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<https://doi.org/10.65985/JBSE.2026192925>

Abstract

Background: Leadership is a critical competency in nursing practice, yet undergraduate nursing curricula often lack structured opportunities for leadership development. Peer-assisted learning presents a promising strategy to foster transformational leadership qualities in a collaborative and reflective environment. **Objectives:** To design, implement, and evaluate a peer-assisted leadership training module within undergraduate nursing education and assess its impact on students' leadership confidence and competencies. **Methods:** A mixed-methods study was conducted at Panimalar College of Nursing, Chennai, involving undergraduate nursing students from Years I to IV. A needs assessment using a 5-point Likert scale identified gaps in current leadership training. Based on the findings, the PEARL (Peer Assisted Leadership) module was developed and validated. The module was implemented for a randomly selected cohort of 92 final year students. Faculty and student evaluations were conducted using structured feedback tools and self-confidence ratings. **Results:** Students reported limited exposure to leadership training and expressed strong interest in peer-based learning. Post-intervention analysis showed significant improvement in leadership confidence and satisfaction with the module. Faculty evaluations also indicated high confidence and readiness to facilitate the training. Overall feedback suggested that the module was engaging, practical, and well aligned with real-world nursing needs. **Conclusion:** Peer-assisted leadership training is an effective and scalable approach to enhance leadership development in undergraduate nursing education. The PEARL module supports experiential learning and prepares nursing students to take on leadership roles with greater confidence, empathy, and collaboration.

Keywords: Nursing education, leadership development, peer-assisted learning, transformational leadership, undergraduate nursing, experiential learning

1. Introduction

The healthcare landscape is evolving at an unprecedented pace, shaped by technological innovations, changing patient demographics, and increasingly complex health conditions [1]. In this dynamic environment, the nursing profession has been called to expand its scope beyond traditional bedside care. Nurses are now expected to engage in system-level thinking, interdisciplinary collaboration, and quality improvement initiatives. Central to fulfilling these expanded roles is the presence of strong, values-driven leadership [2,3].

Transformational leadership, a concept widely applied in healthcare settings, refers to a leadership style that emphasizes inspiration, motivation, and the personal development of team members [4]. Transformational nurse leaders foster inclusive, empowering environments where innovation is encouraged and professional growth is prioritized. These leaders inspire others not merely through authority but through vision, integrity, and a commitment to shared

goals. Despite its proven relevance, transformational leadership is not systematically nurtured in many nursing education programs, which often emphasize clinical skill acquisition and theoretical knowledge over leadership development [4,5].

Peer-assisted leadership learning represents a promising and contextually relevant educational approach. Rooted in principles of shared learning and mutual growth, this method facilitates leadership development through structured peer engagement. Rather than relying solely on top-down instruction, peer-assisted models encourage students to learn collaboratively, take on leadership roles, and engage in reflective practices with guidance from both faculty and fellow learners. This approach can make leadership training more relatable and practical, especially for young nursing students navigating professional identity formation [6][7].

Recognizing the need to address the leadership preparation gap in undergraduate nursing education, this study focused on designing, implementing, and evaluating a Peer-Assisted Leadership (PEARL) training module. The intent was to explore whether a structured peer-based intervention could meaningfully enhance leadership confidence and competencies among nursing students, equipping them to become transformational leaders in future healthcare settings.

Need for the study

The nursing profession is undergoing rapid transformation, requiring graduates to do more than provide direct patient care. Today's nurses are expected to coordinate teams, communicate effectively across disciplines, manage complex clinical situations, and contribute to quality improvement and patient safety initiatives. However, many undergraduate nursing programs continue to emphasize technical and theoretical competencies while giving limited attention to leadership development. This creates a significant gap between the responsibilities expected of newly qualified nurses and the preparation they receive during training. Leadership is a core professional competency in nursing because it influences decision-making, team functioning, clinical outcomes, and the overall quality of care. Without structured opportunities to develop leadership skills, students may enter practice with confidence in clinical tasks but insufficient readiness to guide others, solve problems, or take initiative in challenging situations. This gap can affect not only individual career growth but also the effectiveness of healthcare delivery in increasingly complex settings.

