

# Effectiveness of Multifactorial Programme on Knowledge and Expressed Practices Regarding the Risk Factors and Safety Measures to Prevent Falls among Elderly

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## ABSTRACT

Falls in elderly are the most common serious problem and also the commonest type of accidents that occur in people of 65 years and above resulting in serious injury to elderly. Injuries which occur due to fall are associated with disability, loss of independence and increase chance of death.

A Quasi Experimental Non Equivalent Control Group Pretest Post Test Design was used to compare pre and post test of knowledge scores and expressed practices among experimental and comparison group before and after administration of multifactorial program. A sample of sixty elderly was selected purposive sampling technique. The data collection tools used were

History of Fall Assessment (In Last Two Years), Performa for Socio-Demographic Data, Structured Knowledge Questionnaire To Assess Knowledge Regarding Risk Of Falls With Its Prevention And Management, Expressed Practices Checklist To Assess Prevention Of Falls Among Elderly and were collected by Interview. The findings of the study showed that the mean post-test knowledge score of elderly in experimental and comparison group after the administration of intervention ( $14.87 \pm 4.79$ ,  $14.67 \pm 4.71$ ) was found to be statistically not significant ( $p=0.16$ ). The mean pretest and post-test expressed practices score of elderly in experimental group before and after the administration of intervention ( $36.8 \pm 5.98$ ,  $38.0 \pm 5.94$ ) was found to be significant ( $p=0.001$ ). The study concluded that multifactorial program was effective in improving expressed practices but not in knowledge of elderly regarding risk factors and safety measures to prevent falls.

**Keywords:** Multifactorial programme, Knowledge, Expressed practices Risks factors, Safety measures, Falls.

## INTRODUCTION

A fall is an event which occurs in a person coming from higher level to lower level without any reason of intrinsic and extrinsic factors. <sup>[1]</sup> The World Health Organization defines fall as an event which results in a person coming to rest

inadvertently on the ground or floor or other lower level, that cannot be corrected at the time if incidence and by multiple factors that affect maintenance of stability. <sup>[2]</sup>

For the population worldwide, falls are the main public health problems among the elderly people, incidences per 1000

person in a year it has ranges from 224 to 809. These are the major causes of injuries, loss of functional activity in daily living, and quality of life. From the developing countries, reports on falls in between elderly people are less.

Research evidences suggests that females fall more than males. The fact is that female has more loss in bone mineral density than male after the menopause which may be one reason for variation in rates of fall. And they have low immune system. Even though many studies have look into causing agent for falls in elderly, only some have included gender-specific analyses and some were based on small, unrepresentative samples. [3]

In recent years, there has been a sharp increase in the number of elderly people worldwide and more elderly 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. [4] 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. [5]

## METHODOLOGY

The research approach adopted for the study was quantitative approach and the design was "Quasi-experimental" with Non Equivalent Control Group Pretest Post Test Design. The independent variable was multifactorial programme and the dependent variables were knowledge and expressed practices regarding the risk factors and safety measures to prevent falls.

**Sampling Criteria:** Following elderly were included in the study those:-

1. Having history of falls within two years.
2. Willing to participate in the study.
3. Able to speak and understand Hindi language.
4. Available at the time of study.

A quasi experimental design was taken up and 60 elderly were selected by purposive sampling technique and divided into two

groups experimental (n=30) and comparison (n=30). The reliability coefficient for structured knowledge questionnaire and structured expressed practices checklist were calculated by KR20 and Cronbach alpha, and was found to be 0.7 and 0.7 respectively. The data was collected by Interview (Self report).

**Ethical approval to conduct study was obtained from institutional ethical committee**

[IEC- 960] of M.M (Deemed to be University), Mullana. Consent form was taken from the patients regarding their willingness to participate in the research project. The purpose for carrying out research project was explained to the subjects and assurance of confidentiality was given. Study included those elderly of 60 years and above, who are able to understand Hindi.

Purposive sampling technique was used. The sample of the present study was elderly population of village Bhudiya and Simbla village of Ambala district, Haryana. In order to identify the elderly people, every house was visited in sequence and out of them 60 elderly people were selected who had fall within two years. Pretest was taken on first day. In experimental group, intervention was given for 30 minutes with the help of booklet on 2<sup>nd</sup> day i.e. multifactorial program including diet, exercise and home modification. Pretest was taken on first day. Post test was taken after 15 days. And in comparison group, intervention was not given.

## Development of tools

The tools were developed after reviewing the literature, seeking opinion from the experts. The content validity of the tools was established by 7 experts (5 from nursing field and 2 from physiotherapy). Data was collected through face to face interview by using four tools and was prepared by the researcher. History of Fall Assessment (In Last Two Years) and consists of 8 items. Performa for Socio-Demographic Data and consists of 13 items.

