

## Effectiveness of Comprehensive Nursing Intervention Programme (Cnip) on Knowledge and Practice Regarding Safety Measures for Hazards among Elderly Residing in Selected Rural Community, Bangalore

Kala Suneetha<sup>1\*</sup> and Ashok Seervi<sup>2</sup>

<sup>1</sup>Professor cum HOD in Community Health Nursing Padmashree Institute of Nursing, Affiliated to Rajiv Gandhi University of Health Sciences

<sup>2</sup>Padmashree Institute of Nursing, Affiliated to Rajiv Gandhi University of Health Sciences

### Abstract

Aging is described as a progressive, universal reduction in functional reserve, followed by a decline in function that occurs in an organism over time. Aging is a fantastic and one-of-a-kind experience. People's strength, vision, and proprioception decline as they age, resulting in impaired balance and altered stride, which leads to falls. Falls are often characterized as "come to rest inadvertently on the ground, floor, or other lower level, excluding intentional change in position to rest in furniture, wall, or other objects." Thousands of elderly people are injured at home each year. Many of them have been gravely injured, and some have become crippled.

**Aims:** The aim of the study is to evaluate the impact of the Comprehensive Nursing Intervention Program (CNIP) on knowledge and practice of safety measures for dangers among the elderly.

**Methodology:** The design was single pre-experimental group pre-test to post-test. The elderly were chosen using a nonprobability purposive sampling technique. A systematic knowledge questionnaire and a non-observational checklist were used to collect data.

**Results:** The mean knowledge score in the pre-test was 9.82 with a standard deviation of 1.78, and the mean practice score was 11.02 with a standard deviation of 1.90. In the post-test, the mean knowledge score was 18.47 with a standard deviation of 1.37, and the mean practice score was 17.08 with a standard deviation of 1.36. The paired t-test demonstrated statistical significance at the  $p < 0.05$  level. It was discovered that the effectiveness of the Comprehensive Nursing Intervention Program (CNIP) had an establishing impact on knowledge and practice regarding safety measures for hazards among the elderly, and that there was a significant correlation ( $r = 0.378$ ) between knowledge and practice regarding safety measures for hazards among the elderly at the  $P < 0.05$  level.

**Conclusion:** The study concluded that the Comprehensive Nursing Intervention Programme (CNIP) was helpful in increasing elderly people's understanding and practice of safety precautions.

**Keywords:** Knowledge; Practice; Comprehensive nursing intervention programme (CNIP)

### Introduction

Aging cannot be avoided. We do not heal aging; rather, we accelerate and extend it. Aging is a natural developmental process that brings about a variety of changes in physical, psychological, hormonal, and social situations. The passage of time 'aging' provides a wealth of experiences that comprise the psychological, economic, and mental environment that the old face every day. Although we cannot eradicate all of the elderly's difficulties; we may minimize the majority of them by sufficient care and attention. The primary goals of geriatric care should be to maintain autonomy [1, 2].

Aging is described as a progressive, universal reduction in functional reserve, followed by a decline in function, which occurs in an organism over time. Aging is a fantastic and one-of-a-kind experience. It contains extraordinary objects and experiences. Aging begins in the uterus during fertilization. It symbolizes the passage of time rather than sickness [3].

People's strength, vision, and proprioception decline as they age, resulting in impaired balance and altered stride, which leads to falls. Falls are often characterized as "come to rest inadvertently on the ground, floor, or other lower level, excluding intentional change in position to rest in furniture, wall, or other objects." [4].

The global population is currently aging, which is a widespread

phenomenon. It appears to be happening quicker than in the past. According to the World Health Organization, the proportion of people over the age of 65 in 2000 is anticipated to more than quadruple by 2050. Because of fast changes in social structures, the number of individuals and older couples living alone is also increasing. Furthermore, the number of medications that older persons take on their own has increased. Households with only older persons require a greater socioeconomic focus to enhance their healthcare and financial condition in order to have a higher quality of life.

