Effectiveness of Physical and Social Leisure Activities Program Participation on Feeling of Loneliness, Happiness and Self-Esteem among Institutionalized Elderly

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Abstract

Background: One of the most significant social and psychological changes that may lead to disease and disability in today's world is the aging global population, that in turn resulted in a sharp rise in the number of older people living alone as in elderly homes. Engaging in physical and social leisure activities can promote the quality of life and psychological well-being of older adults. **Aim:** This study aimed to determine the effectiveness of physical and social leisure activities program participation on feeling of loneliness, happiness and self-esteem among institutionalized elderly. **Design:** A pre-post intervention study as a quasi-experimental research design was used. **Setting:** Three governmental elderly homes in Dakhellia governorate namely; Dar El-Amal, Dar El-Malak Mikhael, and Dar El-Ber wa El-Wafaa in Mansoura city were the sites of the study. **Subjects:** A total of 56 elderly residents were included in the study. **Tools:** The data were collected through demographic and health-related characteristics interview sheet, mini-mental state examination, UCLA loneliness scale, Rosenberg self-esteem scale and the Subjective happiness scale. **Results:** Study findings showed that the study outcomes including feeling of loneliness, happiness and self-esteem were significantly better after the program participation ($p < 0.001$). **Conclusion:** Implementation of the physical and social leisure activities program is an effective strategy in reducing the level of loneliness, increase level of happiness, and enhancing self-esteem among institutionalized elderly. **Recommendation:** The developed program is recommended as an effective nursing intervention to reduce feeling of loneliness, enhancing happiness and self-esteem of older adults living in institutions or alone in community settings.

Keywords: Leisure activity, Loneliness, Happiness, Self-esteem, Institutionalized elderly.

Introduction

Ageing is a complex process that associated with physical, social and psychological changes that may lead to different diseases, disabilities, and losses which cause disruption of established social patterns or poor quality of social relationships, impacts social circumstances, role changes within family, in addition to lack of social support from extended family or community that can lead to the elderly person's loneliness and social isolation which increase admission to institutions (**Poscia et al., 2018; Kim, 2018**). Usually, the admission made on their own initiative by family members who feel burdened by the necessary support. In addition, compared to their community-dwelling counterparts, elders residing in these institutions have fewer options for how to spend their time and fewer leisure activities accessible. As a result, elderly individuals typically have difficulties adapting and develop emotional problem such as depression and anxiety, which lead to reduce social relation among them (**Jung et al., 2018**).

One of the biggest risk factors for loneliness, illness, and mortality is thought to be a lack of social connections and physical activity. It is wise for early prevention of loneliness resulted from deteriorating health condition of older persons and decreased their energy for social and physical activities through participating in social and physical leisure activities (**Shvedko et al., 2020; Nazari et al., 2021**). Leisure activity involvement is linked to

several aspects of successful aging, including physical health and wellbeing. Leisure activities are typically defined as things people do in their free time, like socializing, sports, exercise, and recreational activities **(Paggi et al., 2016; Czaja et al., 2018)**. Leisure activities either physical or social have frequently been utilized as an intervention approach to prevent and reduce loneliness and raise older persons' levels of contentment and self-esteem. Engaging in leisure activities constitutes a noteworthy portion of the social networks and social integration of elderly individuals. Shopping, cultural events, and volunteer work are a few examples of leisure activities that show the social connectedness among older people. Regardless of an individual's characteristics, engaging in social and passive leisure activities like hobbies and frequent friend contacts has also been shown to reduce and prevent loneliness in older adults and increase their level of happiness **(Kim et al., 2017; The & Tey, 2019)**.

Happiness is more than just a fleeting positive attitude. Positive feelings like happiness, contentment, involvement, and excitement are among them. Emotional, social, and cognitive ideas are among the three basic components of happiness, according to several psychologists. One of the earliest groundbreaking hypotheses in successful aging biogerontology is the idea that engaging in social and physical activities promotes enjoyment in life **(Öztop & Kinaci, 2016)**. Regular participation in physical and social leisure activities among older people lead to many benefits as retain high level of cognitive function, maintain physical health which is a very important aspect of social life and well-being. Furthermore, it can enhance social networking and acquisition of new social contacts as a result of participation in a variety of physical and leisure activities. Also, it enhances happiness by increase in serotonin, and

neurotrophin production and reduces in the stress hormone. Accordingly, feeling of loneliness, low self-esteem and a diminished sense of enjoyment are caused by deficits in the quality of these activities **(Lubans et al., 2016; Physical Activity Guidelines Advisory Committee, 2018; Kim et al., 2021)**.

