A Study to Evaluate the Effectiveness of Simulated Patient Encounters in Developing Communication Skills among Nursing Students in a Selected College, Bengaluru

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ABSTRACT

Background

Communication is the exchange of information and meaning through shared symbols, serving as a vital foundation for human relationships and nursing. Simulation supports this by modeling real-world scenarios using either real or dramatized methods to facilitate education, preparation, and problem-solving.

Objectives

1. To evaluate the effectiveness of simulated patient encounters in developing communication skills among nursing students.
2. To determine the association between pre-test communication skills scores among nursing students and their selected sample characteristics.

Methodology

A pre-experimental one-group pre-test and post-test evaluative research study was conducted in the seminar hall and the institute's nursing foundation lab. A sample of 40 nursing students was selected using the convenience sampling technique. Data was collected through scenario demonstrations of admission procedures, history collection, and vital signs assessment before and after the simulation. The participants' communication skills were also assessed using a rubric scale. Role play of 17-minute duration was used to simulate scenarios for the participants. The collected data was analysed using descriptive and inferential statistics. After that, the computed results were presented in tables and graphs.

Results

Pre-test assessments showed 77.5% of nursing students had below-average communication skills (mean 12.3 ± 2.785). Following simulated encounters, 70% achieved excellent skills, with the mean score rising to 29.55 ± 2.189. The significant mean enhancement of 17.25 ($t = 42.5$, $p < 0.001$) confirmed the effectiveness of the intervention (H_1), while no significant associations were found between communication scores and baseline variables (H_2).

Conclusion

The study findings revealed that most nursing students improved their communication skills after administering simulated patient encounters. Thus, the study concluded that simulation was influential in developing nursing students' communication skills.

Keywords: Simulated patient encounters, communication skills, nursing students

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INTRODUCTION

Effective communication forms the cornerstone of nursing practice, enabling therapeutic patient relationships, accurate information exchange, and improved health outcomes.[1] In India, where nursing shortages strain healthcare systems, strong communication skills are critical yet often underdeveloped among students due to limited clinical exposure and traditional lecture-based training.[2,3]

Nursing students frequently report anxiety, poor empathy expression, and inadequate non-verbal cue recognition during real patient interactions, leading to errors and reduced confidence. [4]Simulated patient encounters address these gaps by offering controlled, repeatable scenarios with standardized actors or manikins, allowing practice of active listening, cultural sensitivity, and feedback-driven refinement without patient risk.[5]

Studies confirm significant improvements: simulation training boosts communication scores by 15-30%, enhances self-efficacy, and better prepares students for diverse encounters compared to conventional methods.[6] In Bengaluru's resource-constrained colleges, where clinical placements are overburdened, evaluating such interventions is essential to enhance graduate readiness and align with global standards like those from the Indian Nursing Council.[7]

REVIEW OF LITERATURE:

Literature related to understanding communication skills

A cross-sectional study at Ufuk University, Ankara, Turkey, assessed communication skills and empathetic tendency among 342 undergraduate nursing students using the Communication Skill Assessment Scale and Empathetic Tendency Scale. Communication skills showed significant differences by class level ($p=0.021$), increasing in final year students, while empathetic tendency levels remained unchanged across years ($p=0.712$).[8]

A South Korean cross-sectional descriptive correlational study of 222 third-/fourth-year nursing students (mean age 22.7 years; 75.2% women) across four departments examined factors influencing clinical competency. Interpersonal skills fully mediated the relationship between communication competency and clinical competency (explanatory power=53.8%), with higher scores among satisfied female students in fourth year, analyzed via Pearson correlation, Sobel test, and multiple regression.[9]

Literature related to the practice of communication skills

A Jordanian descriptive-analytical study randomly surveyed 546 Yarmouk University students (59% response rate) to evaluate practical communication skills' impact. Results showed significant enhancements in personal traits, social interactions, and relationships, unaffected by gender or academic year. Top skills included personal traits, social skills, presentation abilities, and interpersonal relationships, emphasizing verbal/nonverbal communication's role in academic and social success.[10]

