

## Effectiveness of interdisciplinary education in nursing training: A mixed-method study.

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### Abstract :

Interdisciplinary education (IDE) is an educational strategy where students from different healthcare professions learn together to develop collaborative skills required for effective patient-centered care. In modern healthcare systems, nurses work closely with multiple healthcare professionals, making teamwork and communication essential competencies.

### Aim:

To evaluate the effectiveness of interdisciplinary education in improving knowledge, perception, and collaborative competencies among nursing students.

### Methodology:

A mixed-method quasi-experimental study with pre-test and post-test design was conducted among 100 final-year students from nursing and allied health disciplines in a selected nursing college. Participants were selected using purposive sampling technique. Data were collected using a structured knowledge questionnaire consisting of 20 multiple-choice questions and the Interdisciplinary Education Perception Scale (IEPS). A two-day interdisciplinary education training program involving case-based learning, role-play, and facilitator-guided debriefing sessions was conducted.

### Results:

The mean knowledge score significantly increased from **12.3 ± 2.8 in the pre-test to 17.5 ± 2.1 in the post-test (p < 0.001)**. IEPS scores also improved significantly in domains such as teamwork and collaboration, role understanding, and professional identity. Qualitative feedback from focus group discussions revealed improved communication skills, better understanding of professional roles, and increased respect for other healthcare professions.

### Conclusion:

The study concludes that interdisciplinary education significantly improves collaborative competencies and teamwork skills among nursing students. Integrating interdisciplinary education into nursing curricula can enhance communication, role clarity, and patient-centered healthcare delivery.

**Key Words:** Interdisciplinary education, nursing training, collaboration, teamwork, mixed-method.

### Introduction :

Interdisciplinary education (IDE) is an educational approach in which students from two or more healthcare professions learn together to improve collaboration and quality of care<sup>(1)</sup>. Healthcare delivery in the modern era requires effective teamwork among nurses, physicians, pharmacists, physiotherapists, and other allied health professionals<sup>(2)</sup>. The increasing complexity of healthcare services demands professionals who can work collaboratively to provide safe and efficient patient care.

Traditionally, healthcare education has been delivered in discipline-specific environments where students from

different professions rarely interact during their training<sup>(3)</sup>. This separation may lead to limited understanding of professional roles and responsibilities, resulting in communication gaps and fragmented patient care. Interdisciplinary education aims to address these challenges by encouraging interaction and collaborative learning among healthcare students<sup>(4)</sup>.

Nurses play a crucial role in coordinating patient care and communicating with different healthcare professionals in clinical settings. Therefore, it is essential for nursing students to develop competencies such as teamwork, communication, leadership, and mutual respect during their education<sup>(5)</sup>.

Interdisciplinary learning helps students understand the roles and contributions of other healthcare professionals and promotes collaborative decision-making in patient care<sup>(6)</sup>.

Studies have shown that interdisciplinary education improves students' attitudes toward teamwork and enhances their readiness for collaborative clinical practice<sup>(7)</sup>. It also contributes to improved patient safety and reduction in medical errors by promoting effective communication among healthcare professionals<sup>(8)</sup>. Educational strategies such as case-based learning, simulation, and role-play have been widely used to implement interdisciplinary training programs<sup>(9)</sup>.

Despite its importance, interdisciplinary education is not consistently incorporated into many nursing curricula, especially in developing countries<sup>(10)</sup>. There is a need to evaluate the effectiveness of interdisciplinary learning strategies in improving collaborative competencies among nursing students. Therefore, the present study was conducted to assess the effectiveness of interdisciplinary education in nursing training using a mixed-method research approach.

**Research Gap**

Although interdisciplinary education is widely recommended in healthcare training, many nursing institutions still rely on traditional discipline-specific teaching methods. In the Indian context, limited research has been conducted to evaluate the effectiveness of structured interdisciplinary education programs among nursing students. Additionally, few studies have explored students' experiences and perceptions regarding interdisciplinary learning. Hence, this study attempts to assess both quantitative outcomes and qualitative experiences of students participating in interdisciplinary education.

**Objectives**

1. To assess the baseline knowledge and attitudes toward interdisciplinary education.
2. To implement an interdisciplinary education training program.

3. To measure improvement in knowledge, perception, and communication after the training.
4. To explore students' experiences through qualitative focus group feedback.

**Hypothesis**

**H1:** There will be a significant improvement in knowledge and perception scores among students after participation in the interdisciplinary education program.

**Methodology**

- **Research Approach:** Mixed-method research approach.
- **Design:** Quasi-experimental pre-test and post-test design with qualitative focus group feedback.
- **Sample and Sampling Technique:**

A total of **100 students (50 nursing and 50 allied health students)** were selected using purposive sampling technique.

- **Tools Used in the Study:**

Data were collected using a **structured knowledge questionnaire consisting of 20 multiple-choice questions** and the **Interdisciplinary Education Perception Scale (IEPS)** which included 18 Likert-scale items measuring teamwork, collaboration, role understanding, and professional identity. A **focus group discussion guide** was used to collect qualitative feedback regarding students' experiences.

- **Intervention:**

A **two-day interdisciplinary education training program** was conducted which included case-based learning, role-play activities, and facilitator-led debriefing sessions.

