

# **A Study To Assess The Effectiveness Of Podiatric Care On The Risk Of Falls Among The Elderly At The Selected Rural Village Of Puducherry.**

**1.Prof.Dr.Malliga.M,**

PhD Nursing, Child Health Nursing, Principal, Indirani college of Nursing, Puducherry

**2.kaviarasan. C,**

Lecturer, Community Health Nursing, AGP college of Nursing, Puducherry

**3. Prof.Dr.Rajeswari.R,**

PhD Nursing , Medical Surgical Nursing , Vice principal, Indirani college of Nursing , Puducherry.

**4.Prof. Dr. S. Rathidevi,**

Ph.D (N)., HOD in Community Health Nursing, Indirani College of Nursing, Puducherry.

## **ABSTRACT**

## **INTRODUCTION**

This study was aimed to assess the effectiveness of podiatric care on the risk of falls among elderly at the selected rural village of Puducherry.

**Materials and Methods:**The quantitative research approach was selected for the study with True experimental pretest and posttest design.60 elderly samples were selected through a simple random sampling method with lottery technique. Prior to the data collection, ethical clearance was obtained from the Institutional review committee. Informed consent was obtained from the study participants. A pre-test was done with structured demographic variables, clinical variables and Modified Berg Balance Scale. The intervention of Podiatric care was implemented to the elderly in the study group. The elderly in the control group received normal routine care. The post test was conducted on 14 th day by using Modified Berg Balance Scale for the elderly in the study and control group. The collected data were analyzed based on the above mentioned objectives using descriptive and inferential statistics.

## **Results:**

The study result shows that, in pretest, most of the elderly in study group 15(50%) had low risk of falls, 13(43.33%) had moderate risk of falls and 2(6.67%) had high risk of falls among the elderly. Whereas in the post test, 24(80%) had low risk of fall, 5(16.67%) had moderate risk of fall and 1(3.33%) had high risk of fall among elderly in the study group. In the control group, during pretest 15(50%) had moderate risk of fall, 13(43.33%) had low risk of falls and 2(6.67%) had high risk of fall among elderly. Whereas in the post test, 14(46.67%) had low and moderate risk of falls respectively and 2(6.6%) had low risk of falls in the control group. The result of the comparison of the post test mean and standard deviation of level of risk of falls between the study group and control group was  $33.70 \pm 7.16$ , and  $28.33 \pm 5.99$  respectively. The obtained 't' value was 3.149, which was found to be statistically significant and more than the tabulated value at  $p < 0.005$  level.

**Conclusion:**The study concluded that the podiatric care was effective in the prevention of risk of falls among the elderly.

**Key-words:** podiatric care, risk of falls, elderly.

## INTRODUCTION

Conventionally, “elderly” has been defined as a chronological age of 65 years old or older, while those from 65 through 74 years old are referred to as “early elderly” and those over 75 years old as “late elderly according to **WHO(2018)**. Although there are different ways to classify this population, some studies have classified elderly adults between the ages of 65 and 74 years as youngest-old, those between ages 75 and 84 years as middle-old, and those aged over 85 years as oldest-old. A fall is defined as an event which results in a person coming to rest inadvertently on the ground or floor or other lower level. Fall-related injuries may be fatal or non fatal though most are non-fatal. People worldwide are living longer. Most people can expect to live into their sixties and beyond. By 2050, the world’s population aged 60 years and older is expected to total 2 billion, up from 900 million in 2015. Today, 125 million people are aged 80 years or older. By 2050, there will be almost this many (120 million) living in China alone, and 434 million people in this age group worldwide. By 2050, 80% of all older people will live in low- and middle-income countries **WHO (2018)**

The elderly have several needs and problems physically, psychologically, socially, spiritually and emotionally. And the most important problem which abruptly changes the quality of life to the worst level is falls. Exercise and increased physical activity have multiple benefits for the older adult including arthritis relief, restoration of balance and reduction of falls, strengthening of bone, proper weight maintenance, improved glucose control, and overall mortality. People of all ages have safety needs, and safety issues are a major concern for older adults and several areas to be focused such as personal health and safety, home safety, and community safety.

