International Journal of Community Medicine and Public Health
Nivethitha K et al. Int J Community Med Public Health. 2025 Jun;12(6):2743-2747
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20251721

Original Research Article

Effectiveness of structured teaching program on knowledge regarding the prevention of peripheral artery disease among elderly at selected hospital, Puducherry

Nivethitha K.*, Pugazhvani R.

Department of Medical-Surgical Nursing, College of Nursing, Mother Theresa Post Graduate and Research Institute of Health and Science, Puducherry, India

Received: 31 March 2025
Revised: 15 May 2025
Accepted: 16 May 2025

***Correspondence:**
Dr. Nivethitha K.,
E-mail: Nivethitha01@gmail.com

ABSTRACT

Background: Population aging is a major issue globally, with India defining a senior citizen as anyone aged 60 and above. Aging leads to progressive physiological decline, increasing the risk of conditions like Peripheral Artery Disease (PAD), a chronic condition caused by arterial blockage in the lower limbs due to atherosclerosis. The aim of the study to evaluate the effectiveness of a structured teaching program on knowledge regarding the prevention peripheral artery disease among elderly at selected hospital, Puducherry.
Methods: The study employed a quantitative research approach. The study was conducted at a government general hospital in Puducherry, with a sample of 60 elderly individuals aged 60 and above who met the inclusion criteria and were available during the data collection period. Non-probability convenience sampling was used to select participants. The sample selection criteria included those who could read and understand Tamil, while exclusion criteria consisted of patients with recent surgeries or with serious medical conditions.
Results: The study found that most elderly participants had inadequate knowledge of PAD prevention in the pre-test (68.3%). After the structured teaching program, 60% had moderately adequate knowledge, and 38.3% had adequate knowledge in the post-test. The mean pre-test score (6.67) improved significantly to the post-test score (12.73), with a p-value of 0.000, confirming the program's effectiveness.
Conclusions: The present study concluded that the elder patients in selected government Hospital in Puducherry had a adequate level of knowledge after the structured teaching program.

Keywords: Elderly, Knowledge, Peripheral artery disease, Prevention

INTRODUCTION

Population aging is a major issue globally, with India defining a senior citizen as anyone aged 60 and above. Aging leads to progressive physiological decline, increasing the risk of conditions like Peripheral Artery Disease (PAD), a chronic condition caused by arterial blockage in the lower limbs due to atherosclerosis. PAD can lead to intermittent claudication-pain or weakness while walking, which is relieved by rest, and is most commonly felt in the calf.[1,2]

If blood flow to the lower extremities becomes inadequate, critical ischemia can develop, leading to pain at rest, ulcers, or gangrene. PAD is prevalent in the elderly and significantly impacts mobility, quality of life, and increases the risk of cardiovascular disease (CVD) morbidity and mortality (Oka, 2006). It can result in debilitating conditions like limb ischemia and ultimately limb amputation if untreated.[3,4]

Risk factors for PAD include smoking, dyslipidemia, diabetes, and hypertension. PAD patients often suffer

from exercise-induced ischemic pain in the legs, especially the calf muscles. As the disease progresses, untreated PAD can lead to gangrene, with 35% of those with critical limb ischemia requiring amputation within 6 months (LaMendola et al, 2010). Despite rising cardiovascular risk factors in the Middle East, PAD incidence data in the region is limited.[5]

PAD is classified into stages based on severity: Stage I (asymptomatic), Stage II (claudication), Stage III (rest pain), and Stage IV (necrosis or gangrene) (Lewis et al, 2014; Anderson et al, 2013). Treatment includes antiplatelet drugs, lifestyle modifications like smoking cessation, and regular exercise, which improves blood flow and reduces walking limitations.[6]

Functional capacity is impacted by PAD, reducing a person's ability to perform daily activities. Effective patient education, particularly in cardiovascular rehabilitation, can improve adherence to treatment and outcomes.[7] Educators must adapt to new learning methods, ensuring that educational resources like videos, slides, and books are used effectively. Overall, patients with PAD require lifestyle changes and medical therapies to manage the disease and prevent further complications.[7]

The aim of the study to evaluate the effectiveness of a structured teaching program on knowledge regarding the prevention peripheral artery disease among elderly at selected hospital, Puducherry.

