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A STUDY TO ASSESS THE EFFECTIVENESS OF MODIFIED OTAGO EXERCISE PROGRAMME (MOEP) ON RISK OF FALL AMONG SENIOR CITIZENS AT SELECTED OLD AGE HOMES IN MYSURU

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ABSTRACT
According to WHO senior citizens refer to 60 years and above, who are the people 60 years and above ages close to or over the average life span of human beings. This cannot be defined with precision because it varies in all communities. However, a person ≥ 60 years is referred to as 'senior citizens' in India[1.] In senior citizens they have undergone many types of transition like a Physical, social, financial and the employment changes, death of a spouse. Gait and Balance functional status changes are correlated with ageing.[2] This research aims to assess the effectiveness of modified Otago exercise programme on risk of fall among senior citizens. This research is Evaluative approach with pre-experimental one group pre-test post-test design. A sample number is 50 Old Age Home. Data analysis uses the descriptive and inferential statistics. Statistical test result shows that the Modified Otago exercise programme was effective in reducing the risk of fall among senior citizens. The study concluded that, planned demonstration program on modified Otago exercise was effective in reducing the level of risk of fall among senior citizens.

KEYWORDS: Risk of fall, Senior citizens, Modified Otago exercise programme, Fall risk assessment tool.

INTRODUCTION

According to WHO senior citizens refer to 60 years and above, who are the people 60 years and above ages close to or over the average life span of human beings. This cannot be defined with precision because it varies in all communities. However, a person ≥ 60 years is referred to as 'senior citizens' in India.[1] In senior citizens they have undergone many types of transition like a Physical, social, financial and the employment changes, death of a spouse. The seniors they reside in a variety of care environment like a senior home, nursing home, assisted living, street, continuing care retirement communities. The senior they are not positively respond to the transition of their lives like a change in the physiological financial problem it leads to the problems like Isolation/withdrawal, apathy, sometimes addiction and even a suicidal thought.[3]

Fall are the major health issues among older adults worldwide. More than a one-third of the community dwelling older adults and half of older adults living in the institutions fall each year[3]. Falls are prominent among the external causes of unintentional injury. Most of the fall result from a complex interplay of predisposing and precipitating factor.[4]

The senior citizens population account for 7.4% of total population in 2001[5]; both the share and size of senior citizens population is increasing over time from 5.6% in 1961 it is projected to rise to 12.4% of population by the year 2026.[6] Among the states the proportion of senior citizens in total population vary from around 4% in small states like Dadra & Nagar Haveli, Nagaland Arunachal Pradesh, Meghalaya to more than 8% in Maharashtra, Tamil Nadu, Punjab, Himachal Pradesh and 10.5% in Kerala in Census 2001.[7]

Gait and Balance functional status changes are correlated with ageing.[2] Analysing these motor process may help to spot circumstances when falling might be a possibility. Due to their frequency and potential for negative physical, physiological, and social effects. Such occurrences pose a severe threat to public health.[2]

The OEP is considered to be one of the most appropriate fall prevention programs for older adults at a high risk

for a fall, or as an entry program for older adults starting their fall risk management journey.[8] The secret sauce is a series of progressively more challenging strength and balance exercises, performed up to three times a week for up to 30 minutes. The OEP includes a walking program which is incorporated when the participant has the ability, with the goal of walking up to 3 times a week for up to 30 minutes.

Several studies have demonstrated a positive effect of the OEP on balance and falls.[9,10,11] A recent meta-analysis on the effects of the OEP on actual (static, dynamic, proactive, and reactive) and perceived (fear of falls) balance reported that the OEP promoted static, dynamic, and proactive balance and reduced fear of falls. The research also demonstrated that group training improved balance more effectively than individual training.

METHODS

An evaluative research approach with pre-experimental one group pre-test post-test was adopted. Non probability purposive sampling was used to select 50 Senior citizens with age 60 years and above and sample selected from old age home, Mysuru. Planned demonstration of Modified Otago exercise programme on reducing the risk of fall and it was assessed by using the Fall risk assessment tool, Modified berg-balance scale among senior citizens. Data was analysed by using descriptive and inferential statistics.

RESULT AND DISCUSSION

Table 1: Frequency and percentage distribution of Senior citizens according to their selected personal variables n=50

Sl no	Variables	f	%
1	Age in years		
	1.1 61-70	21	42
	1.2 71-80	18	36
2	Gender		
	2.1 Male	24	48
	2.2 Female	26	52
3	Habit of doing exercise daily		
	3.1 Yes	23	46
	3.2 No	27	54

The data presented in the **Table 1** shows that majority 21 (42%) in the age group of 61-70 years, majority 26(52%) in the group were females and majority 27(54%) in the group were habit of doing exercises daily.