- **Methods of Data Collection:**

Pre-test was conducted on Day 1 before the intervention. The interdisciplinary education program was implemented over two days. Post-test and focus group discussions were conducted on Day 3.

**Results / Findings**

**Table 1: Demographic Characteristics of Participants (n=100)**

Variable	Category	Frequency (n)	Percentage (%)
Gender	a. Female	72	72%
	b. Male	28	28%
Discipline	a. Nursing Students	50	50%
	b. Allied Health Students	50	50%
Age (years)	a. 18-20 years	5	5%
	b. 21-23 years	81	81%
	c. 24 years and above	14	14%

The majority of participants were female (72%), with equal representation from nursing and allied health disciplines (50% each). Most students belonged to the age group of 21–23 years (81%).

**Table 2: Knowledge Score Comparison (Pre-test vs Post-test)**

Test	Mean ± SD	t-value	p-value
Pre-test	12.3 ± 2.8		
Post-test	17.5 ± 2.1	11.42	<0.001

There was a statistically significant improvement in knowledge scores after the interdisciplinary education intervention.

**Table 3: Interdisciplinary Education Perception Scale Scores**

Domain	Pre-test Mean ± SD	Post-test Mean ± SD	p-value
Teamwork & Collaboration	3.2 ± 0.6	4.1 ± 0.4	<0.01
Role Understanding	2.9 ± 0.7	4.0 ± 0.5	<0.01
Professional Identity	3.5 ± 0.5	4.2 ± 0.3	<0.05

The results indicate a significant improvement in students' perceptions of teamwork, collaboration, and professional identity after the interdisciplinary education program.

Qualitative findings from focus group discussions revealed three major themes: improved communication among healthcare professionals, enhanced respect for other professions, and increased confidence in collaborative clinical practice.

### Discussion

The present study demonstrated a statistically significant improvement in knowledge and perception scores among students after participation in the interdisciplinary education program. The mean knowledge score increased from **12.3 ± 2.8 in the pre-test to 17.5 ± 2.1 in the post-test (t = 11.42, p < 0.001)**, indicating that structured interdisciplinary learning activities were highly effective in enhancing students' understanding of collaborative healthcare practice. These findings support the effectiveness of interdisciplinary education as an important strategy for strengthening teamwork competencies among nursing students.

Similarly, significant improvements were observed in perception scores measured using the **Interdisciplinary Education Perception Scale (IEPS)**. The mean teamwork and collaboration score improved from **3.2 ± 0.6 to 4.1 ± 0.4 (p < 0.01)**, role understanding improved from **2.9 ± 0.7 to 4.0 ± 0.5 (p < 0.01)**, and professional identity improved from **3.5 ± 0.5 to 4.2 ± 0.3 (p < 0.05)**. These statistically significant improvements indicate that interdisciplinary education positively influenced students' perceptions toward collaborative healthcare practice.

The findings of the present study are consistent with earlier research conducted by **Reeves et al.**, who reported that interprofessional education significantly strengthens teamwork competencies and improves patient safety outcomes through enhanced communication among healthcare professionals<sup>1</sup>. The improvement observed in teamwork and collaboration scores in the present study further supports these findings.

Similarly, **Parsell and Bligh** reported that interdisciplinary learning improves students' readiness for collaborative practice by enhancing their understanding of professional roles and responsibilities<sup>3</sup>. The significant improvement in role-understanding scores observed in the present study (**2.9 ± 0.7 to 4.0 ± 0.5; p < 0.01**) is consistent with their findings and indicates increased awareness of interdisciplinary roles among participants.

Furthermore, the results of the present study are supported by **Lapkin and Levett-Jones**, who highlighted that structured interdisciplinary education strategies such as case-based learning, simulation, and role-play significantly enhance collaborative competencies among healthcare students<sup>9</sup>. The structured two-day interdisciplinary training program implemented in the present study incorporated similar teaching strategies, which may explain the statistically significant improvements observed in both knowledge and perception scores.

Qualitative findings from focus group discussions also complemented the quantitative results, as students reported improved communication skills, increased respect for other healthcare professionals, and enhanced confidence in collaborative clinical practice. These findings are consistent

with previous studies that reported improved professional interaction and teamwork attitudes following interdisciplinary learning interventions<sup>11,12</sup>.

Overall, the findings of the present study demonstrate that interdisciplinary education not only improves theoretical knowledge but also positively influences students' perceptions, communication skills, and professional relationships necessary for effective teamwork in clinical settings. Therefore, integrating structured interdisciplinary education programs into nursing curricula can play a vital role in preparing future nurses for collaborative healthcare environments and improving patient-centered care outcomes.

### Conclusion

Interdisciplinary education is an effective strategy for preparing nursing students for collaborative clinical practice. The present study demonstrated significant improvement in knowledge, perception, and teamwork competencies after participation in the interdisciplinary education program. Students also reported improved communication skills and better understanding of professional roles. Incorporating structured interdisciplinary learning activities such as case-based learning and simulation into nursing curricula can enhance collaborative competencies among future healthcare professionals and contribute to improved patient care outcomes.

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### Conflict of Interest

The authors declare that there is no conflict of interest.

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