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Effectiveness of Relaxation Techniques in Reducing Depression among Elderly Residents in Assisted Care: A Randomized Control Trial

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Abstract

The final period of life, old age is marked by a number of physical and psychological changes in individuals, such as depression. These alterations frequently define how elderly individuals adjust socially and personally. Objectives: This study evaluates the effectiveness of relaxation therapy in managing depression among elderly individuals residing in assisted care facilities. Study design: A randomized controlled trial with a pre-test and post-test control group design was conducted. Place and Duration of Study: The study was conducted at the Department of Clinical Psychology, National University of Medical Sciences (NUMS) from assisted care facilities in Islamabad and Rawalpindi. Sample and method: Forty participants (N=40) aged 65 and above were randomly assigned to either an experimental group, which received relaxation therapy (Jacobson's progressive muscle relaxation and deep breathing), or a waitlist control group. The intervention was administered for 60 minutes each morning, twice a week, over four weeks. Psychological and well-being assessments were conducted using the Mini-Mental Status Examination (MMSE), Geriatric Depression Scale (GDS). Statistical analyses were performed using IBM SPSS version 27. Paired sample t-tests and independent samples t-tests were conducted to compare pre-test and post-test scores within and between groups. Results and conclusion: The findings demonstrated a significant reduction in depression (pre-test M = 8.85, SD = 1.182; post-test M = 7.55, SD = 1.669) in the experimental group, with no significant shift in the control group.

These results underscore the effectiveness of relaxation therapy in managing depression among elderly individuals in institutionalized care. Integrating relaxation therapy into geriatric healthcare programs may serve as a non-pharmacological intervention to enhance mental health and quality of life in this population.

Keywords: Relaxation therapy, Deep breathing, Progressive muscle relaxation technique, depression, old age homes, Elderly residents

INTRODUCTION

South Asian economies have been experiencing the fastest rates of population increases, with 64% of the population being between the ages of 15 ad 29 (Pakistan, 2017). It is considerably higher in the case of Pakistan, where it is anticipated that by 2030, there will be more than 244 million people (Mikton et al., 2021). In addition, the number of older people will rise by 3.3% a year from 2015 to 2030. Women had a 1.8 year longer life expectancy than men in old age, according to gender segregation (Pakistan, 2017). According to the United Nation's World population projection (WWP), Pakistan's elderly population is expected to experience a 12.8% growth in 2050, up from 6.6% in 2015 (Bank, 2019).

With the current population of 216.5 million, Pakistan is the fifth most populous country in the world, having previously had 207.7 million inhabitants (Bank, 2019). Pakistan's elderly population is expected to be 12.5 million, or 7% of the country's overall population. This places Pakistan in the top 15 countries in the world with more the ten million elderly people (Mikton et al., 2021). This age group is expected to grow to 44 million by 2050, accounting for 16% of the total population (Yokobori et al., 2023).

According to (Cook Thompson and Reed, 2015) an assisted care facilities is a place where older people can live and get care when they are unable to care for themselves because of infirmary or illness. Such places are also known as assisted care facilities, nursing home, elderly home or aged home (Zimmerman, 2001). In developing nations like Pakistan, the idea of assisted care facilities is relatively new. As, the joint familial structure and social conventions in Pakistan disapprove of children who abandon their parents and choose to keep them in assisted care facilities (Malik & Wahid, 2014). As a result, there is a noticeable dearth of thorough research on this topic. When examining nursing or assisted care facilities in Pakistan, there are very few available (Majrooh et al., 2014). The majority of these facilities are located in urban regions, yet they operate under poor conditions and offer substandard services, leaving the elderly in a vulnerable state (Shahid & Tariq, 2023). The prevalence of mental illness among those 60 and above is about 14%. According to the Global Health Estimates (Metrics and Evaluation, 2021) these conditions account for 10.6% of the overall disability experienced by older adults. According to (Haigh et al., 2018) depression is the most common mental health condition among older adults. Persistent sadness and lack of interest are the signs of depression (Beck & Alford, 2009). It is predicted that by 2030, depression will account for the majority of the world's disease burden, causing impairment and a decline in older individuals' quality of life (Collaborators, 2022). Older persons who suffer from depression

have less quality of life, more health issues, and a higher death rate (Gonçalves et al., 2014). Depression in later life was often regarded as an inevitable symptom of aging and a natural part of the aging process (Gonçalves et al., 2014; Haigh et al., 2018). When diagnosing depression in elderly persons, doctors might be more concerned with physiological aspects (Katona, 2000).

Elderly, particularly those living in nursing homes, are frequently affected by depression (Kugbey et al., 2018). Despite this possibility, depression in this demographic is often overlooked and when it is , is either undertreated or not well addressed (Hollon, Thase, & Markowitz, 2002). Recent studies suggests that sadness and aging are highly correlated, and depression is a common expectation among older people who suffer from illnesses that impact their capacity to care (Newman, 1989).

