A Study to Assess the Effectiveness of Balance Exercise on Risk of Fall Prevention among Older People in Selected Old Age Homes at Purba Medinipur, West Bengal - Pilot Study

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ABSTRACT

Introduction: Balance exercise is an important element that prevent fall in older age people observed throughout the world. balance training programme for old age people, including multi-task exercises, was designed and developed based on well-established principles of exercise and on the knowledge that balance control relies on the interaction of several physiological systems, as well as interaction with environmental factors and the performed task.

Objective: This study aims to assess the effectiveness of balance exercises on fall prevention among older people.

Methods: The research design selected for this study was experimental research design. The investigator used Randomized control trial to select a sample of 88 (exprimental-44 and control -44) of old age people for this study. In this study socio-demographic data tool, POMA (Tinetti performance oriented mobility assessment) were used to measure and observe the study accurately. Fall rate was measured with the POMA tool. Data were analyzed through descriptive and inferencial statistic.

Results: In the group 1 i.e. experimental group, 8 (18.2%) cases were high fall risk, 13 (29.5%) medium fall risk and 23 (52.3%) low fall risk. In the control group (group 2), 29 (65.9%) were high fall risk, 10 (22.7%) medium fall risk and 5 (11.4%) low fall risk. In the experimental group the high fall risk is very low and low fall risk is very high in comparison to control group. The difference was highly significant (p=0.000). This implied the balance exercise on fall prevention is highly effective.

Conclusion: This study concluded that significant increasing the strength, prevent fall and maintaining the balance among older people in a 4 week balance exercise program.

KEYWORDS: Balance exercise, Fall prevention

INTRODUCTION

According to WHO falls are prominent among the external causes of unintentional injury. They are coded as E880-E888 in International Classification of Disease-9 (ICD-9), and as W00-W19 in ICD-10, which include a wide range of falls including those on the same level, upper level, and other unspecified falls. Falls are commonly defined as "inadvertently coming to rest on the ground, floor or other lower level, excluding intentional change in position to rest in furniture, wall or other objects". Older people tend to describe a fall as a loss of balance, whereas health care professionals generally refer to events leading to injuries and ill health. Therefore, the operational definition of a fall with explicit inclusion and exclusion criteria, is highly important[1]..

According to the World Health Organization (WHO) global report on falls prevention, people aged 65 years and above fall about 28%–35% in each year and this proportion increases as age and frailty level increase. The prevalence of falls in India, above the age of 60 years, reported to range 14%–53%[1].

According to Population Census 2011 there are nearly 104 million older people (aged 60 years or above) in India; 53 million females and 51 million males. According to the 2011 Census, 9.5 per cent of Odisha's population consists of the old age people, which is higher than the national average. Increasing age neuro muscular deficits may result in impaired physical performance and an increased risk for falls. Prominent intrinsic fall-risk factors are age-related decreases in balance and strength. Thus, the objective of the present trial is to assess the effects of a fall prevention program[1].

BACKGROUND OF THE STUDY:-

Population aging is occurring at differing rates between countries. Japan is the "oldest" country in the world, with 26% of its population aged over 60 years. Many developed countries already have more than 15% of their population aged greater than 60 years, and are expected to exceed 20% by 2050. In contrast, many developing countries in Asia such as Malaysia, Thailand, Indonesia, Cambodia, Vietnam and the Philippines have less than 10% of their population aged

more than 60 years. However, Asia is home to 60% of the world's population, and has the fastest aging population of any region in the world. There is a need for a strong preventive approach to minimize the risk of falls and associated injuries as countries' aging populations grow[2].

RESEARCH HYPOTHESIS:

H1: There will be a significant difference between post-test score and pre-test score after giving balance exercise on prevention of fall.

H2: There will be a significant association between level of balance and gait test score of older people with their selected demographic variables.

ASSUMPTION:-

The study is based on the following assumption.

➢ Balance exercise is an important measure to prevent fall.
➢ Old age people (60-80)years may have some knowledge on balance exercise.
➢ Balance exercise programme may be improve the muscle strength.

DELIMITATIONS:-

The present study is delimited to:

➢ Old age people (60-80 years) residing in old age home Purba Medinipur.
➢ Those who are able to understand bengali language.
➢ Period of data collection 1 month

METHODOLOGY

RESEARCH APPROACH AND DESIGN

Research approach used for this study was quantitative approach based on using statistical techniques to evaluate the effectiveness of balance exercise on risk of fall prevention among older people.

INDEPENDENT VARIABLE:-

➢ "The presumed cause is referred to as the independent variable." The independent variable is the condition or characteristic manipulated by the researcher. An independent variable is a stimulus or activity that is manipulated or varied by the researcher to create an effect on the dependent variable.
➢ In this study the independent variable is balance exercise.

DEPENDENT VARIABLE:-

➢ "The presumed effect is referred to as the dependent variable." The dependent variable usually is the variable the researcher is interested in understanding, explaining or predicting.
➢ Dependent variable is response, behavior or outcome that the researcher wants to predict or explain.
➢ In this study the dependent variable is fall prevention.

POPULATION, SAMPLE AND SAMPLING TECHINQUE

This study was conducted in in selected older age home at purba medinipur, west bengal. (Amar seva sanga Old age Home, Santosh Promoda Old Age Home). The selection of sample done by using simple random sampling based on envelope computer generated list of old age people (60 -80 yrs) in old age home. For the present study consist of 88 old age people. (Experimental group- 44 and control group- 44).
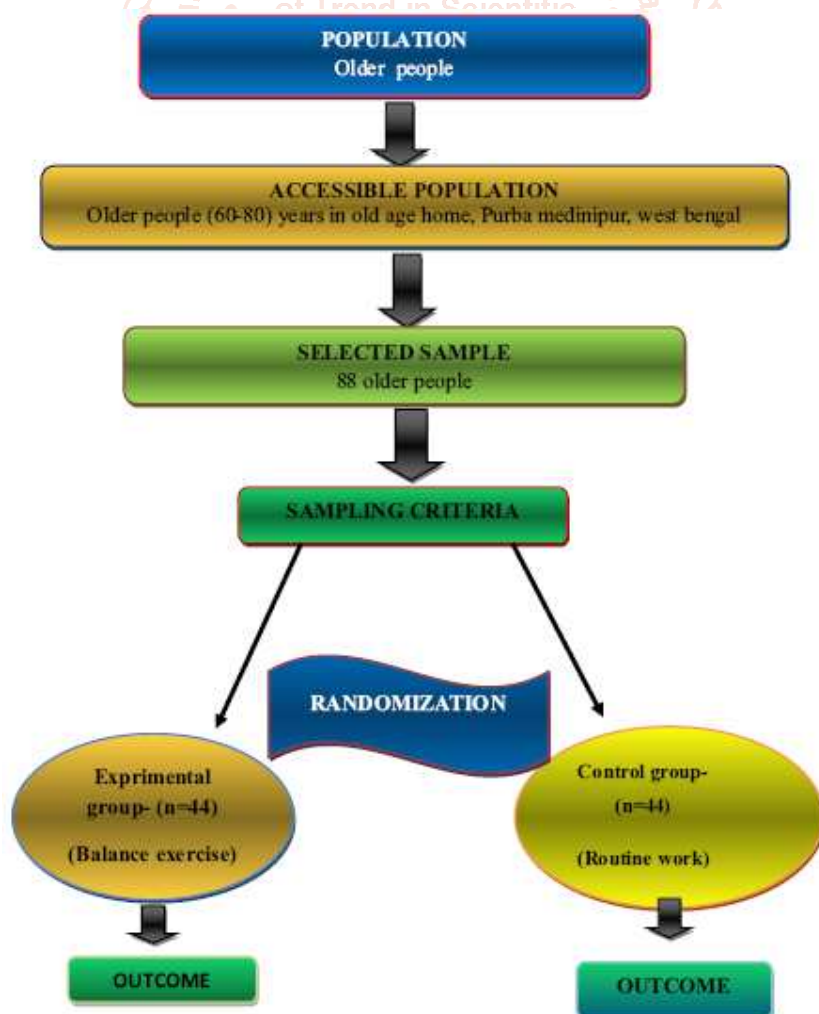

