and intellectual weakness; various diseases; and decreased quality of life,⁹ as well as an increased need for attention and holistic geriatric care.¹⁰ Loneliness involves both psychological and social aspects, and successful treatment through physical, psychological and social rehabilitation of older adults might reduce the risk of serious complications, such as depression, improving social function, mental state and overall quality of life.¹¹

Implementing simple therapeutic and caring interventions that reduce loneliness among older people and promote healthy aging

is crucial. In this regard, group play therapy can be an effective approach to addressing the challenges faced by older adults. Group play therapy involves more social interaction and a competitive environment, encouraging adults to excel. The International Association of Play Therapy defines play therapy as the systematic use of a theoretical model to establish an interpersonal process where trained play therapists use the therapeutic powers of play to help clients prevent or resolve psychosocial difficulties, and achieve optimal growth and development.¹²

Play therapy provides cognitive, physical, and emotional activities and social interaction simultaneously, using an integrated approach involving music, artwork, language or literature, physical exercise, cognitive games, living areas and traditional play.¹³ However, there are few studies on the impacts of play therapy among older people.^{14–16} One study showed that play therapy and social interactions effectively improved quality of life and increased self-acceptance.¹³ Most studies on play therapy have focused on the impacts of video games.^{14–18} A systematic review by Poscia *et al.* suggested that new technologies and community-engaged arts might be promising tools for overcoming loneliness among older individuals.¹⁹ Another study showed that the use of dolls in elderly care had a positive impact on feelings of loneliness.²⁰ A 2019 review in Iran showed the positive impact of video games on depression and loneliness among older adults.¹⁷ There is a lack of adequate information and research on group play therapy for older people. Using a group modality can increase the number of people served by one nurse, making it cost-effective, and improving the social and physical environment, thus reducing loneliness and enhancing mental health among older adults.²¹

To complement the limitations of previous studies, the present study aimed to improve the social and physical environment through a combination of traditional and modern group play therapy, which might better match the cultural context of Iranian older people, and serve as an interesting and effective geriatric approach. Iranian older adults experience loneliness more than other aging issues due to physical defects and loss of social connections. Group play therapy serves as a powerful educational tool and a holistic geriatric intervention to overcome loneliness.²² To the best of our knowledge, no study has investigated the impacts of play therapy on loneliness among older adults in Iranian society. Thus, the present study aimed to explore the impact of group play therapy on loneliness among older people.

Methods

Study design

The present randomized clinical trial used a parallel-group design with two arms. The study was carried out in two governmental health centers (Sadaf and Danesh Amooz centers) in Mashhad, Iran, between 5 January and 15 February 2018 (Fig. 1). The study adhered strictly to the pre-registered protocol, available at <https://irct.behdasht.gov.ir/trial/26436>. These centers were selected based on their active service to a large population of older adults and the availability of appropriate facilities for carrying out group activities. Therefore, in this study, play therapy was a kind of adult-centered play therapy approach. The protocol sessions of group play therapy used the stages model developed by Nordling and Guerney as theoretical frameworks.²³

Participants

Considering no similar study has been found to show the effects of group play therapy on loneliness among older people, this

research used the results of a pilot study involving 10 individuals per group. Additionally, a formula for comparing two means specific to the loneliness variable was used to determine the sample size. Based on the pilot study, and accounting for a confidence level of 95% and a test power of 80%, the minimum sample size was calculated to be 30 participants per group. The following formula was used to calculate the sample size.²⁴

$$N = (Z_{1-\alpha/2} + Z_{1-\beta})^2 (S_1^2 + S_2^2) (X_1 - X_2)^2$$

N is the sample size for each group. $Z_{1-\alpha/2}$ is the critical value of the normal distribution at $\alpha/2$ (for a confidence level of 95%, $Z_{1-\alpha/2} = 1.96$). $Z_{1-\beta}$ is the critical value of the normal distribution at β (for a test power of 80%, $Z_{1-\beta} = 0.84$). S_1 and S_2 are the standard deviations of the two groups ($S_1 = 1.9$ and $S_2 = 2.2$). X_1 and X_2 are the means of the two groups ($X_1 = 3.1$ and $X_2 = 4.6$).

The inclusion criteria were age ≥ 60 years; ability to communicate with the researcher; obtaining a score of at least 7 from a short cognitive questionnaire (Abbreviated Mental Test); lack of visual and hearing impairment to an extent that causes activity impairment; non-use of antidepressants during the study; and feeling lonely, obtaining a score of at least 21 from the loneliness scale.

