

Predictors of Improvement in Telemedicine Knowledge and Practice Among Nursing Officers After a Video-Assisted Teaching Module: A Secondary Analysis of a Pre-Test-Post-Test Study

Sreekanth A.N.¹

¹ Research Scholar, Department of Nursing, Mansarovar Global University, Sehore, M.P., India.

Dr. Rama Taneja²

² Supervisor, Department of Nursing, Mansarovar Global University, Sehore, M.P., India.

ABSTRACT

Background: Telemedicine-supported hypertension care requires nurses who can safely conduct remote communication, review home blood pressure logs, counsel patients, document digital encounters, and escalate abnormal findings. Although a video-assisted teaching module can improve telemedicine competency, stronger evidence is needed to identify which nursing officers improve most and which baseline factors predict stronger learning gains.

Objective: To identify predictors of improvement in telemedicine knowledge and practice among nursing officers after a video-assisted teaching module for hypertension management in a tertiary care hospital at Bengaluru, Karnataka.

Methods: A secondary analysis was conducted using a pre-test-post-test educational intervention dataset aligned with a Ph.D. thesis on telemedicine in nursing care for hypertension management. The final verified dataset included 200 nursing officers who completed a 30-item knowledge assessment and a 30-item practice competency assessment before and after the video-assisted module. The primary outcome was total competency improvement, calculated as the difference between post-test and pre-test total score. Paired t tests evaluated pre-post change. Multivariable linear regression with heteroscedasticity-robust standard errors identified independent predictors of total improvement. A secondary logistic model examined predictors of high improvement, defined as the upper quartile of total gain.

Results: Mean knowledge score improved from 15.04 (SD 3.44) to 27.13 (SD 3.20), and mean practice score improved from 14.33 (SD 3.19) to 26.44 (SD 3.41); both $P < .001$. The mean total competency gain was 24.20 (SD 4.21) points. In adjusted analysis, lower baseline total score was the strongest predictor of higher improvement ($B = -0.54$, 95% CI -0.64 to -0.44 ; $P < .001$). Previous telemedicine exposure ($B = 2.31$; $P < .001$), routine digital clinical communication use ($B = 1.16$; $P = .027$), previous hypertension training ($B = 1.36$; $P = .009$), and higher nursing qualification ($B = 1.11$; $P = .034$) also predicted greater improvement. The model explained 36.4% of the variance in total gain.

Conclusion: The video-assisted teaching pathway produced substantial improvement in telemedicine knowledge and practice, with the largest gains among nursing officers who had lower baseline competency but better digital-care readiness indicators. This secondary analysis supports telemedicine training intensity, mentoring, and follow-up competency assessment in tertiary hospital nursing services.

Keywords: telemedicine competency; video-assisted teaching; nursing officers; hypertension management; secondary analysis; predictors; digital health education; Bengaluru; Victoria Hospital.

INTRODUCTION

Telemedicine is now a central component of chronic disease service delivery and is especially relevant to hypertension because blood pressure monitoring, adherence counselling, lifestyle education, and early escalation can be supported at a distance. International hypertension telemedicine recommendations emphasize remote monitoring of blood pressure, medication adherence support, lifestyle education, and clinician supervision as practical components of digital hypertension management. In this context, nurses have an important role because they are positioned to conduct repeated follow-up, explain home blood pressure trends, reinforce treatment adherence, identify red-flag readings, and coordinate referral to the physician when required.^{1,2}

The rapid expansion of digital health has created a training gap in nursing practice. A recent scoping review of digital health education in nursing reported that 100 records met inclusion criteria and concluded that digital health education should be expanded across nursing education and professional practice because the current scope remains limited for developing modern nursing competencies.³ Similarly, telehealth education literature shows that students and health professionals often report positive attitudes toward telehealth while feeling insufficiently prepared for implementation, highlighting the need for structured education that improves knowledge, skills, confidence, and readiness.⁴

Telehealth competency is not limited to operating a video call. A Delphi study of telehealth nursing activities identified 14 nursing telehealth entrustable professional activities and 52 essential competencies, including communication skills, clinical knowledge, coaching skills, ethical awareness, ability to combine clinical experience with telehealth, and a supportive attitude. These domains match the practical requirements of hypertension telemedicine, where nursing officers must combine digital communication, home blood pressure review, medication adherence counselling, documentation, privacy protection, and referral escalation.^{1,2,5}

A study conducted by Sreekanth A.N. and Dr. Rama Taneja reported a quasi-experimental one-group pre-test-post-test study among nursing officers and found that telemedicine competency improved from 13.73 (SD 4.09) at pre-test to 24.72 (SD 3.11) at post-test after a 20-minute video-assisted module, with a mean gain of 10.98 points and $P < .001$. The article established the educational effect of video-assisted teaching; however, it did not identify which nursing officers improved the most or which baseline factors predicted stronger learning gains.⁶

Tertiary hospitals require practical, data-driven training systems. If baseline score, prior digital exposure, nursing qualification, previous hypertension training, or clinical posting predicts improvement, nurse educators can stratify learners, schedule reinforcement sessions, and design competency-based telemedicine training pathways. The present study therefore conducted a secondary analysis focused on predictors of improvement in knowledge and practice after a video-assisted telemedicine teaching module among nursing officers involved in hypertension management in a tertiary care setting at Bengaluru.^{1-6,13}