Figure No 1: Schematic Diagram of Research Design

SELECTION CRITERIA:-
Inclusion criteria:-
1. Older people of both gender.
2. The older people age 60 yr to 80 yr.
3. The older people who were available during the period of study.
4. The older people who were willing to participate in the study.

Exclusion criteria:-
1. The people who were critically ill. history of CVA , fracture, parkinson disease, cardiovascular disease, cataracts, hearing loss, dizziness, depression and Alzheimer's disease.
2. People with restricted limb movement.

DATA COLLECTION METHOD & TOOL:-
In this study socio demographic data tool, Tinetti performance oriented mobility assessment are used to observe the study accurately. Based on the objectives of the study, socio demographic data tool, Tinetti performance oriented mobility assessment is prepared to evaluate the risk of fall prevention among old age people.

The tool is composed of **section A:** socio demographic data tool and **section B**: Tinetti performance oriented mobility assessment. Second draft of tool was selected.

SECTION A: SOCIO DEMOGRAPHIC DATA TOOL:-
The investigator constructed this tool to collect the demographic data of the study subjects and to identify the influence of sample characteristics with the evaluated the risk of fall prevention. It consists of 8 items, which composed of age, sex, marital status, educational status, occupational status, BMI, health insurance.

SECTION B: Tinetti performance oriented mobility assessment
Description: The Tinetti assessment tool is an easily administered task-oriented test that measures an older adult's gait and balance abilities.

Equipment needed: Hard armless chair
                           Stopwatch or wristwatch
                           15 ft walkway

Time: 10-15 minutes

Scoring: A three-point ordinal scale, ranging from 0-2. "0" indicates the highest level of impairment and "2" the individuals independence.

Total Balance Score = 16
Total Gait Score = 12
Total Test Score = 28

Interpretation: 25-28 = low fall risk
                    19-24 = medium fall risk
                    < 19 = high fall risk

PILOT STUDY:-
After obtaining the permission of the old age home pilot study was carried out at vivekananda old age home, purba medinipur, west bengal. This old age home to find the feasibility of the study on 10 older people. The subjects for the pilot study prossessed the same characteristic as that of the sample for the main study. The participant where informed about the purpose of the study and consent was taking from the participated and the investigator did not faced any kind of problem. Based on the outcome of the study this pilot study was feasible and continued the main study.

DATA COLLECTION:-
Date collection was carried out from 27/7/2020 to 28/8/2020 after getting CTRI registration number. Formal written permission was taken from the authority of old age home, purba medinipur, west Bengal to conduct main study. Researcher collects the data by explaining the purpose of the study to each subject. Computer generated random number list used to select the sample from the population as per inclusion criteria. Informed consent was taken. The samples were given balance exercise for daily 2 time, with each training session lasting 5 mints to the experimental group and routine work ware given to control group.

DATA COLLECTION PROCEDURE:-
➤ Permission was obtained from the authority of old age home (Amar seva sanga).
➤ Informed consent was obtained from the individual older people.
➤ Pre test was done by using POMA tool to assess effectiveness of fall prevention among both group.

➢ Balance exercise was given daily 2 time, with each training session lasting 5 min among experimental group for 4 weeks.
➢ Post test was conducted with the same tool after 4 weeks among both the group.
➢ After post test data were analyzed.

ETHICAL CONSIDERATION:-
➢ Permission was obtained from the regional authority for conducting this study.
➢ A formal permission taken from the authority of the selected older age home, purbe medinipur, west benagl.
➢ Permission was obtained from institutional ethical committee in KIMS, PBMH, KIIT University, Bhubaneswar.
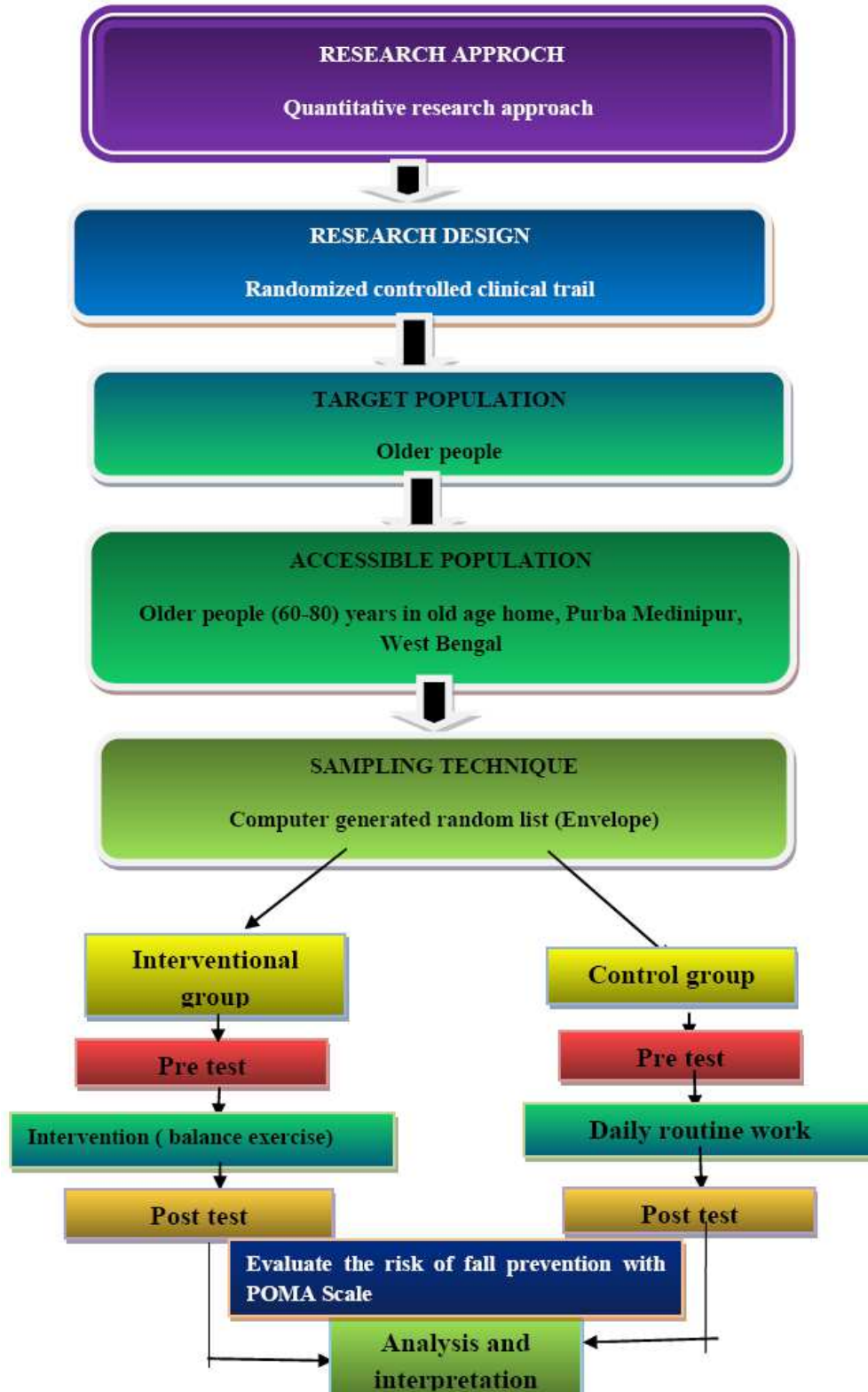