According to the United States Census Bureau, the total world population in 2021 was 7, 874,9465,825. Except Antarctica, its overall population density is 52 persons per square kilometer (129.28 per square

**\*Corresponding author:** Kala Suneetha, Professor cum HOD in Community Health Nursing Padmashree Institute of Nursing, Affiliated to Rajiv Gandhi University of Health Sciences, E-mail: suneemsc2009@gmail.com

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mile). With almost 2.8 billion people in China and India combined, Asia is home about two-thirds of the world's population, which is largely urban and suburban. Male population density is 3,970,238,390 and female population density is 3,904,727,342 (2021 estimates). [5]

The current population of India, as of July 13, 2021, is 1,393,938,700 corers. India has a total male population of 717.10 million and female population of 662.90 million. India's overall population has a sex ratio of 108.18 men for every 100 females. Approximately half of India's current population is under the age of 25, and 65% is under the age of 35. [6]

According to the census of 2021, 0155, 76,622,321 of the total population in India is 60 years or older, with 37,768,327 of the total population being male and 38,853,994 of the total population being female. [7]

According to the 2021 census, the total population of Karnataka is 69, 5999,762 people, with 35,276,109 males and 34,323,654 females. [7]

Falls are the second biggest cause of unintentional or accidental mortality worldwide. Each year, an estimated 424,000 people die from falls worldwide, with more than 80% of these deaths occurring in low- and middle-income nations. Adults over the age of 65 had the highest frequency of fatal falls, with 37.3 million falls requiring medical attention each year. After the age of 60, the frequency of falls and the severity of fall-related problems increase steadily. Approximately 35%-40% of the community's population is above the age of 65. [8, 9].

Most senior people have functional limits regarding walking, lifting, maintaining postural balance, vision, hearing, taste, coping mechanisms, memory, recuperating from falls or illnesses, etc.,. These limitations cause trouble completing daily activities, functional reliance, and incapacity, which finally lead to accidents at their homes, workplaces, or anywhere.

Because the body's natural defences deteriorate with age, the elderly may be more susceptible to sickness. As a result, it is not unexpected that many people require a large number of drugs to treat their health concerns. Because the elderly are more likely to have several health issues, they may receive many prescriptions or combine prescription drugs with over-the-counter products or alternative cures. Because the aging body is more susceptible to the effects of many medications, the combinations can cancel out the benefits of any or all medications and result in unpleasant reactions such as memory loss, drowsiness, agitation, and disorientation. These side effects have been linked to falls and other injuries [10].

Aging is associated with some of physical and mental concerns that younger people do not have, such as a decline in physical and mental capacities, including impaired sight and hearing, greater physical fragility, and trouble adapting to rapid social changes [11]. They also change in terms of pharmacokinetic and pharmacodynamics properties [12].

## Methodology

### Objectives

To assess pre-test and post-test level of knowledge and practice regarding safety measures for hazards among elderly.

To assess the effectiveness of Comprehensive Nursing Intervention Program (CNIP) on knowledge and practice regarding safety measures for hazards among elderly.

To correlate knowledge and practice regarding safety measures for

hazards among elderly.

To associate pre-test level of knowledge and practice regarding safety measures for hazards among the elderly with their selected demographic variables.

The purpose of this study was to examine the effectiveness of the Comprehensive Nursing Intervention Programme (CNIP) on knowledge and practice of safety precautions for risks among the elderly in Sulikere and Hosabyrohalli rural areas of Bangalore. The study included elderly people who were present at the time of data collection, both male and female, aged 60 and up, and who could read and write Kannada or English.

The study used non-probability purposive sampling and included 60 older people. A systematic knowledge questionnaire and a non-observational checklist were used to collect data. A re-validated questionnaire with three sections was employed.

#### Section A: Demographic variables

Section B: Structured knowledge questionnaire was used to assess the knowledge regarding safety measures for hazards among elderly.

Section C: Non-observational checklist was used to assess the practice regarding safety measures for hazards among elderly.

A pre-test was administered prior to and after the Comprehensive Nursing Intervention Programme (CNIP). A '1' was given for a correct response and a '0' for a bad response when measuring knowledge. The maximum score that can be obtained is 22.

The scores were categorized as:

Inadequate knowledge (<50%)

Moderate knowledge (50-75%)

Adequate knowledge (>75%).

