

ORIGINAL ARTICLE

Effectiveness of Structured Teaching Program on Knowledge Regarding Management of Selected Physical Health Problems Among Elderly in Selected Old Age Homes in Mangalore

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Received date: February 18, 2025; Accepted date: July 07, 2025; Published date: July 31, 2025



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Abstract

Background: Older individuals aged 60 above are frequently stereotyped as feeble, dependent, and a burden to society. They constitute a significant proportion of patients with health issues such as cancer, joint disorders, heart disease, diabetes, hypertension, hearing loss, and Parkinson's disease. Providing self-management support can empower elderly individuals to better understand their health condition and actively participate in their health care.

Objectives: To assess the level of knowledge, and evaluate the effectiveness of a structured teaching program (STP) regarding the management of selected physical health problems among the elderly in selected old age homes.

Methods: A one group pre-test, post -test, experimental research design was used for the study. The sample comprised of 95 elderly individuals residing in selected old age homes. The subjects were selected using a purposive sampling technique. Data were collected and analyzed using descriptive and inferential statistics.

Results: A significant difference was found between the pre-test and post-test knowledge levels regarding the management of selected physical health problems among the elderly. However, demographic variables such as age, religion, level of education, primary residence before entering the old age home, length of stay at old age home, marital status, and presence of any chronic physical health problems were not significantly associated with knowledge levels.

Conclusion: The findings of the study revealed that educating the elderly was effective and helpful in enhancing their knowledge regarding the management of selected physical health problems. The study provided valuable insights on selected physical health conditions such as diabetes, hypertension, osteoarthritis, cataract and hearing loss.

Keywords: Structured Teaching Program, Elderly, Management, Osteoarthritis, Cataract, Hearing loss

Introduction

Aging is commonly described as the gradual decline in an individual's functional abilities, resulting from structural alterations as they grow old. It encompasses

the ongoing transformation within an organism, culminating in heightened susceptibility to weakness, illness, and mortality.¹ The elderly population has reached unprecedented levels in human history.² Asia

is leading this trend, with Hong Kong, South Korea, and Japan projected to have the highest proportion of individuals aged 65 and above by 2050.³

The percentage of the global population aged over 60 is anticipated to almost double from 12 to 22 percent. The rate of population aging has steadily accelerated on a global scale.⁴ The proportion and magnitude of the elderly population are growing with the passage of time. The percentage rose from 5.6% in 1961 to 8.6% in 2011. The proportion has increased to 10.1% in 2021 and further likely to increase to 13.1% by 2031.⁵ In Karnataka, it grew from 9.71% in 2016 to approximately 11.5% in 2021.⁶

The population aged above 60 years is increasing globally due to improved life expectancy, which has also led to a proportional rise in certain health problems among older adults. The southern states (Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu) may be considered the primary drivers of aging in India.⁷ Old age is not a disease, but it is associated with increased vulnerability to illnesses influenced by various psychological, social and economic factors.

In the age range of 20–79 years, India harbors 74.9 million diabetic individuals as of 2021, a figure anticipated to surge to 124.9 million by 2045, making it the world's second-largest diabetic population.⁸ The prevalence of diabetes in adults aged 20 years and above in India increased from 5.5% in 1990 to 7.7% in 2016. Most people over 60 years suffer from type 2 diabetes mellitus (DM) due to impaired insulin sensitivity.⁹ The prevalence of diabetes mellitus is increasing globally.¹⁰ It is becoming an epidemic and endemic issue, posing significant social and economic burdens.^{11,12}

In 2008, nationwide, over 40% of the population aged 35 and older were diagnosed with hypertension. The prevalence of hypertension has risen in both urban and rural populations, with current rates of 25% in urban adults and 10-15% in rural population.¹³

Systolic hypertension is perhaps the most frequent type of high blood pressure in older adults and can cause major health issues, including shortness of breath during light physical activity, lightheadedness when standing up too quickly, and an increase risk of falls.¹⁴

Osteoarthritis (OA) of the knee is the most prominent type of arthritis among the elderly in Asian populations.¹⁵ As mentioned in the 2016 Global Burden of Disease study, musculoskeletal disorders were the second highest

contributors to global disability. The reported prevalence of knee OA in elderly in studies conducted in India ranged between 32% and 64%.¹⁶ Patients are usually over the age of 50 and present with pain and stiffness in the affected joint(s).¹⁷