The exclusion criteria were participants who requested withdrawal; participants who had repeated absences for more than three consecutive sessions; and participants who had acute illnesses or hospitalization during the study.

Procedure

Participants were selected through convenience sampling and, after obtaining written consent, were randomly assigned to control and intervention groups. Data collection procedures were carried out by the researcher. Participants were equally selected from both centers. After administering the Abbreviated Mental Test for cognitive assessment, participants were deemed eligible if they scored ≥ 7 . A pretest (baseline data) was carried out in both groups 1 day before the intervention. Participants were assessed using demographic data and the University of California, Los Angeles (UCLA) Loneliness Scale as the outcome variable. Post-test assessments were carried out 1 day after the intervention ended. Participants who could read and write filled out the instruments themselves, whereas others were assisted by the researcher.

Randomization and blindness

The primary researcher carried out randomization using a computer-generated random number table to assign participants to the intervention or control group. The researcher responsible for data collection and analysis was blinded to group assignments using coded identifiers, which were deciphered only after data analysis. Participants were also blinded to their group assignment to maintain the blind.

Outcomes

The demographic characteristics form collected data on age, sex, level of education, marital status, income and living arrangement.

Loneliness was measured using the UCLA Loneliness Scale Version 3. This 20-item scale, developed by psychologist Daniel Russell in 1978, utilizes a four-point Likert scale (never, rarely, sometimes, always) to assess the frequency of loneliness-related experiences. Total scores range from 20 to 80, with higher scores indicating greater loneliness. The scale incorporates both

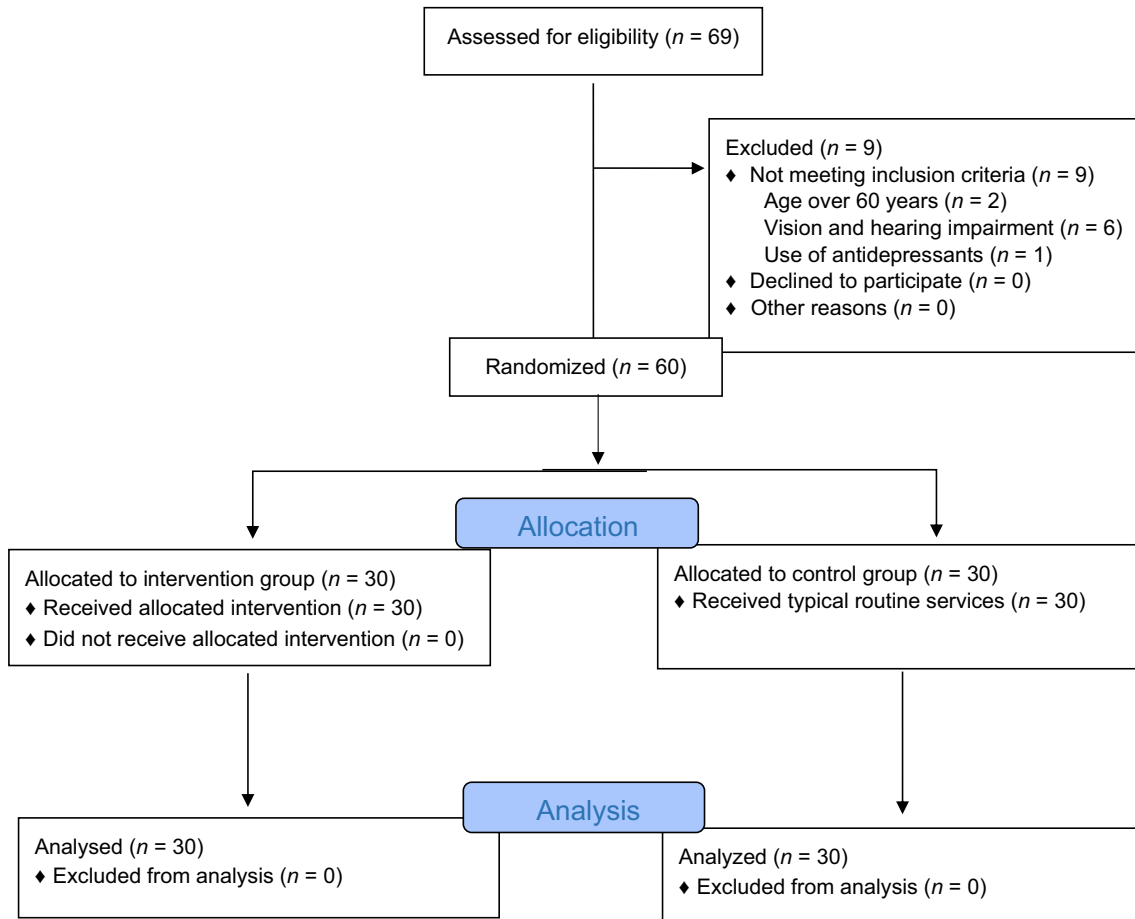


Figure 1 CONSORT flow diagram of study.