Peer-assisted learning offers a promising and student-friendly approach to address this need. By engaging students in collaborative learning, shared reflection, and guided peer interaction, it creates a supportive environment where leadership can be practiced rather than only discussed. Such an approach may reduce anxiety, encourage participation, and help students build confidence in communication, teamwork, and responsibility. It also aligns well with experiential learning principles, which are especially relevant in nursing education.

Earlier literature shows that transformational leadership skills and peer-assisted learning approaches can improve students' confidence, clinical reasoning, and readiness for practice, but these strategies are not yet widely or systematically embedded in curricula [8]. This study is needed to respond to that gap by introducing and evaluating a structured peer-assisted leadership module (PEARL) that uses collaborative, student-led activities to build leadership competence in a safe and supportive environment, preparing nursing students to become confident and compassionate future nurse leaders.

2. Objectives

This study was undertaken with the intention of creating a meaningful space for leadership development within undergraduate nursing education. The focus was on introducing a

structured, peer-led approach that could make leadership learning more interactive, relevant, and reflective. The specific objectives were:

1. To integrate peer-assisted leadership training sessions into the nursing curriculum so that leadership development becomes a regular and intentional part of undergraduate nursing education.
2. To enhance nursing students' leadership skills through experiential learning and peer feedback, allowing them to develop confidence and practical insight by engaging with real-life scenarios and reflective exercises guided by their peers.
3. To evaluate the effectiveness of peer-assisted learning in developing confident and competent nursing leaders, by measuring changes in student attitudes, self-confidence, and readiness to take on leadership roles in professional practice.

3. Methods

3.1 Study Design

This study employed a mixed methods design combining quantitative and qualitative approaches to examine the impact of a peer-assisted leadership training module on undergraduate nursing students' leadership competencies. The study was designed in three phases: needs assessment, module development and validation, and implementation with outcome evaluation.

3.2 Study Setting and Population

The study was conducted at Panimalar College of Nursing, Chennai, affiliated with The Tamil Nadu Dr. M.G.R. Medical University. The target population comprised undergraduate nursing students (BSc Nursing), across Years I to IV. Inclusion criteria included active enrollment in the nursing program and willingness to participate in the study. Students with prior formal leadership training were excluded to maintain uniformity in baseline exposure. Additionally, 15 faculty members from the same institution participated in the module validation and faculty training phase.

3.3 Needs Assessment

To identify gaps in current leadership training and gauge student interest in peer-assisted learning, a structured needs assessment survey was administered. The tool was a self-reported questionnaire using a 5-point Likert scale to capture student perceptions on the following areas:

- Availability and quality of leadership development in the existing curriculum
- Frequency of exposure to real-world leadership scenarios
- Perceived relevance of leadership training for nursing practice
- Interest in peer-to-peer learning as a method for leadership development

Quantitative data were analyzed to generate mean scores and identify common themes. Results indicated a clear recognition of leadership as a crucial skill in nursing, along with dissatisfaction regarding current training opportunities and a strong preference for peer-based experiential learning formats.

3.4 Module Development and Validation



Fig. 1 PEARL module

Based on the findings from the needs assessment and a review of literature, a peer-assisted leadership training module, termed PEARL (Peer-Assisted Leadership) was developed (Fig. 1). The module aimed to foster transformational leadership qualities through collaborative exercises, role-play, peer mentoring, and reflective practice.

Content of the PEARL Module included:

- Introduction to leadership in nursing
- Principles of transformational leadership
- Peer-led discussion forums
- Experiential leadership tasks
- Guided reflection and feedback sessions

3.5 Validation Process

The module underwent expert review for content validation, face validation and reliability by a panel comprising nursing educators, clinical preceptors, and medical education specialists. Feedback was solicited on content relevance, clarity, pedagogical alignment, and feasibility of implementation.

3.6 Faculty Training

A total of 15 faculty members participated in a structured orientation and hands-on facilitation workshop. Post-training evaluation used a 5-point Likert scale to assess faculty confidence, content clarity, and perceived readiness to deliver the module. A 10-point feedback scale captured their overall impressions and suggestions for refinement.