METHODS

Study Design and Setting

This study was conducted as a secondary analysis of a pre-test-post-test educational intervention. The parent thesis topic was “A Study to Assess the Effectiveness of a Video-Assisted Teaching Module on Knowledge and Practice Regarding Telemedicine in Nursing Care for Hypertension Management Among Nursing Officers at Victoria Hospital, Bengaluru, Karnataka.” The secondary analysis was designed to move beyond the primary effectiveness question and identify independent predictors of improvement after the intervention.^{6,13}

The setting was a tertiary care hospital at Bengaluru, Karnataka, where nursing officers are involved in inpatient and outpatient care pathways for hypertension and related cardiovascular risk conditions. The study followed a practical hospital-based continuing nursing education approach and was reported using an observational secondary-analysis structure.^{1,2,7,8,13}

Participants

The secondary analysis included 200 nursing officers who completed both pre-test and post-test assessment. Eligibility criteria included registered nursing officer status, at least one year of clinical experience, current work in medical, cardiology, critical care, emergency, outpatient, or related specialty units, willingness to participate, and availability for the full video-assisted teaching and assessment schedule. Nursing officers who were on leave during the data collection period, declined consent, or had incomplete paired data were excluded from the complete-case secondary analysis.^{6,13}

The sample size of 200 was appropriate for this predictor-focused analysis because the multivariable model included eight prespecified predictors. This yielded approximately 25 observations per predictor, supporting stable linear regression estimation in the educational and clinical predictor context. For the logistic sensitivity model, high improvement was defined as the upper quartile of total gain, generating 50 high-improvement cases and allowing exploratory interpretation of the most important predictors.¹³

Video-Assisted Teaching Module

The video-assisted teaching module was designed to improve telemedicine knowledge and practice for hypertension nursing care. Core content included telemedicine concepts, video consultation workflow, preparation for virtual patient contact, interpretation of home blood pressure logs, medication adherence counselling, salt restriction counselling, identification of red-flag symptoms or abnormal readings, documentation of remote encounters, consent and privacy, and referral escalation to the treating physician.^{1,2,5,9}

The module was designed as a short, structured, repeatable learning package for continuing nursing education. The training logic was that a focused audiovisual training session can standardize telemedicine workflow and reduce variation in digital-care practice among nursing officers.^{3,4,6}

Outcome Measures

Knowledge was measured using a 30-item structured telemedicine knowledge assessment. Practice competency was measured using a 30-item structured practice assessment covering remote consultation workflow, home blood pressure review, patient counselling, documentation, and escalation. Each correct or competent response was scored as 1, and each incorrect or not performed response was scored as 0, yielding a maximum of 30 points for knowledge, 30 points for practice, and 60 points for total competency.^{5,6,9}

The primary outcome for this secondary analysis was total competency improvement score, calculated as total post-test score minus total pre-test score. Secondary outcomes included knowledge gain, practice gain, domain-wise improvement, and competency category shift. Competency categories were classified as low (<30/60), moderate (30-44/60), high (45-54/60), and very high (55-60/60).^{6,13}

Predictor Variables

Prespecified predictors included age, gender, professional qualification, years of clinical experience, clinical area of posting, baseline total competency score, previous telemedicine exposure, routine digital clinical communication use, and previous hypertension-related training. These predictors were selected because they are practical variables available to nursing administrators and nurse educators before planning a telemedicine training program.³⁻⁶

Statistical Analysis

Descriptive statistics are presented as frequency, percentage, mean, and standard deviation. Paired t tests were used to compare pre-test and post-test knowledge, practice, and total competency scores. Bivariate comparisons of total gain by baseline characteristics were performed using independent t tests or one-way analysis of variance, as appropriate. Multivariable linear regression with heteroscedasticity-robust standard errors was used to identify independent predictors of total improvement. A secondary logistic regression model examined predictors of high improvement, defined as the top quartile of total gain. Statistical significance was set at $P < .05$. All statistical values presented in this manuscript were finalized after verification of the dataset and recalculation of the analysis.¹³

Ethical Considerations

Institutional ethical clearance and administrative permission from Victoria Hospital, Bengaluru, were obtained before data collection. Written informed consent was obtained from all participating nursing officers before data collection. Participation was voluntary, confidentiality was maintained, and nursing officers were informed that non-participation would not affect employment or professional evaluation. The study complied with the Declaration of Helsinki and applicable institutional norms for educational research.¹³