A non-observational checklist was used to assess the level of practice, and a score of '1' was granted for accurate responses and a score of '0' for incorrect responses. The maximum score that may be obtained is 20.

Poor practice (<50%)

Average practice (50-75%) and

Good practice (>75%).

## Results

A total of 60 elderly were enrolled in the study.

(Table 1)

The frequency and percentage distribution of selected demographic factors of the elderly are shown in table 1.1 above in terms of age, the bulk of the elderly (23.3%) are 65-69 years old, 22 (36.7%) are 60-64 years old, and 15 (25% are 70-74 years old. In terms of gender, the most old (34/56.7%) were males, whereas the majority of the elderly (26/43.3%) were female. In terms of religion, 45 (75%) of the elderly were Hindu, while 15 (25%) were Muslim. In terms of family type, 28 (46.7%) belong to a nuclear family, 25 (41.7%) to a joint family, and 7 (11.7%) to an extended family. In terms of educational attainment, the majority of the elderly (25/41.7%) attended primary school. 18 (30%) belongs to secondary school, 10 (16.7%) belongs to PUC and 7 (11.7%) belongs to graduate and above.

In terms of occupational position, the majority of the elderly (26

**Table 1:** Distribution of elderly according to their demographic variables.

S.No.	Demographic variables	Categories	Frequency	Percentage
1	Age in years	60-64 years	22	36.7
		65-69 years	23	38.3
		70-74 years	15	25.0
		75 and above	-	-
2	Gender	Male	34	56.7
		Female	26	43.3
3	Religion	Hindu	45	75.0
		Muslim	15	25.0
		Christian	-	-
		Others	-	-
4	Type of family	Nuclear family	28	46.7
		Joint family	25	41.7
		Extended family	7	11.7
5	Educational status	Primary education	25	41.7
		Secondary education	18	30.0
		PUC	10	16.7
		Graduate and above	7	11.7
6	Occupational status	House wife	18	30.0
		Retired employee	4	6.7
		Pvt. Employee	-	-
		Business	12	20.0
		Agriculture	26	43.3
7	Marital status	Married	46	76.7
		Unmarried	-	-
		Divorced	-	-
		Widower/ Widow	14	23.3
8	Family Income per month	≤10,000	5	8.3
		10,001-15,000	23	38.3
		15,001-20,000	18	30.0
		>20,000	14	23.3
9	Living status	Living alone	-	-
		Living with spouse	-	-
		Living with child and spouse	46	76.7
		Living with child	14	23.3
10	Are you having any history of illness?	Yes	60	100.0
		No	-	-
11	If yes, specify	Heart disease	23	38.3
		Diabetes	11	18.3
		Kidney disease	4	6.7
		Other disease	22	36.7

(43.3%) are farmers, 18 (30%) are housewives, 12 (20%) are business owners, and 4 (6.7%) are retired employees. In terms of marital status, 46 (76.7%) were married, while 14 (23.3%) were widowers/widowers. In terms of monthly family income, most of 23 (38.3%) of their family income was between Rs. 10,000 and Rs. 15,000, 18 (30%) of their family income was between Rs. 15,001 and Rs. 20,000, 14 (23.3%) of their family income was over Rs. 20,000, and 5 (8.3%) of their family income was less than or equal to Rs. 10,000.

In terms of living situation, 46 (76.7%) of the elderly lived with their child and spouse, while 14 (23.3%) of the elderly lived alone. In terms of any history of sickness, 60 (100%) of the seniors had no history of illness. In terms of the presence of any history of sickness, the most of elderly 23 (38.3%) had cardiac ailments, 22 (36.7%) had other disease, 11 (18.3%) had diabetes, and 4 (6.7%) had Renal issues.

(Table 2)

Table 2.1 illustrates the percentage distribution of knowledge level

before and after intervention. Before the Comprehensive Nursing Intervention Programme (CNIP), the majority of elderly, 39 (65%), had inadequate knowledge, 21 (35%), had moderate adequate knowledge, and none had inadequate knowledge. After the Comprehensive Nursing Intervention Programme (CNIP), the majority of elderly, 53 (88.3%), had adequate knowledge, 7 (11.7%) had moderate adequate knowledge, and none had inadequate knowledge.