Self-esteem is defined as the ability to handle life's challenges and the appraisal of being worthy of happiness. People with higher levels of self-esteem tend to have more social support, which can contribute to higher level of happiness **(Chu & Koo, 2023)**. Happiness is improving key component of mental health for older persons. It is influenced by both internal and external circumstances, including as living in a healthy family, having a high sense of self-worth, and being satisfied with one's performance. Participating in leisure activities is one of the most important methods for raising happiness, self-esteem, and lowering feelings of loneliness, which helps to healthy ageing by preventing disability, morbidity and mortality in older persons **(Öztop & Kinaci, 2016; Entezari et al., 2019).**

Activity theory is one of the social theories of aging that explains the connection between the aging process and social participation of older persons. It implies that increasing activity participation could improve older individuals' quality of life. Therefore, it's critical to accept aging as a normal part of life and offer efficient interventions to support senior citizens in engaging in activities that enhance their happiness and sense of self-esteem. Thus, the gerontological nurse should motivate the elderly to engage in physical and social activities during their free time activities that enhance their quality of life and help them feel to feel cared for, valued, and part of a network, promote health, increase self-esteem and they can live happily without burden to family and society **(Entezari et al., 2019)**.

Significance of the study

The increase in the elderly population in the world has caused many social problems that may lead to feeling of loneliness, which affect negatively on their feeling of happiness and their self-esteem especially in institutions. Considering that the elderly have more leisure time, paying attention to their leisure time is a necessary issue. Physical and social leisure activities in the elderly can improve physical, mental health, and enhance socialization which decrease feeling of loneliness and increase their happiness and satisfaction with the quality of life that affect positively on their self-esteem (**Lee et al., 2018 & Oladi et al., 2023**). Therefore this study was conducted to ascertain the effectiveness of physical and social leisure activities program participation on feeling of loneliness, happiness, and self-esteem among institutionalized elderly.

Aim of the study

Determine the effectiveness of physical and social leisure activities program participation on feeling of loneliness, happiness, and self-esteem among institutionalized elderly.

Specific objectives

1. Assess feeling of loneliness, happiness, and self-esteem of institutionalized elderly before physical and social leisure activities program participation.

2. Evaluate the effect of physical and social leisure activities program participation on feeling of loneliness, happiness, and self-esteem among institutionalized elderly.

Research hypotheses

1. Elders' feeling of loneliness will be decreased after physical and social leisure activities program participation.

2. Elders' feeling of happiness will be improved after physical and social leisure activities program participation.

3. Elders' self-esteem will be enhanced after physical and social leisure activities program participation.

Subjects & Method

Research Design:

A Quasi-experimental design (pre-post intervention study) was used in this study. It is the suitable design to study the effect of physical and social leisure activities program participation on feeling of loneliness, happiness, and self-esteem among institutionalized elderly.

Research Setting:

Dar El-Amal, Dar El-MalakMikhael, and Dar El-Berwa El-Wafaa in Mansoura city are the three governmental elderly homes in Dakhellia governorate where the study was conducted.

Subjects:

Initially, all elders' residents at the study settings were recruited. A total 62 residents were interviewed for eligibility. Those who met the inclusion criteria (aged 60 years or more, able to comprehend and communicate, accept to participate in the study, and had normal cognitive function; mini-mental state examination score $\geq$24) were included in the study, resulting in a sample size of 56 elderly residents.

Table (1): Distribution of the study participants by place of residence

Name of elderly homes	Total number	Selected sample
Dar El-Amal	23	19
Dar El-Ber wa El-Wafaa	20	20
Dar El-Malak Mikhael	19	17
Total	62	56

Data collection tools

Tools of data collection were categorized as follow:

1. **Demographic and health-related characteristics interview sheet:**

This interview was developed by the researchers based on review of relevant literature including data such as, sex, age, marital status, educational level, work before retirement, housing arrangement, income and leisure time activities. Also, residential data was assessed as decision, reason for admission and duration of staying in the elderly home.

Comorbidities, medication use, and perceived health status were used to measure health-related characteristics. "How do you rate your current health?" is a typical question used to gauge perceived health status. On a 5-point scale (wherein, 1 = poor and 5 = excellent) Participants rated their level of health **(Idler and Angel, 1990)**. In addition, fair and poor ratings were combined and assigned in one category "not so good" for analysis. Excellent and very good responses were combined into one category and assigned as "very good".

2. **Mini – Mental State Examination (MMSE) scale:**

The MMSE scale was developed by **Folstein et al., (1975)**. It was applied to evaluate elderly people's cognitive abilities. Orientation, registration, attention, calculation, recall and language are among the topics covered. **EL-Okl (2002)** certified the scale as valid and reliable after it had been translated into Arabic. The thirty-point scale is divided into three categories: normal cognitive function is indicated by a score between 24 and 30, mild cognitive impairment is indicated by a score between 18 and 23, and severe cognitive impairment in the elderly is indicated by a score between zero and 17.