Figure No.3: SCHEMATIC REPRESENTATION OF RESEARCH Figure

ANALYSIS AND INTERPRETATION
Findings related to demographic characteristics of participants

Section-1: Characteristics of Socio-demographic variables of the older people.

Table no-1.1: Frequency and percentage distribution of age in experimental and control group
Table 1.1 Age distribution

Variable	Classification	Group 1 (n=44)(Experimental)		Group 2 (n=44)(Control)		Total (n=88)		X², p
		No.	%	No.	%	No.	%	
Age	60-70	22	50	28	63.6	50	56.8	X²=1.667
	71-80	22	50	16	36.4	38	43.2	p=0.197

Table 1.1: shows that out of 88 sample subjects, 50 (56.8%) and 38 (43.2%) were in the age group of 60-70 years and 71-80 years age group. In the exprimental group , the sample is distributed equally among 60-70 and 71-80 years age group while in control group the corresponding proportion are 63.3% and 36.4%. The distribution of age in the experimental and control group did not have significant association (p=0.197). The difference may be due to chance because of sampling fluctuation.
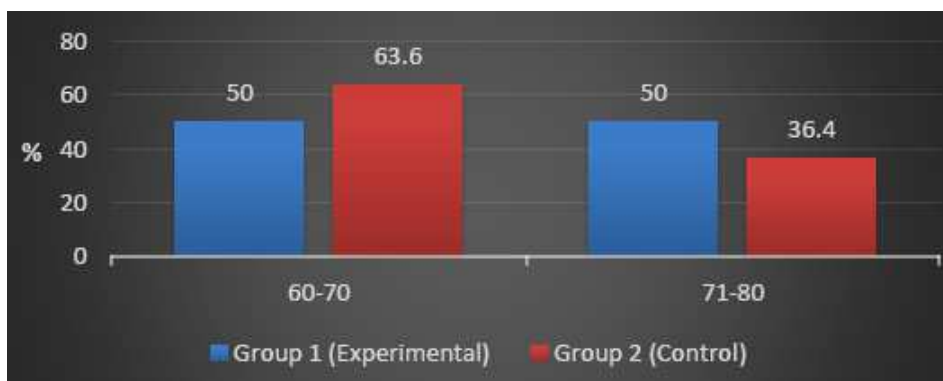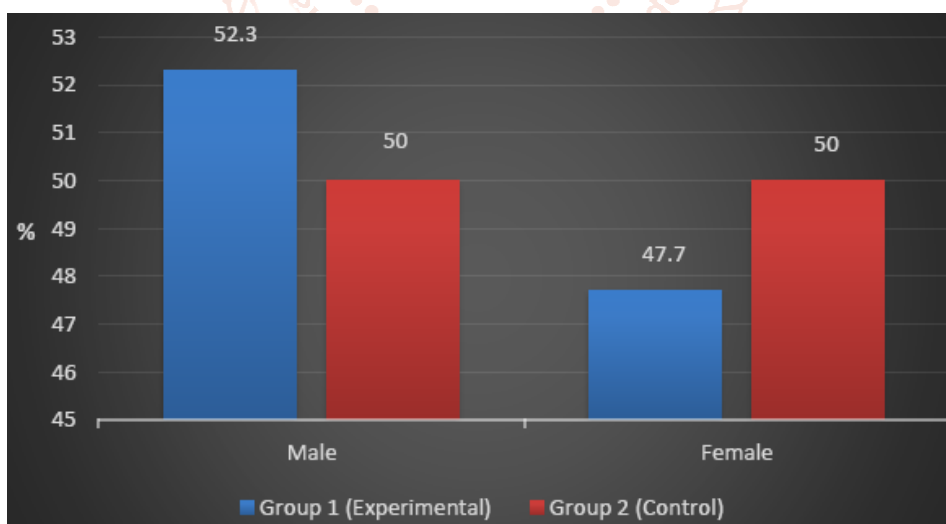

Graph 1 Bar diagram showing the percentage distribution of age group

Table no-1.2: Frequency and percentage distribution of gender in experimental and control group
Table 2 Gender distribution

Variable	Classification	Group 1 (n=44)(Experimental)		Group 2 (n=44)(Control)		Total (n=88)		X², p
		No.	%	No.	%	No.	%	
Gender	Male	23	52.3	22	50	45	51.1	X²=0.045
	Female	21	47.7	22	50	43	48.9	p=0.831

Table 1.2: shows that the overall sample subjects are evenly distributed according to male and female with 51.1% males and 48.9% females. In the exprimental group and control group the gender distribution is approximately even and did not have any significant association (p=0.831).
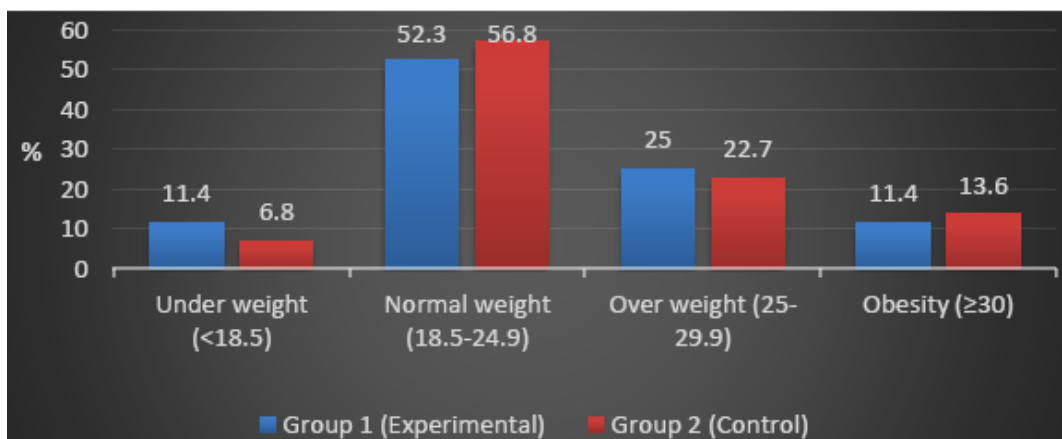

