

# INTERPROFESSIONAL EDUCATION IN DENTISTRY AND NURSING: BARRIERS, OUTCOMES, AND PATHWAYS TO COLLABORATION

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## Abstract

Interprofessional education (IPE) between dentistry and nursing represents a critical pathway to improve comprehensive patient care by addressing the well-established oral-systemic health connection. This literature review examines the current status, barriers, outcomes, and pathways to enhance collaboration in dental-nursing IPE. Despite growing recognition of IPE's importance, significant challenges persist, including institutional silos, scheduling conflicts, professional culture differences, faculty preparation gaps, and curriculum overload. Evidence suggests that well-designed IPE experiences positively influence student knowledge, attitudes, and clinical skills, with studies reporting improved oral health assessment capabilities among nursing students and enhanced understanding of systemic conditions among dental students. Successful implementation strategies include competency-based frameworks, case-based learning, simulation technologies, community-based experiences, and strong institutional support. Future directions require attention to rigorous outcome assessment, technology integration, policy development, and cultural adaptation. As healthcare evolves toward more integrated approaches, dental-nursing IPE will become increasingly vital to prepare professionals who can collaborate effectively across disciplinary boundaries to improve patient outcomes. This review synthesizes current evidence and provides recommendations for educational institutions seeking to develop or enhance interprofessional learning experiences between these disciplines.

## INTRODUCTION

The evolving landscape of healthcare demands increasingly collaborative approaches to patient care. Interprofessional education (IPE) has emerged as a critical framework for preparing healthcare professionals to work effectively in team-based environments. IPE occurs when "students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes" (Alqutaibi et al., 2025). In particular, the integration of dental and nursing education represents a significant opportunity to improve comprehensive patient care by addressing the well-established connection between oral and systemic health. Despite growing recognition of IPE's importance, implementing effective interprofessional learning experiences between dentistry and nursing remains challenging. Educational silos, curricular constraints, and professional

culture barriers continue to impede progress. This study explores the current status of IPE between dentistry and nursing, examines barriers to implementation, reviews evidence for outcomes, and proposes pathways to enhance collaboration between these disciplines.

### **Current Status of Interprofessional Education in Dentistry and Nursing Global and Regional Perspectives**

Interprofessional education has gained momentum globally, though implementation varies considerably across regions and institutions. In the United States and Canada, the Commission on Dental Accreditation (CODA) has established standards requiring dental programs to provide IPE experiences, yet the depth and quality of these experiences remain inconsistent (Khabeer & Faridi, 2024). A review by Alqutaibi et al. (2025) found that while many dental schools have incorporated some form of IPE into their curricula, the extent of integration with nursing programs specifically is often limited.

In Saudi Arabia, IPE initiatives are relatively nascent compared to Western countries. Almater et al. (2025) conducted a scoping review that revealed significant variability in IPE implementation across Saudi health professional programs, with most initiatives being relatively recent developments. The authors noted that while institutional interest is growing, structured IPE programs involving both dental and nursing students remain sparse.

#### **Curricular Integration Models**

The integration of IPE into dental and nursing curricula follows several models. De Mendonça et al. (2024) identified three predominant approaches in their systematic review:

1. **Extracurricular activities:** Optional workshops, community service projects, or volunteer opportunities where dental and nursing students collaborate.
2. **Integrated didactic courses:** Shared classroom experiences focusing on topics relevant to both disciplines, such as patient communication, ethics, or health promotion.
3. **Clinical practice experiences:** Collaborative patient care in clinical settings, ranging from simulation exercises to actual care delivery in community settings.

Cardenas et al. (2023) described the Teaming and Integrating for Smiles and Health (TISH) Learning Collaborative, which demonstrated how virtual collaborative learning could accelerate progress in integrating primary care (including nursing) and oral health teams. This initiative focused on improving early detection of hypertension in dental settings and gingivitis in primary care settings while enhancing bidirectional referrals between providers.