negatively and positively worded items to enhance comprehensiveness and minimize bias. Although often used as a single-dimensional measure, research might show subscales capturing various facets of loneliness. The UCLA Loneliness Scale is widely recognized for its high reliability and validity across diverse studies, and is frequently used in gerontology, public health and mental health research.^{25,26}

The scale was translated into Farsi by Bahirayi *et al.*, showing sufficient validity, reliability and internal consistency (mean 38.25, standard deviation 10.8). In their study, the Cronbach's alpha coefficient was 0.889.²⁷ To assess the content validity of the Farsi version, the scale was reviewed by 10 faculty members from the Mashhad School of Nursing and Midwifery. After their feedback, minor revisions were made. The reliability of the scale was assessed using Cronbach's alpha. The scale was administered to 20 participants who met the inclusion criteria for the main study. The calculated Cronbach's alpha coefficient was 0.90.

Intervention

In designing the group play therapy intervention, an extensive literature review was carried out to gather information on play therapy stages, typical behaviors and indicators of progress. In the

current study, play therapy was an adult-centered approach. The protocol sessions of group play therapy used the stages model developed by Nordling and Guernsey as theoretical frameworks.²³ The guidelines were recommended by a professional psychologist counselor from the research team who had experience with play therapy. This nondirective approach, which is less structured, was designed based on a combination of Iranian traditional games and modern games. The program consisted of 12 sessions over 6 weeks, with sessions held twice a week for 60 min each.

The intervention program was implemented by the first author with the help of an assistant, under the supervision of the geriatric counselor of the research team. This researcher was an advanced geriatric nurse who had previously attended training courses in play therapy and was certified in play therapy for older adults. Following this approach, participants could choose toys and games as they saw fit, and were free to play with partners (men or women) in their groups. However, based on Iranian play culture, certain traditional games were gender-specific: "Ye ghol do ghol" was preferred by women, whereas "Homemad" and "Play marbles" were preferred by men. Participants were free to play in their own way with minimal instructions or interruptions. The researcher was closely involved and participated as appropriate. The materials provided to the group members were carefully selected to

represent a broad range of options for expression. All materials needed for the play therapy sessions were provided by the researcher.

According to the literature, research on play therapy indicates that ≥ 12 sessions might be necessary. Therefore, the intervention group received play therapy (based on both Iranian traditional and modern games) in 12 sessions over 6 weeks, twice a week for 60 min each session. Each session included 10 participants, and was scheduled from 8 am to 9 am on Saturdays and Wednesdays, a time convenient for the older adults. The intervention sessions were held in a large, safe and comfortable room at one of the health centers (Sadaf Center), ensuring privacy and enhancing the comfort level of the participants. To reduce the risk of injury and standardize performance, all participants were familiarized with the different kinds of games. During the orientation session, all participants were given a brief explanation of the main research objectives, the definition of play therapy and the expected activities during the study. The older adult participants did not report any pain or trouble during any part of the intervention.

Based on the adult-centered play therapy approach, participants in the intervention group received sessions through three stages of the stages model: warm-up, working and closing.²⁸

Warm-up stage: This stage offers participants the chance to orient themselves to the playroom and play materials, develop

trust and comfort with the therapist, and adopt a leadership role in the sessions.

Working stage: This stage involves both aggressive and regressive behaviors focusing on emotional self-expression.

Closing stage: This mastery stage allows group members to share their play therapy work and ask questions for further clarification.

The session protocols carried out in these three stages are shown in Table 1. The details of the games program in the 12 sessions of group play therapy are shown in Table 2.

Control

The control group only received the typical routine services provided by the centers, which were also received by the intervention group. These routine healthcare services included regular visits by physicians, monthly checkups, psychological services, educational classes related to older adults and ceremonies held on special occasions.