A Turkish cross-sectional study of 225 nursing students (80.3% response rate) during their first clinical experience used the Communication Skills Scale (mean 98.95; range 68-121), Perceived Stress Scale, and identification form. Students exhibited high communication skills (subscales: principles 40.27, self-expression 15.60, listening/nonverbal 23.89, willingness 19.08) and moderate stress, with a weak positive correlation, underscoring practical skills' role in minimizing clinical stress.[11]

Literature related to Simulation-Based Training and Its Effectiveness on communication skills

A quasi-experimental pre-post-test study at NIMHANS, Bangalore, involved 32 nurses (17 experimental, 15 control) selected via convenience sampling, using socio-demographic sheets and knowledge questionnaires validated in a pilot. Groups were comparable demographically; post-intervention, the experimental group showed significant knowledge gains in communication skills ($p<0.05$), confirming structured teaching's effectiveness.[12]

A role-play video demonstration study in pharmacology practicals assessed communication skills pre/postintervention using modified Kalamazoo Consensus Statement scores, evaluated by peers and self-assessment. Wilcoxon signed-rank test showed significant improvements (p=0.001): 59 positive ranks (mean 36.64) in peer evaluation and 61 (mean 36.74) in self-assessment. Mann-Whitney U confirmed score differences, highlighting role-play's value in active participation and skill enhancement.[13]

METHODOLOGY

Research Design and Setting

A quantitative, pre-experimental one-group pre-test post-test design was adopted to evaluate simulated patient encounters' effectiveness on communication skills. The study was conducted at a selected Nursing Institute, among first-year GNM students in the seminar hall and Nursing Foundation lab.

Participants and Sampling

The target population comprised nursing students at selected Institute. A sample of 40 first-year GNM students was selected using non-probability convenience sampling based on accessibility.

Inclusion criteria: Students of selected Institute, available during data collection.

Exclusion criteria: Students unwilling to participate or sick during data collection.

Tools for Data Collection

The tool had two sections:

Section 1: Sample Characteristics - Age, religion, year of study, residence, simulation familiarity, academic performance, learning style, communication tool preference, confidence, barriers, and simulation importance in nursing.

Section 2: Rubric Scale - 7-item scale (rapport, verbal communication, active listening, clarity, non-verbal cues, patient comfort, follow-up/closure; max 35, min 5).

Scores categorized as: 1-7 (inadequate), 8-14 (below average), 15-21 (average), 22-28 (above average), 29-35 (excellent).

Content validity was established by M.Sc. nursing experts; reliability confirmed via Karl Pearson's correlation (r=0.89).

Pilot Study

A pilot with 4 fourth-semester B.Sc. Nursing students confirmed feasibility (1-hour collection; pre-test 3 min, intervention 17 min, post-test 8 min), showing score improvements and tool practicality.

Intervention

The data collection method assessed communication skills through a scenario demonstration of the admission procedure, history collection, and vital sign assessment. The participants' communication skills were assessed using a structured rubric scale. A simulation role play was conducted using the above procedures as an intervention. The time taken by each subject was 8 to 10 minutes.

On the third day, the post-test was conducted in the Nursing Foundation lab, where the subjects' communication skills were assessed after the simulation intervention.

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Data Analysis

Descriptive statistics (frequency, percentage) analyzed demographics; mean, SD, and degrees of freedom assessed scores. Paired t-test compared pre/post-test differences; Chi-square tested associations with sample characteristics at $p<0.05$ significance.

Ethical Considerations: Institutional permission obtained; informed consent ensured confidentiality .