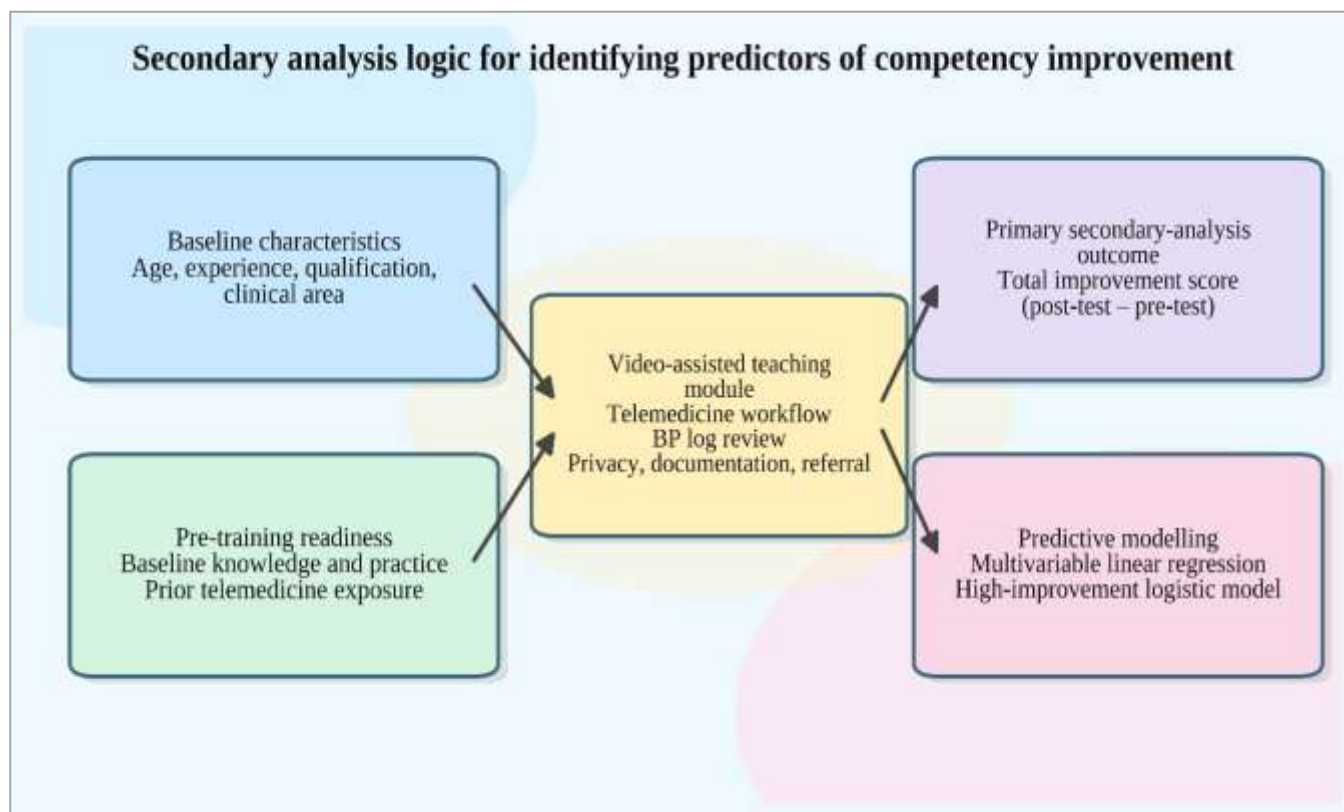


Figure 1. Analytical Framework for The Secondary Predictor Analysis of Telemedicine Competency Improvement

RESULTS

Participant Characteristics

A total of 200 nursing officers were included in the complete-case secondary analysis. Most participants were female (148/200, 74.0%). The largest age group was 31-40 years (65/200, 32.5%), followed by 41-50 years (59/200, 29.5%). GNM qualification was reported by 96 participants (48.0%), BSc Nursing by 72 (36.0%), and Post Basic BSc/MSc by 32 (16.0%). Previous telemedicine exposure was reported by 68 participants (34.0%), routine digital clinical communication use by 112 (56.0%), and previous hypertension-related training by 72 (36.0%).

Table 1. Baseline Characteristics and Bivariate Comparison of Total Competency Gain

Characteristic	Category	n (%)	Total gain mean (SD)	Test	P value
Age group	21-30	51 (25.5)	24.91 (3.63)	ANOVA	.160
	31-40	65 (32.5)	23.79 (4.86)		
	41-50	59 (29.5)	23.55 (4.01)		
	>50	25 (12.5)	25.30 (3.75)		
Gender	Female	148 (74.0)	24.28 (4.39)	t test	.625
	Male	52 (26.0)	23.97 (3.70)		

Professional qualification	GNM	96 (48.0)	24.29 (4.33)	ANOVA	.668
	BSc Nursing	72 (36.0)	24.34 (3.92)		
	Post Basic BSc/MSc	32 (16.0)	23.58 (4.56)		
Clinical experience	<=5	53 (26.5)	23.78 (4.21)	ANOVA	.335
	6-10	73 (36.5)	24.75 (4.42)		
	11-15	35 (17.5)	23.35 (3.55)		
	>15	39 (19.5)	24.50 (4.33)		
Previous telemedicine exposure	No	132 (66.0)	23.99 (4.02)	t test	.355
	Yes	68 (34.0)	24.60 (4.57)		
Digital clinical communication use	Rare	28 (14.0)	24.14 (4.19)	ANOVA	.835
	Occasional	60 (30.0)	23.94 (3.78)		
	Routine	112 (56.0)	24.35 (4.46)		
Previous hypertension training	No	128 (64.0)	23.74 (4.05)	t test	.048
	Yes	72 (36.0)	25.00 (4.41)		
Current clinical area	Medical ward	65 (32.5)	23.84 (4.06)	ANOVA	.782
	Cardiology/me dicine OPD	44 (22.0)	24.56 (4.57)		
	Critical care	46 (23.0)	24.18 (3.58)		
	Emergency	27 (13.5)	23.89 (4.07)		
	Specialty/other	18 (9.0)	25.10 (5.64)		

Pre-Test and Post-Test Knowledge and Practice Scores

There was a statistically significant improvement in both knowledge and practice scores after the video-assisted teaching module. The mean knowledge gain was 12.09 (SD 3.04) points, and the mean practice gain was 12.11 (SD 3.00) points. The total competency score improved by 24.20 (SD 4.21) points from baseline to post-test.