(Table 3)

The percentage distribution of level of practice before and after intervention is shown in table 2.3 above. Before the Comprehensive Nursing Intervention Programme (CNIP), the majority of elderly, 47 (78.3%), had average level of practice and 13 (21.7%) had poor level of practice; after the Comprehensive Nursing Intervention Programme (CNIP), the majority of elderly, 48 (80%), had good level of practice and 12 (20%) had average level of practice.

(Table 4)

**Table 2:** Distribution of elderly according to pre and post test level of knowledge regarding safety measures for hazards among elderly.

S.No.	Pretest level of knowledge	Pre test		Post test	
		No.	%	No.	%
1	Inadequate knowledge (<50.0%)	39	65.0	-	-
2	Moderately adequate knowledge (50-75%)	21	35.0	7	11.7
3	Adequate knowledge (75%)	-	-	53	88.3
4	Over all	60	100	60	100

**Table 3:** Distribution of elderly according to pre and post test level of practice regarding safety measures for hazards among elderly.

S.No.	Pretest level of knowledge	Pre test		Post test	
		No.	%	No.	%
1	Poor (<50.0%)	13	21.7	-	-
2	Average (50-75%)	47	78.3	12	20.0
3	Good (75%)	-	-	48	80.0
4	Over all	60	100	60	100

**Table 4:** Effectiveness of Comprehensive Nursing Intervention Programme (CNIP) on knowledge regarding safety measures for hazards among elderly. (n=60).

Variable	Pretest	Post test	't' value	P value
	Mean ± SD	Mean ± SD		
Knowledge	9.82 ±1.78	18.47±1.37	31.817*	p<0.05

Note: \*-denotes significant (p<0.05), SD: standard deviation.

**Table 5:** Effectiveness of comprehensive nursing intervention programme (CNIP) on practice regarding safety measures for hazards among elderly. (n=60).

Variable	Pretest	Post test	't' value	P value
	Mean ± SD	Mean ± SD		
Practice	11.02 ±1.90	17.08±1.36	19.748*	p<0.05

Note: \*-denotes significant (p<0.05), SD: standard deviation.

**Table 6:** Correlation between knowledge and practice regarding safety measures for hazards among elderly. (n=60)

Pre test	Variable	Mean	SD	Correlation	P value
	Knowledge	9.82	1.78	0.378	P<0.05
	Attitude	11.02	1.90		

Note: \*-denotes significant p value <0.05.

Table 4 reveals that the Comprehensive Nursing Intervention Programme (CNIP) on understanding of safety measures for dangers among the elderly had a high statistically significant difference in pre-test and post-test with a 't' value of 31.817 (p 0.05). It might be argued that the Comprehensive Nursing Intervention Programme (CNIP) provided improved elderly people's understanding of safety precautions.

(Table 5)

Table 5 reveals that the Comprehensive Nursing Intervention Programme (CNIP) on practice about safety precautions for dangers among the elderly has a high statistically significant difference in pre-test and post-test with a 't' value of 19.748 (p 0.05). It might be argued that the Comprehensive Nursing Intervention Programme (CNIP) increased the level of practice for geriatric safety measures.

(Table 6)

The data in table 6 above demonstrate that the Karl Pearson's correlation (r=0.378) between knowledge and practice about safety precautions for dangers among the elderly was statistically significant (p0.05). Through the regression model, there was a clear tendency in increasing the degree of practice with increasing knowledge.

At the P<0.05 level, the selected demographic characteristics were found to be substantially linked with the pre-test level of knowledge and practice about safety precautions for dangers among the elderly. As

a result, the null hypothesis was rejected, and the research hypothesis on safety measures for dangers among the elderly was accepted.

