

A Study to Assess the Effectiveness of Virtual Video Assisted Teaching Programme on Knowledge Regarding Patient Centered Adult Cardiovascular Care and Geriatric Considerations among Nursing Students and Health Care Professionals from Selected Institutes of several states of the India

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ABSTRACT

The present study aimed to assess the effectiveness of a virtual video-assisted teaching programme on knowledge regarding patient-centered adult cardiovascular care and geriatric considerations among nursing students and healthcare professionals. A pre-experimental one-group pretest-posttest design was used. The participants were selected through purposive sampling. A structured questionnaire was administered before and after the intervention. The results revealed a significant improvement in posttest knowledge scores compared to pretest scores. The virtual teaching method proved effective in enhancing understanding of patient-centered care and age-specific cardiovascular considerations. This study highlights the importance of integrating multimedia-based education into nursing and healthcare training.

Keywords: *Virtual teaching, cardiovascular care, geriatrics, nursing education, patient-centered care, healthcare professionals, Patient-centered care (PCC)*

1. INTRODUCTION

Patient-centered care (PCC) is an essential approach in managing cardiovascular diseases (CVDs), particularly in older adults, who often have unique health challenges such as multimorbidity, frailty, and polypharmacy. PCC emphasizes individualized care that aligns with the patient's preferences, values, and goals, ensuring optimal health outcomes and quality of life. **Geriatric Considerations in Cardiovascular Care** Older adults with CVD face unique challenges that require special attention: **Multimorbidity:** Presence of two or more chronic conditions complicates treatment plans. Requires prioritization of care to focus on the most impactful conditions. **Polypharmacy:** Older adults often use multiple medications, increasing the risk of drug-drug interactions and side effects. Regular medication review and deprescribing are essential. **Frailty:** Frailty increases vulnerability to complications and poor outcomes from invasive procedures. Non-invasive or minimally invasive treatments should be considered. **Cognitive Impairment:** Cognitive decline affects understanding of treatment plans and adherence. Simplify communication and involve caregivers in care decisions. **Social and Emotional Well-being:** Address loneliness and depression, which are common in older CVD patients. Provide access to support groups and mental health resources. Patient-centered cardiovascular care for older adults requires a multidisciplinary, individualized approach that emphasizes shared decision-making, quality of life, and functional goals. By addressing geriatric considerations such as multimorbidity, polypharmacy, and frailty, healthcare providers can deliver holistic care that improves outcomes and respects patient values. This model is essential to navigating the complexities of cardiovascular disease management in an aging population.

Objectives of the Study

1. To assess the Pre-Test Knowledge Regarding Patient Centered Adult Cardiovascular Care and Geriatric Considerations among Nursing Students and Health Care Professionals from Selected Institutes of several states of the India.
2. To Assess the Effectiveness of Virtual Video Assisted Teaching Programme on Knowledge Regarding Patient Centered Adult Cardiovascular Care and Geriatric Consideration among Nursing Students and Health Care Professionals from Selected Institutes of several states of the India.

3. To find out association between Pre-test knowledge score and Post-test knowledge Regarding Patient Centered Adult Cardiovascular Care and Geriatric Consideration among Nursing Students and Health Care Professionals from Selected Institutes of several states of the India.
4. To find out the correlation between Pre-Test Knowledge score with selected demographical variables regarding Patient Centered Adult Cardiovascular Care and Geriatric Consideration among Nursing Students and Health Care Professionals from Selected Institutes of several states of the India.

2. HYPOTHESIS OF THE STUDY

H0: There will not be significant difference between Pre-test knowledge score and post -test Knowledge score regarding Patient Centered Adult Cardiovascular Care and Geriatric Considerations among Nursing Students and Health Care Professionals from Selected Institutes of several states of the India.

H1: There will be significant difference between Pre-test knowledge score and post -test Knowledge score regarding Patient Centered Adult Cardiovascular Care and Geriatric Considerations among Nursing Students and Health Care Professionals from Selected Institutes of several states of the India.

H2: There will be significant association between Pre-test knowledge Score with the selected demographic variables

Need of the study

Care is collaborative and coordinated and goes beyond physical well- being to also include emotional, social, and financial aspects of a patient's situation. Patients should always be in complete control when it comes to making decisions about their own care and treatment.

Shared decision-making is one of the foundational components of patient-centered care. Shared decision-making emphasizes a collaborative partnership among clinicians, patients, and family members, fostering a relationship built on trust, mutual respect, and effective communication and ensuring that all parties feel heard and valued.

When considering shared decision-making in CVD, health care professionals should consider ethical and practical issues related to partnership, autonomy, beneficence, capacity, and competency

Although there is no standard, agreed-on definition of patient-centered care, there is conceptual agreement about the core elements. Patient-centered care involves being respectful of the patient's beliefs, preferences, values, and expressed needs; providing information and education to empower patients to make informed decisions; integrating family and loved ones into care; considering physical comfort and emotional support; ensuring access to care; and developing an active partnership among the patient, family, and health care team.

3. REVIEW AND LITERATURE

SK Robinson et al. (2021) defined patient-centered care as care that is "respectful of and responsive to individual patient preferences, needs, and values." For cardiovascular patients, PCC involves shared decision-making, tailored interventions, and attention to psychosocial aspects alongside clinical factors. Patient-centered care (PCC) is a fundamental approach in modern healthcare that focuses on respecting and responding to individual patient preferences, needs, and values. In the context of cardiovascular diseases (CVDs) and geriatric considerations, PCC is critical for improving outcomes, ensuring adherence to treatment, and enhancing the quality of life.