3. **UCLA Loneliness Scale: (University of California, Los Angeles, version 3):**

It is a 20 item scale developed to measure one's subjective feelings of loneliness as well as social isolation. Abdel Salam (1996) translated the scale into Arabic and tested to confirm its validity and reliability (r = 0.87). Each item is rated by participants using a 4-point likert scale: 1 for never, 2 for rarely, 3 for sometimes and 4 for always. Of the 20 original items, 10 had reversal scores. The possible scores range from 20<40 (low), 40<60 (moderate), and 60<80 (high). A higher score indicates a higher degree of loneliness **(Russell et al., 1980)**.

4. **Rosenberg Self-Esteem Scale (RSES):**

Rosenberg Self Esteem Scale was developed by **Rosenberg (1965)** to evaluate one's own self-esteem. **Gamal (2015)** examined this scale's validity and reliability after translating it into Arabic. Test-retest reliability Spearman's correlation coefficient (r=0.90) was utilized to assess the dependability of this tool. It was made of 10 items that focused on the general feelings of the patients about themselves, self - respect, self - worth, satisfaction and their qualities. The original scoring system used 4 point Likert rating scale, arranged as follows: zero (strongly disagree), 1 (Disagree), 2(Agree), 3 (Strongly agree). Five items were reversed for scoring. The total score arranged between zero and 30, with the higher score the higher self-esteem. A score of 15 to 25 is within the normal range; a score of less than 15 indicates low self-esteem, while a score of more than 25 indicates high self-esteem.

5. **The Subjective Happiness Scale (SHS):**

It was developed by **Lyubomirsky & Lepper (1999),** translated into Arabic and tested for content validity by **El-Gilany & Allam (2017)**. A four-item scale designed to measure subjective happiness. Each question required a selection from the seven possibilities that

concluded the given sentence fragment. There were various options for each question. To get a final score, the items on the subjective Happiness Scale were summed together. Compute the mean across responses to all four questions, item 4 was reverse coded. High levels of happiness would be indicated by a score of 28.

Field work and Data collection

I- Preparatory phase

- Approval from the Faculty of Nursing, Mansoura University was issued. After being informed about the purpose of the study and the time of data collection, the director of each elderly home granted permission to conduct the study.

- After reviewing the relevant literatures, tool I (Demographic and health-related characteristics interview sheet) was developed by the researchers.

- The Arabic version of tool III (UCLA Loneliness Scale), tool IV (Rosenberg Self-Esteem Scale), and tool V (The Subjective Happiness Scale) were used by the researcher. The coefficient of determination (r) provided assurance of reliability (r = 0.87, 0.90, and 0.86, respectively).

- The researchers developed the instructional materials based on current evidence **(The & Tey, 2019; Aydın & Kutlu, 2021; Kim et al., 2021)**. To make its material easier for the participants to understand, it was written in straightforward Arabic and included colorful illustrations. Then the credibility was determined by experts to verify the accuracy and the quality of the content.

- By 5 numbers of experts in the related fields of the study (gerontological nursing, psychiatric and mental health nursing, Mansoura University), the study tools were tested for its validity. Accordingly, the required modifications were done.

- To ascertain the applicability and clarity of the study tools and the educational contents, a pilot study was conducted on 10% (6) of the elders of Dar El-Walaa in Meet-Ghamr city before beginning of data collection process, also to estimate the time needed to complete the study tools then the necessary modifications were done accordingly.

II- Implementation phase

- Initially, the researchers introduced themselves to the elderly residents, establish good relation and gave them a brief idea about the aim and the benefits of the research to relief their worries and gain their cooperation.

- Cognitive function was assessed for all elders resided in elderly homes to identify those who fulfill the study criteria using tool II (mini mental state examination). According to the inclusion criteria, each elderly should have intact cognitive functions.

- Residents who fulfill the inclusion criteria and interested to complete the program sessions were enrolled in eight training sessions. The researchers conduct individual interviews in the study setting to collect the baseline data using the study tools.

- The researchers visit El-Amal elderly home on Sunday every week and Dar El-Malak Mikhael on Tuesday every week and Dar El-Ber wa El-Wafaa on Thursday every week.

Program description:

- The studied elders were divided into small groups; each group consisted of 8 to10 elder's and the proposed activities were held, once weekly for 8weeks.

- Matching of the group subjects such as careers, hobbies, or social activities. Despite this, the researchers took into account a comparable age group and degree of mental and physical ability.