“Each year an estimated 6,46,000 individuals die from falls globally of which over 80% are in low- and middle-income countries. Adults older than 60 years of age suffer the greatest number of fatal falls”- **WHO (2018)**. According to **Gholam Reza Sotoudeh et al., (2018)** the prevalence of falls was 39.7% and higher in women than in men. For both sexes, most of the falls occurred in the afternoon (n = 135, 52.1%) and at home (n = 209, 80.7%). One-fourth of the falls (23.2%) occurred in a forward direction, mostly among women (60%). For both sexes, one-third of the causes of falls were loss of balance, mostly among women and the oldest persons. One of the measures is podiatry care and it is very much important in prevention of risk of falls. It refers to a home-based exercise program to strengthen foot and ankle muscles. Therefore the investigator decided to assess the effectiveness of podiatry care on the risk of falls among the elderly.

## OBJECTIVES

- To assess the pretest and posttest level of risk of falls among elderly in the study and control group.
- To evaluate the effectiveness of podiatric care on the risk of falls among elderly in the study group.
- To associate the level of risk of falls among elderly with the selected demographic variables among the study and control group.
- To associate the level of risk of falls among elderly with the selected clinical variables among the study and control group.

## HYPOTHESES

- H1: There is a significant difference in the level of risk of falls with the podiatric care among the elderly in the study group.
- H2: There is a significant association between the risk of fall among elderly with

the selected demographic variables in the study and control group.

- H3: There is a significant association between the risk of fall among elderly with the selected clinical variables in the study and control group.

## SUBJECTS AND METHODS

The quantitative research approach was selected for the study with True experimental pretest and posttest design. Simple random sampling method with lottery technique was used to select 60 elderly samples based on inclusion and exclusion criteria. Prior to the data collection, ethical clearance was obtained from the Institutional review committee. Informed consent was obtained from the study participants. Demographic variables, clinical variables were collected using structured questionnaires. A pre-test level of risk of falls was assessed by Modified Berg Balance Scale. Podiatric care administered to the elderly client for 30 minutes each day for 2 weeks for the study group and the control group received routine care. The post-test was conducted on the 15th day by using the same scale. For the control group, Informational pamphlet regarding prevention of falls was given after the post test. The collected data were analyzed based on the mentioned objectives using descriptive and inferential statistics

## RESULTS

The result of the comparison of the post test mean and standard deviation of level of risk of falls between the study group and control group was  $33.70 \pm 7.16$ , and  $28.33 \pm 5.99$  respectively. The obtained 't' value was 3.149, which was found to be statistically significant and more than the tabulated value at  $p < 0.005$  level. The result of the study concluded that the podiatric care was effective in the prevention of risk of falls among the elderly.

**Table 1:** Depicts the Frequency and percentage distribution of pretest and post test level of risk of falls among elderly in the study group.

**Table 2:** Effectiveness of podiatric care on risk of falls among elderly in the study group and control group.

**Table 2.1:** Comparison of mean, standard deviation and t value of risk of fall among elderly within the study and control group.

**Table 2.2:** Comparison of mean, standard deviation and p value of risk of fall scores among elderly between the study and control group..

**Table 3:** Depicts the Association of pretest level of fall of risk among elderly with selected demographic variables in the study and control group.

## DISCUSSION

1. The first objective was to assess the pre test and post test level of risk of falls among elderly in the study and control group. The result of the study shows that in the pretest of the study group, 15(50%) had low risk of falls, 13(43.33%) had moderate risk of falls and 2(6.67%) had high risk of falls among the elderly. Whereas in the post test, 24(80%) had low risk of fall, 5(16.67%) had moderate risk of fall and only 1(3.33%) had high risk of fall among elderly in the study group. In the control group, the risk of falls in the pretest was 15(50%) had moderate risk of fall, 13(43.33%) had low risk of falls and 2(6.67%) had high risk of fall among elderly. Whereas in the post test, 14(46.67%) had low and moderate risk of falls respectively and 2(6.6%) had low risk

of falls in the control group. The result was supported by a similar study conducted by S H Kioh et al., (2018) who did a cross-sectional survey on the risk of falls among institutionalised elderly in ten different nursing homes in the state of Penang, Malaysia. Information concerning demographic characteristics, fall risk and depression status were collected for the 357-elderly aged 60 years and above interviewed in the nursing homes, 32.8% (n=354) reported having one or more falls in the past 12 months whereas 13.3% were at moderate/high risk of fall.