Ekman, I., et al., (2012) emphasize the importance of PCC in managing chronic coronary artery disease and heart failure. Guidelines recommend individualized treatment plans that consider life expectancy, functional status, and patient preferences in older adults. The integration of patient-centered care and geriatric considerations into cardiovascular care is essential for improving outcomes and quality of life for adult and older patients.

Kim, D. H., & Rich, M. W. (2016). A patient-centered approach focuses on individualized care plans that prioritize the patient's preferences, overall prognosis, and the clinical feasibility of interventions. Older adults with cardiovascular disease and multimorbidity require tailored, patient-centered care to balance the complexity of treatment regimens and improve outcomes. A focus on shared decision-making, polypharmacy management, and individualized treatment prioritization can help clinicians navigate the challenges of multimorbidity. Ultimately, the goal is to optimize patient quality of life and functional status while minimizing harms from excessive or inappropriate interventions. Adopting this approach requires a shift toward holistic and integrated care models that address the unique needs of this vulnerable population. Multimorbidity, the presence of ≥ 2 chronic conditions, affects more than two thirds of the older population. Older adults with multimorbidity are at increased risk for mortality, disability, institutionalization, and healthcare utilization. The annual risk of hospital admission rises exponentially from 4% for those with 0 or 1 condition to 63% for those with ≥ 6 conditions; the latter group accounts for over 50% of total hospital and post-acute care costs and 70% of readmissions. Furthermore, almost half of readmissions after heart failure or myocardial infarction are due to non-cardiovascular conditions. While cardiovascular diseases (CVD) are common components of multimorbidity, the presence of multimorbidity affects management of CVD.

As such, optimal management of CVD cannot be accomplished without consideration of multimorbidity. In this review, we provide guidance to cardiologists and general practitioners about evaluation and management of older adults with CVD and multimorbidity.

Goldfarb, M. J., et al. (2024) Patient-centered care is gaining widespread acceptance by the medical and lay communities and is increasingly recognized as a goal of high-quality health care delivery. Patient-centered care is based on ethical principles and aims at establishing a partnership between the health care team and patient, family member, or both in the care planning and decision-making process. Patient-centered care involves providing respectful care by tailoring management decisions to patients' beliefs, preferences, and values. a collaborative care approach can enhance patient engagement, foster shared decision-making that aligns with patient values and goals, promote more personalized and effective cardiovascular care, and potentially improve patient outcomes. the objective of this scientific statement is to inform health care professionals and stakeholders about the role and impact of patient-centered care in adult cardiovascular medicine. This scientific statement describes the background and rationale for patient-centered care in cardiovascular medicine, provides insight into patient-oriented medication management and patient-reported outcome measures, highlights opportunities and strategies to overcome challenges in patient-centered care, and outlines knowledge gaps and future directions.

Goldwater, D., & Wenger, N. K. (2023). Geriatric cardiology involves providing cardiovascular care to older adults in relation to aging. Although cardiovascular diseases are the most common diseases faced by older adults, they often co-occur with numerous aging-related challenges, such as multimorbidity, frailty, polypharmacy, falls, functional and cognitive impairment, which present challenges to implementing standard disease-based treatment strategies, by the year 2050 more than 80 million Americans will be 65 years of age or older. Although cardiovascular diseases are the most common chronic conditions in the older adult population, they rarely occur in isolation. The majority of older adults have multimorbidity, which is the presence of two or more chronic medical conditions, with close to 20% dealing with six or more chronic medical conditions simultaneously. Historically, disease-specific guidelines provide treatment recommendations for individual diseases without consideration for how those recommendations impact the severity or treatment of other co-occurring conditions.

4. METHODOLOGY

Study Design: A quasi-experimental pre-test and post-test design was used.

Population and Sample:

- Nursing students and healthcare professionals from selected institutes of several states of the India.
- Sample Size: Determined using Google forms approx 550 candidates joining by virtual platform.
- Sampling Technique: Stratified random sampling to include representation from nursing students, nursing faculties, PhD Scholar, Doctors, and allied healthcare professionals.

Inclusion Criteria

- Nursing students in their final year and healthcare professionals actively involved in adult cardiovascular care.
- Participants willing to give informed consent.
- Access to internet-enabled devices for the virtual programme.
- Participants who can read and write English

Exclusion Criteria

- Participants who have completed recent formal training in cardiovascular care.
- Those unable to attend the entire teaching programme.

Tools for Data Collection

1. **Knowledge Assessment Tool:** A structured questionnaire Google forms covering patient-centered care, cardiovascular disease management, and geriatric considerations.
2. **Programme Feedback Form:** A Google forms based tool to evaluate participants' satisfaction with the teaching programme.

Table 1: Distribution of participants according to age (N=550)

Age	Number	Percentage (%)
20-25 years	485	88.2
26-30 years	38	6.9
31-35 years	17	3.1
36-40 years	10	1.8
Total	550	100.0

The above table shows the distribution of participants according to age.

485 (88.2%) participants were in the age group of 20-25 years; 38 (6.9%) were in the age group of 26-30 years; 17 (3.1%) were in the age group of 31-35 years; and 10 (1.8%) were in the age group of 36-40 years.. Most of the participants were in the age group of 20-25 years.