- Maintain a safe environment for participants as suitable space with a quiet, warm, and comfortable atmosphere.

- Every week, groups of participants and the researchers got together in the activity room, dining room or a garden at each home.

- The participants sat where they wanted but had limited choices as the researcher only used 3 tables in the rooms provided.

- The participants were encouraged to seat with different people each session.

The suggested study sessions:

The program was performed in 8 sessions as follows;

- 1st session: The researchers introduced themselves, greeted the elders, gave them name tags, and explained the purpose of the study and the importance of active participation in social and physical activities through different teaching methods as power point presentation, videos, and booklet.

- 2nd session: All participants came to the designated area and were seated in a chair sharing a table with other participants to watching TV, listening to music, sing songs, and playing cards together for at least one to two hours according to their abilities.

- 3rd session: All participants encouraged for group art therapy using clay. Each person received clay, and they were instructed to create items that suited their preferences. This allowed the participants to use the clay to communicate their feelings, goals, and hopes.

- 4th session: All participants came to homes garden and begin to warm-up with a 4-minute, slow motion running and 6-minute stretching. Then they bending and straightening the limb, close to and to distant organs from trunk, and rotation of the neck and waist, in addition to bending and straightening them.

- 5th and 6th session: All participants walked together for at least 30 min in the morning at 10:30 in the park, and then they practiced balance exercises as balance while walking, walking back and forth, along with balancing, and transferring weight from one foot

to the other foot, walking on tiptoes and soles of the feet, and standing on one leg.

- 7th session: On line session via Zoom meeting for all participants in the selected homes to enhance elderly to practicing physical activities at the rest of the week.

- 8th session: Made a celebration to all elders in the homes and thank them for their participation.

III- Evaluation phase

- Evaluation of the intervention was done immediately after activities application and two months after the intervention using tools III, IV, and V.

- The study was conducted over a period of 7 months beginning at October 2021 till the end April 2022.

Ethical consideration:

The Research Ethics Committee - Faculty of Nursing -Mansoura University approved the study. Following an explanation of the study's nature and its potential benefits, written consent was obtained from the participants. The right to participate or withdraw at any time from the study, as well as, the participants' privacy and data confidentiality were all assured.

Data analysis:

Data were analyzed using Statistical Package for Social Science, Version 20. Whereas categorical data were presented as numbers and percentages, continuous variables were presented as means and standard deviations. The repeated measures ANOVA test was used to compare differences in term of the study outcomes with different measures of the same variable. Spearman's correlation coefficient was used to test correlation between variables. The multivariate linear analysis was used to compare changes in the different outcomes after adjusting demographic characteristics. The significant level was set at 0.05 or less.

Results

Table 1: A total of 56 institutionalized elders were enrolled in the study. The study participants' age were ranged from 60 to 77 years with a mean age of 65.11 ± 4.45. Male participants constituted 62.5%. Of participants, 87.5% were not married. In term of education, illiteracy was prevailing among 33.9% of the studied elders. Most of them were reside in urban areas (73.2%). Before admission to the elderly homes, a considerable number of the studied elders live with their household members (60.7%). About half of them (51.8%) had worked before retirement and 78.6% reported having not enough income.

Table 2: The majority of the study participants (89.3%) had chronic health conditions. Hypertension and diabetes mellitus was the most commonly reported condition by 67.9% and 30.4% respectively. About half of them rated their health status as good (51.8%). Additionally, it was observed that 42.9% take three and more medications.

Table 3: 78.6% of the study participants reported that they moved to the elderly homes based on their own decision. In term of reasons of admission, felling of loneliness and no one caring them are the main reported reasons of admission which reported by 69.6% and 57.1% respectively. Also, 75.0% of the elders stay in the elderly homes from 1 to less than 5 years. 60.7% of the study participants not have regular visitors. In related to usual participation in leisure activities, majority of participants (85.7%) noted that they listening to radio during their free time.

Table 4: The analysis of variance using the repeated measures ANOVA to assess the effectiveness of the intervention program indicated a significant improvement in the total mean score of loneliness at immediate and 2 months after conduction of the intervention

$(f=149.65, p<0.001)$. Furthermore, a significant positive change was observed in the total mean score of happiness after the intervention $(f=109.19, p<0.001)$. Finally, there was a significant difference in the improvement in the total mean score of self-esteem immediately and over 2 months after providing the intervention $(f= 168.57, p<0.001)$.

Figure 1: The study participants showed significant improvement in the level of loneliness at all-time points of evaluation. As low level of loneliness was reported by only 14.3% of elders at baseline and increased to 55.3% 2 months after the program.

Figure 2: At baseline, low level of self-esteem was prevailing among 64.3% of the study participants and decreased significantly to 14.3% 2 months after the program.