Statistical analysis

The *t*-test and χ^2 -test were used to measure demographic variable similarities between the two groups. The Kolmogorov–Smirnov

Table 1 Sessions details based on protocol in the adult-centers group play therapy

Warm-up stage	<ul style="list-style-type: none"> The warm-up stage generally consists of behaviors offering the participants the chance to orient themselves to the playroom and play materials, develop trust and comfort with the therapist, and to adopt a leadership role in the sessions. Play behaviors in this stage are often exploratory and less focused on play than in later stages, allowing the participants to develop flexibility in modes of self-expression utilizing the materials provided, and begin to build trust and comfort with the therapist. Each play session began with an introductory statement outlining the guidelines of the session. This statement served to introduce the participants to the extent of freedom available in the session and the potential limits to be set. Two to three games were proposed in each session
Working stage	<ul style="list-style-type: none"> The working stage is made up of both aggressive and regressive behaviors that focus on emotional self-expression. At the beginning of the working stage of each session, participants were introduced to the suggested games. During the working stage, as they are often referred to together, behaviors focus more on self-expression of emotions and issues of control, self-image, and relationships with others. After that, the participants were free to choose any activities they liked for the remainder of the session. This can occur through verbalizations, aggressive or passive-aggressive acts with toys or the therapist, or nurturing behaviors toward self, toys or the therapist. Then, they played the games, and each game lasts at least 20 min in every session until the game turned. Any behaviors of the participants during the session were responded to with empathy, and the responses were not directive in any way, as they should be commensurate with the older adult center play therapy approach. The participants were encouraged to be present in the sessions and play games by various stimuli. One of the stimuli was competition. The participants played the games, and then the researcher chose a winner. Then, the winner received a gift. The games in group play therapy sessions. Traditional games and modern games were used among the participants. 26 games, including 12 traditional games and 14 modern games, were played in group play therapy sessions by the participants. During the sessions, individuals who were typically quiet on the unit were able to express themselves more freely and easily. Table 2
Closing stage	<ul style="list-style-type: none"> This stage was a mastery stage. After each session, group members had the opportunity to share their play therapy work, and they were given the time to question and answer to see if further clarification was needed. The mastery stage is characterized by behaviors that assist the individuals in consolidating therapeutic gains achieved across sessions. This might be expressed through solitary or cooperative play that focuses on demonstrating competence and mastery of a particular task. Therefore, they expressed their feelings and shared their wishes, and then the researcher was given feedback. This then led to a group discussion about what it was like to use the group play therapy and go through this process. Also, the group was encouraged to keep their play and they were thanked for coming.

Table 2 Group play therapy sessions program

	Game name	Type	Number	Sex	Method
1	Guessing game	Traditional	Two teams of 5 people	Both sexes	In this game, one player hides a very small object in a closed hand. Another player guesses that the object located in which hand.
2	Poetry game	Traditional	Two teams of 5 people	Both sexes	A bit of poetry was expressed, and the first team started playing according to the beat. At each turn, one participant from each team took turns as their bit of poetry. The bits should be selected based on the last letter of the last bit. The game continued until a group could not say a bit of poetry.
3	Ye ghol do ghol	Traditional	2	Women	Five little stones with round shapes are needed for the game. It is a physical and mental game. The hand muscles are active in this game and players should concentrate to control flying stones. With throwing five stones in the air at the same time, the player should control the flying stones to drop at the back of his/her hand.
4	Hob	Traditional	Two teams of 5 people	Both sexes	A number is selected for starting the game. For example, the game starts with the number five. Players start counting from one to five. Each player who has reached the number five should be told instead of number five: Hob. For the multiplier of five, the same process is repeated, and the players continue to make mistakes and get out of the game.
5	Name and family game	Traditional	Two teams of 5 people	Both sexes	The participants first draw a table that includes several columns, such as first name, family name, fruits, cities, countries, colors, flowers, etc. Then, participants choose one of the letters of the Persian alphabet. Each participant should quickly and independently fill columns of the table with words that start with the selected letter. For example, if the letter "a" was chosen. The participant can fill the column Fruit with apple. The first person to fill all the columns is the winner.
6	Making sentences	Traditional	Two teams of 5 people	Both sexes	The first participant starts the game by a word. The second participant should add a word to the previous word. For example, the game is started with the word "she" and then is continued with two words "she wants". The next participant adds the third word "she wants a doll". The game is continued by other participants. Adding words must be meaningful, this game enhances the ability to make sentences and power of memory. The participant who forgets the previous words or can't find the right word is the loser.
7	20 questions	Traditional	Two teams of 5 people	Both sexes	Two teams participate in the game. The first team chooses an object, e.g. a "table". The second team should guess the chosen object. They can ask 20 questions about the selected object. The first team answers the questions with "yes" or "no". The team who guesses the selected object with the fewest questions is the winner.
8	Homemade slingshot	Traditional	Group	Men	A sling is a projectile weapon typically used to throw a blunt projectile, such as a stone. The sling is swung in an arc, and the tab is released at a precise moment. This frees the projectile to fly to the target.
9	Morabaraba	Traditional	2	Both sexes	Morabaraba is played on specially produced boards. 3 squares are drawn on that board with 3 different sizes. Each side of the square is divided into three parts Each player selects 9 different pieces of something, such as a stone, and in turn, places the pieces one at the center and sides. Whenever you manage to draw 3 stones in a row, the person in front of you loses a stone. A win occurs if one opponent has just 2 stones.
10	Play marbles	Traditional	2	Men	The game is a fun game with glass balls. The participant has to roll around the balls and move them out of a certain area or set a target for other players.