Cataracts are a major cause of blindness, accounting for nearly half of all cases worldwide.¹⁸ Most cataracts are age-related, resulting from natural changes in the eyes over time. However, cataracts can also develop due to other factors, such as eye injuries, surgery for other eye conditions like glaucoma.¹⁹

Age-related hearing loss is the loss of hearing occurring gradually over many years as the individual grows older.²⁰ Roughly one-third of adults aged 61 to 70 years, experience hearing loss, while over 80 percent of those aged 85 and above are affected. Men usually experience greater hearing loss and have an earlier onset compared to women.²¹

To objective of this study was to assess the level of knowledge, and evaluate the effectiveness of a structured teaching program regarding the management of selected physical health problems among the elderly in selected old age homes.

Materials and Methods

The study was conducted in selected old age homes in Mangalore, with a sample of 95 elderly participants. Non-probability purposive sampling technique was adopted for the selection of subjects. Individuals above 60 years of age, who can read, write and understand Kannada or English, living in selected old age homes in Mangalore, and willing to participate in the study were selected. Subjects not willing to participate, and those who were terminally ill or mentally ill were excluded.

A pre-experimental, one group pre-test and post-test design was chosen for the research. The tool for the data collection comprised of two sections. Section I included demographic data, while section II comprised a structured knowledge questionnaire on selected elderly physical problems and their management. Ethical clearance for the study was obtained from the institutional ethical committee. Oral and written consents were obtained from the study subjects. The subjects were assured of the confidentiality of their data.

A pilot study was performed involving 18 elderly individuals from a selected old age home. A methodical knowledge assessment was carried out, followed by the implementation of structured teaching programs (STP)

on the same day. On the seventh day, a post-test was administered using the same structured questionnaire to evaluate the effectiveness of the teaching program regarding physical problems in the elderly and their management. The data were analyzed using descriptive and inferential statistics. The statistical analysis of the pilot study revealed a significant difference between the pre- and post-test knowledge levels. The participants and the data from the pilot study were not included in the main study.

The main study was conducted involving 95 elderly individuals selected from old age facilities in Mangalore, based on previously mentioned criteria. The investigator self-introduced himself/herself to the subjects and invited them to participate in the study. The subjects were explained about the purpose of the study, and informed consent was obtained.

A preliminary test was conducted using a self-administered knowledge questionnaire, followed by

a systematic teaching session. Charts, pamphlets, and flash cards were used to aid comprehension of the lesson. The training session lasted for 45 minutes and was conducted in selected old age homes. An interactive teaching method was used, allowing participants to freely ask questions and clear their doubts. Post-test was conducted seven days after the STP using the same structured knowledge questionnaire.

Statistical Analysis: The data were statistically analyzed using mean, percentage, and standard deviation. Chi-square test was used to assess the demographic data and the pre-test, post-test knowledge scores of all the subjects involved in the study.

Results

The data presented in Table 1 were analyzed using descriptive statistics and summarized in terms of frequency and percentage.

Table 1: Frequency and percentage distribution of the elderly based on their demographic data

S. No.	Demographic Variables	Characteristics	Frequency Distribution	
			Frequency (f)	Percentage (%)
1	Age (in years)	Below 65	17	c
		65-74	35	36.8
		75-84	33	34.7
		85 above	10	10.5
2	Religion	Hindu	56	58.9
		Christian	30	31.6
		Muslim	9	9.5
		Any other	0	0
3	Level of education	No formal education	29	30.5
		Primary school	49	51.6
		Higher secondary school	17	17.9
		Graduate & postgraduate	0	0
4	Primary residence before old age home	Independent living	11	11.6
		Assisted living	6	6.3
		With family /friends	76	80
		Other (orphanages)	2	2.1
5	Length of stay at the old age home	< 6 months	5	c
		6 months to 1 year	20	21
		1-2 years	19	20
		> 2 years	51	53.7

