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A STUDY TO ASSESS THE EFFECTIVENESS OF ACTIVE EXERCISE ON FEAR OF FALL AMONG ELDERLY POPULATION IN SELECTED AREA OF HARYANA

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ABSTRACT

Introduction:The number of elderly people are expected to be more than double by 2050 in the world.1 Old age is defined as a stage at which functional, mental and physical capacity decline and people are more prone to disease or disabilities.2 Fear of fall is the most common problemand its prevention is a challenge.3 The strategies that are to reduce the falls include: falls risk assessment, fall prevention activities into their practice, and referral to evidence-based fall prevention programs.[4]

Material and methods:The quantitative research approach with Non equivalent control group pre test and post test Research Design was adopted for the study on seventy-seven elderly people selected through purposive sampling technique residing in selected rural areas of Ambala, Haryana. Modified Falls Efficacy Scale (MFES) was used to assess the fear of fall among elderly population. Experimental group receives Active Exercise of 15 minutes continuously for 15 days.Analysis was done by using descriptive and inferential statistics.

Results: The mean post test score of MFES in the experimental group was significantly higher (3.49±0.758) than the mean post test score (2.90±0.835) in the comparison group. The mean post test score of fear of fall (3.49±0.76) was significantly higher than the mean pre test score of fear of fall (2.83±0.80) in the experimental group.

Conclusion: Based on the study findings, it is concluded that Active exercise was effective in reducing fear of fall among elderly population.

Background:

In recent years, there has been a sharp increase in the number of older persons worldwide and more old people are alive nowadays than at any time in history.The world's population is soaring with increase in number of elderly people that are expected to more than double by 2050.5 India has around 100 million elderly at present and the number is expected to increase to 323 million, constituting 20 per cent of the total population, by 2050.[6]

The United Nations uses 60 years to refer to older people. There is no exact definition of "old" as this concept has different meanings in different societies. Defining "old" is further challenged by the changing average lifespan of human beings. There are other definitions of "old" that go beyond chronological age. Old age as a social construct is often associated with a change of social roles and activities, for example, becoming a grandparent or a pensioner. Older persons often define old age as a stage at which functional, mental and physical capacity is declining and people are more prone to disease or disabilities.[7]

The demographic transition with ageing of the population is a global phenomenon which demands international, national, regional and local action.[8]

METHODS/DESIGN

By using Non equivalent control group pre-test post-test, the study was conducted in Village Simbla and Holi, Ambala, Haryana. Through the Purposive sampling technique was used to select the sample size of 80 Elderly. Elderly were divided into comparison and experimental groups.

Sampling Criteria

The criteria for selection of sample was as follow:

Inclusion criteria

Elderly people who:

- were 60 years old and or above.
- were willing to participate in the study.
- were able to speak and understand Hindi.
- scored less than 5 on Modified Falls Efficacy Scale (MFES)

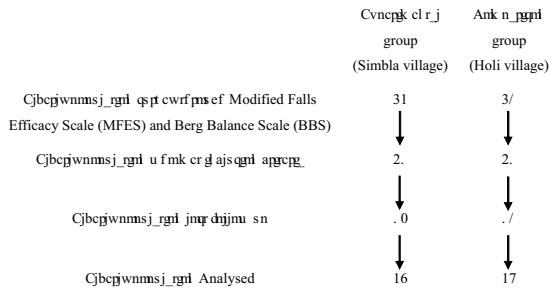

Figure 3.2 Flow chart showing sample size

Exclusion criteria

The study excludes elderly who:

- missed active exercise more than two days
- depending on walking aids.
- were blind and deaf.
- were suffering from cognitive–neuro– muscular diseases

Data collection tools and techniques

The present study aimed to evaluate the effectiveness of active exercise intervention on fear of fall among elderly population.

The following data collection tool was used to obtain data:

- MModified Falls Efficacy Scale (MFES) to assess the fear of fall among elderly.

Interview technique was used for collecting the data to assess the fear of fall with the help of MFES.

PROCEDURE FOR DATA COLLECTION

Permission was obtained from Sarpanch of village Simbla and Holi. Investigator got oriented to elderly, self-introduction and introduction to the nature of the study were given to the selected sample. To obtain free and frank response purpose of the study was explained and they were assured about the confidentiality of their response. Written consent was taken from elderly subjects. Data was collected from December, 2016 to January, 2017 using Modified Falls Efficacy Scale (MFES).

In the experimental group on first day, pre test was done regarding fear of fall after that on the same day active exercise with the help of demonstration method was given to the elderly population for 15 minutes after that on 8th day first post test was taken regarding fear of fall. From day 8th to day 15th active exercise was given to participants for 15 min and on 15th day second post test was taken regarding fear of fall among elderly population.

In the comparison group pre test was taken using MFES on 1st day without giving active exercise to the subjects. After that on 8th day first post test was taken and on 15th day the second post test was taken from the elderly population.

RESULTS

The data was analyzed using descriptive statistics and inferential statistics.

Descriptive statistics:

- Frequency, percentage distribution was used to describe selected variables.
- Chi-square was used to assess the homogeneity between two groups.