3.7 Implementation

The validated PEARL module was implemented for a cohort of 92 final-year BSc Nursing students. Participants were selected through simple random sampling. The sessions were delivered over a structured timeline using blended methods: facilitator-led instructions, peer-led activities, and small group discussions. Emphasis was placed on building leadership confidence, critical thinking, and collaborative skills in clinical contexts.

3.8 Data Collection and Analysis

Both faculty and student participants completed structured pre- and post assessment evaluation following the training sessions. Instruments included, 5-point Likert scale evaluation assessing

content relevance, interactivity, and learning effectiveness, and 10-point feedback rating scales for overall satisfaction and applicability.

Self-assessment tools to measure changes in students' confidence in leadership roles pre- and post-intervention. Quantitative data were analyzed using descriptive statistics to calculate mean scores, while qualitative feedback was thematically analyzed to identify patterns in learner and faculty perceptions.

Results

4.1 Needs Assessment

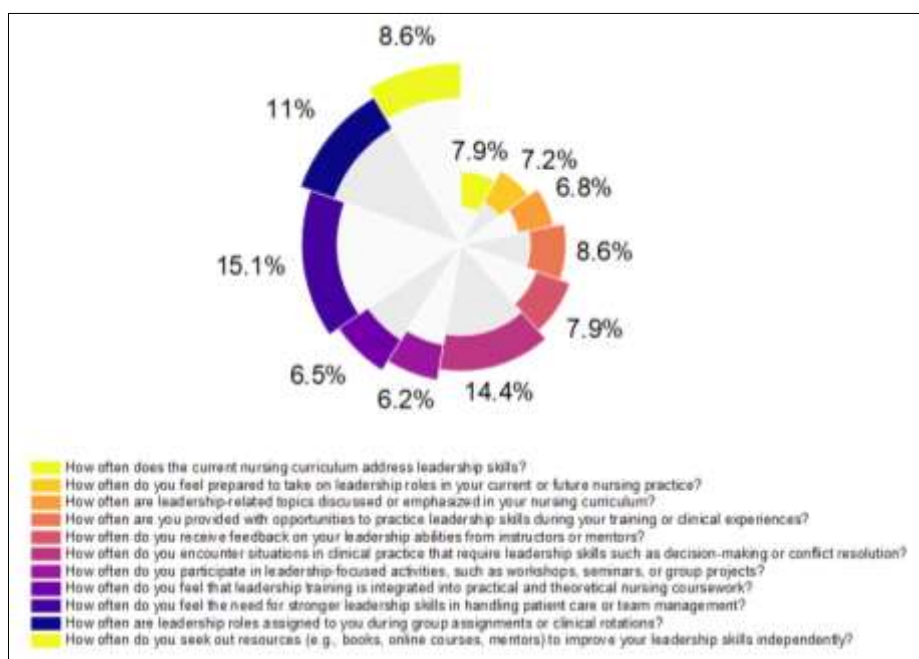


Fig. 2 Needs assessment results showing student perceptions of leadership training gaps across Years I–IV on a 5-point Likert scale