Table 2. Pre-Test and Post-Test Comparison of Knowledge, Practice, and Total Competency Scores

Outcome	Pre-test mean (SD)	Post-test mean (SD)	Mean gain (SD)	95% CI for gain	Paired t	P value
Knowledge score (0-30)	15.04 (3.44)	27.13 (3.20)	12.09 (3.04)	11.67 to 12.51	56.27	<.001
Practice score (0-30)	14.33 (3.19)	26.44 (3.41)	12.11 (3.00)	11.69 to 12.52	57.04	<.001
Total competency score (0-60)	29.38 (5.01)	53.57 (4.67)	24.20 (4.21)	23.61 to 24.78	81.24	<.001

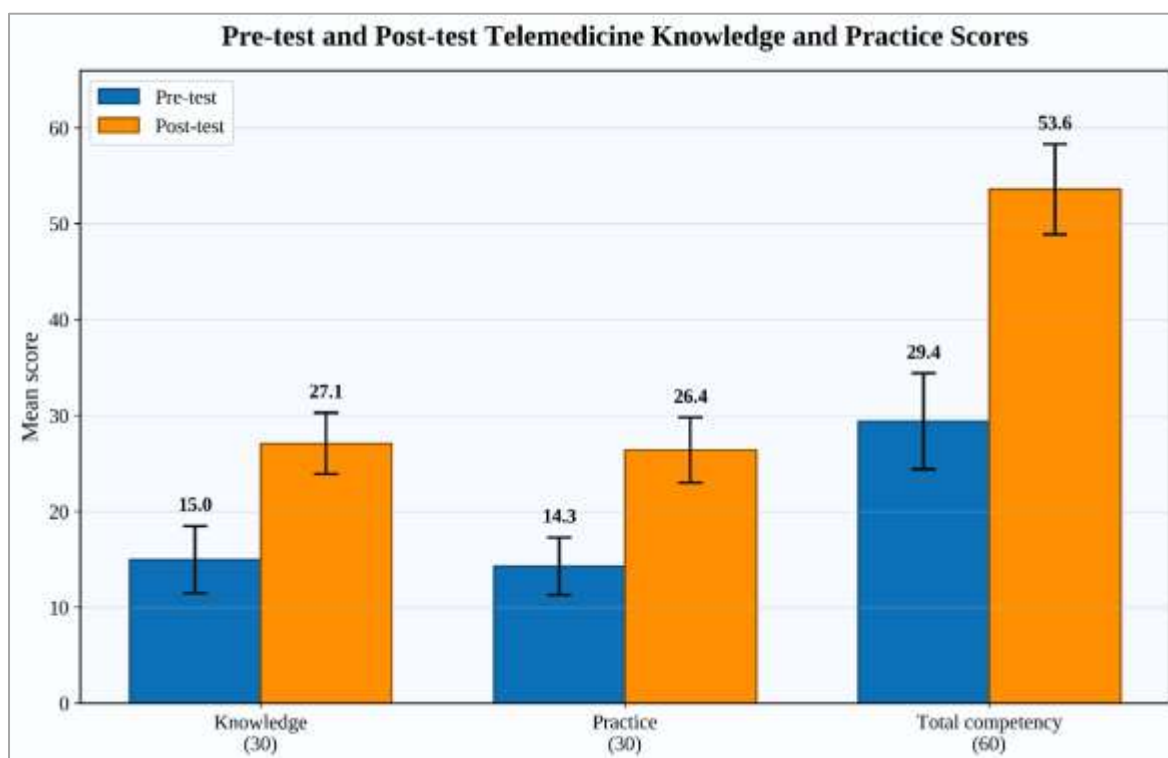


Figure 2. Mean Pre-Test and Post-Test Telemedicine Knowledge, Practice, and Total Competency Scores

Domain-Wise Competency Improvement

Domain-wise analysis showed improvement across all technical, clinical, communication, documentation, and escalation-related areas. The largest domain gains were observed for remote consultation workflow and telemedicine concepts, suggesting that the video-assisted format was particularly useful for standardizing practical workflow steps.

Table 3. Domain-Wise Improvement in Telemedicine Knowledge and Practice

Domain	Pre-test mean (SD)	Post-test mean (SD)	Mean gain	95% CI	P value
Knowledge: telemedicine concepts and workflow (0-10)	4.92 (1.48)	9.07 (1.02)	4.15	3.98 to 4.31	<.001
Knowledge: home BP review and clinical decision support (0-10)	5.08 (1.50)	8.93 (1.09)	3.85	3.68 to 4.03	<.001
Knowledge: communication, ethics, and documentation (0-10)	5.04 (1.39)	9.13 (0.94)	4.09	3.93 to 4.26	<.001
Practice: remote consultation workflow (0-10)	4.63 (1.28)	8.82 (1.12)	4.19	4.01 to 4.37	<.001
Practice: BP log review and adherence counselling (0-10)	4.78 (1.35)	8.93 (1.06)	4.15	3.96 to 4.34	<.001
Practice: documentation and referral escalation (0-10)	4.92 (1.41)	8.69 (1.21)	3.77	3.58 to 3.95	<.001

Competency Category Shift

At baseline, 113 nursing officers (56.5%) were in the low competency category and 87 (43.5%) were in the moderate category. After the intervention, only 11 (5.5%) remained in the moderate category, while 99 (49.5%) moved into the high category and 90 (45.0%) moved into the very high category. This shift indicates that the intervention was not only statistically significant but also educationally meaningful.