Table 5: Shows a significant moderate negative correlation between loneliness and self-esteem at 2 months after the intervention $(r=-0.436)$. This means that the level of self-esteem was better among participants who had less felling of loneliness. Also, mild positive correlation was found between happiness and self-esteem $(r=0.259)$. As, the level of happiness was higher among participant who reported high self-esteem.

Table 6: When the demographic characteristics of the study participants were analyzed in relation to the study outcomes at 2 months after the program implementation, a significant difference was observed in age and regular visits in relation to loneliness $(B=.624, -4.51$ and $p<0.05$ respectively). This means that loneliness was higher among participants with advanced age group and among those who hadn't regular visits. Also, economic status of the participants affect their level of happiness $(B=.290, P=0.028)$. Moreover, self-esteem was higher among those who had regular visits $(B=1.44, P=0.049)$.

Table 1: Distribution of the Study Participants According to Their Demographic Characteristics (n=56)

Demographic characteristics	No	%
Age (years)		
60-	26	46.4
65-	21	37.5
70+	9	16.1
Mean ± SD	65.11 ± 4.45	
Min – Max	60.0 – 77.0	
Sex		
Male	35	62.5
Female	21	37.5
Marital status		
Married	7	12.5
Not married *	49	87.5
Education		
Illiterate	19	33.9
Read and write	16	28.6
Secondary	8	14.3
University and above	13	23.2
Residence		
Rural	15	26.8
Urban	41	73.2
Living arrangement		
With household members	34	60.7
Alone	22	39.3
Work before retirement		
Work	29	51.8
Not work	27	48.2
Income		
Enough	12	21.4
Not enough	44	78.6

* Single (4), Divorced (7), Widow (38)

Table 2: Distribution of the Study Participants According to Their Health – related Characteristics (n=56)

Health-related Characteristics	No	%
Self-rated health		
Very good	12	21.4
Good	29	51.8
Not so good	15	26.8
Chronic health conditions		
Yes	50	89.3
No	6	10.7
Diseases (n=50) #		
Hypertension	38	67.9
Diabetes mellitus	17	30.4
Orthopedic	13	23.2
Heart	10	17.9
GIT	9	16.1
Respiratory	5	8.9
Renal	3	5.4
Neurologic	2	3.6
Medication taken		
No	4	7.1
One medication	7	12.5
Two	21	37.5
Three and more	24	42.9

 # More than one response

Table 3: Distribution of the Study Participants According to Residential Data (n=56)

	No	%
Decision of admission		
Self-decision	44	78.6
Family decision	12	21.4
Reason for admission #		
No one caring me	32	57.1
Felling lonely	39	69.6
stay away from family problems	11	19.6
Duration of stay in elderly home		
Less than 1 year	6	10.7
1 to less than 5 years	42	75.0
5 years and more	8	14.3
Are you have regular visitors		
Yes	22	39.3
No	34	60.7
Participation in leisure activity#		
Listen to radio	48	85.7
Watching TV	33	58.9
Setting with friends	12	21.4
Reading	9	16.1
No	5	8.9

 # More than one response

Table 4: Repeated Measures ANOVA to Assess the Effectiveness of Intervention over Different Time Points

Variables	At baseline	Immediate post intervention	2 months post intervention	Repeated Measures ANOVA (p-value)
	Mean (±SD)	Mean (±SD)	Mean (±SD)	
Loneliness (UCLA)	53.142 (11.52)	47.661 (10.46)	40.285 (8.59)	149.65 **<.001**
Happiness (SHS)	10.143 (1.66)	17.149 (4.11)	16.053 (4.36)	109.19 **<.001**
Self-esteem (RSES)	13.375 (3.61)	17.393 (3.11)	17.143 (3.32)	168.57 **<.001**