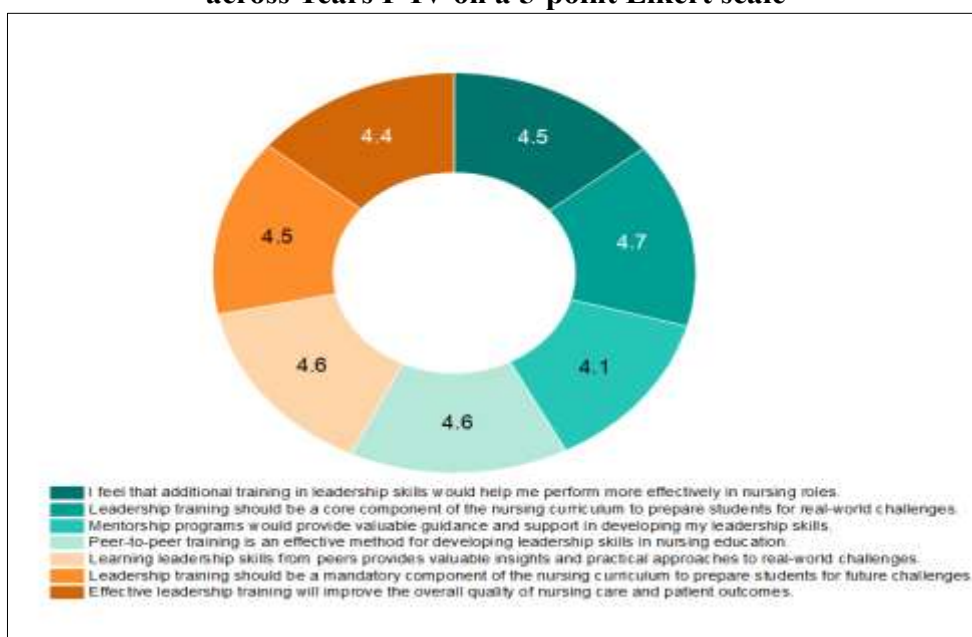


Fig. 3 Student preferences for peer-based leadership learning formats from the initial needs assessment survey

Fig. 2 and 3 show the plot of the initial needs assessment, which revealed a strong perceived gap in formal leadership development among undergraduate nursing students. Across Years I to IV, students reported that leadership was not explicitly taught and was often overlooked in the existing curriculum. Many expressed that their education emphasized clinical competencies while leadership training remained incidental or informal. Despite this, students showed a high level of awareness regarding the importance of leadership in nursing. They recognized that leadership would play a vital role in their future professional responsibilities. There was a strong preference for learning through peer interactions. Students found the idea of peer-assisted leadership training more approachable and relevant to their stage of learning. On the five-point Likert scale, there was a high average score for preference toward peer-based formats and optimism about leadership training.

4.2 Validation of the Module

The PEARL module underwent a structured validation process involving expert review and statistical assessment. Face validity, assessed through the average expert evaluation score, was high at 0.990, indicating strong agreement on the module's relevance and clarity (Table 1). Content validity was measured using the Item Content Validity Index (I-CVI), which yielded a score of 0.85, and the Scale Content Validity Index (S-CVI/UA), which was 0.985, confirming that the module comprehensively covered essential leadership competencies. Reliability was confirmed through the Intraclass Correlation Coefficient (ICC), which was calculated at 0.819, indicating good consistency in expert ratings.

Table 1 Validation outcomes of the PEARL module, including face validity, content validity, and reliability

CATEGORY	METRIC	RESULT
FACE VALIDITY	Average expert evaluation score	.990
CONTENT VALIDITY	Item Content Validity Index (I-CVI)	.850
	Scale Content Validity Index (S-CVI/UA)	.985
RELIABILITY ASSESSMENT	Intraclass Correlation Coefficient (ICC)	.819

4.3 Faculty Training and Evaluation

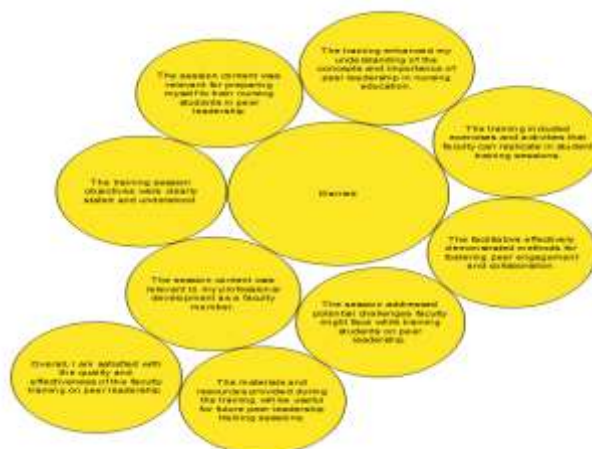


Fig. 4 Faculty post-training confidence levels in PEARL module facilitation on a 5-point Likert scale