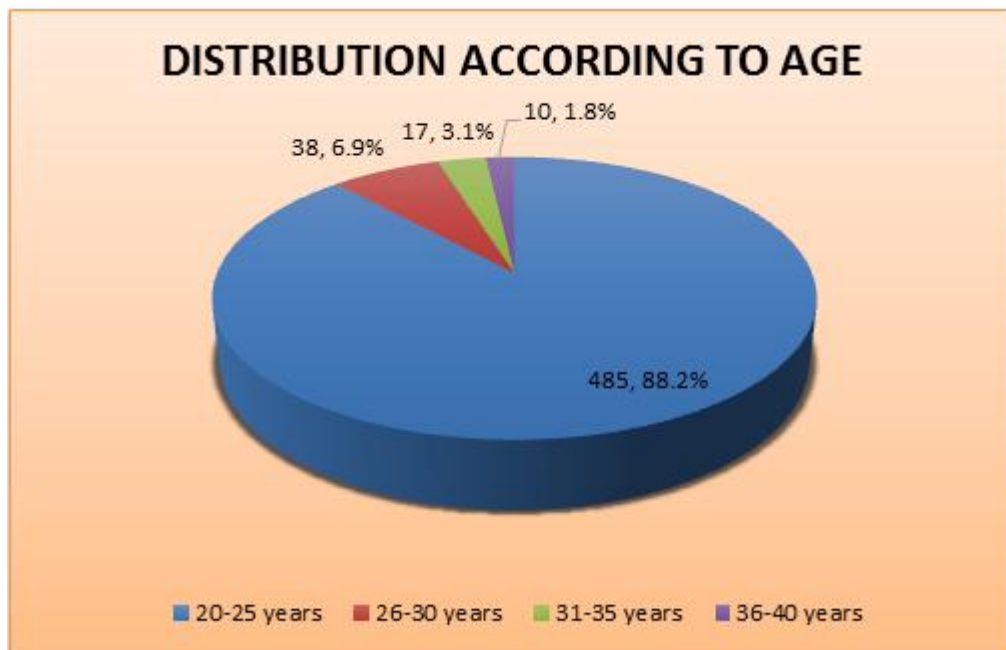


Figure 1: The pie diagram shows the distribution according to age

Table 1: Distribution of participants according to gender (N=550)

Gender	Number	Percentage (%)
Female	446	81.1
Male	104	18.9
Total	550	100.0

The above table shows the distribution of participants according to gender.

104 (18.9%) participants were males; and 446 (81.1%) were females. There was a female preponderance.

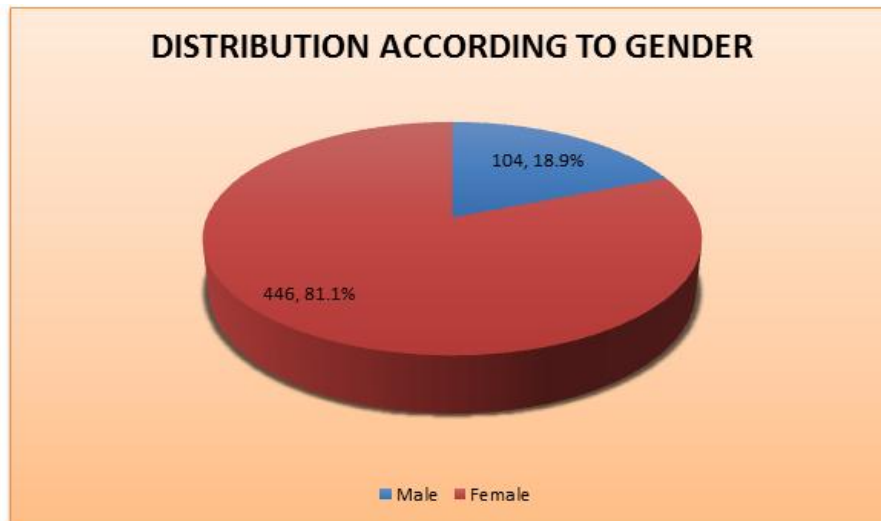


Figure 2: The pie diagram shows the distribution according to gender

Table 2: Distribution of participants according to educational qualification (N=550)

Educational qualification	Number	Percentage (%)
GNM Nursing	25	4.5
B.Sc. Nursing	478	86.9
P.B.B.Sc. Nursing	0	0.0
M.Sc. Nursing	39	7.1
Ph.D. Nursing	8	1.5
Total	550	100.0

The above table shows the distribution of participants according to educational qualification.

25 (4.5%) participants had don their GNM Nursing; 478 (86.9%) had done their B.Sc. Nursing; 39 (7.1%) had done their M.Sc. Nursing; and 8 (1.5%) had done their Ph.D. Nursing.

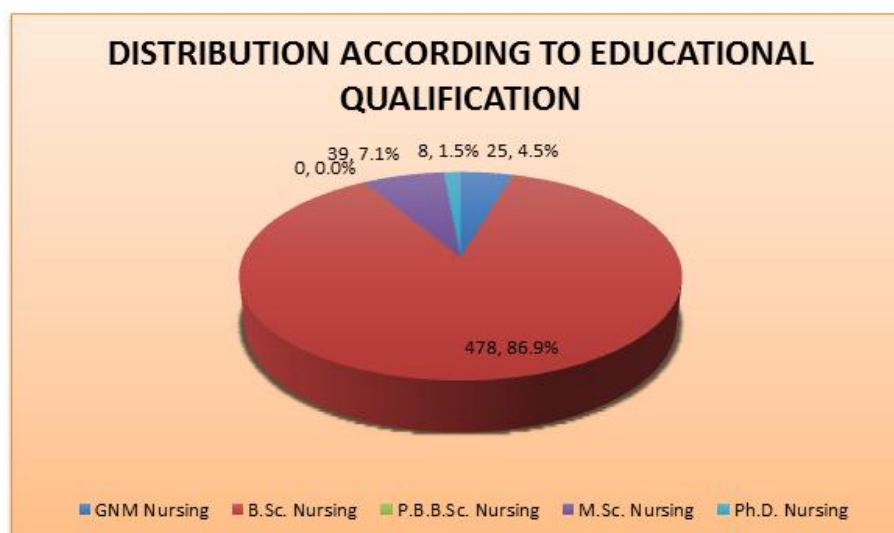


Figure 3: The pie diagram shows the distribution according to educational qualification

Table 3: Distribution of participants according to work place (N=550)

Work place	Number	Percentage (%)
Community field	0	0.0
Educational institution	539	98.0
Hospital	11	2.0
Total	550	100.0

The above table shows the distribution of participants according to work place.