Table 4. Shift in Total Telemedicine Competency Categories

Competency Category	Pre-test n (%)	Post-test n (%)
Low	113 (56.5)	0 (0.0)
Moderate	87 (43.5)	11 (5.5)
High	0 (0.0)	99 (49.5)
Very high	0 (0.0)	90 (45.0)

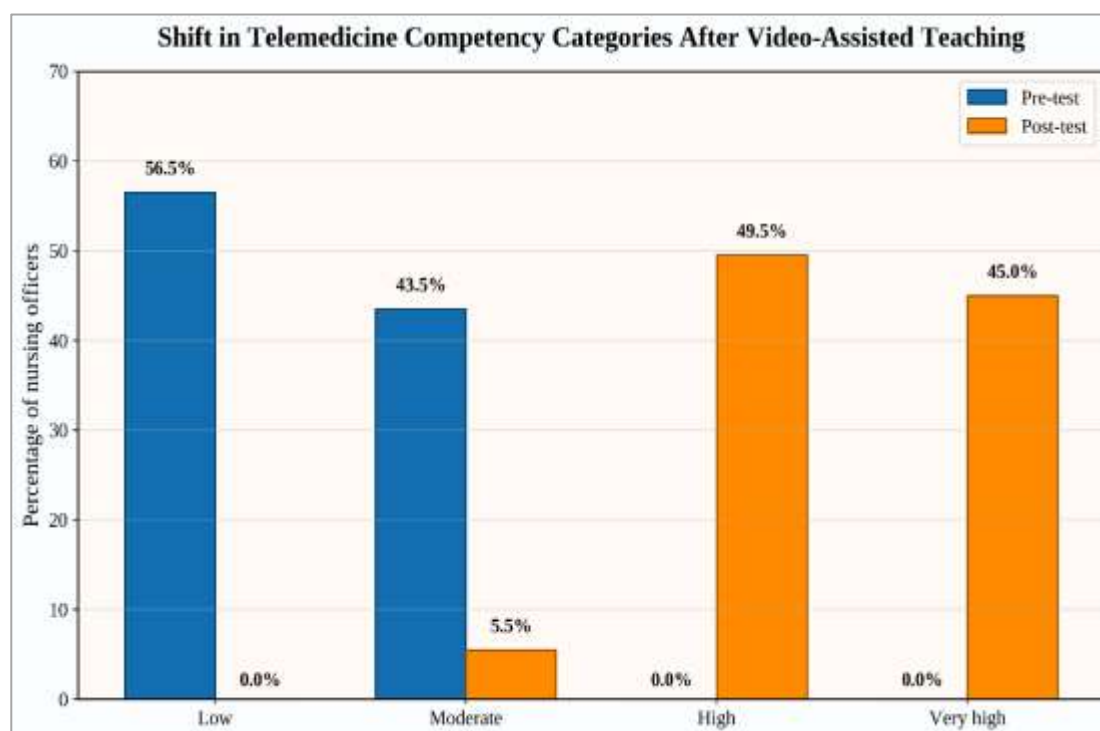


Figure 3. Percentage Shift in Telemedicine Competency Categories from Pre-Test to Post-Test

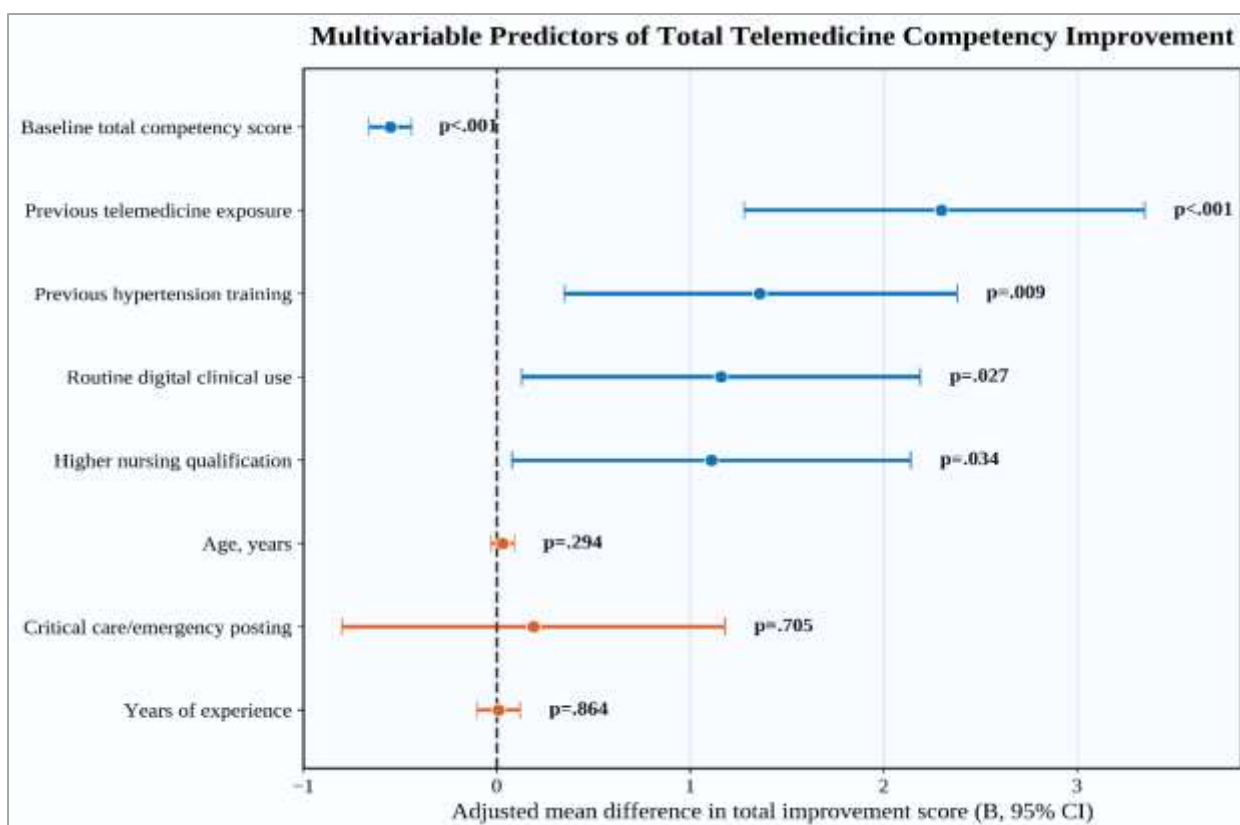
Independent predictors of total improvement