Graph 2 Bar diagram showing the percentage distribution of gender group

Table no-1.3: Frequency and percentage distribution of BMI in experimental and control group
Table 3 Distribution of BMI

Variable	Classification	Group 1 (n=44) (Experimental)		Group 2 (n=44) (Control)		Total (n=88)		X², p
		No.	%	No.	%	No.	%	
BMI	Under weight (<18.5)	5	11.4	3	6.8	8	9.1	X²=0.722
	Normal weight (18.5-24.9)	23	52.3	25	56.8	48	54.5	p=0.868
	Over weight (25-29.9)	11	25	10	22.7	21	23.9	
	Obesity (≥30)	5	11.4	6	13.6	11	12.5	

Table 1.3: shows that present distribution of BMI by groups. BMI classified into four groups i.e. under weight (<18.5 kg/m²), normal weight (18.5-24.9 kg/m²), over weight (25-29.9 kg/m²) and obese (≥30 kg/m²). In exprimental group, out of 44 cases 5 (11.4%) were under weight, 23 (52.3%) were normal weight, 11 (25%) were over weight and 5 (11.4%) were obese. In control group, out of 44 cases, 3 (6.8%) were under weight, 25 (56.8%) were normal weight, 10 (22.7%) were over weight and 6 (13.6%) were obese. There was no significant association of the BMI with groups(p=0.868).
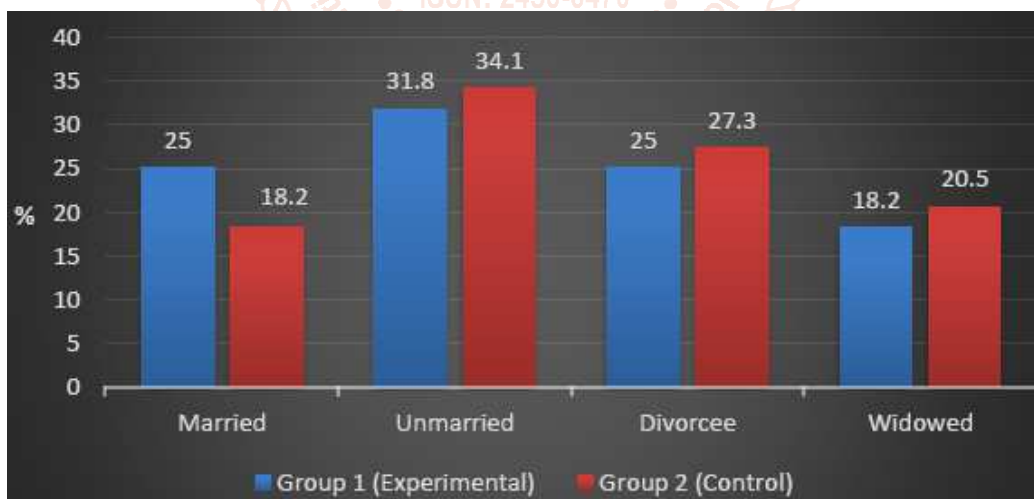

Graph 3 Bar diagram showing the percentage distribution of BMI group

Table no-1.4: Frequency and percentage distribution of Marital status in experimental and control group
Table 4 Distribution of Marital status

Variable	Classification	Group 1 (n=44) (Experimental)		Group 2 (n=44) (Control)		Total (n=88)		X², p
		No.	%	No.	%	No.	%	
Marital status	Married	11	25	8	18.2	19	21.6	X²=0.610 p=0.894
	Unmarried	14	31.8	15	34.1	29	33	
	Divorcee	11	25	12	27.3	23	26.1	
	Widowed	8	18.2	9	20.5	17	19.3	

Table 1.4: shows that present distribution of marital status by groups. In exprimental group, out of 44 cases 11 (25%) were both in married and divorcee, 14 (31.8%) were unmarried and 8 (18.2%) were widowed. In control grou2, 8 (18.2%) were married, 15 (34.1%) were unmarried, 12 (27.3%) were divorce and 9 (20.5%) were widowed. There was no significant association of the marital status with groups (p=0.894).
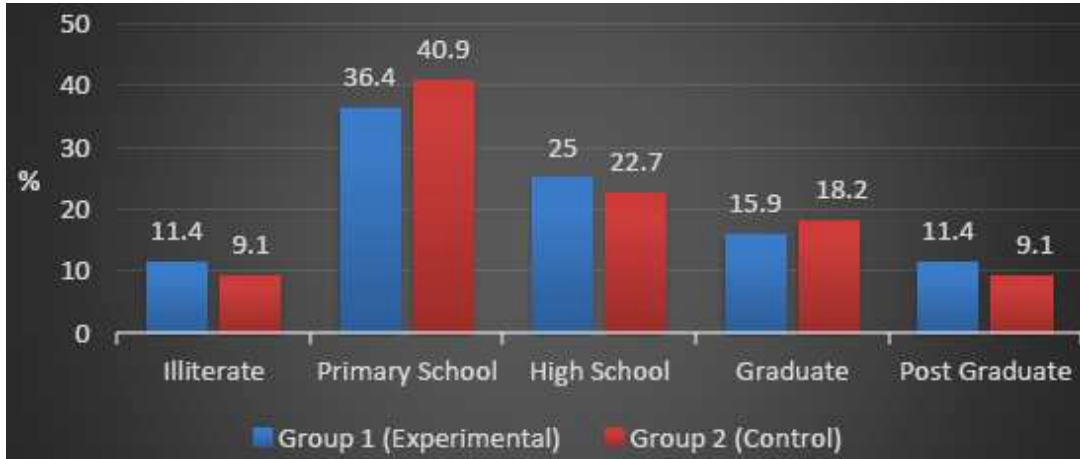

Graph 4 Bar diagram showing the percentage distribution of Marital status group

Table no-1.5: Frequency and percentage distribution of Education status in experimental and control group
Table 5 Distribution of Educational status

Variable	Classification	Group 1 (n=44) (Experimental)		Group 2 (n=44) (Control)		Total (n=88)		X², p
		No.	%	No.	%	No.	%	
	Illiterate	5	11.4	4	9.1	9	10.2	X²=0.454 p=0.978
	Primary School	16	36.4	18	40.9	34	38.6	
	High School	11	25	10	22.7	21	23.9	
	Graduate	7	15.9	8	18.2	15	17	
	Post Graduate	5	11.4	4	9.1	9	10.2	