METHODS

The study employed a quantitative research approach, utilizing a pre-experimental one-group pre-test and post-test design to evaluate the effectiveness of a structured teaching programme on the prevention of Peripheral Artery Disease (PAD). The independent variable was the structured teaching programme on PAD prevention, while the dependent variable was the knowledge of the elderly regarding PAD prevention. The study was conducted at a government general hospital in Puducherry, with a sample of 60 elderly individuals aged 60 and above who met the inclusion criteria and were available during the data collection period. Non-probability convenience sampling was used to select participants. The sample selection criteria included those who could read and understand Tamil, while exclusion criteria consisted of patients with recent surgeries or those suffering from other serious medical conditions.

The researcher developed a structured questionnaire based on literature review and expert opinions to assess the level of knowledge. The questionnaire consisted of two sections: Section A covered demographic variables such as age, gender, education, occupation, and medical history, while Section B contained a self-structured questionnaire with 20 multiple-choice questions on PAD prevention, risk factors, clinical manifestations, and management. Knowledge was scored based on a range from 0 to 20, with scores classified as inadequate, moderately adequate, or adequate knowledge.

Ethical considerations

Ethical considerations included approval from the Medical Superintendent of IGGGH & PGI and informed consent from participants, ensuring confidentiality and voluntary participation. The tool's validity was confirmed by 5 medical experts, and its reliability was assessed using the split-half method.

Data collection procedure

The data collection was carried out from 2nd September 2024 to 13 September 2024. Formal written permission was obtained from the medical superintendent of the Indira Gandhi Government General Hospital & Post Graduate Institution, Puducherry. The investigator took consent from the samples who were admitted and fulfilled inclusion criteria. Confidentiality was maintained during the data collection. The average time taken for data collection from each sample was 10 to 15 minutes. After seven days, the post-test was administered by using the same knowledge questionnaire to evaluate the effectiveness of Structured Teaching Programme respectively

Data analysis

Data analysis included descriptive and inferential statistics, with frequency and percentage distributions for demographic variables, and paired t-tests and chi-square tests used to assess the effectiveness of the intervention and its association with demographic variables.

RESULTS

Demographic variables

The study sample's age distribution showed that 50% were in the 60-65 years age group, 23.3% were 66-70 years, 20% were 71-75 years, and 6.7% were above 76 years. Gender distribution was equal, with 50% male and 50% female participants. Regarding marital status, 75% were married, 11.7% were widowed, 8.3% were unmarried, and 5% were divorced or separated. Most participants (68.3%) were Hindu, 18.3% were Christian, and 13.3% were Muslim. In terms of education, 26.7% had completed high school, 25% had primary education, 18.3% had no formal education, and 11.7% had a college degree. Occupation-wise, 36.7% were homemakers, 30% were coolies, 16.7% worked in the private sector, 10% were retired, and 6.7% worked in the government sector. Family income distribution showed 40% earned above ₹10,000, 26.7% earned ₹8,001-₹10,000, 18.3% earned ₹4,000-₹5,000, and 15% earned ₹5,001-₹8,000. Regarding the area of residence, 43.4% lived in urban areas, 40% in rural areas, 15% in semi-urban, and 1.7% in slums. Regarding PAD knowledge, 73.3% had no prior

knowledge, and 26.7% had some awareness. Symptomatically, 51.7% had difficulty walking and standing, and 71.7% experienced leg pain with cramping. For comorbid conditions, 33.3% had no comorbid diseases, 25% had hypertension, 18.3% had both hypertension and diabetes, 13.3% had diabetes alone, and 10% had thyroid disorders. Regarding body mass index, 68.3% had a healthy weight, 23.3% were overweight, 6.7% were obese, and 1.7% were underweight.

Table 1: Distribution of pre and post-test level of knowledge regarding the prevention of peripheral artery disease among elderly (n=60).

Knowledge	Pre test		Post test	
	N	%	N	%
Inadequate knowledge	41	68.3	1	1.7
Moderately adequate knowledge	19	31.7	36	60
adequate knowledge	0	0	23	38.3

Level of knowledge

The findings showed that there is a significant difference between the pre-test and post-test level of knowledge. Further, the effectiveness of intervention is assessed by comparing the mean between pre- test and post-test which shows the mean of the pre-test is 6.67±1.633 and the mean of the post-test are 12.73±2.730. The p value is 0.000 at <0.05 which is highly statistically significant and hence the test results infer that, the structured teaching programme was effective and helpful in improving the knowledge on prevention of peripheral artery disease among elderly.

Table 2: Association of post-test level of knowledge regarding the prevention of peripheral artery disease with their selected demographic variables.