(Continues)

Table 2 Continued

	Game name	Type	Number	Sex	Method
11	Mime	Traditional	Two teams of 5 people	Both sexes	The participants should play a story through body motions, without the use of speech.
12	Mensch	Traditional	4	Both sexes	Each player has 4 game pieces, (total number of pieces will be 16). Initially, 4 beads will be placed in the 4 different parts around the sheet. Players will have to bring their beads to the end of the game. The beads must reach their respective vertical or horizontal columns (same color). The winner is the individual who finishes their beads earlier than the other players.
13	Dots and boxes	Modern	2	Both sexes	Dots and boxes is a pencil-and-paper game. The game starts with an empty grid of dots. During each turn, a player draws a line joining two adjacent dots. The line must either be horizontal or vertical. If a player draws a line that completes a square, then the player earns points. If a square is completed by any player, then one more move needs to be completed by the same player. The goal of each player is to complete as many boxes as possible and earn a maximum amount of points. This continues until no more moves can be made.
14	Cactus ring toss	Modern	Two teams of 5 people	Both sexes	Each person threw 5 rings in 10 turns. The target distance to each person is considered 2 m. Scores are recorded and the results are announced at the end of the game.
15	Table football	Modern	Two teams of 5 people	Both sexes	Table football or table soccer is a table-top game that is loosely based on football. The aim of the game is to use the control knobs to move the ball into the opponent's goal.
16	Uno	Modern	Two teams of 5 people	Both sexes	UNO is an American shedding-type card game that is played with a specially printed deck. The game's general principles put it into the Crazy Eights family of card games.
17	Riddle	Modern	Two teams of 5 people	Both sexes	A riddle is a statement or question or phrase having a double or veiled meaning, put forth as a puzzle to be solved.
18	Play-Doh	Modern	1	Women	Play-Doh (similar to "dough") is a modeling compound used by people for arts and crafts projects at home. It is composed of flour, water, salt, borax and mineral oil.
19	Rubik's cube	Modern	1	Both sexes	On the original classic Rubik's Cube, each of the six faces was covered by nine stickers, each of one of six solid colors: white, red, blue, orange, green and yellow. Most beginner solution methods involve solving the cube one layer at a time, using algorithms that preserve what has already been solved.
20	Bingo cards tombola	Modern	Two teams of 5 people	Both sexes	In a bucket or bag, we spin the beads with specified numbers. Then one has to remove the beads and read the number Others look at the paper and find it and cover the number which they read. Anyone who fills a line has won half the game and someone who finishes a whole sheet is perfect
21	Crossword	Modern	Two teams of 5 people	Both sexes	A crossword is a word puzzle that usually takes the form of a square or a rectangular grid of white- and black-shaded squares. The game's goal is to fill the white squares with letters, forming words or phrases, by solving clues, which lead to the answers. In languages that are written left-to-right, the answer words and phrases are placed in the grid from left to right and from top to bottom.
22	Puzzle	Modern	2	Both sexes	A puzzle is a game, problem or toy that tests a person's ingenuity or knowledge. In a puzzle, the solver is expected to put pieces together in a logical way, in order to arrive at the correct or fun solution of the puzzle.
23	Darts	Modern	Group	Both sexes	Darts is a game in which small missiles are thrown at a circular target ("dartboard") fixed to a wall.
24	Archery	Modern	Group	Both sexes	Archery is the art, sport, practice or skill of using a bow to shoot arrows.