Table 1.5: shows that overall there were 10.2% post graduate, 17% graduate, 23.9% high school, 38.6% primary school and 10.2% illiterate subjects. The distribution of sample subjects by education did not differ significantly in exprimental group and control group (p=0.978).
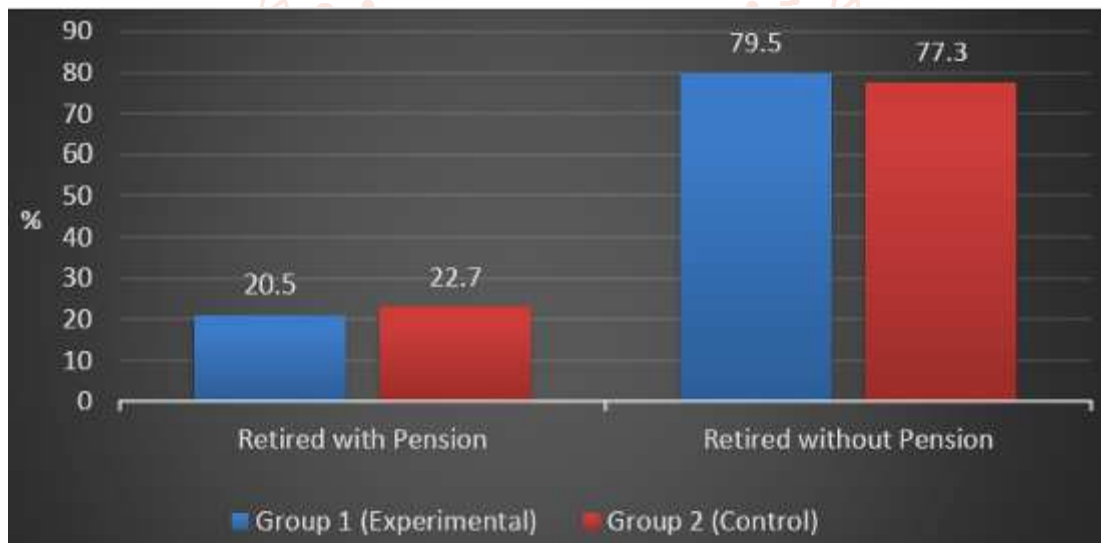

Graph 5 Bar diagram showing the percentage distribution of Educational status group

Table no-1.6: Frequency and percentage distribution of Occupational status in experimental and control group
Table 6 Occupational status by groups

Variable	Classification	Group 1 (n=44) (Experimental)		Group 2 (n=44) (Control)		Total (n=88)		X^2, p
		No.	%	No.	%	No.	%	
Occupational status	Retired with Pension	9	20.5	10	22.7	19	21.6	X^2=0.067 p=0.796
	Retired without Pension	35	79.5	34	77.3	69	78.4	

Table 1.6: shows that the sample of elderly people were divided into two groups, retired with pension and retired without pension. Only 21.6% of the sample subjects were pension holders and remaining 78.4% were without pension. The classification as retired with pension and retired without pension did not have significant association with group (p=0.796).
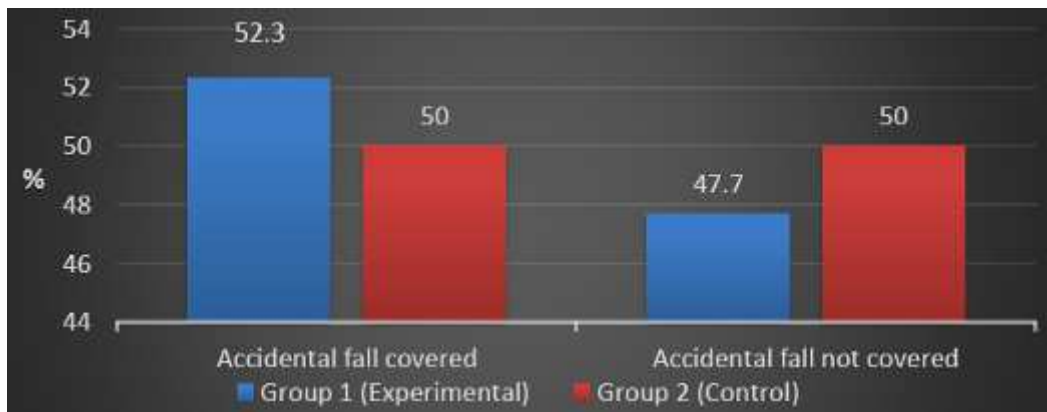

Graph 6 Bar diagram showing the percentage distribution of occupational status group

Table no-1.7: Frequency and percentage distribution of Health insurance in experimental and control group

Variable	Classification	Group 1 (n=44) (Experimental)		Group 2 (n=44) (Control)		Total (n=88)		X^2, p
		No.	%	No.	%	No.	%	
Health insurance	Accidental fall covered	23	52.3	22	50	45	51.1	X^2=0.045 p=0.831
		21	47.7	22	50	43	48.9	

Table 1.7: shows that it is classified into two groups i.e. accident fall covered and not covered under health insurance. Out of 88 cases, among 45 (51.1%) the accident fall was covered and remaining 43 (48.9%) were not covered under health insurance. There was no significant association between coverage of accident fall under health insurance and the groups (p=0.831).

Graph 7 Bar diagram showing the percentage distribution of heath insurance group

Section-2: Effectiveness of balance exercises on prevention of fall among the older people.

Table 2.1: Comparison of pre and post test fall risk within Control Group

Fall risk	Pre test (n=44)		Post test (n=44)	
	No.	%	No.	%
<19 high	29	65.9	29	65.9
19-24 medium	10	22.7	10	22.7
25-28 low	5	11.4	5	11.4
Marginal Homogeneity Test 'p' value	1.000			