2. The second objective was to evaluate the effectiveness of podiatric care on the risk of falls among elderly in the study group. In this study the result indicates the comparison of the post test mean and standard deviation between the study group and control group in risk of falls among elderly clients was  $33.70 \pm 7.16$ , and  $28.33 \pm 5.99$  respectively. The calculated 't' value was 3.149, which was significant and more than the tabulated value at  $p < 0.005$ . The result of the study was supported by similar study conducted by Belen Corbacho et al., (2018) who done a cohort randomised controlled trial to evaluate the Multifaceted podiatry intervention on the (REFORM) trial in England and Ireland There was a small, non-statistically significant reduction in the incidence rate of falls in the intervention group (adjusted incidence rate ratio 0.88, 95% CI 0.73-1.05,  $p = 0.16$ ). Participants allocated to the intervention group accumulated on average marginally higher quality-adjusted life years than the usual care participants (mean difference 0.0129, 95% CI -0.0050 to 0.0314).
3. The third objective was to associate the level of risk of falls among elderly with the selected demographic variables among the study and control group. In this study the result showed an association between the risk of falls among elderly with the selected demographic variables. Gender found to be significantly associated with the risk of falls among the elderly in the study and control group ( $P < 0.025$ ),  $\chi^2 = 7.35$ . A similar study conducted by Adriana de Azevedo Smith et al., (2017) cross sectional and quantitative study. The result concluded that there was a significant association of the risk of falls, as measured by the Fall Risk Score, with sex, age, cognitive status and history of falls. All variables were statistically significant and contributed to the occurrence of falls. In logistic regression, the variables that showed association with risk of falls were: fall, with whom they live, hypertension and visual impairment. Female gender, older elderly (over 80 years old), with low cognitive status and occurrence of previous falls in the last six months are factors that increase the prevalence of falls.
4. The fourth objective was to associate the level of risk of falls among elderly with the selected clinical variables among the study and control group. In this study the result indicated that there was no significant association found between the risk of falls among elderly with the selected clinical variables. The result of the study was contradictory with the similar study conducted by Letícia Maria da et al., (2019) who conducted a cross-sectional, population-based study conducted in a municipality in the extreme south of Brazil using a sample of 211 elderly individuals. The occurrence of falls was 28.9% (95% CI 22.8 to 35.0). The average age of the sample was 73 years (SD=6.6), ranging from 65 to 96 years of age. The gross and adjusted associations between the occurrences of falls in accordance with the characteristics investigated. They found, in the gross analysis, that the occurrence of falls was more frequent among those with a perception of poor or regular health ( $p=0.01$ ), hypertensive patients ( $p=0.05$ ), and obese ( $p=0.01$ ).

## REFERENCES

1. AH suryakantha (2017), Community medicine with recent advances, fourth edition, jaypeebrothers publications, New Delhi. Page no: 737-741
2. Asmarahim (2017), Principles and practice of community medicine, second edition, jaypeebrothers publications, New Delhi. Page no: 408.
3. David D. Celentano (2019), Gordis epidemiology, sixth edition, Elsevier publications, Canada, Page no: 68, 83.
4. Frances A.maurer (2009), Community/public health nursing practice, fourth edition, Elsevier publication, Canada. Page no: 56,217.
5. Gulanikk. Community health nursing: principles and practices. 1<sup>st</sup> ed. Delhi: kumar Publishing house: 2008. Page no:397-415.
6. K.park, Textbook of preventive and social medicine, 26<sup>th</sup>edition,banarsidasbhanot publication, page no:631-633
7. Mahajan and gupta (2013), Textbook of preventive and social medicine, fourth edition, jaypeebrothers publications, New Delhi. Page no; 637-641.
8. Marcia Stanhope (2012), Public health nursing, 8 th edition, Elsevier publication, Canada. Page no:670-673.
9. Mary A. Nies (2010), Community/ Public health nursing, 6<sup>th</sup> edition, Elsevier publication, Idaho. Page no:366-370.
10. Piyushgupta (2016), Text book of community medicine, 1<sup>st</sup> edition, CBS publication, New Delhi. Page no: 265-269
11. Rajvirbhalwar (2018), Textbook of community medicine, second edition, wolterkluwer publications, New Delhi. Page no:442-443.
12. Sunitapatney (2005), Text book of community health nursing, first edition, CBS publication, New Delhi. Page no: 93
13. Naganandini, R. "Effectiveness of Computer Assisted Teaching Programme on Knowledge Regarding Specific Developmental Disorders of Scholastic Skills in Children among Bachler Degree in Education (B. Ed) Students." TJPRC: International Journal of Nursing and Patient Safety & Care (TJPRC: IJNPSC) 5 (2015): 1-8.
14. SHRIYAN, AMRITA, and ASHVIJ SHRIYAN. "A STUDY ON THE EFFICIENCY OF CSSD AT A HEALTH CARE CENTRE." TJPRC: Journal of Nursing and Patient Safety & Care (TJPRC: JNPSC) 1.2 (2015): 7-16.