The lack of research on the depression in the elderly, especially those residing in assisted care facilities, is the source of these assumptions (López-Lopez et al., 2014). Given the alarmingly rising rate of depression among the elderly, it is critical to treat the psychological issues related to symptomatology while placing them in nursing homes near the end of their lives (Barua et al., 2011). According to CDC and the National Institute of Mental Health, there is a crucial care gap as nearly one in three elderly with mental health problems do not receive treatment (Reeves et al., 2011). Even while depression in elderly is highly prevalent, it is often misdiagnosed and untreated (Reeves et al., 2011). According to CDC, 10.5% of elderly 65 and above had received a depressive diagnosis at some point in their lives and 5% report having depression currently (Kelley et al., 2024). Social isolation, grief, chronic illness, disability and insufficient support network are all contributing factors (Paul, Ayis, & Ebrahim, 2006). Depression if left untreated results in lowering quality of life and worsens functional decline (Rhee et al., 2018).

Edmund Jacobson's progressive muscle relaxation (PMR) is a non-pharmacological treatment for depression (Perakam et al., 2019). PMR counteracts stress and cortisol rise linked to mood disorders by thoroughly tensing and relaxing muscle groups, which triggers the body's relaxation response (Raj & Tripathi, 2024). Several researches shows that it is effective in lowering depression symptoms and increasing quality of life in elderly individuals (Sivertsen et al., 2015). A case study of PMR's adaptability to elderly individuals, it was found to dramatically improve mental health in elderly with chronic diseases such as heart disease and post-surgical recovery (Bethell, 2014).

Progressive muscle relaxation is especially well-suited for assisted care facilities due to its ease of use and accessibility (Abdelsaid et al., 2019). Frequent practice builds physical relaxation, emotional resilience and mindfulness all of which are essential for ending the cycle of depression (Kuyken & Evans, 2014). Incorporating progressive muscle relaxation into everyday activities is crucial for caregivers which provide residents with a tool to recover control over their mental health (Williams et al., 2012)

Evidence based practices like progressive muscle relaxation are essential for encouraging health aging as the prevalence of depression among old age people arises (Taylor et al., 2004). In order to close the treatment gap and enhance mental health, this study assesses how well

structures PMR programs work to lower depressive symptoms in elderly living in assisted care facilities.

H: There will be significant reduction in depression in experimental group as compared to wait list group after 8 sessions of intervention program among old age people.

Material and methods

Research design

This was a randomized controlled trial with a pre-test and post-test control group design.

Participants

The elderly residents living in assisted care facilities between age group of 65 both male and female were selected. A total of 40 elderly 20 in each of the experimental and control group. The sample was selected using purposive sampling technique for initial screening and then random sampling was used to divide selected sample into two groups from two assisted care facilities in Islamabad/Rawalpindi.

Inclusion Criteria

The inclusion criteria for this study consist of elderly individuals aged 65 years and above who reside in assisted care facilities. Participants must be willing to take part in the study and provide informed consent. Additionally, they should exhibit mild to moderate levels of psychological distress, as measured by standardized tools such as the Mini-Mental State Examination (MMSE). Cognitive ability to comprehend the relaxation techniques being taught is essential for inclusion. Furthermore, participants must have the ability to understand and communicate in either English or Urdu.

Exclusion Criteria

Individuals under the age of 50 and those with serious cognitive impairments were excluded from the study. Participants with physical impairments that prohibits them from exercising as well as those with serious psychiatric disorder will not be allowed to participate. diagnosed with severe psychological conditions or those with physical disabilities or medical conditions that prevent them from engaging in physical activity will also be excluded. Additionally, individuals who are already receiving other forms of psychotherapy or those currently participating in other clinical trials or interventions will not be included in the study. Lastly, individuals who are incapable or unwilling to give their informed consent for participation will not be allowed to participate.

Research Instruments

The specific scales used depend on the age of the target population and the chosen research methods.

Demographic information form

The demographic information, included in this form is, age, gender, residential area, marital status, socioeconomic status, education level, institute where they are staying, family system and no of children.

Screening tool - mini-mental status examination (MMSE)

Five domains of cognitive functions are tested by 11 questions: language, orientation, registration, attention, calculation and recall. The score has a maximum of 30 and minimum of 23. The MMSE is widely used in clinical practice and research since it was validated in 1975.

Geriatric Depression Scale (GDS)

The Geriatric Depression Scale (GDS) is a self-report tool used to assess depression in elderly people. Ten of its fifteen items, when answered positively suggest the existence of depression whereas remaining five when answered negatively indicative of depression. The Cronbach's alpha reliability of $a = 0.85$ suggesting remarkable internal consistency.