In the multivariable linear regression model, lower baseline total competency score was the strongest independent predictor of larger total improvement, consistent with a ceiling-effect interpretation: nursing officers with lower baseline competency had more room to improve. After adjustment, previous telemedicine exposure, routine digital clinical communication use, previous hypertension training, and higher nursing qualification also predicted significantly greater gain. Age, years of experience, and critical care/emergency posting were not independent predictors after adjustment.

Table 5. Multivariable Linear Regression Predictors of Total Competency Improvement

Predictor	B	Robust SE	95% CI	Standardized beta	P value
Baseline total competency score	-0.542	0.052	-0.644 to -0.440	-0.644	<.001
Previous telemedicine exposure	2.314	0.526	1.277 to 3.352	0.261	<.001
Routine digital clinical use	1.163	0.521	0.134 to 2.191	0.137	.027
Previous hypertension training	1.362	0.516	0.344 to 2.379	0.156	.009
Higher nursing qualification	1.114	0.520	0.087 to 2.141	0.132	.034
Years of experience	0.009	0.052	-0.093 to 0.111	0.011	.864
Age, years	0.023	0.022	-0.020 to 0.066	0.056	.294
Critical care/emergency posting	0.190	0.503	-0.801 to 1.182	0.022	.705

Model performance: $R^2=0.364$; adjusted $R^2=0.338$; $F=17.21$ with robust covariance; $P<.001$. Outcome variable: total competency improvement scores out of 60. Higher nursing qualification refers to BSc Nursing/Post Basic BSc/MSc compared with GNM. Routine digital clinical use refers to routine use of digital communication for clinical work compared with rare or occasional use.

**Figure 4. Adjusted Regression Coefficients for Predictors of Total Telemedicine Competency Improvement**

Sensitivity Analysis: Predictors of High Improvement

High improvement was defined as total gain in the upper quartile of the distribution (≥ 27.0 points). In logistic regression, lower baseline total competency score independently increased the odds of high improvement. Previous telemedicine exposure and previous hypertension training also increased the odds of high improvement. This sensitivity analysis supported the linear regression findings and suggested that prior exposure to digital-care concepts and disease-specific hypertension training may increase the probability of a strong learning response.

Table 6. Logistic Regression Predictors of High Improvement

Predictor	Adjusted OR	95% CI	P value
Baseline total competency score	0.75	0.68 to 0.84	<.001
Previous telemedicine exposure	3.20	1.36 to 7.52	.008
Routine digital clinical use	1.36	0.62 to 2.97	.438
Previous hypertension training	3.25	1.48 to 7.14	.003
Higher nursing qualification	1.22	0.56 to 2.63	.615
Years of experience	1.02	0.95 to 1.09	.614
Age, years	1.01	0.98 to 1.05	.433
Critical care/emergency posting	0.81	0.37 to 1.78	.592