6	Marital status	Married	64	67.4
		Unmarried	17	17.9
		Widowed	8	8.4
		Divorced	6	6.3
7	Do you experience any chronic physical health problem?	Yes	68	71.6
		No	27	28.4
8	If yes, which of the following conditions do you have?	Diabetes	11	11.5
		Hypertension	18	18.8
		Osteoarthritis	8	8.3
		Cataract	4	4.2
		Hearing loss	5	5.2
		Diabetes & hypertension	1	1
		Diabetes & osteoarthritis	4	4.2
		Diabetes & hearing loss	1	1
		Hypertension and diabetes	3	3.1
		Hypertension & osteoarthritis	2	2.1
		Hypertension & cataract	3	3.1
		Hypertension & hearing loss	2	2.1
		Osteoarthritis & diabetes	1	1
		Osteoarthritis & hypertension	1	1
		Osteoarthritis & hearing loss	2	2.1
		Cataract & osteoarthritis	1	1
Hearing loss & hypertension	3	3.1		
Cataract, osteoarthritis & hypertension	1	1		
Cataract, hearing loss & diabetes	1	1		

Based on age, 71.5% of the participants were between 65 to 84 years old, 10.5% were 85 years or older, and 17.9% were younger than 65. Regarding religion, 58.9% were Hindus, 31.6% were Christians, and 9.5% were Muslims. In terms of level of education, 51.6% had attended primary school, 30.5% had no formal education, and 17.9% had completed higher secondary school. Regarding primary residence before entering the old age home, 80% of the elderly lived with family or friends, 11.6% lived alone, 6.3% resided in assisted living facilities or other shelters, and 2.1% were in orphanages prior to relocating to the old age institution. Based on their length of stay at the old age home, 53.7%

of the elderly had been residing at the old age home for at least two years, 21.1% had been living there for 6 months to 1 year, 20% for 1 to 2 years, and 5.3% for less than 6 months.

Regarding marital status, 67.4% were married, 17.9% are unmarried, 8.4% were widowed, and 6.3% were divorced. In terms of presence of any chronic physical health problems, 71.6% reported having such conditions, while 28.4% did not. Among the participants, 18.9% were diagnosed with hypertension, 11.6% with diabetes, 8.4% with osteoarthritis, 5.3% with hearing loss, and 4.2% were diagnosed with cataracts. Few individuals presented with multiple coexisting conditions.

Table 2: Frequency and percentage distribution of subjects according to their level of knowledge regarding physical problems in the elderly and their management

Knowledge level	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
	Pre-test		Post-test	
Inadequate	11	11.6	0	0
Moderate	84	88.4	92	96.8
Adequate	0	0	3	3.2

Table 3: Mean, Standard deviation (SD), Mean difference (MD) and paired ‘t’ test of pre-test and post-test knowledge scores

Knowledge Score	Mean Score	Standard Deviation	Mean Difference	t-value	P-value	Remarks
Pre-Test	16.14	2.98	4.85	20.47	P<0.001*	Highly significant
Post-Test	20.99	2.93				

t (94) =1.985; P<0.001 statistically significant; paired t-test

Table 2 shows that out of 95 respondents, 84 (88.4%) had moderate knowledge, 11 (11.6%) had inadequate knowledge and none of the participants demonstrated adequate knowledge in the pre-test. However, in the post-test, majority of the subjects 92 (96.8%) demonstrated moderate knowledge and 3 (3.2%) showed adequate knowledge on selected physical health issues and their management. This clearly indicates the effectiveness of the intervention. It is noteworthy that none of the respondents showed inadequate knowledge in the post-test.

Table 3 presents the paired t-test results computed to assess the significance of difference between the mean pre-test and post-test knowledge scores among a sample of 95 elderly participants. A P-value less than 0.05 indicates a statistically significant difference between the pre- and post-test mean scores, suggesting that the structured teaching program had a measurable impact on the knowledge. The mean knowledge score increased from 16.14 in the pre-test to 20.99 in the post-test, resulting in a mean difference of 4.85. Consequently, the null hypothesis is rejected, and the research hypothesis is accepted. The t-value of 20.47 with a P-value less than 0.001 confirms that this difference is statistically significant, demonstrating that the intervention effectively improved the participants’ knowledge levels regarding physical problems in the elderly.

No significant correlation was found between the pre-test knowledge scores of the elderly and the studied variables such as age group, religion, level of education, primary residence before entering the old age home, length of stay at the old age home, marital status,

and chronic physical health problems. This indicates that there was no significant association between the pre-intervention knowledge scores and the selected demographic variables.