Demographic variables	Knowledge						Chi-square ($\chi 2$) P value
	Inadequate		Moderate		Adequate		
	No.	%	No.	%	No.	%	
Age in years							
60 to 65	1	1.6	17	28.33	12	20	1.521 df=6 0.958 NS
66 to 70	0	0	9	10	5	8.33	
71 to 75	0	0	7	11.66	5	8.33	
Above 76	0	0	3	5	1	1.6	
Gender							
Male	0	0	18	30	12	20	1.043 df=2 0.593 NS
Female	1	1.6	18	30	11	18.3	
Marital status							
Married	0	0	29	48.3	16		13.650 df=6 0.034 NS
Unmarried	1	1.6	3	5	1	1.6	
Widow/widower	0	0	3	5	4	6.66	
Divorced/separated	0	0	1	1.6	2	3.33	
Religion							
Hindu	1	1.6	26		14		1.882 df=4 0.757 NS
Christian	0	0	5	8.33	6	10	
Muslim	0	0	5	8.33	3	5	
Educational status							
No formal education	1	1.6	10		0	0	40.038 df=8 0.000 S
Primary school education	0	0	13		2	3.33	
High school education	0	0	12	20	4	6.66	
Secondary school education	0	0	0	0	11	18.3	
Collegiate education & above	0	0	1	1.6	6	10	
Occupation							
Coolie	0	0	13	21.6	5	8.33	11.153

Continued.

Demographic variables	Knowledge						Chi-square ($\chi 2$) P value
	Inadequate		Moderate		Adequate		
	No.	%	No.	%	No.	%	
Homemaker	0	0	13	21.6	9	15	df=8 0.193 NS
Private sector	0	0	6	10	4	6.66	
Government sector	0	0	2	3.33	2	3.33	
Retired	1	1.6	2	3.33	3	5	
Family income per month							
Rs. 4000 to Rs.5000	0	0	7	11.66	4	6.66	3.625 df=6 0.727 NS
Rs.5001 to Rs. 8000	0	0	6	10	3	5	
Rs.8001 to Rs.10000	1	1.6	10	16.6	5	8.33	
Rs.10001 and above	0	0	13	21.66	11	18.3	
Area of residence							
Rural	0	0	16	26.6	8	13.3	3.375 df=6 0.761 NS
Urban	1	1.6	15	25	10	16.6	
Semi urban	0	0	4	6.66	5	8.33	
Slum	0	0	1	1.6	0	0	
Previous knowledge							
Yes	0	0	9	15	7	11.6	0.582 df=2 0.748 NS
No	1	1.6	27	45	16	26.6	
Difficulty in walking and standing							5.848 df=2 0.054 NS
Yes	1	1.6	23	38.33	8	13.3	
No	0	0	13	21.66	15	25	
Leg pain with cramping							0.540 df=2 0.763 NS
Yes	1	1.6	25	41.66	17	28.3	
No	0	0	11	18.3	6	10	
History of comorbid disease							
Diabetes mellitus	0	0	6	10	2	3.33	12.194 df=8 0.143 NS
Hypertension	0	0	11	18.3	4	6.66	
Diabetes mellitus with hypertension	0	0	9	15	2	3.33	
Thyroid disorders	0	0	1	1.6	5	8.33	
None	1	1.6	9	15	10	16.6	
Body mass index							
Underweight	0	0	1	1.6	0	0	4.435 df=6 0.618 NS
Healthy weight	0	0	24	40	17	28.3	
Over weight	1	1.6	8	13.33	5	8.33	
Obesity	0	0	3	5	1	1.6	

Association

The present study findings showed that there was a significant association between the selected demographic variables and age (0.958), gender (0.593), religion (0.757), occupation (0.193), family income (0.727), residence (0.761), previous knowledge (0.748), difficulty in walking and standing (0.054), leg pain with cramping (0.763), history of comorbid disease (0.143), body mass index (0.618) at the level of p value >0.05. Except marital status and education status.

DISCUSSION

The significant findings from the study reveal crucial insights into the effectiveness of structured educational interventions on elderly individuals' knowledge of peripheral artery disease (PAD). Prior to the intervention, a notable majority of elderly participants possessed inadequate knowledge regarding PAD. This lack of awareness is concerning, considering that PAD is a critical health issue prevalent in older adults, associated with heightened risks of cardiovascular morbidity and mortality, necessitating effective educational initiatives tailored for this demographic.[9,10]

Post-intervention, the data indicate a marked improvement in knowledge among participants, with 60% reaching a moderately adequate level and 38.3% achieving adequate knowledge. The increase in mean knowledge scores from 6.67 to 12.73, corroborated by a p-value of 0.000, clearly illustrates the substantial impact of the structured teaching program. Such results are not isolated; previous studies have shown that educational interventions notably enhance the understanding of health conditions among elderly populations, reinforcing the

concept that effective education can lead to better health outcomes. For instance, the successful application of peer education methods has been documented to improve both self-care and quality of life in elderly patients, signifying the importance of tailored educational strategies.[11,12]