Table 2.1: shows that indicated that in the pre test condition there were 65.9% cases with high fall risk, 22.7% medium fall risk and 11.4% low fall risk in control group. At the post test there was no change in the corresponding proportion (p=1.000).
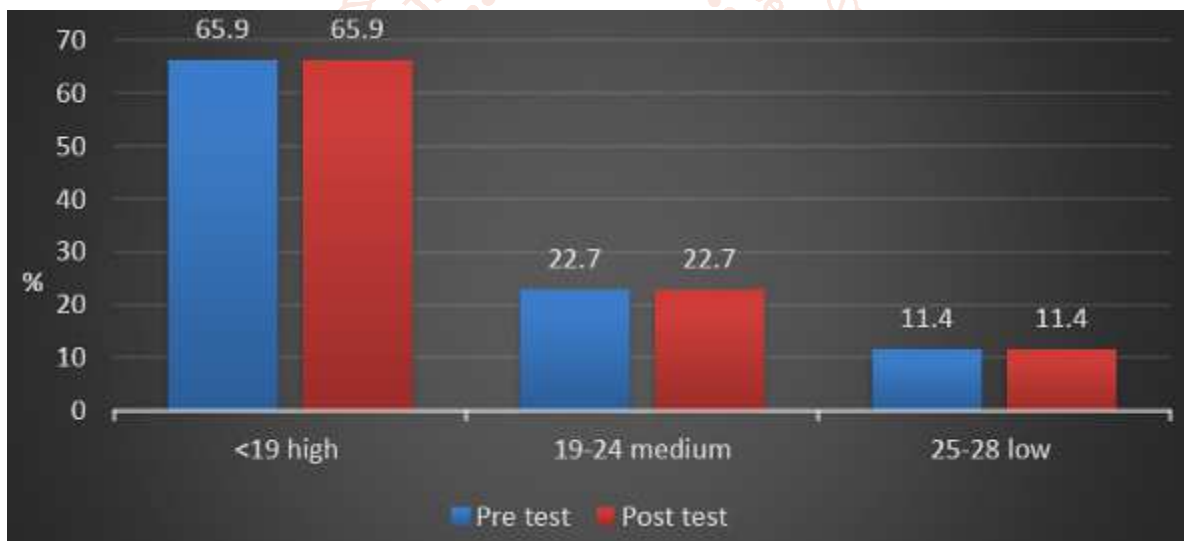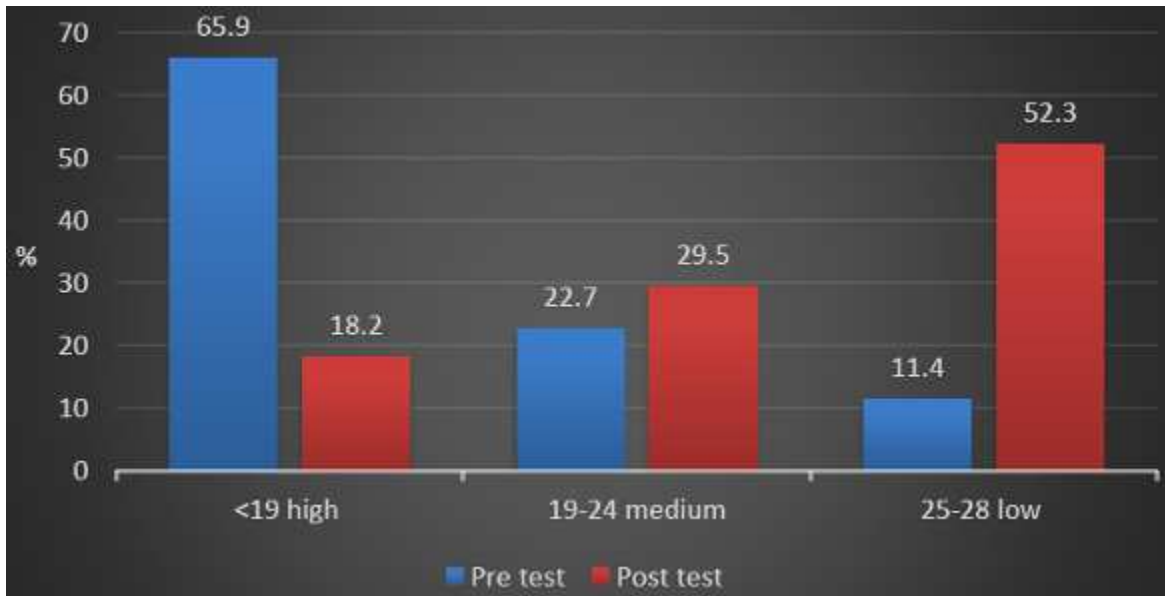

Graph 8 Bar diagram showing the comparison of pre and post test fall risk within Control group

Table 2.2: Comparison of pre and post test fall risk within

Fall risk	Pre test (n=44)		Post test (n=44)	
	No.	%	No.	%
<19 high	29	65.9	8	18.2
19-24 medium	10	22.7	13	29.5
25-28 low	5	11.4	23	52.3
Marginal Homogeneity Test 'p' value	0.000			

Experimental group

Table 2.2 shows that indicated that in the pre test condition there were 65.9% cases with high fall risk, 22.7% medium fall risk and 11.4% low fall risk in experimental group. At the post test that is after administering the balance exercise on fall prevention it was found that the high fall risk as reduced 18.2% and low fall risk has increased to 52.3%. This implied a significant improvement in reducing the fall risk (p=0.000).
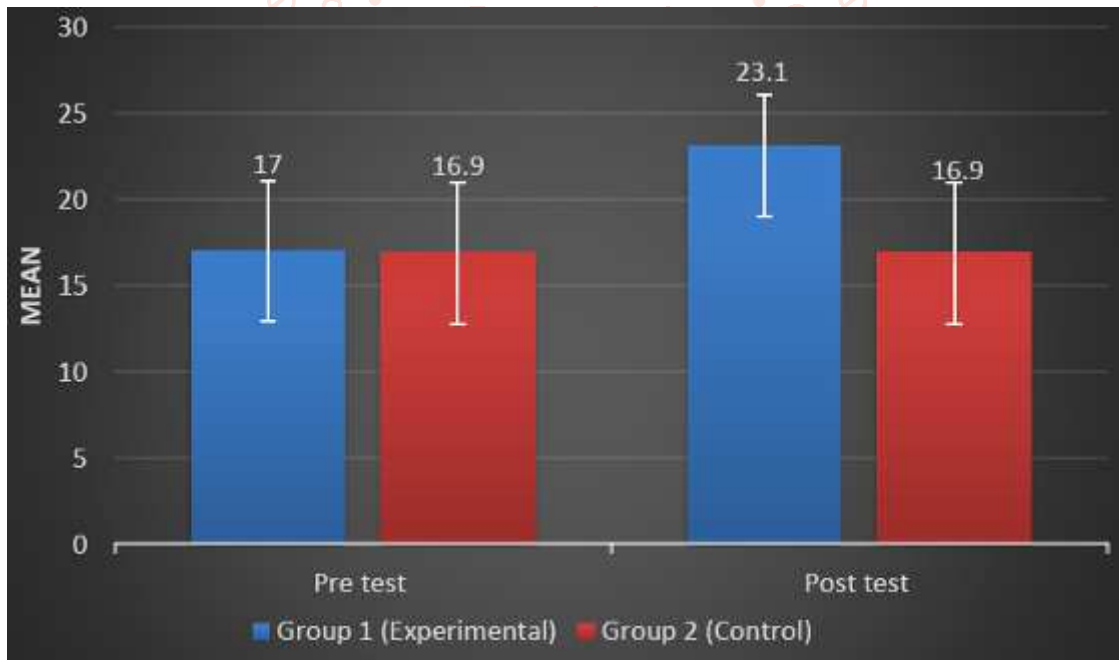
Graph 9 Bar diagram showing the comparison of pre and post test fall risk within Experimental group

Table 2.3: Comparison of Pre and Post test fall score between groups

Total score	Group 1 (n=44)(Experimental)		Group 2 (n=44)(Control)		p' value*
	Mean(SD)	Median(IQR)	Mean(SD)	Median(IQR)	
Pre test	17.0(4.1)	16(14,19)	16.9(4.1)	16(14,19)	0.778
Post test	23.1(3.0)	24(20,26)	16.9(4.1)	16(14,19)	0.000
Mann-WhitneyU 'p' value					