Procedure

Progressive muscle relaxation technique was administered and continued for twice a week for four weeks for 60 mins. The National University of Medical Sciences Rawalpindi, Institutional Review Board provided ethical approval for the study. To work with the elderly at an old age home, approval was obtained from the university. Authorization to use the specified scales was requested from the authors. The participants who agreed to enter the study completed the informed consent before commencing the study. Participants were randomly assigned to either the experimental or control groups after the first orientation with the recruited group.

Intervention

A pretest was conducted on participants from both groups. The relaxation therapy intervention was then applied only to the experimental group participants. After eight relaxation therapy sessions, a post-test was conducted on the participants from both groups.

Phase 1: Following the MMSE and the physical fitness examination, pre-test was collected. According to the inclusion criteria, the study included an equal number of participants in the age category of 65 and older, as well as of both genders. Geriatric depression scale (GDS) was used for the pre-test on the first day of data collection.

Phase 2: Relaxation therapy (PMRT) was administered from 2nd day to 29th day. Each member of experimental group received 1 hour of relaxation therapy in the morning.

Phase 3: The same Pre-test assessment scale was used for the Post-test, which was administered on the 30th day of the month.

Data/Statistical Analysis

The IBM Statistical Package for Social Sciences (SPSS), version 27, was utilized to analyze the study's raw data. To provide the insight into the sample, descriptive and comparative analyses were conducted. To evaluate the differences between groups, an independent sample T-test was used. The experimental group, who received the relaxation therapy intervention, had their post test results compared to the control group, which did not receive intervention.

RESULTS

Table 1

Socio-Demographic Characteristics of the Participants (N=40)

	Overall				Experimental				Control			
Age	M	SD	f	%	M	SD	f	%	M	SD	f	%
	66.7	1.8	40	100	67.5	2.06	20	100	65.85	1.18	20	100

Note: f = Frequency, % = Percentage, M = Mean, SD= Standard Deviation

Table 1 shows that the participants mean age was 66.7 years (SD = 1.8), with a total sample size of 40 participants (100%). The experimental group had a mean age of 67.5 years (SD = 2.06) with 20 participants (100%), while the control group had a mean age of 65.85 years (SD = 1.18) with 20 participants (100%). These results indicate that the experimental group had a marginally greater mean age than the control group, though both groups were relatively similar in age distribution.

Table 2

History of the Participants (N= 40)

Variable	Overall		Experimental		Control	
	f	*%*	*f*	*%*	*f*	*%*
Gender						
• Male	20	50	10	50	10	50
• Female	20	50	10	50	10	50
Residential Area						
• Islamabad	22	55	12	60	10	50
• Rawalpindi	18	45	8	40	10	50
Marital Status						
• Married	3	7.5	1	5	2	10
• Widowed	26	65	13	65	13	65
• Divorced	5	12.5	3	15	2	10
• Separated	6	15	3	15	3	15
Socioeconomic Status						
• Lower	13	32.5	7	35	6	30
• Middle	27	67.5	13	65	14	70
Education Level						

• Matric	15	37.5	7	35	8	40
• Intermediate	16	40	8	40	8	40
• Graduate	9	22.5	5	25	4	20
Institute						
• Private	27	67.5	14	70	13	65
• Public	13	32.5	6	30	7	35
Family System						
• Nuclear	22	55	11	55	11	55
• Joint	18	45	9	45	9	45
No of Children						
• 1-3	32	80	16	80	16	80
• 4-6	8	20	4	20	4	20

Note: f = Frequency, % = Percentage, M = Mean, SD= Standard Deviation

Table 2 indicates that the study included a total of 40 participants, evenly distributed between the experimental (n = 20) and control (n = 20) groups. Gender distribution was equal, with 50% (n = 20) of participants being male and 50% (n = 20) female, with identical proportions in both groups.

Table 3

Geriatric Depression Scale Research Group Stats

							95% CI	
	Group	*N*	*M*	*SD*	*t*	*p*	*LL*	*UL*
GDS_PRETEST	experimental	20	8.85	1.182	2.842	.064	.374	2.226
	control	20	7.55	1.669	2.842	.064	.371	2.229
GDS_POSTTEST	experimental	20	4.65	1.725	-6.929	.300	-4.587	-2.513
	control	20	8.20	1.508	-6.929	.300	-4.588	-2.512

Note: GDS= Geriatric Depression Scale, N= number of participants, M= Mean, SD= Standard Deviation, p= significance.

Table 3 indicated that the experimental group in the pretest (M = 8.85; SD = 1.182) was greater than the experimental group in the post-test (M = 7.55; SD = 1.669) indicating a decrease in depression after the intervention. While in the control group, there was no significant difference.