Structured Knowledge Questionnaire To Assess Knowledge Regarding Risk Of Falls With Its Prevention And Management which consists of 25 questions. Expressed Practices Checklist To Assess Prevention Of Falls Among Elderly consists of 18 items. The reliability coefficient for structured knowledge questionnaire and structured expressed practices checklist were calculated by KR20 and Cronbach alpha, and was found to be 0.7 and 0.7 respectively. English version of the tools was translated into Hindi.

The final data was collected from October to November 2017 using structured knowledge questionnaire and expressed practices checklist. Permission was obtained from Sarpanch of village Simbla and Bhudiya. Written consent was taken from elderly subjects. On day 1<sup>st</sup>, pre assessment of knowledge and expressed practices was done by structured knowledge questionnaire and expressed practices checklist in experimental and comparison group. After assessment, on 2<sup>nd</sup> day administration of intervention individually for 30min was done in experimental group. On day 15<sup>th</sup> post implementation assessment of knowledge and expressed practices was done in experimental and comparison group.

### Statistical Analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) version 20. Kolmogorov-Smirnov test was applied to check normality of the data. Data analysis was done by using descriptive statistics i.e. mean, standard deviation and inferential statistics such as chi-square test, paired and independent t-test ANOVA. Pearson's correlation coefficient was used to check the relationship between the variable. Level of significance for the present study was  $p \leq 0.05$ .

## RESULT

### Section I Description of selected demographic and fall related variables:

Out of 60 elderly, most of elderly were females in both experimental (70%) and comparison (73.3%) group. Nearly half

of the elderly were in the age group of 60-69 years in the experimental (53.3%) and (56.7%) in the comparison group. Majority of the elderly were having impaired visual acuity in the experimental (80%) and comparison (76.7%) group. Majority of the elderly were not using walking aids in the experimental (76.7%) and comparison (73.3%) group. More than half of the elderly had fall in last two years in experimental (63.3%) and comparison (76.7%) group. About (36.7%) of elderly had fall in within 1-6 months and before 1 year in experimental (36.7%) and comparison (40%) group were fall before 1 year. More than half of the elderly were fell inside the house in experimental (56.6%) and comparison (53.3%) group. Majority of elderly fall once in last two years due to slipping at during ambulation and suffered from pain and bruises in both groups. Majority of elderly had not undergone for hospital.

### Frequency and percentage distribution of pretest and post test level of knowledge and expressed practices of elderly in experimental and comparison group

The pretest level of knowledge is shown in figure 4.1

The pretest level of expressed practices is shown in figure 4.2.

The post test level of knowledge is shown in figure 4.3.

The post test level of expressed practices in figure 4.4.

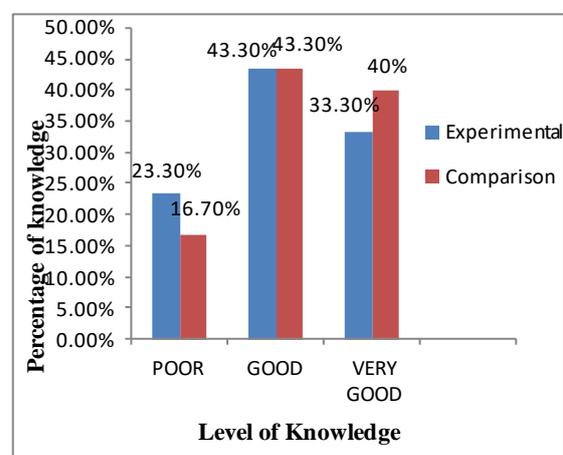


Fig 1.1 Bar diagram showing level of pretest knowledge score of elderly in experimental and comparison group.

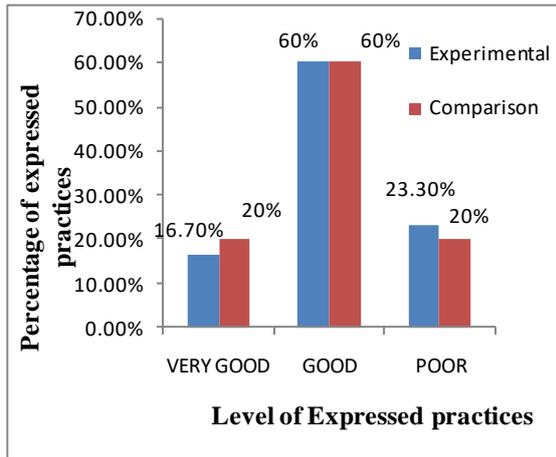


Fig 1.2. Bar diagram showing level of pretest expressed practices score of elderly in experimental and comparison group.