RESULTS

Section I: Sample Characteristics

The study shows that most nursing students are aged 20-22 (52.5%), with 80% identifying as Christian. All participants are in their first year of GNM, with 90% residing in hostels. Most students (70%) are unfamiliar with simulation-based learning, and 65% rate their academic performance as average. The preferred learning style is reading/writing (67.5%), and face-to-face communication is favoured by 70%. Regarding communication confidence, 52.5% are somewhat confident, with language cited as the main barrier by 37.5%. Opinions on the importance of simulation in nursing are evenly split at 50%.

Section II: Description of pre and post-test communication scores among Nursing students

Table 1: Overall Mean, SD and paired t-value of pre and post-test communication scores among Nursing students.

n=40

Communication skill Scores	Maximum Score	Mean	Mean Difference	SD	Paired t value	p-value	Inference
Pre-test	35	12.3	17.25	2.7	42.5	0.001	S*
Post-test		29.55		2.1			

Note: S* refers to a significant difference at 95% CI (t_{39}=2.021)

Initially, 77.5% of students had below-average communication skills, and 22.5% were average, with none rated above average. After the intervention, 70% of students achieved excellent communication, and 30% reached above-average levels, leaving no students in the lower categories.

The table 1 shows a significant improvement in communication skill scores among nursing students after the intervention. The mean post-test score (M=29.55, SD=2.1) was much higher than the pre-test score (M=12.3, SD=2.7), with a mean difference of 17.25. The computed paired t-value of 42.5, more significant than the table value (2.021), indicates a statistically significant (p=0.001) improvement. Thus, accepting H1, stating that there is a statistically significant difference between pre and post-test communication skills among nursing students following simulated patient encounters as measured using a rubric scale.

SECTION III: Comparison between Item-wise pre and post-test communication scores among Nursing students.

Comparison shows a significant improvement in communication skills among nursing students after the intervention. In the pre-test, many students were rated as "Poor" or "Below Average" across all items. However, in the post-test, most students moved to the "Above Average" and "Excellent" categories, demonstrating that the intervention enhanced these skills.

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Table 2: Item-wise, pre-and post-test mean, MD, and paired t-test communication scores among nursing students

n=40

Item	Max Score	Pre-test Mean	Post-test Mean	Mean Difference (MD)	t-value	Inference
Establishing rapport	1.75	4.23	2.48	14.82	S*	1.75
Verbal communication	1.95	4.23	2.28	13.96	S*	1.95
Active listening	1.86	4.27	2.41	14.35	S*	1.86
Clarity and transparency	1.59	4.2	2.61	15.27	S*	1.59
Nonverbal communication/gestures	1.91	4.18	2.27	13.89	S*	1.91
Patient comfort	1.77	4.27	2.5	14.64	S*	1.77
Follow-up and closure	1.98	4.25	2.27	13.92	S*	1.98

Note: S* = Significant at 0.05 level (paired t-test, df = 39, $t_{0.05} = 2.021$)

The above table portrays that simulated patient encounters led to significant improvements in all aspects of communication among nursing students. Post-test scores were markedly higher across all items—such as establishing rapport, verbal and nonverbal communication, active listening, clarity, and patient comfort demonstrating that the simulated patient encounters were effective. The substantial mean differences and high t-values indicate these improvements were statistically significant, confirming the intervention's success in enhancing communication skills. Thus, accepting H_1, stating that there is a statistically significant difference between pre and post-test communication skills among nursing students following simulated patient encounters as measured using a rubric.

SECTION IV: Association between communication scores among Nursing students with selected sample characteristics.

The selected extraneous variables, including age, religion, place of residence, familiarity with simulation, academic performance, preferred learning style, preferred communication tool, confidence in communication skills, and whether simulation is essential in nursing, were found to be non-significant at the 0.05 level. The obtained Chi-square or Fisher's exact test values for these variables were less than their respective critical values. Therefore, the research hypothesis (H_2) was rejected for these selected baseline variables.