Acknowledgement:

Tables:

**Table 1:** Depicts the Frequency and percentage distribution of pretest and post test level of risk of falls among elderly in the study and control group.

(n = 60)

Level of risk of falls	Study group				Control group			
	Pretest		Post Test		Pretest		Post Test	
	N	%	N	%	N	%	N	%
High risk (0 – 20)	2	6.67	1	3.33	2	6.7	2	6.6
Moderate risk (21 – 30)	13	43.33	5	16.67	15	50.0	14	46.67
Low risk (31 – 40)	15	50.0	24	80.0	13	43.33	14	46.67

**2:** Evaluate the effectiveness of podiatric care on risk of falls among elderly in the study group and control group.

**Table 2.1:** Comparison of mean, standard deviation and t value of risk of fall among elderly within the study and control group.

(n = 60)

Groups	Risk of Falls	Mean	S.D	't' Test	P Value
Study group	Pretest	30.67	7.65	<b>6.189</b>	<b>p &lt;0.0001*</b> <b>S</b>
	Post Test	33.70	7.16		
Control group	Pretest	28.0	5.97	1.980	P<0.057 N.S
	Post Test	28.33	5.99		

**Table 2.2:** Comparison of mean, standard deviation and p value of risk of fall scores among elderly between the study and control group.

(n = 60)

Test	Study group		Control group		't' Test	p value
	Mean	S.D	Mean	S.D		
Pretest	30.67	7.65	28.00	5.97	1.506	p <0.138 N.S
Post Test	33.70	7.16	28.33	5.99	<b>3.149</b>	<b>p &lt;0.005*</b> <b>S</b>

**Table 3:** Depicts the Association of pretest level of fall of risk among elderly with selected demographic variables in the study and control group.

Table 3.1: Association of pretest level of fall of risk among elderly with selected demographic variables in the study and control group.

(n=60)

S. No	Demographic Variables	High Risk		Moderate Risk		Low Risk		X <sup>2</sup> / p value
		N	%	N	%	N	%	
<b>1</b>	<b>Age in years</b>							4.889 p<0.299
	60 – 61 years	0	0	5	8.3	10	16.6	
	62 – 63 years	1	1.6	7	11.6	8	13.3	
	64 – 65 years	3	5.0	16	26.6	10	16.6	
<b>2</b>	<b>Gender</b>							<b>7.35</b> <b>p&lt;0.025</b>
	Male	2	3.2	4	6.6	13	21.6	
	Female	2	3.2	24	40.0	15	25.0	
	Transgender	-	-	-	-	-	-	
<b>3</b>	<b>Religion</b>							1.638 p<0.802
	Hindu	4	6.6	21	35.0	21	35.0	
	Christian	0	0	3	5.0	2	3.2	
	Muslim	0	0	4	6.6	5	8.3	
	Others	-	-	-	-	-	-	
<b>4</b>	<b>Marital status</b>							3.036 p<0.552
	Single	-	-	-	-	-	-	

	Married	1	1.6	18	30.0	18	30.0	
	Divorced	0	0	1	1.6	1	1.6	
	Widow / Widower	3	5.0	9	15.0	9	15	
<b>5</b>	<b>Educational status</b>							11.075 p<0.086
	Non formal	2	3.2	2	3.2	3	5.0	
	Primary education	1	1.6	12	20.0	5	8.3	
	Higher secondary education	1	1.6	7	11.6	12	20.0	
	Graduate	0	0	7	11.6	8	13.3	
<b>6</b>	<b>Occupational status</b>							10.755 p<0.096
	Private employee	1	1.6	2	3.2	4	6.6	
	Self employed	1	1.6	6	10.0	8	13.3	
	Unemployed	2	3.2	17	28.3	10	16.6	
	Pensioner	0	0	3	5.0	6	10.0	
<b>7</b>	<b>Type of family</b>							1.978 p<0.739
	Nuclear family	1	1.6	11	18.3	14	23.3	
	Joint family	2	3.2	14	23.3	10	16.6	
	Extended family	1	1.6	3	5.0	4	6.6	
<b>8</b>	<b>Family monthly income</b>							6.434 p<0.376
	Less than Rs.5000	0	0	0	0	3	5.0	
	Rs.5001 – Rs.10,000	1	1.6	6	10.0	5	8.3	
	Rs.10,001 – Rs.15,000	2	3.2	8	13.3	12	20.0	
	Above Rs.15,000	1	1.6	14	23.3	8	13.3	
<b>9</b>	<b>Dietary pattern</b>							0.896 p<0.638
	Vegetarian	0	0	5	8.3	4	6.6	
	Non-Vegetarian	4	6.6	23	38.3	24	40	
<b>10</b>	<b>Specific unhealthy practices</b>							7.481 p<0.278
	Smoking and Alcoholism	1	1.6	3	5.0	4	6.6	
	Smoking only	0	0	0	0	3	5.0	
	Alcoholism only	0	0	1	1.6	4	6.6	
	None	3	5.0	24	40.0	17	28.3	