(Continues)

Table 2 Continued

	Game name	Type	Number	Sex	Method
25	Backgammon	Modern	2	Both sexes	Backgammon is one of the oldest known board games. It is a two-player game where each player has 15 pieces (checkers or men) which move between 24 triangles (points) according to the roll of two dice. The objective of the game is to be first to bear off, i.e. move all 15 checkers off the board.
26	Jenga	Modern	Two teams of 5 people	Both sexes	Jenga is a game of physical skill. Players take turns removing one block at a time from a tower constructed of 54 blocks. Each block removed is then placed on top of the tower, creating a progressively taller and more unstable structure.

Table 3 Sociodemographic characteristics ($n = 60$)*

Variable		Group		P-value
		Intervention ($n = 30$)	Control ($n = 30$)	
Sex, n (%)	Female	19 (63.3)	18 (60.0)	0.79
	Male	11 (36.7)	12 (40.0)	
Marital status, n (%)	Married	26 (86.6)	27 (90.0)	0.33
	Single	2 (6.7)	0 (0.0)	
	Widow	3 (6.7)	3 (10.0)	
Education level, n (%)	Illiterate	0 (0.0)	1 (3.3)	0.63
	Elementary	8 (26.7)	12 (40.0)	
	Intermediate	6 (20.0)	5 (16.7)	
	Diploma	9 (30.0)	6 (20.0)	
Income, n (%)	Higher education	7 (23.3)	6 (20.0)	0.75
	Less than enough	7 (23.3)	6 (20)	
Living arrangement, n (%)	Enough	23 (76.7)	24 (80)	0.97
	With spouse	18 (60.0)	18 (60.0)	
	With children	4 (13.4)	3 (10.0)	
	With spouse and children	7 (23.3)	8 (26.7)	
	Alone	1 (3.3)	1 (3.3)	

* χ^2 .

and Shapiro–Wilk tests were used to determine the normality of the loneliness score distribution. As loneliness scores were normally distributed, independent samples t -tests were used to compare loneliness scores between groups at baseline and after follow up. Paired samples t -tests were used to compare baseline and follow-up loneliness scores within each group. Cohen's d was used to evaluate effect size, categorized as small ($d = 0.2$ – 0.5), medium ($d = 0.5$ – 0.8) and large ($d > 0.8$).²⁹ Data analysis was carried out using SPSS 21 (IBM Corporation, Armonk, NY, USA), with a significance level of 0.05.

Results

All participants completed the group play therapy sessions without any dropouts, showing no significant differences between the intervention and control groups in terms of age, sex distribution, education level and living arrangements. The mean age was 69.1 years (SD 4.7 years), ranging from 60 to 81 years (Table 3).

As shown in Table 4, the pretest mean and SD for the intervention group were 37 (SD 7.8) and for the control group were 34.3 (SD 8.1). After implementing the play therapy, the intervention group's mean in the pretest was 37 (SD 7.8), which showed a significant change in the post-test to 29 (SD 5.4; $P < 0.05$; Table 4, Fig. 2). Furthermore, the results of the Wilcoxon test for

within-group comparisons highlighted that the mean loneliness scores in the intervention group participants significantly differed between the pretest and post-test ($P = 0.001$). These results support our hypothesis and show the effectiveness of group play therapy in reducing the feeling of loneliness among older people.

Discussion

In the present study, we investigated the effects of a combined group play therapy program, which included both traditional and modern games, on feelings of loneliness among older adults. Our findings show that this holistic intervention was effective in reducing loneliness levels among participants. For instance, one study applied Exergaming to psychosocial well-being, including feelings of loneliness in older adults, and found that loneliness decreased.^{14,15} Additionally, other studies examined the impact of playing Wii Bowling on reducing loneliness,¹⁵ as well as the effects of Wii games technology on physical activity, loneliness, mood and well-being, particularly in terms of social connection and enjoyment.^{16,30} In a review study in Iran, Jamei *et al.* demonstrated the effectiveness of digital games in reducing loneliness, showing improvement in loneliness among older adults after the interventions.¹⁷ These findings suggest that psychological traits and lifestyles of older adults are interconnected, and can improve