539 (98%) participants were working in an educational institution; while only 11 (2%) were working in a hospital.

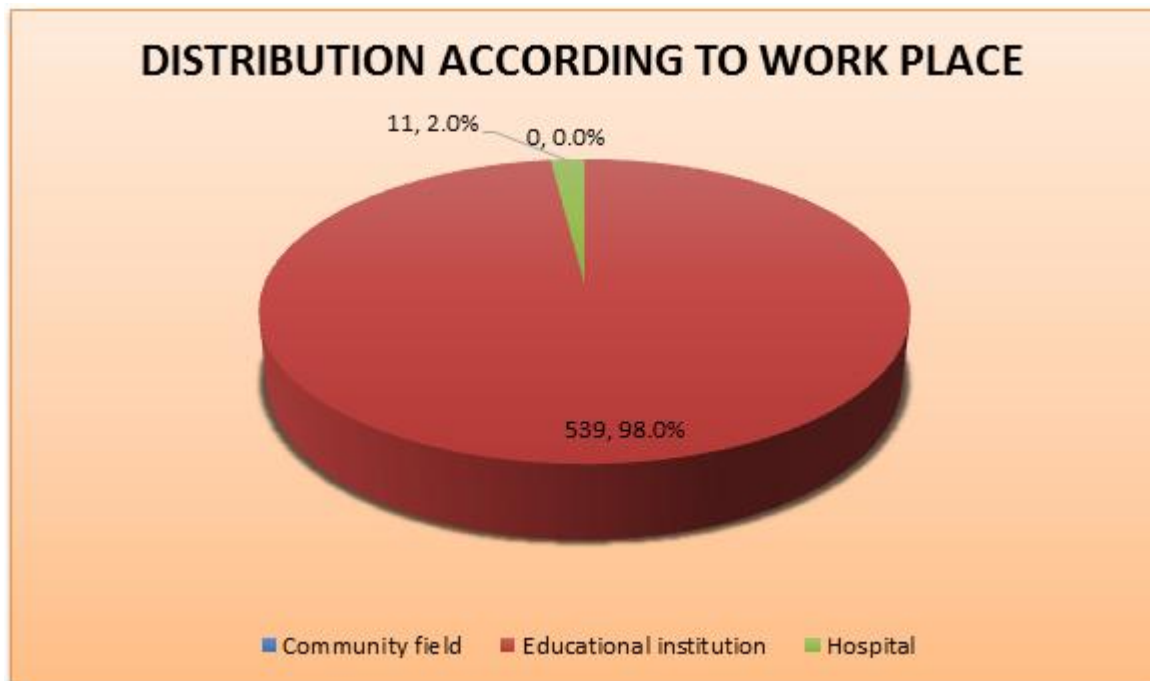


Figure 4: The pie diagram shows the distribution according to work place

Table 4: Distribution of participants according to region (N=550)

Region	Number	Percentage (%)
Madhya Pradesh	482	87.6
Chattisgarh	3	0.5
Gujarat	35	6.4
Manipur	-	-
West Bengal	-	-
Maharashtra	6	1.1
Rajasthan	8	1.5
Uttar Pradesh	5	0.9
Assam	2	0.4
Karnataka	6	1.1

Delhi	3	0.5
Bihar	-	-
Total	550	100.0

The above table shows the distribution of participants according to region.

The majority of participants (87.6%) were from Madhya Pradesh, accounting for 482 individuals. Other regions such as Gujarat, Maharashtra, Rajasthan, and Karnataka had comparatively fewer participants, with 35, 6, 8, and 6 participants respectively, representing percentages of 6.4%, 1.1%, 1.5%, and 1.1%. Smaller regions like Chhattisgarh and Delhi had 3 participants each, making up 0.5% of the total. Some regions, including Manipur, West Bengal, and Bihar, had no recorded participants. This distribution revealed a clear concentration of participants from Madhya Pradesh, with other regions contributing minimally.