Inferential statistics:

- Independent t-test/ANOVA was used to assess the association between Fear of Fall score with their selected variables.

TABLE 1

Frequency and percentage distribution of elderly population in terms of selected demographic variables in experimental and comparison group

N=77

S.No.	Demographi Characteristics	Experimental group	Comparison group	2	df	p value
		n= 38 f (%)	n=39 f (%)			
1.	Age in (years)					
1.1	60-64 Years	04(10.5%)	06(15.4%)	2.72	4	0.60 NS
1.2	65-69 Years	14(36.8%)	10(25.6%)			
1.3	70-74 Years	05(13.2%)	07(17.9%)			
1.4	75-79 Years	03(7.9%)	01(2.6%)			
1.5	≥80 Years	12(31.6%)	15(38.5%)			
2.	Gender					
2.1	Male	13(34.2%)	11(28.2%)	0.32	1	0.57 NS
2.2	Female	25(65.8%)	28(71.8%)			
3.	Marital status					
3.1	Married	19(50%)	19(48.7%)	0.43	2	0.80 NS
3.2	Widow	17(44.7%)	19(48.7%)			
3.3	Divorce/ Separated	02(5.3%)	01(2.6%)			
4.	Educational Status					
4.1	Non literate	24(63.2%)	31(79.5%)	3.41	3	0.33 NS
4.2	Primary Education	10(26.3%)	07(17.9%)			
4.3	Middle Education	03(7.9%)	01(2.6%)			
4.4	Higher Secondary	01(2.6%)	01(0%)			
5.	Occupation					
5.1	Unemployed	26(68.4%)	29(74.4%)	0.34	2	0.84 NS
5.2	Retired	07(18.4%)	06(15.4%)			
5.3	Self Employed	05(13.2%)	04(10.3%)			
6.	Income					
6.1	No Income	04(10.5%)	05(12.8%)	3.252	3	0.35 NS
6.2	≤5000	26(68.4%)	25(64.1%)			
6.3	5001-10000	04(10.5%)	08(20.5%)			
6.4	10001-15000	04(10.5%)	01(2.6%)			
7.	Family					
7.1	Living Alone	05(13.2%)	02(5.1%)	2.52	3	0.47 NS
7.2	Nuclear	16(42.1%)	16(41%)			
7.3	Joint Family	17(44.7%)	20(51.3%)			
7.4	Extended Family	00(0%)	01(2.6%)			
8.	Nutrition					
8.1	Vegetarian	27(71.1%)	23(59%)	1.53	2	0.47 NS
8.2	Non vegetarian	08(21.1%)	10(25.6%)			
8.3	Eggetarian	03(7.9%)	06(15.4%)			

NS Not significant (p≥0.05)

The computed chi- square value for the selected demographic variables in the experimental and comparison group of elderly population for age, gender, marital status, educational status, occupation, income, family and nutrition were found to be non-significant at 0.05 level of significance. Hence, it can be inferred from the findings that elderly population in both groups were homogenous with regard to these demographic variables.

TABLE 2

Frequency and percentage distribution of elderly population in terms of selected clinical variables in experimental and comparison group

N=77

S. No.	Clinical Characteristics	Experimental group	Comparison group	2	df	p value
		n= 38 f (%)	n=39 f (%)			
1.	Body Mass Index					
1.1	15-19	07(18.4%)	03(7.7%)	2.99	3	0.39 NS
1.2	20-24	19(50%)	23(59%)			
1.3	25-29	07(18.4%)	10(25.6%)			
1.4	≥30	05(13.2%)	03(7.7%)			
2.	History of Fall					

2.1	No	12(31.6%)	16(41%)	2.23	3	0.53 NS
2.2	≤2	11(28.9%)	08(20.5%)			
2.3	3-5	06(15.8%)	09(23.1%)			
2.4	>5	9(23.7%)	6(15.4%)			
3.	History Of Illness					
3.1	No	15(39.5%)	20(51.3%)	3.13	4	0.54 NS
3.2	HTN	14(36.8%)	11(28.2%)			
3.3	DM	06(15.8%)	04(10.3%)			
3.4	Both HTN and DM	02(5.3%)	04(10.3%)			
3.5	Asthma	01(2.6%)	00(0%)			
4.	Surgical History					
4.1	No	34(89.5%)	36(92.3%)	1.71	3	0.63 NS
4.2	Appendicitis	01(2.6%)	02(5.1%)			
4.3	Cholecystectomy	02(5.3%)	01(2.6%)			
4.4	Cystolithotomy	01(2.6%)	00(0%)			
5.	Orthopedic History					
5.1	No	27(71.1%)	24(61.5%)	0.78	1	0.38 NS
5.2	Arthritis	11(28.9%)	15(38.5%)			
6.	Hearing Problem					
6.1	No	29(76.3%)	33(84.6%)	0.85	1	0.36 NS
6.2	Yes	09(23.7%)	06(15.4%)			
7.	Vision Problem					
7.1	No	20(52.6%)	17(43.6%)	0.80	2	0.67 NS
7.2	Myopia	12(31.6%)	16(41%)			
7.3	Hypermetropia	06(15.8%)	06(15.4%)			
8.	Medication					
8.1	No	28(73.7%)	34(87.2%)	2.24	1	0.14 NS
8.2	Yes	10(26.3%)	05(12.8%)			

TABLE 3 Mean, Standard Deviation, Mean Difference, Standard Error of Mean Difference and t-value of pre and post test scores of Fear of Fall among elderly population between experimental and comparison group.