Furthermore, while the study found no significant association between most demographic variables and post-test knowledge, the influence of marital status and education level warrants attention. This finding aligns with the body of literature identifying education level as a critical determinant of health knowledge and outcomes among elderly individuals.[13] Similarly, marital status appears to impact knowledge acquisition and health behaviors, with married individuals often demonstrating higher engagement in health education sessions.[14] These associations underscore the necessity for customized educational approaches that account for demographic differences, ensuring that interventions are effective across varying sociocultural contexts.[15] The study had several limitations. The small sample size limits the generalizability of the findings to a broader elderly population. The short follow-up period did not allow for assessment of long-term knowledge retention. Data were self-reported, which may have introduced bias due to social desirability or recall issues.

CONCLUSION

The present study concluded that the elder patients in selected government Hospital in Puducherry had a adequate level of knowledge after the structured teaching program. This will the elders to know about how to prevent from the peripheral artery disease.

Recommendations

The study can be replicated with a larger size for wider generalization of finding. A comparative study can be conducted to assess the effectiveness of structured teaching programme and video assisted teaching programme on the peripheral artery disease. A comparative study can be conducted to find out the level of knowledge in selected government Hospital. A comparative study can be conducted between different work persons.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Tendera M, Aboyans V, Bartelink M, Baumgartner I, Clement D, Philippe J, et al. ESC Guidelines on the diagnosis and treatment of peripheral artery diseases. Eur Heart J. 2011;32(22):2851.
2. Sontheimer D. Peripheral vascular disease: diagnosis and treatment. Am Fam Phys. 2008;73(11):1972.
3. LaMendola B, Cutillo A, Price A. Peripheral arterial disease and the CKD patient: the case for early screening, diagnosis, and minimally invasive revascularization. Dial Transplant. 2010;39(11):490-4.
4. Oka R. Peripheral arterial disease in older adults: management of cardiovascular disease risk factors. J Cardiovasc Nurs. 2006;21(5S):15-20.
5. Braun SR. A guide to PAD-Peripheral Artery Disease. United States: Conrad & Associates, LLC; 2008:8-10.
6. El-Menyar A, Al Suwaidi J, Al-Thani H. Peripheral arterial disease in the Middle East: underestimated predictor of worse outcome. Glob Cardiol Sci Pract. 2013;2013(13):99-113.
7. Labrune'e M, Pathak A, Loscos C, Coudeyre E, Casillas J, Gremeaux F. Therapeutic education in cardiovascular diseases: state of the art and perspectives. Ann Phys Rehabil Med. 2012;55:322-4.
8. Wann-Hansson C, Wennick A. How do patients with peripheral arterial disease communicate their knowledge about their illness and treatments? A qualitative descriptive study. BMC Nurs. 2016;15:29.
9. İşcan HZ. Endovascular intervention in elderly patients with peripheral arterial disease. Turk J Vasc Surg. 2020;29(3):159-63.
10. Clair D, Shah SK, Weber J. Current state of diagnosis and management of critical limb ischemia. Curr Cardiol Rep. 2012;14(2):160-70.
11. Hosseini H, Ghasemi M, Sabouhi F. Effect of peer group education on the quality of life of elderly individuals with diabetes: a randomized clinical trial. Iran J Nurs Midwifery Res. 2019;24(1):44.
12. Roshandel M, Rakhshan M, Kalyani MN. The effect of using peer on self-care, quality of life, and adherence in elderly people with coronary artery disease. Sci World J. 2021;2021:1-7.
13. Colet CF, Mayorga P, Amador TA. Educational level, socio-economic status and relationship with quality of life in elderly residents of the city of Porto Alegre/RS, Brazil. Braz J Pharm Sci. 2010;46(4):805-10.
14. Paralikas T, Malliarou M, Theofanidis D, Boka C, Chatzistamatiou N, Fountouki A, et al. Physical and mental health level of the elderly living in central Greece. Mater Sociomed. 2021;33(1):16.
15. Aker EB, Vural ZT, Aker S. Knowledge, attitudes and practices of female healthcare providers regarding breast cancer. Turk J Fam Med Prim Care. 2019;13(4):532-41.

Cite this article as: Nivethitha K, Pugazhvani R. Effectiveness of structured teaching program on knowledge regarding the prevention of peripheral artery disease among elderly at selected hospital, Puducherry. Int J Community Med Public Health 2025;12:2743-7.