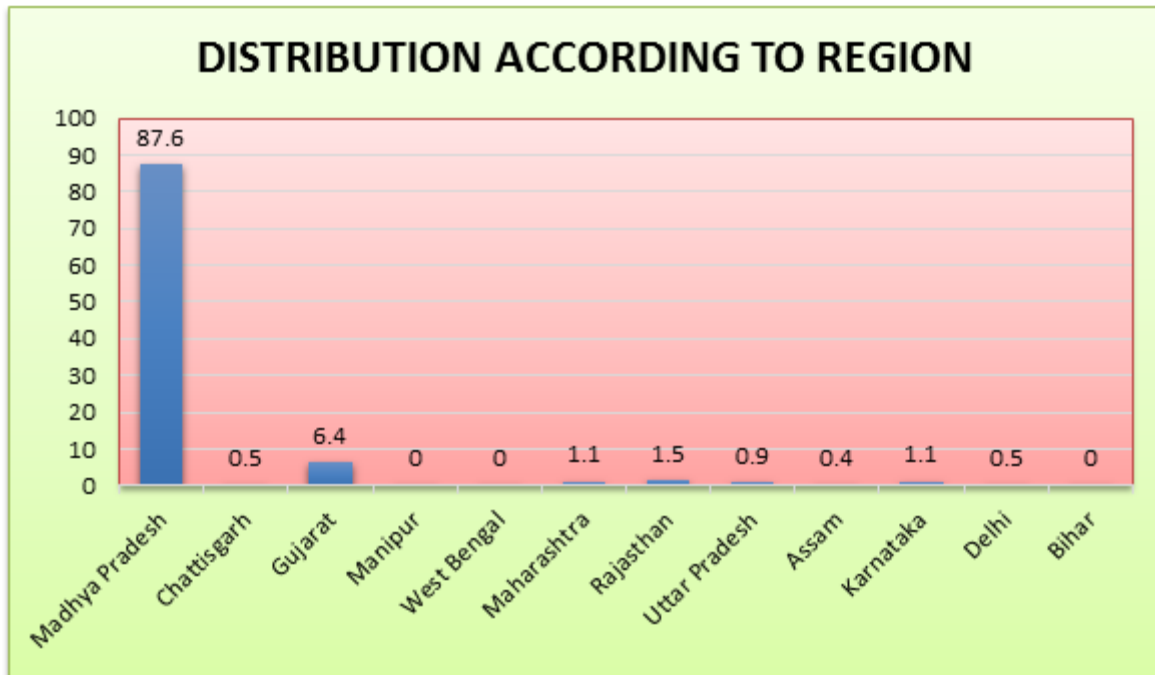


Figure 5: The bar diagram shows the distribution according to region

Table 5: Distribution of participants according to designation (N=550)

Designation	Number	Percentage (%)
Student	521	94.7
Tutor	3	0.5
Assistant Professor	8	1.5
Associate Professor	11	2.0
Professor	3	0.5
Staff Nurses	4	0.7
Total	550	100.0

The above table shows the distribution of participants according to designation.

521 (94.7%) participants were students; 3 (0.5%) were tutors; 8 (1.5%) were assistant professors; 11 (2%) were associate professors; 3 (0.5%) were professors; and 4 (0.7%) were staff nurses. Most of the participants were students.

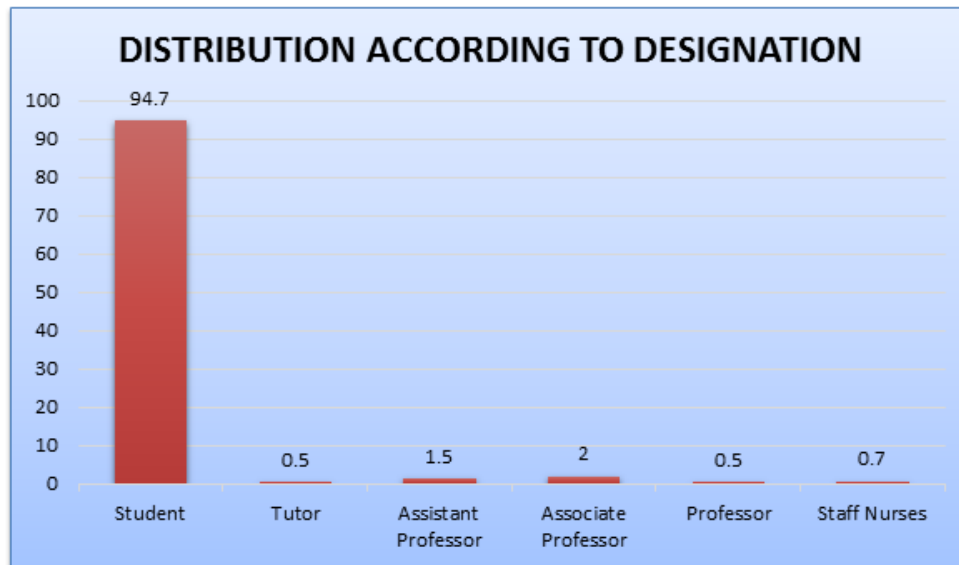


Figure 6: The bar diagram shows the distribution according to designation

Table 6: Distribution of participants according to use of electronic media in virtual platform (N=550)

Use of electronic media in virtual platform	Number	Percentage (%)
Phone	407	74.0
Laptop	13	2.4
Desktop computer	3	0.5
Tablet	4	0.7
LCD projector with screen	123	22.4
Total	550	100.0

The above table shows the distribution of participants according to use of electronic media in virtual platform.

407 (74%) participants used mobile phone; 13 (2.4%) used laptop; 3 (0.5%) used desktop computers; 4 (0.7%) used tablet; and 123 (22.4%) used LCD projector with screen. Most of the participants used phone or LCD projector with screen.

