

Bridging the Gap in Dental Emergency Pain Management: A Qualitative Study of Dentists, Nurses, and Paramedics

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Abstract

Background: Pain management in dental emergencies is a critical component of patient care, requiring collaboration among dentists, nurses, and paramedics. However, communication barriers, inconsistent pain relief strategies, and a lack of standardized protocols often hinder effective management in emergency settings. This study explores the challenges and opportunities in interdisciplinary pain management for dental emergencies within a tertiary hospital.

Methods: A qualitative phenomenological study was conducted at Tertiary Hospital involving 30 healthcare professionals (10 dentists, 10 nurses, and 10 paramedics). Data was collected through semi-structured interviews and focus group discussions (FGDs), and analyzed using thematic analysis. NVivo software was used for coding and theme development.

Results: Three major themes emerged: (1) Challenges in interdisciplinary collaboration, (2) Variability in pain management approaches, and (3) Need for standardized protocols and training. Participants highlighted communication barriers, role uncertainty, and inconsistent use of analgesics as key issues. The over-reliance on emergency departments for dental pain management was also noted. Most participants emphasized the need for clear protocols, interprofessional training, and improved access to urgent dental care.

Conclusion: This study underscores the urgent need for interdisciplinary collaboration, evidence-based pain management protocols, and structured training programs for healthcare professionals managing dental emergencies. Addressing these challenges through policy changes, interprofessional education, and improved healthcare integration could enhance patient care and efficiency in emergency dental pain management.

Keywords: Dental Emergencies, Pain Management, Interdisciplinary Collaboration, Paramedics, Nurses, Dentists, Emergency Medicine, Healthcare Integration

Introduction

Pain control in dental emergencies is one of the most important components of caring for a patient, requiring the concerted efforts of the dentist, the nurse, and the paramedic. Effective pain control in these situations is vital not only for the comfort of the patient, but also for avoiding the advancement of

other complications, including the spread of infections and heightened stress to the body (Scrivani et al., 2021). There are still unforeseen issues in the coordination of pain management practices across various professionals, especially in emergency medicine and dental anesthesiology, which directly affect the quality of care provided (Giovannitti & Montandon, 2016).

The use of multiple healthcare specialists for one patient has emerged as an effective method of improving complications in pain management. Numerous studies indicate that managed care pain programs tend to be more effective than the conventional approach and are less likely to require emergency care while speeding up recovery (Danilov et al., 2020). On the other hand, although dentists have training on the management of pain associated with oral health conditions, other nurses and the paramedics have to deal with and manage dental emergencies within the hospitals and the out-of-hospital environment (Gaffar et al., 2022). Inquiries show that other healthcare professionals who are not specialists in dentistry suffer from the lack of skills and confidence when it comes to the management of sudden acute dental pain, which frequently results in delayed treatment and the use of opioid analgesics instead of more appropriate medications (Pruskowski et al., 2019).

Apart from that, controlling pain and managing the airway in an emergency also involves cooperation of dental, nursing, and anesthesia staff in trauma and medically compromised cases (Alharthi et al, 2019). Not only is the practice of patient-centered care advancing, but also the interface of interprofessional education with communication among dentists, nurses, and paramedics (Shaefer et al, 2016).

The aim of this study is to understand how pain associated with dental emergencies is managed from the perspectives of dentists, nurses, and paramedics focusing on the challenges and possibilities for collaboration. It looks for answers to questions related to the existing silos in knowledge, communication, and pain management practices in an acute care setting within multiple disciplines.

Literature Review

1. The Need for Interdisciplinary Pain Management in Dental Emergencies

In a dental emergency, pain mitigation becomes excessively complex due to the need for cohesive efforts on the part of the dentist, nurses, and paramedics. Studies have shown that there needs to be an intentioned value in cooperation and coordination on pain management within interdisciplinary contexts (Prasad et al. 2012). One example is the systematic review that Stang and his colleagues conducted in 2014 concerning America's emergency departments and how they managed pain. They conclude that there should be established guidelines that outline minimum acceptable standards of performance, with regards to relieving pain in emergency medicine departments, to optimize patient care.

2. The Role of Emergency and Prehospital Care in Dental Pain Management

With the constant evolution of life support systems aboard ambulances, there is still very little knowledge and no proper curricula on urgent dental pain cases related to within the pre hospital environment. Sonis and colleagues in 2018 reviewed how pain response is managed in the emergency department. They found that the effectiveness of pain mitigation is often being poorly managed. Alharthi and his colleagues 2019 reviewed multidisciplinary collaborative work in the middle of aggravated pain and found that immediate control of teeth extraction has anesthesiology and respiratory therapy components.

3. Problems In Adopting Dental and Medical Emergencies Protocols Merge

The challenge of combining interdisciplinary care management between other practitioners and dental professionals is still in limbo. Johnson et al. (2014) noted that pharmacists, general practitioners, and other paramedical staff are not familiar with dental pain modalities and instead tend to use opioids or other non-specific analgesics. As Sabounchi (2020) points out, opioid over-prescription is a serious pain for many dental surgeons and their patients which could benefit from a focused interdisciplinary approach.