N=77

Group	Mean ± SD		MD	SEMD	t test	p value
Experimental (n=38)	Pre test (Day 1)	2.83 ± 0.80	-0.05	0.19	0.25	0.80 NS
Comparison (n=39)		2.88 ± 0.79				
Experimental (n=38)	Post test (Day 8)	3.15 ± 0.79	0.25	0.19	1.33	0.19 NS
Comparison (n=39)		2.90 ± 0.83				
Experimental (n=38)	Post test (Day 15)	3.49 ± 0.76	0.59	0.18	3.23	0.001*
Comparison (n=39)		2.90 ± 0.84				
Minimum Score=0	Maximum Score=10					

*Significant (p≤0.05) NS Not Significant

Table 4.8 indicated that the computed 't' value was found to be non significant at 0.05 level of significance in pre test on 1st day and first post test on 8th day. The computed 't' value was found to be significant at 0.05 level of significance in second post test on 15th day. Hence null hypothesis H02 rejected and research hypothesis H2 was accepted. Thus it can be inferred that active exercise were effective on fear of fall among elderly population significantly on 15th day.

Figure 4.1 Bar graph shows the mean score of Fear of Fall score among elderly population in the experimental and comparison group

Table – 4

Repeated Measure ANOVA showing comparison of pre-test and post-test Fear of Fall scores of elderly population within experimental group

N=38

Group		Range	Mean ± SD	F	p value
Experimental (n=38)	Pre test (Day 1)	1.57-4.78	2.83 ± 0.80	5.61	0.001*
	Post test (Day 8)	1.92-5.07	3.15 ± 0.79		
	Post test (Day15)	2.35-5.36	3.49 ± 0.76		
Minimum Score=0				Maximum Score=10	

NS Not Significant

Table no. 4.9 indicated that mean pre- test Fear of Fall score with standard deviation in experimental group was 2.83 ± 0.80 that is increased by 3.15 ± 0.79 in first post test on 8th Day and in second post-test on 15th day mean post-test score with standard deviation increased by 3.49 ± 0.76 that was statistically significant as evaluated by repeated measure ANOVA (p= 0.001).

Hence null hypothesis H03 rejected and research hypothesis H3 was accepted. Thus it is inferred that active exercise intervention was effective on fear of fall among elderly population.

Discussion:

The aim of the study isto evaluate the effectiveness of active exercise on fear of fall among elderly population residing in selected rural area of Ambala, Haryana.". The findings of the study have been discussed in terms of objectives, theoretical base and hypotheses formulated.

This part deals with discussion of the findings of the present study in accordance with the objectives pertaining to the research problem. The findings of the study were discussed with the reference to the results obtained by the investigator.

The purpose of this study was to evaluate the effectiveness of active exercise interventions on fear of fall among elderly population residing in selected rural areas.

The study that also shows that the fear of fall score on MFES was 3.49 it shows significant reduction in fear of fall (p=0.001) after administering the interventions in experimental group. The study findings were consistent with the study conducted by Narjes Nick after providing exercise interventions there was a reduction in fear of fall by 26.5% as it shows mean score of fear of fall on MFES was

7.08. Analysis of this study indicated that the active exercise intervention was effective in reducing fear of fall among elderly population.[9]

The study results revealed that the Fear of Fall among elderly population was significantly associated with the selected demographic variable age (p=0.002) which shows that there was more fear of fall among elderly who were 80 years and above. The present study findings were consistent with the findings of the study by Smith AA which showed that the age found to be statistically significant (p=0.054), that also shows that elderly more than 80 years old were more at risk of falling and age contributed in the occurrence of falls among elderly.[10]

The present study shows that the fear of fall among elderly population is significantly reduced (p= 0.001) in second post test as measured on Modified Falls Efficacy scale (MFES) and this finding is consistent with the randomized controlled trial conducted by Halvarsson A with the aimto evaluate the effects of a new, individually adjusted, progressive and specific balance group training programme on fear of falling among elderly population and as a result of the study shows that the intervention group depicts the statistically significant positive changes in the Falls Efficacy Scale (FES-I) (p = 0.008) and findings of the present study was consistent with this study.[11]

Conclusion:

The selected demographic and clinical variables of experimental and comparison group were homogeneous. Initial score of modified falls efficacy scale in both experimental and comparison group were similar in both experimental and comparison group. The mean post test score of Fear of Fall in the experimental group was significantly higher than the mean post test score of the comparison group. Active exercise intervention was effective in reducing fear of fall among elderly population. The demographic and clinical variables were found to be significantly associated with the Fear of Fall in terms of Age, Income and Body Mass Index.

Therefore, the study concluded that active exercise intervention was effective among elderly population who were having fear of fall.

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