Note: Significant p value (≤0.05) is bolded
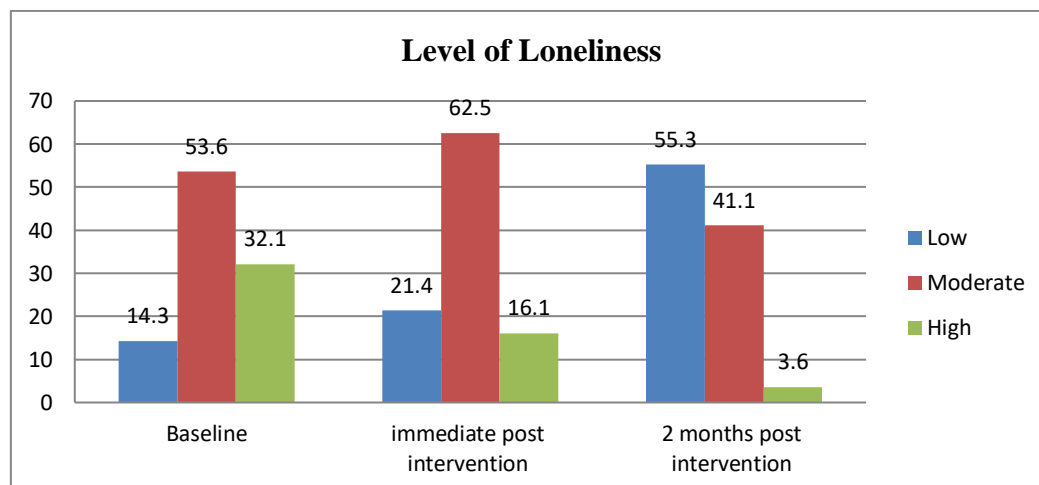
Figure 1: Changes in the Level of Loneliness among the Study Participants at Different Time Points (n=56)
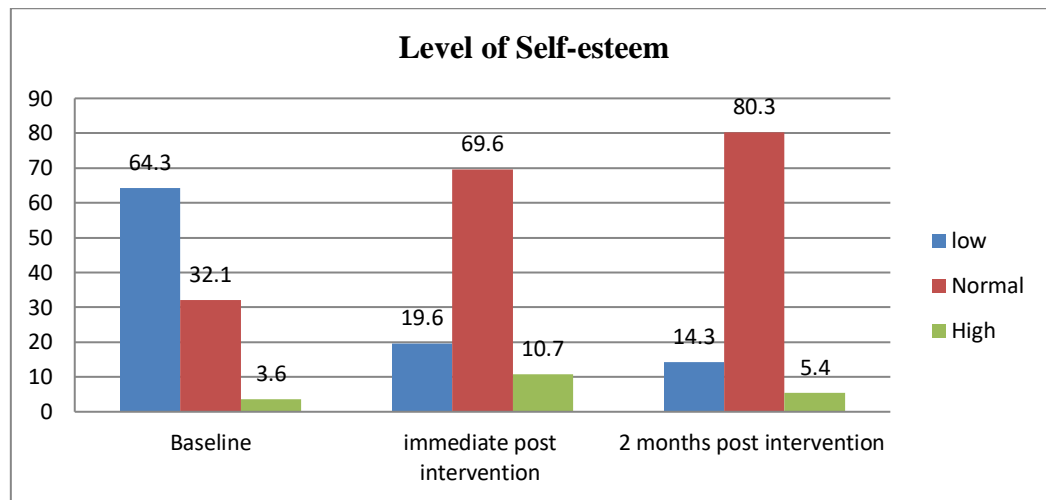
Figure 2: Changes in the Level of Self-esteem among the Study Participants at Different Time Points (n=56)

Table 5: Correlation between the Different Study Variables after Intervention

	Variables	Loneliness	Happiness	Self-esteem
Loneliness	**r**	1.000		
	p	----		
Happiness	**r**	-0.033	1.000	
	p	0.807	----	
Self-esteem	**r**	-0.436	0.259	1.000
	p	**0.001**	**0.051**	----

Note: Significant p value (≤0.05) is bolded, r: Pearson correlation coefficient

Table 6: Multivariate Linear Analysis for Study Outcomes at 2 Months Evaluation after Adjustment of Demographic Variables

Variables	Loneliness		Happiness		Self-esteem	
	B (95% CI)	P	B (95% CI)	P	B (95% CI)	P
Age	.624(.103-1.14)	**0.020**	.168(-.146-.48)	.286	-.140(-.395-.115)	.275
Sex	-.896(-6.23-4.45)	0.738	.269(-2.40-2.94)	.840	-.167(-2.33-2.05)	.878
Marital status	1.05(-3.67-5.79)	0.655	.290(-2.42-3.01)	.831	.175(-1.79-2.14)	.859
Education	1.27(-.977-3.51)	0.262	-.073(-1.29-1.14)	.904	-.090(-1.07-.898)	.855
Income	-.212(-5.63-5.21)	0.938	.290(.310-5.15)	**.028**	-.289(-2.37-1.79)	.782
Duration of stay in home	2.81(-1.48-7.08)	0.191	-1.95(-4.68-.763)	.154	-.469(-2.68-1.74)	.672
Regular visits	-4.51(-9.48-.44)	**0.054**	-1.23(-3.80-1.33)	.338	1.44(-.760-3.64)	**.049**

Notes: B, coefficient of regression; CI, confidence interval; Significant p value (≤0.05) is bolded