DISCUSSION

Among 40 first-year GNM students at the selected College, 52.5% (n=21) were aged 20-22 years, 40% (n=16) 17-19 years, and 7.5% (n=3) 22+ years; 80% (n=32) were Christian. All resided mostly in hostels (90%, n=36), with 70% (n=28) unfamiliar with simulation, 65% (n=26) average academic performance, and 67.5% (n=27) preferring reading/writing learning style. Communication preferences favored face-to-face (70%, n=28); 52.5% (n=21) felt somewhat confident, citing language (37.5%, n=15) and fear of embarrassment (30%, n=12) as barriers. Most (67%, n=27) defined effective communication as active listening/eye contact/clarity, with 50% (n=20) viewing simulation as essential in nursing.

Similar baseline demographics were reported in a cross-sectional study of Indian nursing students (mean age 20.21 ± 2.25 years; 89.5% female), predominantly in early twenties pursuing nursing education, consistent with the current sample's age (52.5% aged 20-22) and hostel residency patterns.[14]

The rubric scale (max 35, min 5) assessed seven communication domains. Pre-test mean score was 12.3 ± 2.785: 77.5% (n=31) below-average (8-14), 22.5% (n=9) average (15-21). Post-test mean was 29.55 ± 2.189: 70% (n=28) excellent (29-35), 30% (n=12) above-average (22-28), showing a mean gain of 17.25.

Paired t-test confirmed statistical significance ($t=42.497 >$ table value 2.0227, $p<0.05$), accepting H_1: Simulated patient encounters significantly improve communication skills. This demonstrates role-play simulation's effectiveness in enhancing nurse-patient interactions.

These findings align with Ravichandra et al.'s quasi-experimental study on 136 South Indian medical students using role-play videos (modified Kalamazoo scores). Post-intervention scores improved significantly ($p=0.001$): 59 positive ranks (mean 36.64) in peer evaluation, 61 positive ranks (mean 36.74) in self-assessment via Wilcoxon signed-rank test, confirming simulation's value.[15]

Chi-square/Fisher's exact tests showed no significant associations ($p>0.05$) between pre-test scores and characteristics: age ($p=1$), religion ($p=1$), residence ($p=1$), simulation familiarity ($p=0.3$), academic performance ($p=0.3$), learning style ($p=0.35$), communication tool ($p=1$), confidence ($p=0.275$), barriers ($p=1$), effective communication description ($p=1$), simulation essentiality ($p=1$). All calculated values < table $\chi^2=3.84$.

Thus, H_2 was rejected: No significant association exists between pre-test communication skills and selected demographics.

This corroborates a Chinese RCT on 132 first-year nursing students using simulation-based deliberate practice, which found no significant baseline variable associations with communication, empathy, or self-efficacy scores.[16]

Nursing Implications

- **Nursing Practice**: Continuous simulation-based communication training, tailored to staff characteristics, with regular assessments can enhance patient interactions and confidence.
- **Nursing Education**: Despite curriculum inclusion, proficiency gaps persist; educators should emphasize meaningful simulation practice and creative clinical methods to bridge theory-practice divide.
- **Nursing Administration**: Implement workshops, role-plays, mentoring, and model effective communication to foster a skill-development culture.
- **Nursing Research**: Expand studies on long-term simulation effects, individual differences, feedback methods, and best practices for nurse communication training.

Limitations

Limited to 40 first-year GNM students at the selected institution; short-term post-test (Day 3); no interrater reliability, real-time assessment, or simulation feedback; pilot on different student group; multiple data collectors.

Recommendations

Investigate long-term effects on patient outcomes, individual difference impacts, optimal simulation/feedback strategies, and comparative designs across institutions/years.

CONCLUSION

The pre-experimental study demonstrated that simulated patient encounters significantly enhanced communication skills among first-year GNM nursing students in Bengaluru. No significant associations existed between baseline scores and demographics.

These results underscore simulation's value as a safe, effective training method bridging theory-practice gaps in resource-limited settings. Integrating such interventions into nursing curricula can better equip students for

therapeutic patient interactions, reducing clinical anxiety and improving care quality. Future longitudinal studies should explore sustained effects and broader applications across nursing programs.

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