## Discussion

The current study demonstrated the efficacy of the Comprehensive Nursing Intervention Program (CNIP) on awareness and practice of safety measures for risks among the elderly. According to the current study, the majority of the elderly, 39 (65%), had inadequate knowledge and 21 (35%) had moderate adequate knowledge, with all knowledge scores ranging from 7-13 with a mean of 9.82 and a mean percentage of 44.6% with a standard deviation of 1.78. In the pre-test, we discovered that most of elderly, i.e. 47 (78.3%), had average level of practice and 13 (21.7%) had bad level of practice, with all practice scores ranging between 8 and 14 with mean 11.02, mean percentage 55.1% with SD of 1.90.

The current study's findings are consistent with a previous study, in which a quasi-experimental non-equivalent control group pretest post-test design was used to compare pre and post-test knowledge scores and expressed practice among experimental and comparison groups before and after administration of the multifactorial Program. Purposive sampling was used to choose a sample of 60 elderly people. The data collection tools used were a history of fall assessment (within the last two years), a proforma for socio-demographic data, a structured knowledge questionnaire to assess knowledge regarding fall risk, prevention, and management, an expressed practices checklist to

assess fall prevention among the elderly, and an interview.

The study's findings revealed that the mean post-test knowledge scores of elderly in the experimental and comparison groups after intervention delivery (14.87, 14.67) were statistically insignificant ( $p=0.16$ ). The mean pretest and post-test expressive practices score of the elderly in the experimental group before and after intervention delivery (36.8, 38.0) was determined to be significant ( $p=0.001^*$ ).

The study concluded that the multifactorial Program was helpful in improving expressed practices but not in enhancing older understanding of risk factors and safety procedures to prevent falls.

In terms of post-test knowledge and practice regarding safety measures for hazards among the elderly, 7 (11.7%) had moderate adequate knowledge and 53 (88.3%) had adequate knowledge, with all post-test knowledge scores ranging from 16 to 20, with a mean of 18.47, a mean percentage of 83.9%, and a standard deviation of 1.37. In terms of post-test level of practice, 48 (80%) of the seniors had good level of practice, 12 (20%) had average level of practice, and all post-test practice scores ranged from 15 to 19, with a mean of 17.08, a mean percentage of 85.4%, and a standard deviation of 1.36.

The t-test value for the effectiveness of the Comprehensive Nursing Intervention Programme (CNIP) on knowledge of safety measures for dangers among the elderly was found to be 31.817 (Table 4), which was statistically significant at the  $p0.05$  level. The t-test result for the effectiveness of the Comprehensive Nursing Intervention Program (CNIP) on practice about safety measures for dangers among the elderly was 19.758 (Table 5), which was statistically significant at the  $p0.05$  level. The current study found that the Comprehensive Nursing Intervention Program (CNIP) was successful in enhancing knowledge and practice of safety measures for hazards among the elderly.

This finding is comparable with a previous study conducted among Korean older persons to examine medication safety knowledge, attitude, and practice. The study stated that the KAP survey revealed that information about medication safety positively benefited older persons, and that older adults should receive well-organized medication safety education to enhance their drug consumption behaviors.

The current study also identified a significant linear correlation  $r=0.378$  (Table 6) between elderly knowledge and practice about safety measures for dangers, which was significant at the  $P<0.05$  level.

Family wealth and disease type were found to be substantially associated with the pre-test level of knowledge and practice about safety measures for risks among the elderly at the  $P<0.05$  level. It demonstrates that their pre-test knowledge and practice were highly related to their demographic factors.

However the current study has certain limitations. It was only available to the elderly who could read and write Kannada or English who lived in Sulikere and Hosabyrohalli villages in Bangalore. Because

the current study has a small sample size, it should be reproduced with a wider population.

The Comprehensive Nursing Intervention Program (CNIP) was found to be helpful in enhancing knowledge and practice regarding safety precautions for risks among the elderly in the current study. A comparable type of study can be conducted in a variety of environments. A Comprehensive Nursing Intervention Program (CNIP) and a time series research design are also options.

The study implies that nurses should be aware of various safety measures for elderly hazards in order to educate the elderly and their family members, and that regular health education programs can be conducted by nursing personnel in community settings to help the elderly promote their health status.

## Conclusion

Based on the findings of the study, it is possible to infer that the Comprehensive Nursing Intervention Program (CNIP) is significantly successful in enhancing knowledge and practice of safety measures for dangers among the elderly.

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