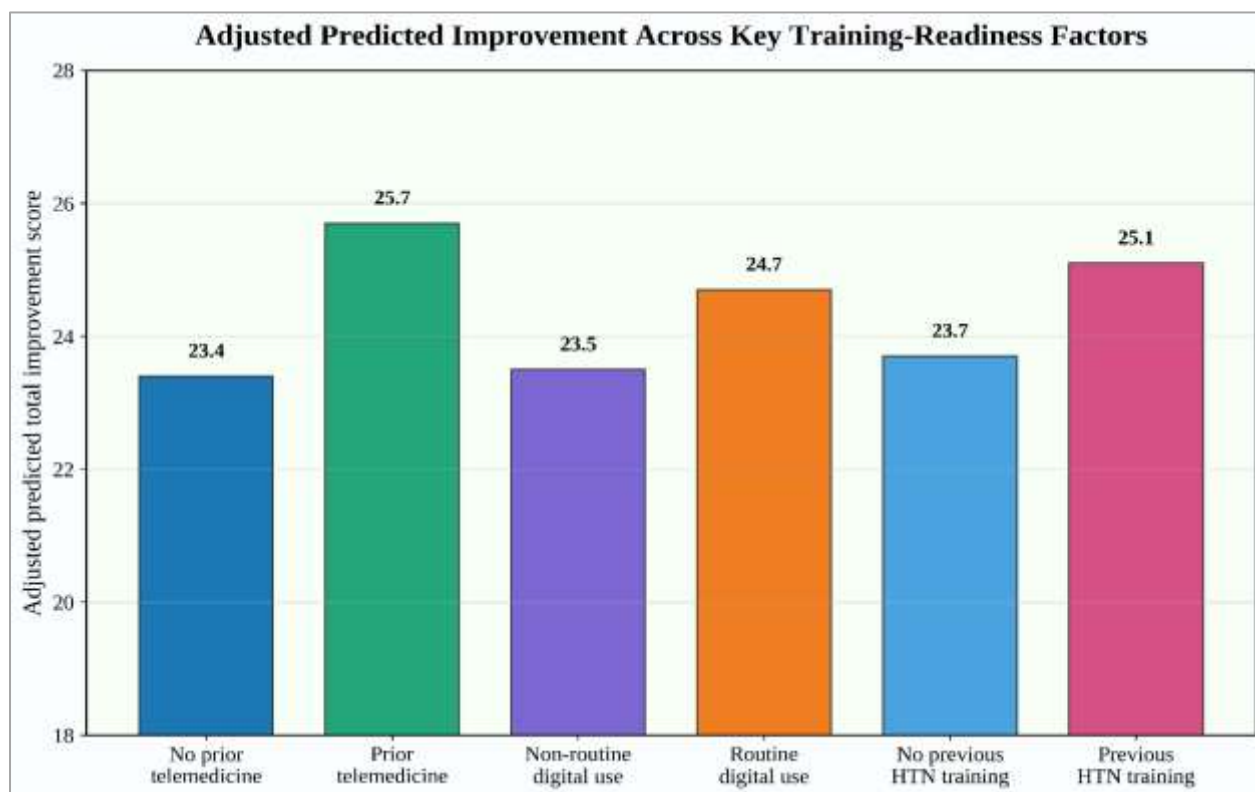


Figure 5. Adjusted Predicted Total Improvement Across Selected Training-Readiness Factors

DISCUSSION

Principal Findings

This secondary analysis shows that the video-assisted teaching module produced substantial improvement in telemedicine knowledge and practice among nursing officers. However, the most important contribution of the article is not merely the pre-post improvement; it identifies the baseline characteristics that predict stronger learning gains. Lower baseline competency was the strongest predictor of improvement, while previous telemedicine exposure, routine digital clinical communication use, previous hypertension training, and higher nursing qualification also predicted greater total gain.⁶

The negative association between baseline total score and total gain suggests a meaningful ceiling effect. Nursing officers who started with lower telemedicine competency improved more because the training addressed foundational knowledge and practice gaps. This finding supports a stratified training model in which low-baseline scorers receive intensive foundational support, while high-baseline scorers receive advanced simulation, documentation audit, and clinical telemedicine mentoring.^{5,6}

Comparison with Previous Literature

The results are consistent with the directly related video-assisted telemedicine competency article, which demonstrated a large post-training improvement among nursing officers involved in hypertension management. The present article extends that work by examining predictors of improvement rather than only reporting effectiveness. This adds an implementation and workforce-development message for nursing education and hospital telemedicine services.⁶

The findings also align with international telehealth competency literature. Telehealth nursing requires communication, clinical knowledge, ethical awareness, coaching, and ability to integrate clinical judgement with digital technology. The present predictors suggest that both baseline clinical-digital readiness and disease-specific exposure influence how well nurses respond to a short training intervention.^{5,11}

Digital health education reviews emphasize that nursing education must expand beyond general informatics and prepare nurses for safe digital care delivery across professional roles. The current article contributes to that agenda by proposing measurable predictors that can guide continuing nursing education in tertiary hospitals. For hypertension care, telemedicine models also emphasize blood pressure monitoring, adherence support, lifestyle education, and multidisciplinary supervision; therefore, nursing competency becomes a service-quality requirement rather than only an educational outcome.^{1-4,7,8,10,12}

Implications for Nursing Practice and Tertiary Hospital Service Delivery

The study has direct implications for nursing administration. First, a brief pre-training assessment can identify nursing officers with lower baseline competency who may benefit from additional preparation. Second, routine digital communication experience appears to support learning, indicating that digital orientation and hands-on workflow training should be built into hospital

induction. Third, previous hypertension training predicted improvement, suggesting that telemedicine education should be combined with disease-specific clinical pathways rather than taught as a technology-only skill.^{1-6,10-12}

A practical training pathway could include three levels: foundational video-assisted teaching for all nursing officers, supervised practice using hypertension case scenarios for moderate scorers, and advanced competency validation for officers expected to lead nurse-led remote follow-up. Such a tiered model may improve training efficiency and reduce variation in telemedicine practice across wards, outpatient areas, and critical care units.^{5,6,11,13}

Theoretical Interpretation

The findings fit well with Benner's Novice-to-Expert framework. Nursing officers with lower baseline telemedicine competency may resemble novices in digital-care workflow even when they are experienced clinicians. The video-assisted module provides a structured bridge from rule-based understanding to guided practice. Repeated exposure, clinical scenario practice, and feedback can support progression toward competent and proficient telemedicine nursing practice.¹⁴

Strengths

- The article uses a predictor-focused secondary analysis design rather than repeating the main effectiveness article.
- The analysis combines knowledge and practice outcomes, making it more relevant to nursing service delivery.
- The model uses prespecified, practical predictors that nursing administrators can measure before training.
- The manuscript includes both linear and logistic models, improving interpretability for publication.
- The structure is aligned by emphasizing implementation, workforce readiness, and measurable competency development.