**Table 3.2: Association of pretest level of fall of risk among elderly with selected clinical variables in the study group and control group.**

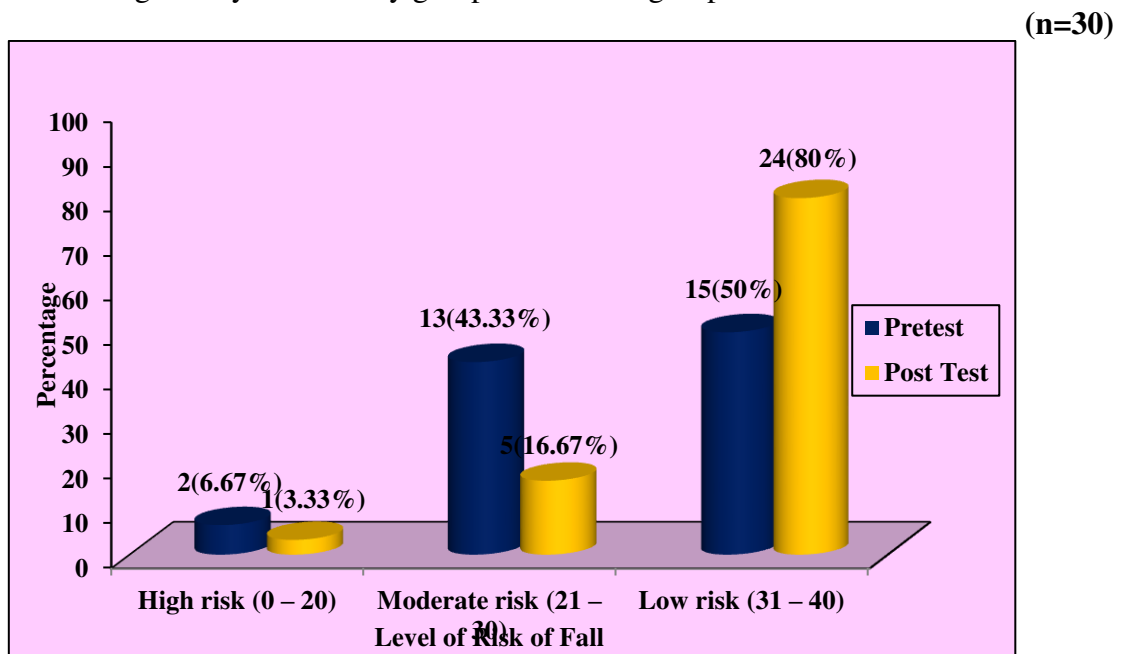
(n=60)

S.No	Clinical Variables	High Risk		Moderate Risk		Low Risk		X <sup>2</sup> / p value
		n	%	n	%	n	%	
<b>1</b>	<b>BMI of Elderly</b>							3.881 p<0.693
	18.5 – 24.9	1	1.6	11	18.3	13	21.6	
	25.0 – 29.9	2	3.3	15	25	10	16.6	
	30.0 – 34.9	1	1.6	2	3.3	4	6.6	
	35.0 – 39.9	0	0	0	0	1	1.6	
<b>2</b>	<b>Blood pressure in mmhg</b>							7.461 p<0.113
	<120/ 80 mmhg	0	0	12	20.0	5	8.3	
	120/80 – 139/89 mmhg	3	5.0	15	25.0	19	31.6	
	140/90 – 159/99 mmhg	1	1.6	1	1.6	4	6.6	
	Greater than or equal to	-	-	-	-	-	-	