Discussion

One of the biggest social and psychological shifts causing disease and disability in today's world is the aging of the global population, which could result in a sharp rise in the number of elderly people living alone or in assisted living facilities as in geriatric homes **(Aydın & Kutlu, 2021)**. The key strategies for decreasing loneliness and improving happiness, self-esteem and reducing negative feeling is physical and social leisure activities that promotes the quality of life and psychological well-being of older adults**(Kim et al., 2017)**.Participation in social and physical activities progressively decline with age, despite its benefits. Elderly people who had disabilities to engage in these activities might have less opportunity to be satisfied with life or experience happiness, which can be detrimental to their self-esteem and overall quality of life **(Khazaeepool et al., 2014)**. Thus, the aim of this study was to investigate the effectiveness of physical and social leisure activities program participation on feeling of loneliness, happiness, and self-esteem among institutionalized elderly.

The basic approaches to dealing with loneliness are cognitive-behavioral approach, social support groups and social skills training (**Aydın & Kutlu, 2021)**. Physical activity during leisure time lowers feelings of loneliness and enhances psychological well-being, according to **Kim et al., (2017)**. The analysis of variance using the repeated measures ANOVA in the present study confirmed our hypothesis and noted a meaningful improvement in the total mean score of loneliness at immediate and 2 months after conduction of the physical and social leisure activities program (f=149.65, p<0.001). As low level of loneliness was reported by only 14.3% of participants at baseline and increased to 55.3% at2 months after the program implementation. These results may be attributed to the positive effect of the

intervention program that include many social and physical activities which help elders to engage it together as sharing a table, watching TV, and making group exercises in home garden. In addition to strict follow up from the researchers to encourage elders to comply with this intervention for 2 months.

The Ministry of Loneliness, which established in 2018 to address loneliness in the UK, supports these findings. By bringing people together, this project aims to encourage socialization and communication **(Dossey, 2020)**. Another study done in Turkey by **Aydın & Kutlu (2021)** highlighted the positive effect of art-related social activities on feeling of loneliness among older adults, and the results indicated a substantial drop in mean loneliness scores in the intervention group compared to the control group ($p < .001$). Numerous researches by **Kim et al., (2017), Martinec (2018) and Ching-Teng et al., (2019)** confirmed our results and revealed that physical activity as a leisure activity lowers felling of loneliness and increases life quality and psychological well-being. Furthermore, it has been noted by **Gardiner et al., (2018), The & Tey (2019), Nazari et al., (2021)** and **Mishra et al., (2021)** that engaging in group recreational activities can help in preventing and treating social isolation and loneliness in older persons. This could be explained by the fact that social and physical activities in groups can satisfy the needs of older persons of belonging, that being important to each other, to having a shared purpose, and unity.

Loneliness is more sever when emotional and social connections are scarce or nonexistent. The current study's findings noted a significant difference in term of age and regular visits in relation to loneliness (B=.624, -4.51 and p<0.05 respectively), as, loneliness was higher among participants with advanced age group and among those who hadn't regular visits in the elderly

homes. This in accordance with **Julsing et al., (2016)**, who found that feeling of loneliness more common among older persons and it was linked with living alone and being single. Also a another study done by **Nazariet al., (2021)** in Iran reported that loneliness is more likely to increase by moving away from the flow of life, and increased age of elderly. This may be explained by the fact that, older people living in assisted living facilities had limited contact with their friends and family and were unable to visit them.

One crucial health promotion strategy among older adults is to engage in physical social leisure activities. Participating in leisure activities has been demonstrated to lower stress levels, elevate happy feelings, and improve general health and wellbeing **(Kim et al., 2021)**. The present study's findings revealed a significant positive change in the total mean score of happiness after the intervention (f=109.19, p<0.001). This result may be explained by during the intervention program the researchers encourage the elders to be seated in a chair sharing a table with other to watching TV, listening to music, sing songs, practicing simple physical exercises with other in home garden, and playing cards together for at least one to two hours. Additionally, the intervention program includes group art therapy sessions utilizing clay. Each participant receives clay and is instructed to create objects according to their preferences, which enables them to communicate their feeling, goals, and hopes through the clay. Moreover, when the level of loneliness decreased among older adults the sensation of happiness increased among them.

This finding at the same line with many studies which found that participation in physical, social leisure activity was positively linked with older persons' happiness and functionality, and it served as a way for promoting positive social interactions and

reducing negative psychological symptoms among them **(Paggi et al., 2016; Gardiner et al., 2018)**. Furthermore, **Kim et al., (2021)** research conducted in Korea revealed that engagement in both indoor and outdoor activities was a significant predictor of happiness, life satisfaction, and health evaluations in older Korean adults. Another finding by **Robins et al., (2016)** in Australia raises the possibility that social engagement and physical exercise interventions may have a greater effect on happiness and social isolation than social activity alone. Moreover other studies done in India by **Mathew et al., (2017)** and in Iran by **Entezari et al., (2019)** noted that group singing was effective on the happiness of the elderly people in assisted living facilities.