Limitations

The present study used a single-center pre-test-post-test secondary analysis design; therefore, it does not control for all threats to internal validity, including testing effect, maturation, and external digital exposure during the study period. The predictor analysis was based on the verified paired dataset and should be interpreted within the limits of the study design and tertiary care hospital setting.¹³

The outcome was based on structured knowledge and practice assessment. Future studies should add objective structured telemedicine clinical examination, direct observation of virtual consultation, documentation audit, one-month retention testing, and linkage with patient-level hypertension follow-up outcomes. Multicenter validation would strengthen generalizability beyond a single tertiary care hospital.^{5,13}

CONCLUSION

This secondary analysis article identifies predictors of improvement in telemedicine knowledge and practice after a video-assisted teaching module among nursing officers involved in hypertension management. The module produced large improvements in knowledge, practice, and total competency scores. Lower baseline competency was the strongest predictor of greater improvement, while previous telemedicine exposure, routine digital clinical communication use, previous hypertension training, and higher nursing qualification also predicted stronger learning gains. These findings support targeted, competency-based telemedicine training strategies for tertiary hospital nursing services.

Funding

The authors report that no external institutional, commercial, or funding agency support was received for this manuscript preparation.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Data Availability

Deidentified data may be made available from the corresponding author upon reasonable request, subject to institutional permission, ethics approval conditions, and participant confidentiality requirements.

Author Contributions

Mr. Sreekanth A.N. conceptualized the study, developed the manuscript framework, prepared the intervention logic, coordinated the analytic model, interpreted the results, and drafted the manuscript. Dr. Rama Taneja supervised the study, provided methodological guidance, reviewed the manuscript critically, and approved the final version for submission after data verification.

Acknowledgement

The authors express sincere gratitude to the Medical Superintendent, Victoria Hospital, Bengaluru, and to the nursing officers and hospital staff who support telemedicine-oriented nursing education and hypertension care pathways.

Abbreviations

BP: blood pressure; CI: confidence interval; GNM: General Nursing and Midwifery; OR: odds ratio; SD: standard deviation; SE: standard error; STROBE: Strengthening the Reporting of Observational Studies in Epidemiology.

REFERENCES

1. Omboni S, McManus RJ, Bosworth HB, Chappell LC, Green BB, Kario K, et al. Evidence and recommendations on the use of telemedicine for the management of arterial hypertension: an international expert position paper. *Hypertension*. 2020;76(5):1368-1383. doi:10.1161/HYPERTENSIONAHA.120.15873.

2. Kappes M, Espinoza P, Heskia C, Lobos L. Nurse-led telehealth intervention effectiveness on reducing hypertension: a systematic review. *BMC Nursing*. 2023; 22:19. doi:10.1186/s12912-022-01170-z.
3. Kleib M, et al. Digital health education and training for undergraduate and graduate nursing students: scoping review. *JMIR Nursing*. 2024;7: e58170. doi:10.2196/58170.
4. Rettinger L, et al. Telehealth education in allied health care and nursing: web-based cross-sectional survey of students' perceived knowledge, skills, attitudes, and experience. *JMIR Medical Education*. 2024;10: e51112. doi:10.2196/51112.
5. van Houwelingen CTM, Moerman AH, Ettema RGA, Kort HSM, ten Cate O. Competencies required for nursing telehealth activities: a Delphi-study. *Nurse Education Today*. 2016; 39:50-62. doi: 10.1016/j.nedt.2015.12.025.
6. Sreekanth AN, Taneja R. Effectiveness of video-assisted teaching on telemedicine competency among nursing officers for hypertension management in tertiary care hospitals at Bangalore Karnataka. *RV Journal of Nursing Sciences*. 2025;1(Apr-Jun):25-32. doi:10.65829/rvcn2022.1019.
7. World Health Organization. Global strategy on digital health 2020-2025. Geneva: World Health Organization; 2021.
8. Ministry of Health and Family Welfare, Government of India. Telemedicine/eSanjeevani final report. New Delhi: MoHFW; 2025.
9. Shimbo D, Artinian NT, Basile JN, Krakoff LR, Margolis KL, Rakotz MK, et al. Self-measured blood pressure monitoring at home: a joint policy statement from the American Heart Association and American Medical Association. *Circulation*. 2020;142(4): e42-e63.
10. Bulto LN, Roseleur J, Noonan S, et al. Effectiveness of nurse-led interventions versus usual care to manage hypertension and lifestyle behaviour: a systematic review and meta-analysis. *European Journal of Cardiovascular Nursing*. 2024;23(1):21-32. doi:10.1093/eurjcn/zvad040.
11. Tan AJQ, de Veer AJE, Goh HS, et al. Telemedicine entrustable professional activities for nurses in long-term care: a modified Delphi study. *Nurse Education Today*. 2024; 140:106264. doi: 10.1016/j.nedt.2024.106264.
12. Oh KM, Cieslowski B, Beran K, et al. Nurse-led telehealth and mobile health care models for type 2 diabetes and hypertension in low-income populations: a scoping review. *Journal of the American Association of Nurse Practitioners*. 2024;36(10):565-575.
13. von Elm E, Altman DG, Egger M, Pocock SJ, Gotsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology statement: guidelines for reporting observational studies. *PLoS Medicine*. 2007;4(10): e296. doi: 10.1371/journal.pmed.0040296.
14. Benner P. From Novice to Expert: Excellence and Power in Clinical Nursing Practice. Menlo Park (CA): Addison-Wesley; 1984.