	160/100 mmhg							
<b>3</b>	<b>History of any non communicable disease, if Yes mention below</b>							4.156 p<0.125
	Yes	4	6.6	16	26.6	13	21.6	
	No	0	0	12	20.0	15	25.0	
<b>4</b>	<b>Client Waist circumference in inch</b>							5.244 p<0.513
	Less than or equal to 35	0	0	13	21.6	11	18.3	
	35 –37	2	3.2	10	16.6	8	13.3	
	38 – 40	1	1.6	1	6.6	3	5.0	
	More than 40	1	1.6	4	1.6	6	10.0	
<b>5</b>	<b>Client visual acuity using E chart</b>							7.526 p<0.1105
	6/6	1	1.6	11	18.3	12	20.0	
	6/12	1	1.6	12	20.0	15	25.0	
	6/18	2	3.2	5	8.3	1	1.6	
	6/60	-	-	-	-	-	-	
<b>6</b>	<b>History of any continuous medications?</b>							4.441 p<0.108
	Yes	4	6.6	17	28.3	13	21.6	
	No	0	0	11	18.3	15	25.0	

**Figure Legends**

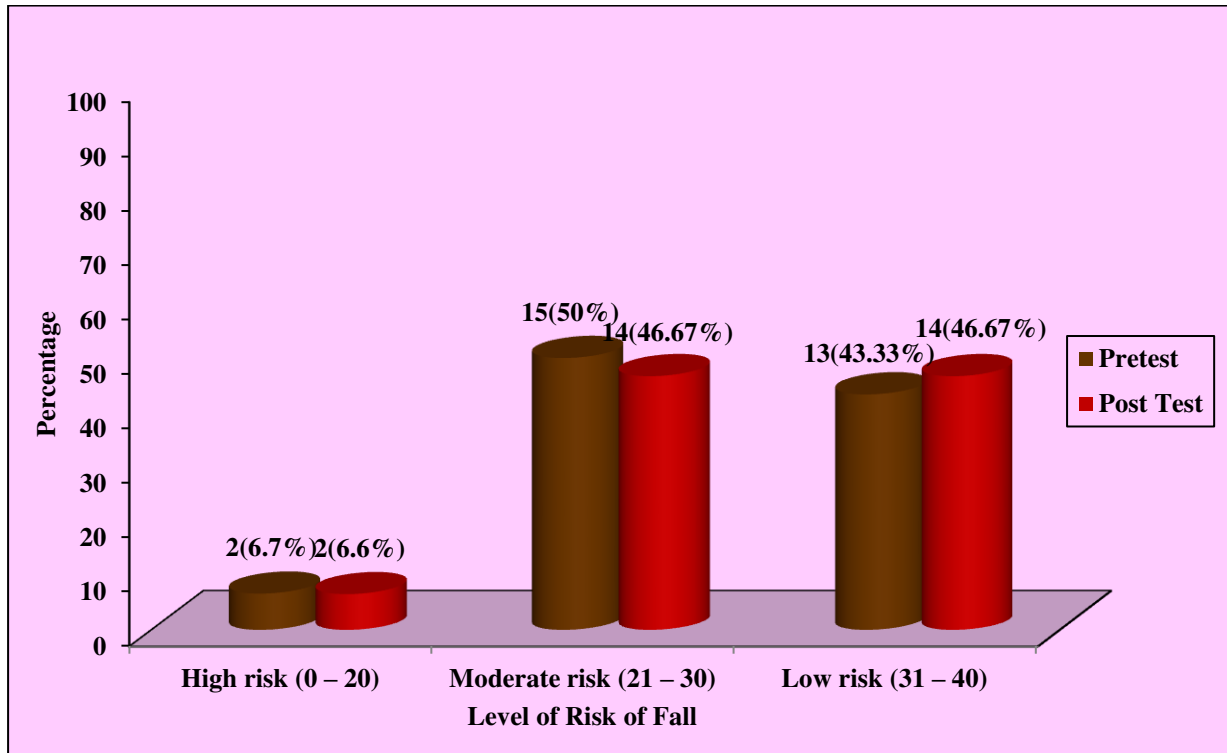
Figure 1: depicts the Frequency and percentage distribution of pretest and post test level of risk of falls among elderly in the study group and control group.



**Figure1.1.1: Frequency and percentage distribution of pretest and post test level of risk of falls among elderly in the study group**

(n=30)





**Figure: 1.1.2: Percentage distribution of pre +test and post test level of risk of falls among elderly in the control group**