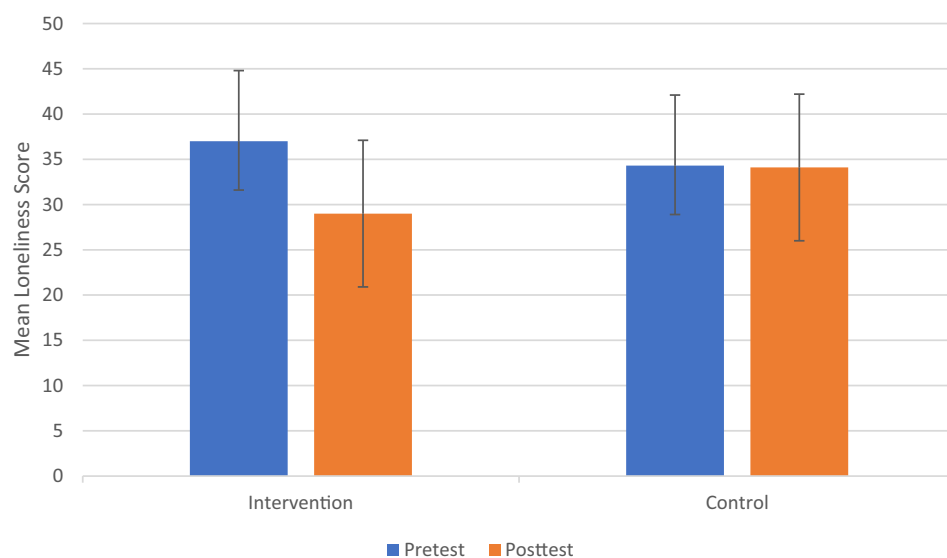
Table 4 Mean and standard deviation of loneliness scores in pretest and post-test (n = 60)

Loneliness	Group				Effect size	P-value
	Intervention (n = 30)		Control (n = 30)			
	Mean	SD	Mean	SD		
Pretest	37	7.8	34.3	8.1	0.339	0.150*
Post-test	29	5.4	34.1	8.1	0.741	0.001*
Post-test and pretest differences within groups	P = 0.001**		P = 0.190**			

Note: Effect size was evaluated using Cohen's d, calculated as the standardized mean difference. The effects were categorized as: d >0.2–0.5, small effect size; d >0.5–0.8, medium effect size; and d >0.8, large effect size.

*Independent *t*-test.

**Paired *t*-test.

**Figure 2** Comparison of mean loneliness scores between intervention and control groups.

performance and independence.³¹ Considering the impacts of play therapy and the active participation of older adults, it can be justified that this holistic intervention helps maintain an optimal state and aids in preventing or addressing psychosocial difficulties.

Second, the present study showed a significant decrease in feelings of loneliness in the intervention group compared with the control group. Previous studies on group play therapy have reported similar results. For example, one study found that group sand play therapy reduced negative emotions related to anxiety and loneliness, and promoted positive self-expression among Korean women.³² Another study explored the use of group play therapy techniques with figurines during a 1-h expressive art therapy session with adults in an inpatient unit, resulting in decreased feelings of loneliness in the intervention group.²¹ These findings are consistent with the present study. During the sessions, as all games were group-based, the older adults played collaboratively, increasing feelings of participation through discussions about their feelings and emotions. In Iranian culture, discussing feelings and emotions, especially among older adults, is an accepted behavior that enhances socializing and emotional fulfillment. This process improves empathy, responsibility and self-acceptance, ultimately reducing loneliness. Thus, improving the social and physical environment can promote mental health and reduce feelings of loneliness among older adults.

Third, the combined intervention program in the present study showed a significant difference in loneliness levels among

participants before and after the program. We found a significant reduction in loneliness within the intervention group from baseline to follow up. This result shows the effectiveness of the intervention program. Similar findings have been reported in other studies. For example, a study among Chinese older adults found that frequent games of cards/mahjong and television/radio entertainment were associated with reduced feelings of loneliness.³³ The authors emphasized that leisure activities rooted in a nation's culture, such as playing mahjong, can be effective intervention strategies for preventing and alleviating chronic loneliness among older adults. According to Vander *et al.*, activities involving social interactions, such as traditional games and social activities, are especially beneficial for emotional fulfillment. Maintaining social engagement and frequent social participation not only prevents loneliness, but also improves well-being in older adults.³⁴ Promoting mental well-being improves mental-physical health, increases life expectancy, happiness, economic success and social participation.^{35–38} Additionally, play is not only a source of leisure, but also a means of acquiring indigenous knowledge that is part of a culture.²² Games played in an indigenous and traditional culture are tied to the values of that culture.³⁹ Therefore, using different indigenous traditional games in the intervention program, rooted in Iranian culture and heritage, could be a reason for the improved loneliness levels in the intervention group from baseline to follow up. Traditional games for older adults refer to a form of physical activity that positively affects health status, offering

benefits, such as improved attention, working memory, kinetic abilities, and postural control and balance.⁴⁰