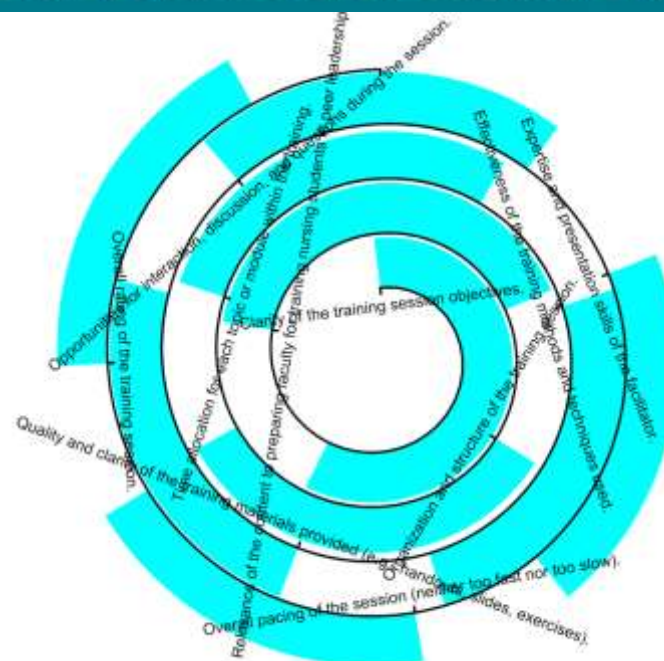


Fig. 5 Faculty ratings of PEARL module content clarity and practicality post-orientation workshop



Fig. 6 Faculty feedback on preparedness to guide peer-led leadership sessions (10-point scale)

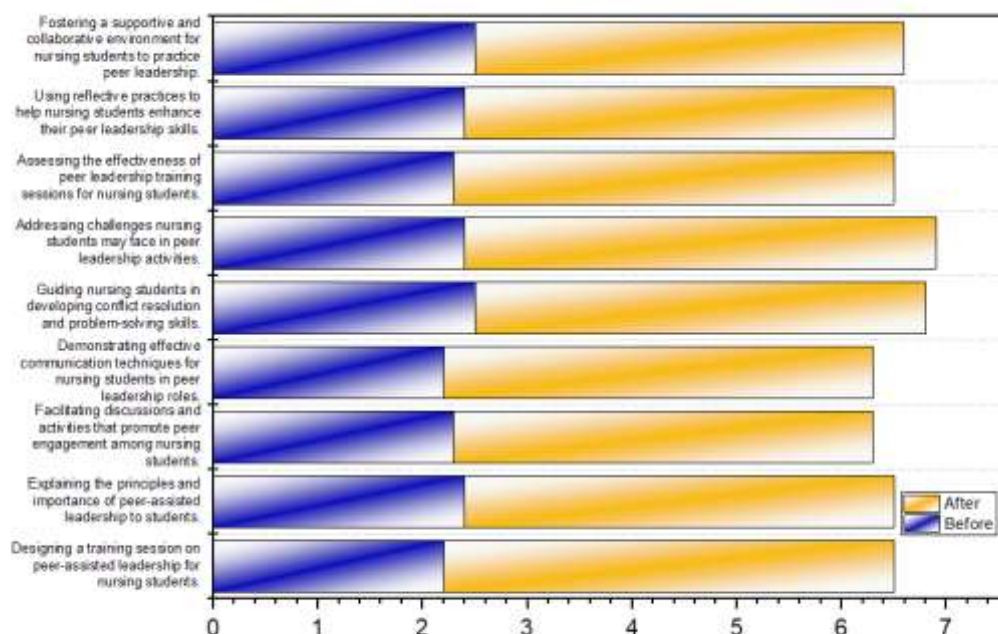


Fig. 7 Overall faculty satisfaction with the PEARL module after training (Likert and 10-point scales)