### **Barriers to Interprofessional Education Implementation Institutional and Structural Barriers**

Multiple studies have identified significant institutional challenges to implementing IPE between dental and nursing programs. Khabeer and Faridi (2024) highlight several key structural barriers:

1. **Scheduling conflicts:** Differing academic calendars and clinical rotations make coordinating joint learning activities exceptionally difficult.
2. **Physical separation:** Dental and nursing schools are often located on different campuses or in separate buildings, limiting opportunities for spontaneous interaction.
3. **Financial constraints:** Developing and implementing IPE programs requires additional resources, faculty time, and administrative support, which may be unavailable or inadequately allocated.
4. **Accreditation requirements:** Although accreditation bodies increasingly emphasize IPE, specific requirements for cross-disciplinary education between dental and nursing programs may lack clarity or specificity. Almater et al. (2025) further noted that in Saudi Arabia, institutional silos and departmental territories often impede cross-disciplinary collaboration, with limited mechanisms for sharing resources or expertise between dental and nursing departments.

#### **Attitudinal and Cultural Barriers**

Beyond structural challenges, attitudinal and cultural factors significantly influence IPE implementation. Makeen et al. (2023) surveyed health profession students in Saudi Arabia and found varying degrees of readiness for IPE, with some students expressing concerns about role boundaries and professional identity. The authors noted that dental students sometimes perceived IPE as less relevant to their future practice compared to nursing students, who generally demonstrated greater openness to collaborative learning.

Abusabeib et al. (2024) explored nursing students' perceptions of IPE through high-fidelity simulation and found that while students valued the experience, many expressed anxiety about interacting with dental students due to perceived knowledge hierarchies and communication barriers. These findings align with Alqutaibi et al.'s (2025) observation that professional stereotypes and historical divisions between healthcare disciplines continue to influence attitudes toward IPE.

#### **Educational and Pedagogical Challenges**

Implementing effective IPE requires appropriate educational frameworks and pedagogical approaches. Several challenges have been identified:

1. **Faculty expertise:** Many dental and nursing educators lack training in interprofessional teaching methods or experience with collaborative practice models (CareQuest Institute, 2025).

2. **Assessment complexities:** Evaluating IPE outcomes requires methods that can measure collaboration, communication, and teamwork in addition to discipline-specific knowledge (Alqutaibi et al., 2025).
3. **Curriculum overload:** Both dental and nursing curricula are already densely packed, making it difficult to incorporate additional IPE experiences without sacrificing discipline-specific content (de Mendonça et al., 2024).
4. **Technological limitations:** While virtual and simulated learning environments offer potential solutions to logistical barriers, they require technological infrastructure and expertise that may be unevenly distributed across institutions (Torne Duran, n.d.).

## **Outcomes of Interprofessional Education in Dentistry and Nursing**

### **Impact on Student Knowledge and Attitudes**

Research indicates that well-designed IPE experiences can positively influence student knowledge and attitudes. Haresaku et al. (2024) evaluated an IPE program integrating nursing care and oral healthcare, finding that both dental and nursing students reported increased understanding of each other's roles and greater appreciation for collaborative approaches to patient care. The authors noted particular improvements in nursing students' knowledge of oral health assessment and dental students' understanding of systemic health conditions.

Similarly, Aladwani et al. (2025) surveyed healthcare undergraduates at Taif University in Saudi Arabia and found that participation in IPE activities was associated with more positive attitudes toward interprofessional collaboration and greater confidence in communication across disciplines. However, the authors noted that the depth and sustainability of these attitudinal changes varied depending on the quality and duration of the IPE experience.

### **Effects on Clinical Skills and Practice**

Beyond knowledge and attitudes, IPE can influence clinical skills and practice behaviors. Bhagat et al. (2020) conducted a systematic review of oral health education in undergraduate nursing curricula and found that integrated learning experiences improved nursing students' ability to perform oral assessments and identify conditions requiring dental referral. The authors noted that these improvements were most significant when education included hands-on practice components and was reinforced through clinical experiences.