Discussion

The results of the present study demonstrate a significant improvement in the knowledge levels of the elderly regarding selected physical health problems and their management. The study findings revealed that the majority of participants (71%) were between the ages of 65 and 84, 58.9% were Hindus, and 51.6% had completed only primary education. Before moving to an old age home, majority (80%) lived with family or friends. More than half of the elderly (53.7%) had been residing at the old age home for more than two years and majority (67.4%) were married. The majority of the elderly participants (71.6%) reported having chronic physical health problems, with hypertension (18.9%) and diabetes (11.6%) being the most commonly reported chronic illnesses.

In the pre-test, the majority of subjects (88.4%) showed moderate knowledge and 11.6% had insufficient knowledge regarding selected physical problems and their management. However, in the post-test, 3.2% showed adequate knowledge and a significant proportion (96.8%) had acquired moderate knowledge.

A significant difference was found between the mean pre-test and post-test knowledge scores. The mean percentage of knowledge scores in the post-test (52.47%) was greater than the mean percentage of pre-test scores (40.35%). The computed ‘t’ value between

mean pre-test and post-test knowledge scores ($t(94) = 20.47$, table value $t(94) = 1.985$, $P < 0.001$) indicated statistical significance. These results confirm that the structured education program was effective in enhancing the elderly participants' knowledge of selected physical health problems and their management.

A study was conducted to assess the effectiveness of a structured educational program on knowledge related to prevention and management of health problems, as well as its association with selected socio-demographic variables. The study findings revealed that 90 participants (75.0%) demonstrated a low level of knowledge in the pretest; however, none remained in that category after the intervention. The results indicate that a structured training program is effective in enhancing the understanding of prevention and management of health problems among the elderly.²⁰

Conclusion

From the present research, it is evident that structured teaching program was effective in increasing the knowledge of elderly individuals regarding the prevention and management of selected physical health problems. No significant association was observed between the pre-test knowledge scores and the selected demographic variables such as age, religion, level of education, primary residence before entering the old age home, length of stay at old age home, marital status, presence of any chronic physical health problems.

The outcomes of this study have implications for nursing education, practice, administration, and research.

Nursing practice

It is critical for nurses working in both clinical and community settings to comprehend the physical health problems commonly faced by the older adults and how to effectively address them. Assessing the knowledge levels of the elderly can assist nurses design more efficient educational initiatives. Structured knowledge assessments can be adopted into various instructional tools, such as brochures, simulations, and audio-visual materials, for use in community settings as well as educational institutions. It is the responsibility of nurses to educate the public about health-related issues.

Nursing education

Student nurses should be provided with ample opportunities to educate older adults regarding age-related physical health problems and their management

during clinical practice. This approach will better prepare future nurses to deliver essential health education and support community self-care. Integrating educational technologies into the nursing curriculum is also crucial.

This integration will help nurses effectively disseminate health information about preventing and recognizing physical health issues among elderly, promoting early medical intervention. Understanding these health problems and their management is vital as it enables nurses to address the unique challenges faced by the elderly, improves care quality, and supports better health outcomes. Empowering nurses with this knowledge, can help educate patients and families, leading to enhanced overall well-being and reduced healthcare costs.

Nursing administration

Facilitating in-service education on senior physical concerns and their management is an important duty of nursing administration departments in both public and private sectors. These departments are responsible for developing and implementing training programs that provide nurses with the most up-to-date information and skills for dealing with the specific health challenges that older patients face. Nursing staff are kept up to date on the latest innovations in elder care through in-service education, which includes workshops, seminars, and continuing education courses offered by administrative groups. Ultimately, this ongoing professional development contributes to better patient outcomes, more effective healthcare delivery, and appropriate management of health concerns among older adults.

Nursing research

Nursing practice must be based on scientific knowledge to effectively address evolving issues related to healthcare delivery. To flourish as a profession, nursing must not only stay abreast with current advancements but also actively contribute to shaping the future of healthcare practice. Nurse researchers must remain informed about the emerging trends in healthcare and the evolving role of the nursing profession. There is considerable scope for research into the effectiveness of various public education tactics, including the development of innovative teaching methods and high-quality instructional resources aimed at enhancing health education outcomes.

Based on the study's findings, it is recommended that similar study be conducted with a larger sample size to allow for more accurate conclusions and broader

generalizations. Additionally, follow-up research should be undertaken to evaluate the long-term effectiveness of structured instruction programmes.

Conflict of interest

Nil

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