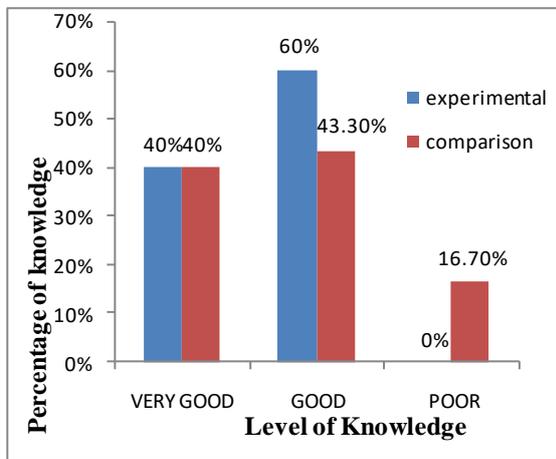


Fig.1.3: Bar diagram showing level of post test knowledge score in experimental and comparison group.

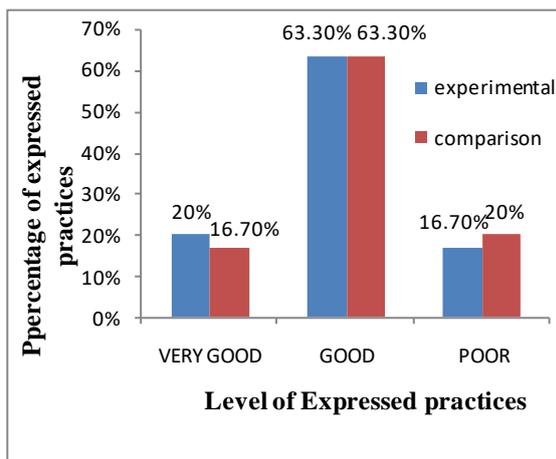


Fig 1.4: Bar diagram showing level of post test expressed practices in experimental and comparison group.

TABLE 1 Range, Mean, median and Standard Deviation of pretest and posttest knowledge score of elderly in experimental and comparison group N=60

Group	Range of score	Mean $\pm$ SD	Median
Experimental group			
Pre test (n=30)	5-21	14.17 $\pm$ 4.69	16
Post test (n=30)	12-23	16.37 $\pm$ 3.13	16
Comparison group			
Pre test (n=30)	5-21	14.87 $\pm$ 4.79	16
Post test (n=30)	5-22	14.67 $\pm$ 4.72	17

Maximum score-25 Minimum score -0

Table 1 indicated that range of pre test knowledge score ranges from 5-21 both in experimental and comparison group. The mean pre test knowledge score was 14.17 $\pm$ 4.69 & 14.87 $\pm$ 4.79 in experimental and comparison group respectively.

And range of post test knowledge score ranges from 12-23 in experimental and 5-22 in comparison group. The mean pre test knowledge score was 16.37 $\pm$ 3.13 & 14.67 $\pm$ 4.72 in experimental and comparison group respectively.

TABLE 2 Range, Mean, median and Standard Deviation of pretest and posttest expressed practices score of elderly in experimental and comparison group N=60

Group	Range of score	Mean $\pm$ SD	Median
Experimental group			
Pre test (n=30)	26-48	36.9 $\pm$ 5.98	38.0
Post test (n=30)	26-50	37.5 $\pm$ 5.93	38.5
Comparison group			
Pre test (n=30)	26-46	37.0 $\pm$ 6.10	38.5
Post test (n=30)	26-46	37.0 $\pm$ 5.98	38.5

Maximum score-54 Minimum score- 18

Table 2 indicated that range of pre test expressed practices score ranges from 26-48 in experimental and 26-46 in comparison group. The mean pre test knowledge score was 36.9 $\pm$ 5.98 & 37.0 $\pm$ 6.10 in experimental and comparison group respectively.

And range of post test expressed practices score ranges from 26-50 in experimental and 26-46 in comparison group. The mean pre test knowledge score was 37.5 $\pm$ 5.93 & 37.0 $\pm$ 5.98 in experimental and comparison group respectively.