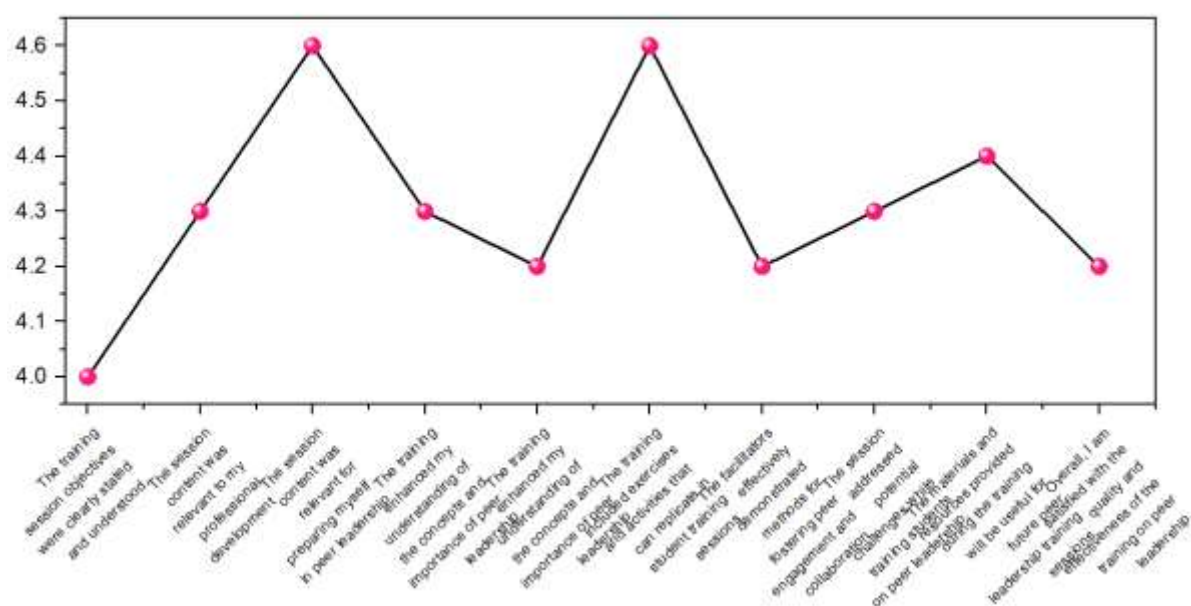


Fig. 8 Summary of faculty impressions and suggestions for PEARL module refinement

A total of 15 nursing faculty members participated in the training sessions to implement the PEARL module. The sessions focused on introducing the content, structure, and facilitation methods of the peer-assisted approach. Faculty reported that the module was clearly designed, practical in its intent, and aligned with the real educational needs of students. Post-training assessments indicated improved confidence in delivering the leadership module. Faculty members gave positive feedback on their preparedness to guide peer-led sessions and on the interactive nature of the module. On the five-point Likert scale, confidence in facilitation and clarity of content both received high average scores. The ten-point feedback scale also reflected

overall satisfaction, with an average score close to nine. All data collected from the members are depicted in Fig. 4 to 8.