Cardenas et al. (2023) demonstrated that participation in the TISH Learning Collaborative led to measurable improvements in clinical practice, including increased rates of hypertension screening in dental settings and more consistent referrals between primary care and dental teams. The authors reported that dental participants significantly improved their self-reported ability to counsel patients on blood pressure by the end of the program.

### **Institutional and Systemic Outcomes**

IPE initiatives can also yield broader institutional and systemic benefits. Almutairi et al. (2023) described collaborative efforts between dentistry and nursing in Saudi Arabia that not only enhanced student learning but also led to improved care coordination, more efficient use of resources, and stronger institutional partnerships. The authors highlighted how these collaborative relationships created opportunities for joint research initiatives and community outreach programs that would not have been possible within single-discipline frameworks.

The CareQuest Institute (2025) similarly documented how institutional commitment to IPE can drive systemic improvements in care delivery, noting that healthcare organizations with robust IPE programs often demonstrate better teamwork, reduced errors, and improved patient satisfaction. However, the Institute emphasized that these outcomes require sustained investment in IPE beyond initial pilot programs.

## **Pathways to Enhanced Collaboration**

### **Curriculum Development and Integration**

Developing effective IPE curricula requires thoughtful planning and strategic integration. Several approaches have shown promise:

1. **Competency-based frameworks:** Alqutaibi et al. (2025) advocate for competency-based IPE curricula that clearly articulate expected outcomes related to collaboration, communication, ethical practice, and roles/responsibilities. These competencies should be mapped across dental and nursing programs to identify natural integration points.
2. **Case-based learning:** De Mendonça et al. (2024) highlight the effectiveness of case-based learning that presents complex patient scenarios requiring input from both dental and nursing perspectives. These cases can be delivered through classroom discussions, simulations, or virtual learning environments.
3. **Progressive integration:** Cardenas et al. (2023) suggest a progressive approach to curriculum integration, beginning with shared didactic experiences in early program years and advancing to collaborative clinical experiences as students develop discipline-specific expertise.
4. **Community-based experiences:** Almutairi et al. (2023) describe successful IPE initiatives centered on community-based care, where dental and nursing students collaborate to address oral health needs in underserved populations. These experiences often naturally encourage interprofessional collaboration while serving community needs.

### **Innovative Teaching Methodologies**

Innovative teaching methodologies can help overcome logistical and attitudinal barriers to IPE:

1. **Simulation and virtual learning:** Torne Duran (n.d.) explores the potential of augmented reality in prosthodontics education, noting how this technology can facilitate collaboration between dental students and

nursing students while enhancing patient communication. Abusabeib et al. (2024) similarly demonstrate the value of high-fidelity simulation for creating realistic interprofessional learning experiences.

2. **Team-based learning:** Haresaku et al. (2024) describe successful implementation of team-based learning approaches where dental and nursing students work in mixed groups to solve clinical problems, encouraging peer learning and appreciation of different professional perspectives.

3. **Reflective practice:** Alqutaibi et al. (2025) emphasize the importance of structured reflection in IPE, suggesting that guided reflection helps students process interprofessional experiences and consolidate learning about collaborative practice.

4. **Technology-enabled collaboration:** The TISH Learning Collaborative described by Cardenas et al. (2023) demonstrates how virtual platforms can facilitate collaboration between geographically dispersed professionals, suggesting similar approaches could be adapted for educational settings.

#### **Institutional Support and Faculty Development**

Sustained institutional commitment is essential for successful IPE implementation:

1. **Leadership engagement:** CareQuest Institute (2025) emphasizes that successful IPE requires visible support from institutional leadership, including deans of dental and nursing schools, department chairs, and clinical directors.

2. **Faculty development:** Alqutaibi et al. (2025) highlight the need for faculty development programs that prepare educators to facilitate interprofessional learning experiences, noting that many faculty members lack training in collaborative teaching methods.

3. **Resource allocation:** Khabeer and Faridi (2024) stress the importance of dedicated funding, protected time, and administrative support for IPE initiatives, suggesting that these resources should be explicitly allocated in institutional budgets.