Integrated older adult play therapy focuses on maintaining an optimal state to prevent or resolve psychological and social difficulties by recovering lost abilities or memories. This is achieved through active participation in play, leveraging the therapeutic power of play.⁴¹ An investigation of demographic factors in the present study showed that the majority of participants were women, and researchers noted that women are more likely to report feelings of loneliness than men. These points might explain the higher loneliness scores among participants in our study. These results underscore the importance of addressing subjective reports of loneliness among older adults and identifying potential intervention strategies to reduce loneliness.⁴² Therefore, the results of the present study support the findings of previous research.

However, the use of a convenience sample was one of the limitations of this study. Only older adults who visited both health centers and were willing to join the study were recruited. Additionally, participants engaged in other activities during the intervention period, such as social or exercise programs, which might have affected the results. Considering the study was carried out in two health centers, caution should be exercised when generalizing the results to other older adults.

The findings from this study offer promising insights into the role of group play therapy in alleviating feelings of loneliness among older adults. These insights have substantial implications across various domains:

Regarding clinical practice, the present study underscores the potential benefits of including group play therapy in geriatric care plans, emphasizing the improvement of mental health and social well-being. Such therapeutic activities could become mainstays in primary care, community and residential settings. The results also advocate for holistic care strategies that address psychosocial needs, possibly reducing dependence on medication. Furthermore, when implementing these activities, cultural sensitivity should be paramount to ensure that the cultural backgrounds and preferences of older adults are respected, thereby enhancing participation and effectiveness.

Regarding future research, this study lays the groundwork for longitudinal research to assess the enduring effects of group play therapy beyond temporary relief from loneliness. It also opens avenues for exploring the efficacy of the intervention across culturally and demographically diverse older populations, and for comparative studies to benchmark group play therapy against other interventions targeting loneliness.

Regarding education, in the realm of education, integrating the study's findings into healthcare training programs could emphasize the importance of social interventions in supporting the medical needs of older adults. Community education initiatives can also play a crucial role in sensitizing society to the challenges of loneliness among older adults.

In regard to management and policy-making, from a management perspective, the present study might inform policy decisions regarding resource allocation to establish and sustain group play therapy programs. Health policy-makers might consider integrating such therapeutic modalities into standard care for older adults, potentially mitigating loneliness-related health costs. The development of support systems to facilitate social interaction is also a vital consideration, as is the provision of specialized training for professionals delivering these interventions.

The results of the present study showed that group play therapy as a therapeutic modality reduces loneliness in older adults and is suggested as a scientific method for reducing loneliness. It

can be used in planning to provide mental health services for older adults. We suggest that similar studies be carried out to investigate other psychosocial issues of geriatric patients living in daycare centers or nursing homes in the future.

Acknowledgement

The authors express their gratitude to all the participants. The current study was supported by Mashhad University of Medical Sciences, Mashhad, Iran.

Disclosure statement

The authors declare no conflict of interest.

Data availability statement

The datasets generated in the present study are available from the corresponding author upon reasonable request.

Ethics statement

This study was approved by the Ethics Committee of Mashhad University of Medical Sciences (IR.MUMS.REC.1399.395), and complied with the Declaration of Helsinki. Informed consent was obtained from all participants. The purpose and significance of the study were explained to participants who met the inclusion criteria, and they signed the written informed consent form. All methods were carried out in accordance with relevant guidelines and regulations, which align with the Declaration of Helsinki.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

Data S1. CONSORT 2010 checklist of information to include when reporting a randomized trial.

Data S2. The effect of group play therapy as holistic geriatric interventional modality on feelings of loneliness among the elderly people: A randomized control trial (RCT).

How to cite this article: Jamei F, Saleh Moghadam AR, Mazlom SR, Namazinia M, Asghari Nekah SM, Mohajer S. Effect of group play therapy as holistic geriatric interventional modality on feelings of loneliness among older people: A randomized control trial. *Geriatr. Gerontol. Int.* 2024;1–10. <https://doi.org/10.1111/ggi.14972>