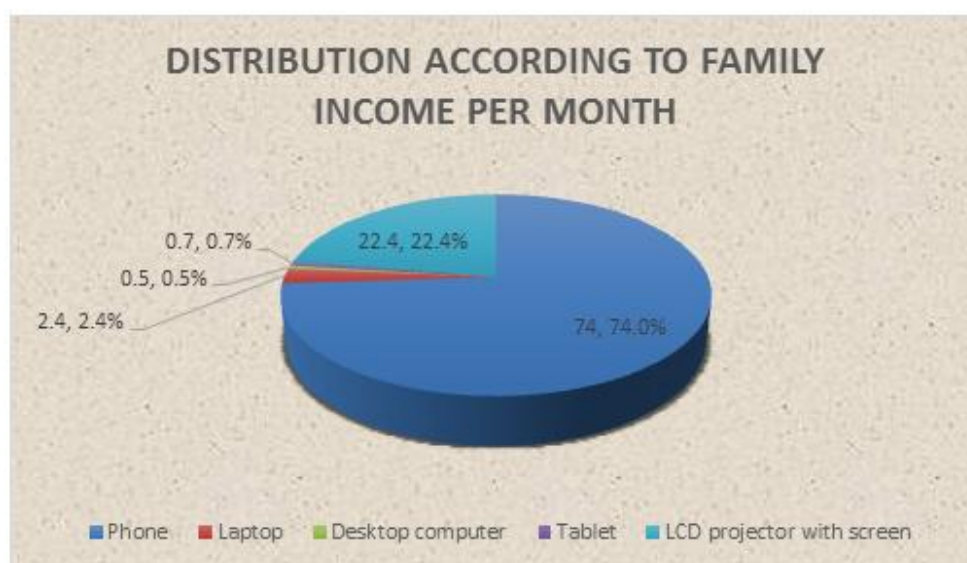


Figure 7: The pie diagram shows the distribution according to use of electronic media in virtual platform

Table 7: Distribution of participants according to internet facility (N=550)

Internet facility	Number	Percentage (%)
Available	465	84.5
Not available	85	15.5
Total	550	100.0

The above table shows the distribution of participants according to internet facility.

Internet facility was available to 465 (84.5%) participants; while it was not available to 85 (15.5%) participants.

Most of the participants had internet facilities.

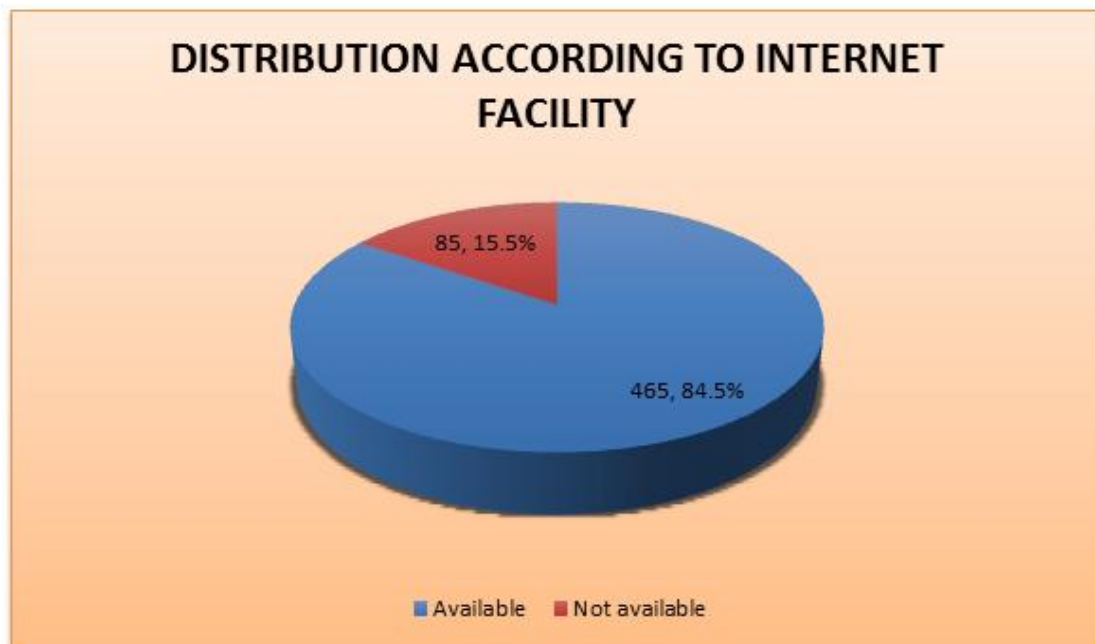


Figure 8: The pie diagram shows the distribution according to internet facility

Table 9: Comparison of pre-test and post-test knowledge grade (N=550)

Knowledge Grade	Pre-test		Post-test	
	Number	Percentage (%)	Number	Percentage (%)
Poor	0	0.0	0	0.0
Fair	494	89.8	2	0.4
Good	56	10.2	23	4.2
Excellent	0	0.0	525	95.5
Total	550	100.0	550	100.0

The above table shows the comparison of pre-test and post-test knowledge grade.

In the pre-test, 494 (89.8%) participants obtained a fair knowledge grade, while 56 (10.2%) obtained a good knowledge grade.

In the post-test, 2 (0.4%) participants obtained a fair knowledge grade, 23 (4.2%) obtained a good knowledge grade, and 525 (95.5%) obtained an excellent knowledge grade.

There was an improvement in the knowledge grade of the participants after the intervention. Thus, the intervention was helpful in improving the knowledge of the participants.

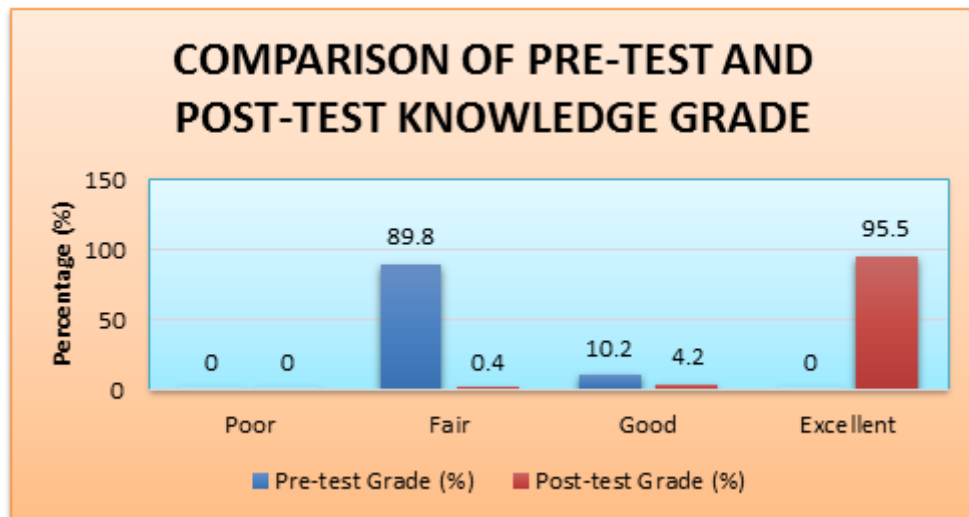


Figure 9: The bar diagram shows the comparison of pre-test and post-test knowledge grade