4. **Incentive structures:** Almater et al. (2025) note that faculty engagement in IPE is influenced by institutional reward structures, suggesting that promotion and tenure criteria should recognize contributions to interprofessional teaching and research.

#### **Addressing Regional and Cultural Contexts**

Effective IPE implementation must consider regional and cultural contexts:

1. **Cultural adaptation:** Makeen et al. (2023) emphasize the importance of adapting IPE approaches to align with local cultural values and healthcare systems, noting that models developed in Western contexts may not transfer directly to regions like Saudi Arabia.

2. **Language and communication:** Aladwani et al. (2025) highlight communication challenges in multicultural educational environments, suggesting that IPE initiatives should incorporate strategies to address language differences and cultural communication patterns.

3. **Professional hierarchies:** Abusabeib et al. (2024) note that professional hierarchies may be more pronounced in some cultural contexts, requiring explicit attention to power dynamics in interprofessional learning experiences.

4. **Religious and gender considerations:** Almutairi et al. (2023) discuss how religious and gender norms in Saudi Arabia influence interprofessional interactions, suggesting that IPE initiatives should create inclusive environments while respecting cultural values.

#### **Future Directions and Research Needs**

##### **Assessment and Evaluation**

Improving assessment of IPE outcomes remains a critical priority. Alqutaibi et al. (2025) call for more rigorous evaluation methods that can measure both short-term learning outcomes and longer-term impacts on professional practice. The authors suggest that mixed-methods approaches combining quantitative measures of knowledge and skills with qualitative exploration of attitudinal changes may provide more comprehensive understanding of IPE effectiveness.

##### **Technology Integration**

The potential of technology to enhance IPE deserves further exploration. Torne Duran (n.d.) points to emerging technologies like augmented reality, virtual reality, and artificial intelligence as promising tools for creating immersive interprofessional learning experiences. These technologies may help overcome logistical barriers while providing realistic simulations of collaborative practice.

##### **Policy and Accreditation**

Policy changes and accreditation requirements could accelerate IPE implementation. CareQuest Institute (2025) recommends that accrediting bodies for dental and nursing programs develop more specific, harmonized standards for IPE that encourage meaningful collaboration rather than superficial compliance. The Institute also suggests that healthcare funding mechanisms should incentivize collaborative practice models that bridge oral and systemic care.

##### **Research Priorities**

Several research priorities emerge from the literature:

1. **Long-term impact studies:** More longitudinal research is needed to determine whether IPE experiences translate into sustained collaborative practice after graduation (Alqutaibi et al., 2025).

2. **Patient outcome research:** Additional studies should examine whether IPE initiatives ultimately improve patient outcomes and experiences (Cardenas et al., 2023).



3. **Implementation science:** Research on effective strategies for implementing and scaling IPE initiatives across diverse institutional contexts would provide valuable guidance for educators and administrators (Almater et al., 2025).
4. **Cultural adaptation:** Studies exploring how to effectively adapt IPE approaches for different cultural contexts would support more inclusive and effective educational practices (Makeen et al., 2023).

## CONCLUSION

Interprofessional education between dentistry and nursing represents a significant opportunity to improve comprehensive patient care by addressing the oral-systemic health connection. Despite persistent barriers related to institutional structures, professional cultures, and educational approaches, evidence suggests that well-designed IPE experiences can positively influence student knowledge, attitudes, and clinical skills while promoting more collaborative healthcare environments.

Moving forward, successful IPE implementation will require thoughtful curriculum development, innovative teaching methodologies, strong institutional support, and sensitivity to regional and cultural contexts. Continued research on assessment approaches, technology integration, and implementation strategies will be essential to refine and expand IPE initiatives.

As healthcare continues to evolve toward more integrated, team-based approaches, interprofessional education between dental and nursing students will become increasingly vital. By preparing future professionals to collaborate effectively across disciplinary boundaries, IPE has the potential to transform healthcare delivery and improve patient outcomes. The challenge for educational institutions is to overcome existing barriers and create sustainable IPE programs that prepare graduates for the collaborative practice environments they will encounter throughout their careers.

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