Table 2.3: shows that present comparison of pre test and post test fall score between group 1 and group 2. The mean pre test score in group 1 was 17.0 ± 4.1 and median score 16 (IQR: 4-1) and the corresponding mean and median of group 2 was 16.9 4.1 and 16 (IQR: 14-19) respectively. There was no significant difference of pre test fall score between the two groups (p=0.778).
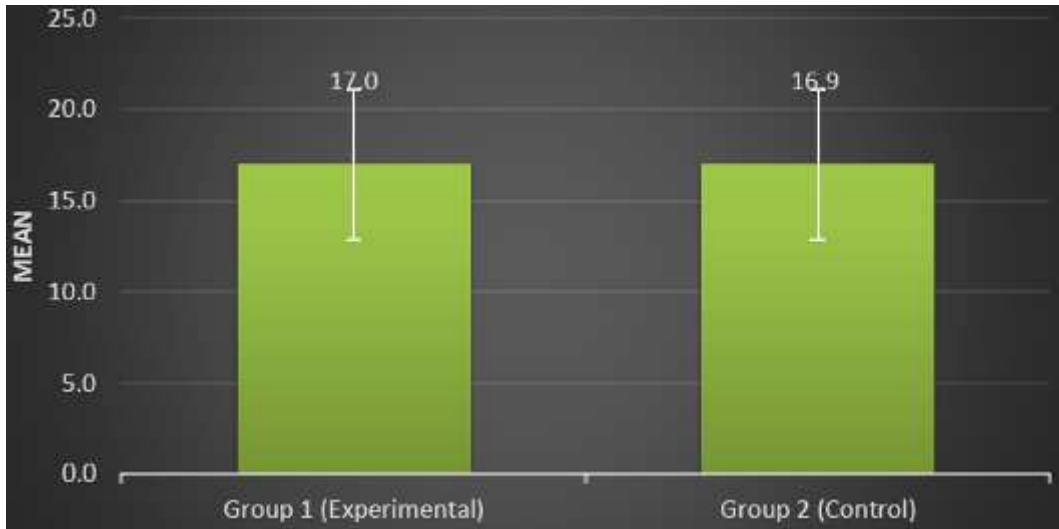

Graph 10 Bar diagram showing the comparison of Pre and Post test fall score between groups

Table 2.4: Comparison of pre test total score between two groups

Descriptive statistics	Group 1 (Experimental)	Group 2(Control)
N	44	44
Mean	17.0	16.9
SD	4.1	4.1
Q1 (1stQuartile)	14	14
Q2 (Median)	16	16
Q3 (3rdQuartile)	19	19
Mann-Whitney U 'p' value	0.778	

Table 2.4: shows that present comparison of pre test total score between two groups. In exprimental group mean pre test total score was 17.0 ± 4.1 and median 16 (IQR: 14-19) and in control group mean total score was 16.9 ± 4.1 and median 16 (IQR: 14-19). There was no significant difference in the pre test total score between the two groups (p=0.778).
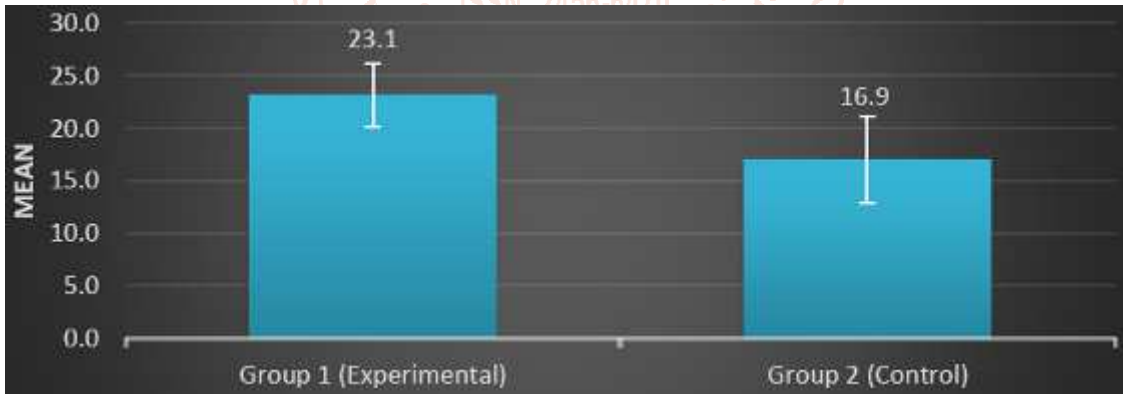

Graph 11 Bar diagram showing the comparison of pre test total score between two groups

Table 2.5: Comparison of post test total score between two groups

Descriptive statistics	Group 1 (Experimental)	Group 2(Control)
N	44	44
Mean	23.1	16.9
SD	3.0	4.1
Q1 (1stQuartile)	20	14
Q2 (Median)	24	16
Q3 (3rdQuartile)	26	19
Mann-Whitney U 'p' value	0.000	

Table 2.5: shows that present comparison of post-test total score between two groups. In exprimental group mean post-test total score was 23.1 ± 3.0 and median 24 (IQR: 20-26) and in control group mean total score was 16.9 ± 4.1 and median 16 (IQR: 14-19). The mean and median post test total score was significantly higher in group 1 than group 2 (p=0.000).

Graph 12 Bar diagram showing the comparison of post test total score between two groups

Significant difference between post-test score and pre-test score after giving balance exercise on prevention of fall. In my study H1 is accepted and H2 is rejected.

Section-3: Association between the level of balance and gait test score of fall prevention with their selected demographic variables.

Table no.3.1: Association of Pre test fall risk by groups

Pre test fall risk	Group 1 (n=44)(Experimental)		Group 2 (n=44)(Control)		Total (n=88)		X^2, p
	No.	%	No.	%	No.	%	
<19 high fall risk	29	65.9	29	65.9	58	65.9	X^2=0.000 p=1.000
19-24 medium fall risk	10	22.7	10	22.7	20	22.7	
25-28 low fall risk	5	11.4	5	11.4	10	11.4	

Table 3.1: shows that Pre test fall risk is classified into 3 categories based upon the fall score. The score <19 is termed as high fall risk, 19-24 as medium fall risk and 25-28 low fall risk. Overall it is found that 58 (65.9%), 20 (22.7%) and 10 (11.4%) were

in high fall risk, medium fall risk and low fall risk respectively. Both the groups did not have any association with pre test fall risk (p=1.000). This implied both the groups are matched at the pre test level and therefore will give valid comparison of post test fall risk.
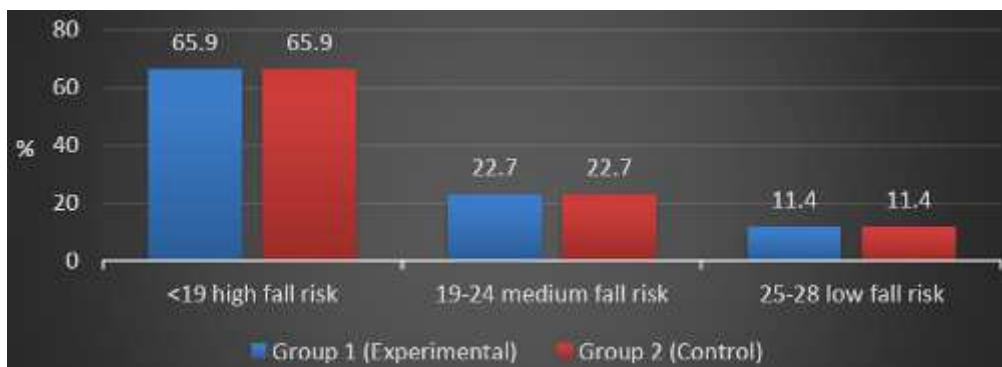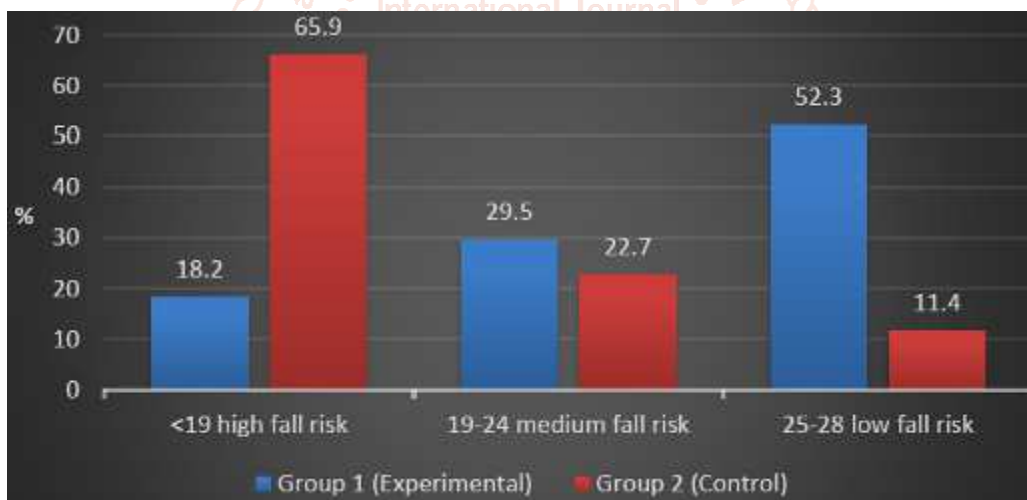