**Section II:**

**Table: 3.** Mean, Mean difference, standard deviation of difference, standard error of mean difference and t value of mean pre-test and post-test knowledge score among elderly in experimental group ad comparison group. N=60

GROUP	Mean±SD	M <sub>D</sub>	SE M <sub>D</sub>	't' value	df	P value
Experimental Group (n=30)						
Pre test	14.30±4.48	2.07	0.81	2.71	58	0.11 <sup>NS</sup>
Post test	16.37±3.13					
Comparison Group (n=30)						
Pre test	14.87±4.79	0.20	0.23	0.84	58	0.41 <sup>NS</sup>
Post test	14.67±4.71					

Table 3 shows a comparison of mean pre-test and post-test knowledge score before and after administration of intervention in experimental and comparison group using paired 't' test. The mean pretest knowledge score of patients in experimental group was 14.30±4.48 as compared to 16.37±3.13 in experimental group after the administration of intervention and was found to be

statistically not significant ('t' (58)=2.00, p=0.11) at 0.05 level of significance. The mean pretest knowledge score of patients in comparison group was 14.87±4.79 as compared to 14.67±4.71 in comparison group after the administration of intervention and was found to be statistically not significant ('t' (58)=2.00, p=0.41) at 0.05 level of significance.

**Table: 4.** Mean, Mean difference, standard deviation of difference, standard error of mean difference and t value of mean pre-test and post-test expressed practices among elderly in experimental group ad comparison group. N=60

GROUP	Mean±SD	M <sub>D</sub>	SE M <sub>D</sub>	't' value	df	P value
Experimental Group (n=30)						
Pre test	36.8±5.98	1.2	0.26	4.4	58	0.00*
Post test	38.0±5.94					
Comparison Group (n=30)						
Pre test	37.0±6.10	0.06	0.12	0.52	58	0.60 <sup>NS</sup>
Post test	37.06±5.98					

Table 4 shows a comparison of mean pre-test and post-test expressed practices score before and after administration of intervention in experimental and comparison group using paired 't' test. The mean pretest expressed practices score of patients in experimental group was 36.8±5.98 as compared to 38.0±5.94 in experimental group after the administration of intervention and was found to be statistically significant ('t' (58)=2.00, p=0.00\*) at 0.05 level of significance. The mean pretest expressed practices score of patients in comparison group was 7.0±6.10 as compared to 37.06±5.98 in comparison group after the administration of intervention and was found to be statistically not significant ('t' (58)=2.00, p=0.60) at 0.05 level of significance.

**DISCUSSION**

In the present study, 43/60 (71.6%) of elderly were females and 17/60 (28.3%) of elderly were males. Also, 33/60 (55%) of elderly were in the age group of 60-69 years, 23/60 (38.3%) elderly were in the age group of 70-79 years and 4/60 (6.6%) of elderly were in age group of 80 and above.

In the present study, 9/60 (15%) of elderly had a fall within less than one month, 18/60 (33%) of elderly had a fall within 1-6 months, 10/60 (16.6%) of elderly had a fall within 7-12 months and 23/60 (38.3%) of elderly had a fall before one year.

The result was consistent with the findings of Aniket Sirohi et.al who conducted a study of falls among elderly persons in rural area of Haryana in which results showed that among the 456 study participants, the prevalence of falls in the past 12 months was 36.6% (95% confidence

interval [CI] =32.1–40.0). The prevalence among women was 40.6% (95% CI = 34.5–46.7) and among men was 31.5% (95% CI = 25.0–37.9).<sup>[6]</sup>

In various studies conducted in India and abroad, the prevalence of falls ranged from 18.8% to 53%.<sup>[7-13]</sup> Tripathy et al. conducted a community-based study among elderly in rural, urban, and slum areas of Chandigarh and reported the prevalence of falls to be 31%.<sup>[7]</sup> D'souza, in a study conducted among community-dwelling elders and old age home residents in Karnataka reported the prevalence of falls to be 38% in the past 4 years.<sup>[8]</sup> The differences may be due to different study settings. Furthermore, the time span considered for fall history was different in various studies. D'souza reported falls in the past 4 years while Joshi et al. recorded "history of fall" in their study.<sup>[8,9]</sup> Some studies have reported the 6-month prevalence of falls.<sup>[10]</sup>

The findings of present study further revealed that 23.3% of elderly were having poor knowledge regarding risk factors and safety measures to prevent falls. In a study conducted by Smitesh Gutta et al. also showed that knowledge regarding prevention of falls among elderly seem poor.<sup>[14]</sup>

In the present study there was significant association of knowledge score with marital status in experimental group, i.e. mean knowledge score (17.21) was high among married than (14.90) unmarried and the p value was (.05). High score indicates more knowledge.

In the present study there was significant association of expressed practices score with alcoholic status in comparison group (F= 3.88, p=0.05).

## CONCLUSION

The multifactorial programme was not effective in improving knowledge but was effective in improving the expressed practices of elderly regarding risk factors and safety measures to prevent falls.

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## Recommendations

Video-based teaching program can be done. Comparative studies can be done to assess the fall among males and females. Studies can be conducted to compare the risk of fall among elderly residing in rural area and in urban area. Exploratory studies can be conducted to assess the injuries related to fall among elderly population.

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