The older adults' economic status has a par-ticularly meaningful effect on active ageing **(Phulkerd et al., 2023)**. The present study found a strong association between economic status and level of happiness among the study participants (B=.290, P=0.028). Low financial satisfaction can be attributed to psychological problems and financial worries which can affect health and wellbeing. This suggests that financial satisfaction may be one of the most important socio-economic determinants of happiness, and can be used as a subjective indicator to monitor and prevent hardship and, thus, promote health and wellbeing of older adults in the long-run. This is in the same line with a study done in China by **Wei et al., (2015)** which stated that high annual family income was found to be positively related to happiness. Similarly, **Phulkerd et al., (2023)** in Thailand noted that financial satisfaction was among the top three determinants associated with a higher likelihood of being happy in elderly population. Moreover, **Adedeji et al., (2023)** in South Africa confirmed our findings and concluded a strong relationship between socio-economic status and happiness.

A person's attitude toward oneself, or their level of self-esteem, is a powerful indicator of their subjective well-being and life satisfaction. Higher levels of social support and positive relationships are more common among who have higher self-esteem which can raise one's sense of life satisfaction. Conversely, poor self-esteem has been linked to non-suicidal self-injury and depression, which can adversely impact life satisfaction **(Forrester et al., 2017)**. This achieved through the findings of the current study which revealed a significant difference in the improvement in the total mean score of self-esteem immediately and over 2 months after providing the intervention (f= 168.57, p<0.001). As which the low level of self-esteem decreased significantly from 64.3% of the study participants to 14.3% after the program. This may explained by the fact that residents of elderly homes tend to be less active during their free time and are unable to engage in certain activities or perform some sports movements, which likely contributed to low self-esteem. Additionally, this program includes modest group physical exercises that improve role performance and reduce elders' limits on their activities. As a result, the elders feel happier and more content, which in turn boosts their self-esteem.

This result is consistent with a study done in Taiwan by **Ching-Teng et al., (2019)** who reported that recreational activities were specified to have a favorable influence on increasing the level of self-esteem and decreasing the feeling of loneliness among the participants. Also, this finding aligns with previous Korean study by **Park et al., (2015)** and **Jung et al., (2018)**, which showed that older adults who engaged in leisure activities had lower levels of depression and better levels of self-esteem. Moreover, the current study noted that self-esteem was higher among those who had regular visits (B=1.44, P=0.049). This can be explained by the fact that these visits reflect the extent of good relationship with their families and friends outside the home, which in turn improves the residents' self-esteem. This finding is consistent with a study in Spain by **Farriol-Baroni et al., (2021)** who found that, the social support perceived by the elderly participants contributes significantly to their self-esteem. This association reflects the importance of social support like regular visits, especially for elderly home residents.

Pointed to the findings of the analysis of a study done by **Softa et al., (2015)** which revealed that, loneliness and self-esteem affect each other reversely. Accordingly, loneliness was more prevalent when self-esteem was lower. As the self-esteem level increased, the loneliness level decreased which is in accordance with the present study findings which noted a significant moderate negative association between loneliness and self-esteem at 2 months after the intervention (r=-0.436).This may be justified by this program increase mutual exchange and interpersonal contact between elders which breaking their social isolation and therefore decrease their level of loneliness and increase their level of happiness, all of these are reflected on their self-esteem. Also, this may be related to voluntary participation of elderly in leisure activity program as a part of recruitment criteria in study participation, which in turn increases their self-esteem.

According to the findings of the present study, the research hypothesis was proved as elderly enrolled in the study showed a meaningful improvement in their feeling of loneliness, happiness and self-esteem. Therefore, the physical and social leisure activities program participation seems to be an appropriate intervention used for institutionalized older adults.

Conclusion

Implementation of the physical and social leisure activities program is an effective strategy in reducing the level of loneliness, increase level of happiness, and enhancing self-esteem among institutionalized elderly.

Recommendations

- Encourage the institutionalized elderly to often practicing physical and social activity in groups instead on individual participation.

- The developed program is recommended as an effective intervention to reduce feeling of loneliness, enhancing happiness and self-esteem of older adults living in institutions or alone in community settings.

- Encourage geriatric home directors to merge physical and social leisure activities as an interventional therapy model that reduce feeling of loneliness and enhance self-esteem of older adults living in institutions.

- Further studies are recommended to replicate this program on elderly who living alone in community settings.

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Conflicts of interest

The researchers declare that there is no conflict of interest.

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