4.4 Student Training and Response

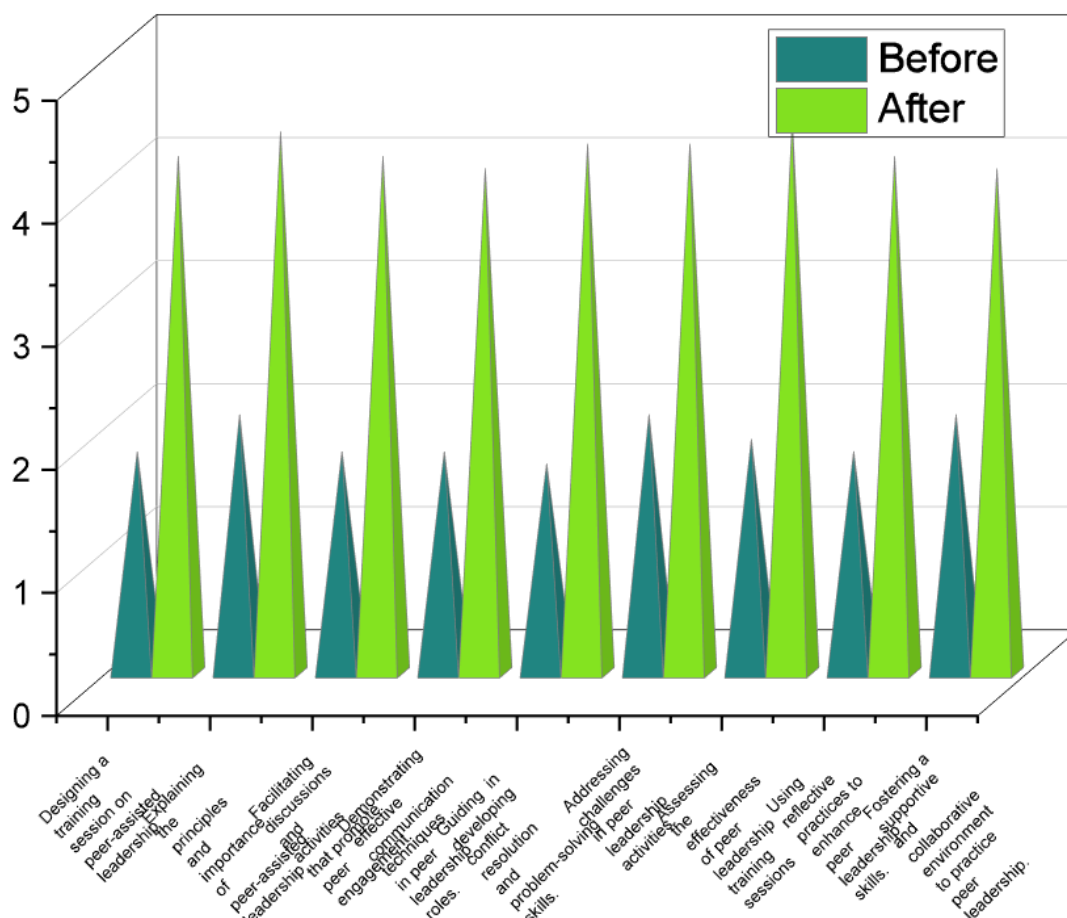


Fig. 9 Student post-training confidence improvement in leadership roles

The validated module was implemented for 92 final year BSc Nursing students selected through random sampling. Fig. 9 shows the data for Student post-training confidence improvement in leadership roles. Participants included both students with prior leadership experience and those without. After completing the training, students completed structured evaluations. The peer-assisted sessions were well received. On the five-point Likert scale, students rated the clarity of the content, the relevance of the activities, and the usefulness of peer interactions highly. Most importantly, students reported a substantial increase in their confidence to assume leadership roles. Mean confidence scores improved from 3.1 before the module to 4.4 after completion. On the ten-point satisfaction scale, the module received an average rating of 9.2, indicating strong acceptance.

4.5 Faculty and student Assessment

The effectiveness of the PEARL module was quantitatively assessed through pre and post training evaluations for both faculty and students. Among faculty participants, the mean pre test score was 18.74 with a standard deviation of 2.32, which significantly improved to a post test mean of 32.09 with a standard deviation of 2.78. This change was statistically significant with a p value less than 0.0001, indicating a marked increase in knowledge and readiness to deliver peer assisted leadership training. Similarly, the student cohort demonstrated a substantial improvement, with pre test scores averaging 19.08 ± 3.53 , rising to a post test mean of 32.64 ± 2.12 . This change was also statistically significant ($p < 0.0001$), affirming the

module's strong impact on enhancing leadership competencies among nursing students. These findings validate the educational value of the module and its effectiveness in building both facilitator preparedness and learner confidence.

4.6 Qualitative Feedback

In addition to numerical ratings, open ended student responses provided deeper insights into their learning experience. Many students described the sessions as transformative and safe environments where they could learn through dialogue, mistakes, and mutual support. They emphasized that the peer led format helped reduce anxiety and promoted active participation. Students reflected that the training helped them rethink their roles as future leaders and gave them practical tools to navigate team responsibilities in clinical settings. Several mentioned that they felt more prepared to engage in team coordination, communication, and decision making after undergoing the PEARL training.