Table 10: Comparison of mean pre-test and post-test scores (N=550)

Pre-/Post-test	Number	Knowledge Score [Mean \pm SD]	't' value, df	P value
Pre-test	550	8.39 \pm 1.32	-124.240, df=549	0.001*
Post-test	550	17.29 \pm 1.11		

Paired 't' test applied. P value = 0.001, Highly significant

The above table shows the comparison of mean pre-test and post-test scores

The mean pre-test score was 8.39 ± 1.32 , while the mean post-test knowledge score was 17.29 ± 1.11 . There was a significant improvement in the knowledge score after the intervention ($P=0.001$).

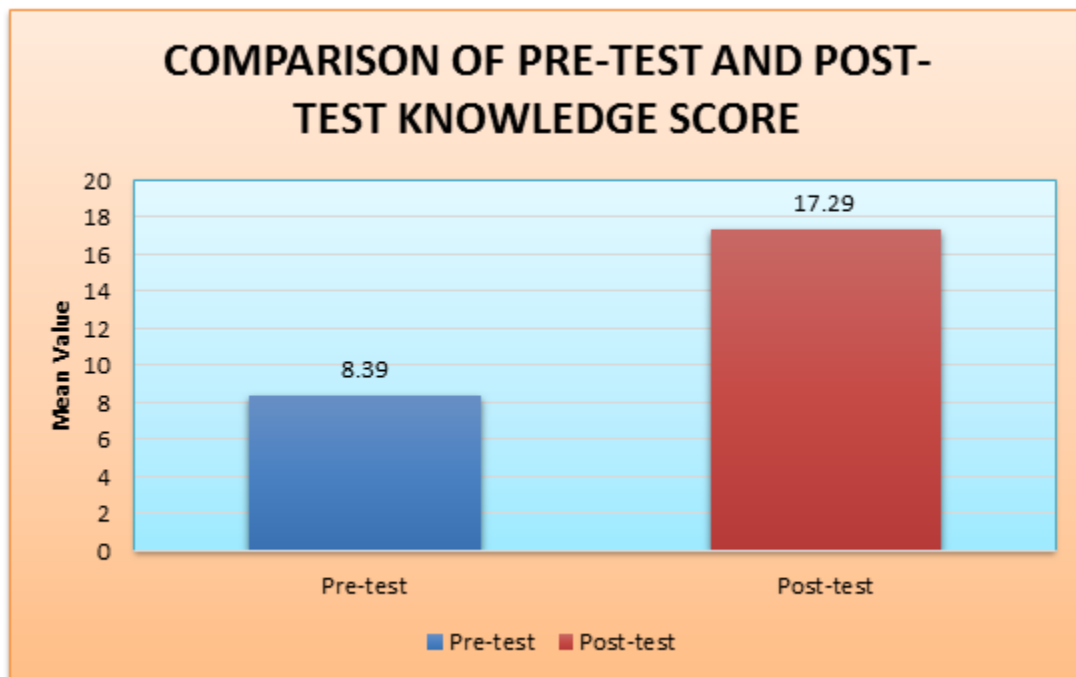


Figure 10: The bar diagram shows the comparison of pre-test and post-test knowledge grade

Table 11: Association between age and the pre-test knowledge grade (N=550)

Age	Pre-test Knowledge Grade				Total	Chi-square value, df	P value
	Poor	Fair	Good	Excellent			
20-25 years	0	435	50	0	485	1.854, df=3	0.603, NS
26-30 years	0	33	5	0	38		
31-35 years	0	16	1	0	17		
36-40 years	0	10	0	0	10		
Total	0	594	56	0	550		

Chi-square test applied. P value=0.603, Not significant

The above table shows the association between age and the pre-test knowledge grade.

There was no significant association seen between age and the pre-test knowledge grade ($P=0.603$), showing that the pre-test knowledge grades are independent of the age of the participants.

Table 8: Association between gender and the pre-test knowledge grade (N=550)

Gender	Pre-test Knowledge Grade				Total	Chi-square value, df	P value
	Poor	Fair	Good	Excellent			
Female	0	402	44	0	446	0.258, df=1	0.611, NS
Male	0	92	12	0	104		
Total	0	594	56	0	550		

Chi-square test applied. P value=0.611, Not significant

The above table shows the association between gender and the pre-test knowledge grade.

There was no significant association seen between gender and the pre-test knowledge grade ($P=0.611$), showing that the pre-test knowledge grades are independent of the gender of the participants.

Table 13: Association between educational qualification and the pre-test knowledge grade (N=550)

Educational qualification	Pre-test Knowledge Grade				Total	Chi-square value, df	P value
	Poor	Fair	Good	Excellent			
GNM Nursing	0	23	2	0	25	0.482, df=3	0.923, NS
B.Sc. Nursing	0	428	50	0	478		

P.B.B.Sc. Nursing	0	0	0	0	0		
M.Sc. Nursing	0	36	3	0	39		
Ph.D. Nursing	0	7	1	0	8		
Total	0	594	56	0	550		

Chi-square test applied. P value=0.923, Not significant

The above table shows the association between educational qualification and the pre-test knowledge grade. There was no significant association seen between educational qualification and the pre-test knowledge grade ($P=0.923$), showing that the pre-test knowledge grades are independent of the educational qualification of the participants.