Discussion

This research sought to employ the progressive muscle relaxation technique as a means to reduce depression among elderly residents in assisted care facilities. An 8-session program was implemented among the participants.

The Mini-Mental State Examination (MMSE), which assessed mental, cognitive, and sensory

deficits was used to establish the individual's eligibility for the study. They only included individuals with mild, moderate impairments, while individuals with significant difficulties in daily living activities or with neurological conditions were excluded. Additionally, a physician's certification of fitness was obtained to ensure the participants' safety during the study. The inclusion criteria were designed to focus on elderly individuals capable of actively participating in the relaxation therapy intervention.

A demographic analysis revealed that the experimental group had a diverse background, with 75% of participants being married and the majority (60%) having at least a graduation-level education. Most participants were retired (70%), from private institutions (70%), and predominantly from a middle socioeconomic status (65%). Similarly, the control group shared comparable characteristics, with 60% married, 40% educated up to the graduation level, and 75% retired. Such demographics align with studies highlighting the prominence of medical and emotional stressors in elderly populations, particularly those in assisted living facilities.

A critical observation from the study was the high prevalence of medical problems among participants, with 90% of the experimental group reporting medical conditions, compared to 60% in the control group. This finding mirrors previous research, such as a survey on stress and coping strategies among institutionalized and non-institutionalized elderly, which noted higher stress levels and reduced quality of life among institutionalized elderly. Furthermore, studies assessing stressors in the elderly confirm that medical stressors are among the most common causes of psychological distress.

According to study, following the conclusion of the intervention program, the experimental group's level of depression would be significantly drop in comparison to the control group. When comparing the experimental group to the control group, the results showed a significant decrease in depression, which was statistically significant. Compared to control group *(M = 8.20; SD = 1.508),* the experimental group's Geriatric Depression Scale (GDS) scores significantly decreased after the intervention *(M = 4.65; SD = 1.725).*

These findings align with previous research, such as an experimental study on older adults in old-age homes, which demonstrated significant reductions in depressive symptoms *(P=0.005, t= 2.9709, df = 29)* following relaxation interventions. This outcome validates the hypothesis that relaxation therapy effectively reduces depression in elderly individuals. These outcomes are consistent with research on stress management interventions for older women, which utilized techniques like progressive muscle relaxation and guided imagery to considerably lower psychological symptoms and perceived stress *(P < 0.001, r = 0.8).*

These results are further supported by additional research on alternative treatments for elderly populations. For example, studies on progressive muscle relaxation therapy for older patients with heart failure have recorded a moderate effect on psychological distress. Furthermore, interventions that include activity schedules or animal-assisted therapy for elderly residents in nursing homes have been demonstrated to significantly reduce symptoms of depression *(P < 0.05).*

Old age is an age where a person is vulnerable to any psychological stress that may affect the overall health of the person. It has been a trend around the world to leave elderly people in assisted care facilities and live their lives as it is. Now it has also become pretty common to have assisted care facilities for old age people, as this has become a new trend in Pakistan. Demographic analysis reported that the middle class is more vulnerable to having assisted facilities. However, this topic is new in our society, this research acts as a baseline to understand the need of elderly people and their care towards mental health. This research reveals that depressive symptoms are prevalent among elderly individuals residing in assisted living. Given that medications can be expensive and carry a risk of addiction, an alternative strategy was adopted to address mental health needs.

The study demonstrated that relaxation techniques can significantly alleviate symptoms of depression. In Pakistan, there is a societal reluctance to seek treatment or even to talk about depression.

Many individuals are not open to consulting a psychiatrist or clinical psychologist to address mental health issues. Research studies focusing on interventions for this population in Pakistan are limited. Through this study, the researcher aimed to propose a budget-friendly program that would assist society in tackling mental health challenges faced by the elderly.

Conclusion

Given how quickly the world's population is aging, investigating cutting edge approaches to elder care is essential. Due to shifting societal and familial systems, they require assistance in becoming more secure and productive. The researcher concludes that the progressive muscle relaxation, or PMR is an effective therapy technique for depression, particularly in older adults receiving assisted care facility. Given that exercise and PMR therapy are painless, non-invasive, non-pharmacological and safe methods for treating psychological problems in the elderly. Geriatric and mental health nursing could incorporate this self-contained, simple to implement intervention.

Limitations and Recommendations

In this research, there were additional limitations, such as time constraints and insufficient financial resources. The effectiveness of the therapeutic interventions necessitates follow-up assessments to confirm the stability of the results over time. This study was designed with this in mind; however, due to time limitations and significant data attrition for follow-up sessions, subsequent assessments were not incorporated into this research. Future studies are encouraged to include multiple follow-up sessions.

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