5. Discussion

This study explored the feasibility and impact of integrating a peer assisted leadership training module into undergraduate nursing education. The results demonstrate that structured peer based learning can serve as a meaningful and effective strategy to foster leadership competencies among nursing students. By aligning with the core principles of transformational leadership and adult learning theory, the PEARL module succeeded in engaging students beyond traditional didactic instruction and promoting deeper personal and professional growth. One of the most striking findings was the evident gap in existing nursing curricula regarding leadership development. The needs assessment confirmed what has been frequently emphasized in the literature that while nursing students are expected to assume leadership roles after graduation, formal training in leadership is often limited, fragmented, or entirely absent. This disconnect between expected competencies and actual educational experiences calls for urgent curricular innovation, especially as nursing roles continue to expand in response to increasing healthcare complexity [9].

The use of peer assisted learning as the central pedagogical approach was particularly effective in this context. The peer led format allowed students to engage in leadership without fear of judgment, encouraged reflective dialogue, and nurtured mutual support. This is consistent with findings a study that stated that peer assisted learning fosters a sense of shared accountability and identity formation in professional education [10]. Students in our study not only acquired leadership knowledge but also demonstrated improved self efficacy and readiness to lead a transformation not easily achieved through conventional instruction alone.

Faculty responses also validate the module's relevance and practicality. Their increased confidence in delivering leadership content after training indicates that the PEARL module is both feasible and scalable. Faculty members acknowledged the value of moving from content heavy lectures to facilitation of reflective, peer driven learning experiences, highlighting the importance of faculty development in sustaining educational innovation.

It is also worth noting that students with and without prior leadership experience benefited from the intervention. This underscores the inclusive nature of the peer assisted approach, which supports learners at varying levels of readiness and fosters collective growth [11]. Moreover, the structured yet flexible nature of the module enabled adaptation across diverse learning preferences and classroom dynamics.

The positive outcomes observed also raise important considerations for future implementation. First, leadership training should not be limited to final year students. Introducing the module progressively across all academic years could promote long term skill development and reinforce leadership identity early in professional formation. Second, longitudinal studies are needed to evaluate the sustained impact of such training on clinical performance, team engagement, and patient outcomes. Lastly, while this study focused on nursing education, the

PEARL model has clear potential for interprofessional adaptation, where leadership skills are cultivated across medical, allied health, and pharmacy students to foster collaborative and team-based care.

6. Conclusion

The PEARL module demonstrates that peer-assisted leadership training is a practical and effective approach for strengthening leadership competencies among undergraduate nursing students. The findings of this study highlight a clear gap in the existing curriculum and confirm the need for structured, experiential, and student-centered leadership development. Through collaborative learning, reflection, and peer engagement, students gained greater confidence, improved understanding of leadership roles, and a stronger sense of readiness to function as future nurse leaders. The significant improvement in both faculty and student outcomes further supports the feasibility and acceptability of this model in nursing education. Faculty members also benefited from the training, showing increased preparedness and confidence to facilitate leadership learning. These results suggest that leadership development should be intentionally embedded across the nursing curriculum rather than introduced only at the final stage of study. The PEARL module offers a scalable and adaptable framework that can be integrated into undergraduate programs to promote transformational leadership, communication, teamwork, and professional identity formation. By preparing students to lead with confidence, empathy, and collaboration, this module contributes meaningfully to the evolving demands of contemporary healthcare and supports the development of competent, compassionate, and visionary nursing professionals.

Supplementary File

PEARL MODULE

Acknowledgment

A special thanks to Dr. K. Narayanasamy, Vice-Chancellor of The Tamil Nadu Dr. M.G.R. Medical University, for his visionary leadership and unwavering support, which has been instrumental in the successful execution of this project.

Conflict of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Funding

This project, titled “Empowering Future Nurses: Implementing Peer-Assisted Leadership Development in Nursing Education” by K. Mythili from Panimalar College of Nursing, has been selected and funded by The Tamil Nadu Dr. M.G.R. Medical University Theme-Based Research Grant for Nursing under the theme: Transformational leadership and future of nursing.

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