Table 14: Association between work place and the pre-test knowledge grade (N=550)

Work place	Pre-test Knowledge Grade				Total	Chi-square value, df	P value
	Poor	Fair	Good	Excellent			
Community field	0	0	0	0	0	0.786, df=1	0.375, NS
Educational institution	0	485	54	0	539		
Hospital	0	9	2	0	11		
Total	0	594	56	0	550		

Chi-square test applied. P value=0.375, Not significant

The above table shows the association between work place and the pre-test knowledge grade. There was no significant association seen between work place and the pre-test knowledge grade ($P=0.375$), showing that the pre-test knowledge grades are independent of the work place of the participants.

Table 15: Association between region and the pre-test knowledge grade (N=550)

Region	Pre-test Knowledge Grade				Total	Chi-square value, df	P value
	Poor	Fair	Good	Excellent			
Madhya Pradesh	0	432	50	0	482	4.365, df=8	0.823, NS
Chattisgarh	0	3	0	0	3		
Gujarat	0	30	5	0	35		
Manipur	0	0	0	0	0		
West Bengal	0	0	0	0	0		
Maharashtra	0	6	0	0	6		
Rajasthan	0	8	0	0	8		
Uttar Pradesh	0	4	1	0	5		
Assam	0	2	0	0	2		

Karnataka	0	6	0	0	6		
Delhi	0	3	0	0	3		
Bihar	0	0	0	0	0		
Total	0	594	56	0	550		

Chi-square test applied. P value=0.823, Not significant

The above table shows the association between region and the pre-test knowledge grade.

There was no significant association seen between region and the pre-test knowledge grade (P=0.823), showing that the pre-test knowledge grades are independent of the region of the participants.

Table 16: Association between designation and the pre-test knowledge grade (N=550)

Designation	Pre-test Knowledge Grade				Total	Chi-square value, df	P value
	Poor	Fair	Good	Excellent			
Student	0	468	53	0	521	3.317, df=5	0.651, NS
Tutor	0	3	0	0	3		
Assistant Professor	0	8	0	0	8		
Associate Professor	0	9	2	0	11		
Professor	0	3	0	0	3		
Staff Nurses	0	3	1	0	4		
Total	0	594	56	0	550		

Chi-square test applied. P value=0.651, Not significant

The above table shows the association between designation and the pre-test knowledge grade.

There was no significant association seen between designation and the pre-test knowledge grade (P=0.651), showing that the pre-test knowledge grades are independent of the designation of the participants.

Table 17: Association between use of electronic media in virtual platform and the pre-test knowledge grade (N=550)

Use of electronic media in virtual platform	Pre-test Knowledge Grade				Total	Chi-square value, df	P value
	Poor	Fair	Good	Excellent			
Phone	0	366	41	0	407	2.325, df=4	0.676, NS
Laptop	0	12	1	0	13		
Desktop computer	0	2	1	0	3		
Tablet	0	4	0	0	4		
LCD projector with screen	0	110	13	0	123		
Total	0	594	56	0	550		

Chi-square test applied. P value=0.676, Not significant

The above table shows the association between use of electronic media in virtual platform and the pre-test knowledge grade.

There was no significant association seen between use of electronic media in virtual platform and the pre-test knowledge grade ($P=0.676$), showing that the pre-test knowledge grades are independent of the use of electronic media in virtual platform of the participants.

Table 18: Association between internet facility and the pre-test knowledge grade (N=550)

Internet facility	Pre-test Knowledge Grade				Total	Chi-square value, df	P value
	Poor	Fair	Good	Excellent			
Available	0	418	47	0	465	0.018, df=1	0.893, NS
Not available	0	76	9	0	85		
Total	0	594	56	0	550		

Chi-square test applied. P value=0.893, Not significant

The above table shows the association between internet facility and the pre-test knowledge grade.

There was no significant association seen between internet facility and the pre-test knowledge grade ($P=0.893$), showing that the pre-test knowledge grades are independent of the internet facility of the participants.

5. STATISTICAL ANALYSIS PLAN

The data were analyzed using IBM SPSS Statistical Software, Version 22. Descriptive statistics were presented as numbers and percentages. A Paired t-test was used to compare means, while the Pearson Chi-square test was applied to assess the association between two categorical variables. A p-value of less than 0.05 was considered statistically significant.

Limitations

- Reliance on self-reported knowledge may introduce bias.
- Limited generalizability due to the focus on selected institutes.
- Internet connectivity issues may affect participation.

6. CONCLUSION

This study was aimed to assess the impact of virtual video-assisted teaching programmes to enhance the knowledge and competencies of nursing students and healthcare professionals in delivering patient-centered cardiovascular care, particularly for geriatric populations. Providing effective patient-centered care for older adults with cardiovascular disease (CVD) requires a comprehensive, interdisciplinary approach that focuses on understanding the patient's individual goals, values, and preferences. The care plan has to develop collaboratively through shared decision-making, ensuring treatments align with what matters most to the patient. Patient-centered care for older adults with CVD requires tailoring treatments to individual goals and prioritizing quality of life. Through shared decision-making, functional assessments, and interdisciplinary collaboration, healthcare providers can deliver care that not only addresses cardiovascular health but also promotes holistic well-being for this vulnerable population.

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