Table 2: Description of risk of fall scores of senior citizens. n=50

Sl No	Characteristics	Frequency	Percentage (%)
1	Low risk of fall (1-5)	04	08
2	Moderate risk of fall (6-8)	29	58
3	High risk of fall (9-14)	17	34

Table 2 shows the frequency and percentage distribution of risk of fall. The data prescribed in table 2 majority 29(58%) were having moderate risk of fall (6-8). 17(34%) were in high risk of fall (9-14) and 4 (8%) were in Low risk of fall (1-3).

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Table 3: Mean, Median, Standard deviation, Range of pre-test and Post-test risk of fall of Senior citizens before Modified Otago exercise programme by using Berg balance scale. n=50

Test	Mean	Median	Range	Standard deviation
Pre-Intervention (Berg balance scale)	15.26	15.00	9-21	±3.063
Post Intervention (Berg balance scale)	21.48	22.00	16-26	±2.674

The data presented in the table 3 shows that in pretest the mean score is 15.26, median is 15 with the standard deviation ±3.06 ranged from 9-21 and in the post-Intervention mean score is 21.48, median is 22, with the standard deviation ±2.67, ranged from 16-26. The null hypothesis is stated as follows:

$H_{01:}$ There will be no significant difference between the mean pre-test and post-test score of Risk of fall of senior citizens.

Table 4: Significance of difference between the Mean, Mean difference, standard deviation and paired t value of pretest and post-test risk of fall among senior citizens. n=50

Risk of fall score	Mean	Mean difference	Standard deviation	S.D difference	Paired 't' value	d.f	P value	
Pre-test (Berg balance scale)	15.26	6.220	±3.063	2.234	-19.686	49	0.0001	significant
Post- intervention (Berg balance scale)	21.48		±2.674					

$t_{(49)}$ =19.686;p<0.0001 significant

The data presented in the Table 4 shows that pre-test mean difference is 6.22 and the standard deviation is 2.23. To find the significance of difference Paired 't' value was computed and the obtained 't' value is 't'=19.68, p<0.0001 is found to be highly significant.

It is inferred that the Modified Otago exercise programme is effective in reducing the risk of fall among senior citizens. Hence the research hypothesis is accepted.

Findings related to the association between the Level of Risk of fall with their selected personal variables

Fishers exact test was used to find the association between level of risk of fall with their selected personal variables, and the following null hypothesis is formulated.

H_{o2}: There will be no statistically significant association between the level of risk of fall and their selected personal variables.

Table 5: Fishers exact test to find the association between the level of risk of fall of senior citizens and their selected personal variables for the Risk assessment tool parameters. n=50

Sl no	Sample characteristics	Low risk of fall	Moderate risk of fall	High risk of fall	Fishers exact test
1	Age in years 1.161-70 71 and above	 1 00	 16 16	 4 13	0.132
2	Gender 1.1 Male 1.2 Female	 0 1	 16 17	 7 9	0.993
3	Habit of doing exercise daily. 1.1 Yes 1.2 No	 1 00	 14 18	 8 9	0.976

Df (1) =3.84 p<0.0001 not significant

The data presented in the table 5 shows that there was no statistically significant association between the level of risk of fall and their selected personal variables at 0.0001 level of significance. Hence the researcher accepted the null hypotheses $H_{02,}$ and it is inferred that level of risk of fall is not associated with their selected personal variables.

CONCLUSION

The present study was focused to assess the effectiveness of Modified Otago exercise programme on prevention of fall among senior citizens. The analysis of the findings revealed that, there was a significant reduction in the risk of fall in senior citizens.

Analysis of findings revealed that 32 (64%) Moderate risk of fall and Majority of senior citizens had no history of doing exercise daily.

The finding also revealed that Modified Otago exercise programme was effective in reducing the risk of fall as evidenced by computed 't' test which was significant at 0.0001s level of significance.

Thus, it was concluded that Modified Otago exercise programme was effective in reducing the risk of fall among senior citizens. The study findings stress the increasing responsibility of health professionals in planning and implementing various strategies to reduce frequency of Risk of fall using different self-care technique which in turns helps to increase the quality of life among senior citizens.

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