Graph 13 Bar diagram showing the pre test fall risk by groups

Table no.3.2: Association of Post test fall risk by groups

Post test fall score	Group 1 (n=44)(Experimental)		Group 2 (n=44)(Control)		Total (n=88)		X^2, p
	No.	%	No.	%	No.	%	
<19 high fall risk	8	18.2	29	65.9	37	42	X^2=23.882 p=0.000
19-24 medium fall risk	13	29.5	10	22.7	23	26.1	
25-28 low fall risk	23	52.3	5	11.4	28	31.8	

Table 3.2: shows that present the association of post test fall risk with groups. In the group 1 i.e. experimental group, 8 (18.2%) cases were high fall risk, 13 (29.5%) medium fall risk and 23 (52.3%) low fall risk. In the control group (group 2), 29 (65.9%) were high fall risk, 10 (22.7%) medium fall risk and 5 (11.4%) low fall risk. In the experimental group the high fall risk is very low and low fall risk is very high in comparison to control group. The difference was highly significant (p=0.000). This implied the balance exercise on fall prevention is highly effective.

Graph 14 Bar diagram showing the post test fall risk by groups

Significant association between level of balance and gait test score of older people with their selected demographic variables. H2 is accepted and H1 is rejected.

The mean post test score in experimental group was 23.1 ± 3.0 and median score 24 (IQR: 20-26) and the corresponding mean and median of group 2 was 16.9 ± 4.1 and 16 (IQR: 14-19) respectively. There was significant difference of post test fall score between the two groups (p=0.000). This implied the fall risk has significantly reduced in experimental groups.

DISCUSSION
The present study shows that majority of cases i.e. 56.8% and 43.2% were 60-70 years and 71- 80 years older people in exprimental group. 51.1% males and 48.9% female in exprimental group. Majority of cases i.e. 11.4% under weight, 52.3% normal weight, 25% over weight and 11.4% obese in exprimental group. With respect to marital status i.e. 25% married and divorcee, 31.8% unmarried and 18.2% widowed in exprimental group. Majority of cases i.e. 10.2% post graduate, 17% graduate, 23.9% high school, 38.6%

primary school and 10.2% illiterate in expreimental group. Majority of cases i.e. 21.6% pension holders and 78.4% without pension in expreimental group. Majority of cases i.e. 51.1% the accident fall was covered and remaining 48.9% were not covered under health insurance. Majority of cases i.e. effectiveness of balance exercise indicated that in the pre test condition there were 65.9% cases with high fall risk, 22.7% medium fall risk and 11.4% low fall risk in control group. Majority of cases i.e effectiveness of balance exercise, indicated that in the pre test condition there were 65.9%

cases with high fall risk, 22.7% medium fall risk and 11.4% low fall risk in experimental group. Majority of cases i.e that 58 (65.9%), 20 (22.7%) and 10 (11.4%) were in high fall risk, medium fall risk and low fall risk respectively. Majority of cases i.e that 18.2% cases were high fall risk, 29.5% medium fall risk and 52.3% low fall risk in exprimental group. Majority of cases i.e that mean pre test score was 17.0 ± 4.1 and median score 16 (IQR: 4-1) respectively in exprimental group. Majority of cases i.e that mean pre test total score was 17.0 ± 4.1 and median 16 (IQR: 14-19) in exprimental group. Majority of cases i.e that mean post-test total score was 23.1 ± 3.0 and median 24 (IQR: 20-26) in exprimental group. Majority of cases i.e. that the pre test score found that 58 (65.9%), 20 (22.7%) and 10 (11.4%) were in high fall risk, medium fall risk and low fall risk respectively in exprimental group. Majority of cases i.e. that the post test score found that 8 (18.2%) cases were high fall risk, 13 (29.5%) medium fall risk and 23 (52.3%) low fall risk in exprimental group.

SUMMARY:
The finding of the study revealed that effect of balance exercise. So, care giver can be trained in use of balance exercise to provide to the older people .For assessing long term effect, it is recommended to take up another long term study by controlling more variables. Further research is suggested to confirm the finding of the current study.

CONCLUSION
How ironic that twenty five centuries later we are rediscovering and proving thorough the modern science, that older people's frame of mind and perception of disease predict their treatment success. When we comfort a older people, we may be doing more than consoling him or her.

The finding of the present study conclude that the results of the present study support its hypothesis and revealed that balance exercise were effective in reducing the fall rate and increase the balance and gait score among 60 to 80 older people. It was observed by POMA tool. Data were analyzed through descriptive and inferential statistics.

IMPLICATIONS OF THE STUDY:
The investigator has drawn the following implications from the findings of this study, which are of vital concern to the field of nursing practice, nursing education, nursing administration and nursing research.

Nursing practice:
Nurses are playing a vital role in implementing the balance exercise among older people for fall prevention.

Nursing Education:
➢ Intervention can be taught to the students to reduce fall risk among older people.
➢ Nurse educator can use the findings of the study to introduce the topic as a demonstration as a part of basic nursing course.

Nursing administration:
➢ With the technological advances and ever growing challenges of nursing, the nurse administrator have responsibility to provide the nurses with substantive continual education and care full observation.

Nursing research:
➢ The result of the study and the intervention can contribute to the body of nursing knowledge.
➢ Future investigator can use the finding and the methodology for reference material.
➢ Another study can be done with large samples.
➢ Other researcher can conduct further studies in the same field can utilize the suggestion and recommendation.

RECOMMENDATION:
➢ On the basis of this study the following recommendation have been made.
➢ A similar study can be replicated on large sample in different setting to strengthen the findings.
➢ Further research can be carried out to identify the occurrence of fall prevention by adopting different sampling technique.
➢ A study can be conducted to assess the factors which improve in balance.
➢ Further research is suggested to confirm the findings of the current study.

LIMITATIONS:
The study results can not be generalized because of following reason:
➢ 4 weeks observation is too short for the effectiveness of the therapy.

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