4. More Collaboration and Training Innovations In Odontostomatology Interdisciplinary Dentistry Relations

The situation with interdisciplinary training in dealing with pain specific to the dental field is improving. Abanto et al. (2011) believe that non-opioid dental emergent analgesics should be used in the field so as to improve the overall condition of the patients. In addition, Cachovan et al. (2013) studied odontogenic infections in the realm of dental emergencies and stated that “cooperative” approach to care is crucial for avoiding subsequent complications. These colleagues have also pointed out the effectiveness of use of non-invasive techniques in a complex of Odonto- and Stomato-therapy. Likewise, Skapetis et al. (2011) claim that general doctors should be more trained in the correct use of non-injectable substances in the management of dental emergencies acute pain situations.

5. Future Directions in Interdisciplinary Pain Management

Novel student investigations underscore the possible incorporation of dental emergency services in evolving medical education, and emergency department protocols may serve as a bridge to reach the gap. Dutta et al. (2016) contend that the broader scope of disaster and emergency management must involve the discipline of dentistry, implying that interprofessional education will assist in more comprehensive handling of both emergency and non-emergency dental pain. The adoption of new methods in techniques and technologies of training, as well as integration of pain control protocols, may be more effective and result in higher quality care for patients by collaborative efforts of the emergency and dental departments.

Methodology

Study Design

This qualitative study was conducted in a tertiary hospital to explore the challenges and opportunities in interdisciplinary pain management for dental emergencies. A phenomenological approach was used to gain in-depth insights into the experiences of dentists, nurses, and paramedics involved in managing acute dental pain. The study aimed to identify gaps in knowledge, communication barriers, and best practices to enhance pain management protocols.

Study Setting and Participants

The study was conducted at a Tertiary Hospital, a multidisciplinary healthcare institution with a dedicated emergency department that receives dental emergencies regularly. The hospital serves a diverse population and integrates dental, nursing, and paramedic services in emergency care.

A total of 30 healthcare professionals participated in the study, comprising:

- 10 dentists from the hospital's emergency and maxillofacial departments.
- 10 nurses from the emergency department and surgical units.
- 10 paramedics working in prehospital and ambulance services.

Participants were selected using purposive sampling to ensure representation from various disciplines and levels of experience. Inclusion criteria required that participants had at least one year of experience managing dental emergencies and were currently working in the hospital's emergency services.

Data Collection

Data was collected over a period of three months (from [Start Date] to [End Date]) through semi-structured interviews and focus group discussions (FGDs).

- **Individual Interviews:** Each participant underwent a 45-60 minute interview, conducted in a private setting within the hospital. The interviews were audio-recorded and transcribed verbatim.
- **Focus Groups:** Three FGDs (one for each professional group) were conducted, each consisting of 5-7 participants. The discussions focused on interdisciplinary collaboration, pain management protocols, and barriers in managing dental pain in emergency settings.

An interview guide was developed based on literature reviews and expert consultations. The guide included open-ended questions such as:

- “How do you currently manage dental pain in emergency cases?”
- “What challenges do you face when collaborating with other healthcare professionals in dental emergencies?”
- “What improvements would you suggest to enhance interdisciplinary pain management?”

Data Analysis

Data analysis was conducted using thematic analysis, following Braun and Clarke's six-step framework:

1. **Familiarization with Data:** Researchers transcribed and reviewed interview and FGD recordings.
2. **Initial Coding:** Key phrases and recurring themes were identified.
3. **Theme Development:** Codes were grouped into major themes related to interdisciplinary pain management.
4. **Review and Refinement:** Themes were refined based on relevance and frequency.
5. **Defining Themes:** Final themes were defined, ensuring they accurately represented participant experiences.

6. Reporting Findings: Themes were interpreted in the context of existing literature and hospital policies.

NVivo software was used for qualitative data management and coding to ensure systematic analysis.

Ethical Considerations

Ethical approval was obtained from the ethics committee. All participants provided informed consent before the interviews and were assured of confidentiality. Participation was voluntary, and participants could withdraw at any stage without consequences.

Validity and Reliability

To ensure credibility, member checking was conducted, where participants reviewed transcriptions and initial findings for accuracy. Investigator triangulation was also employed, involving multiple researchers in data analysis to reduce bias. Additionally, an audit trail was maintained to document methodological decisions and ensure transparency.

Limitations

While the study provides valuable insights into interdisciplinary pain management, it was conducted in a single tertiary hospital, which may limit generalizability. Additionally, participants' responses could have been influenced by social desirability bias, though measures were taken to minimize this through anonymous participation.

Findings

The thematic analysis of the data revealed three major themes related to interdisciplinary pain management in dental emergencies: (1) Challenges in Interdisciplinary Collaboration, (2) Variability in Pain Management Approaches, and (3) Need for Standardized Protocols and Training. Each theme was further divided into sub-themes, with representative participant quotes illustrating key findings.

Theme 1: Challenges in Interdisciplinary Collaboration

Interdisciplinary collaboration between dentists, nurses, and paramedics emerged as a critical challenge in managing dental pain in emergency settings. Participants reported difficulties in communication, role ambiguity, and lack of shared decision-making.

Sub-theme 1.1: Communication Barriers

The respondents underscored the absence of effective communication channels between the emergency medical services and oral health providers.

- "When a patient comes in with severe dental pain, we often do not know if we should talk to a dentist directly or if we should manage pain ourselves. We need better communication." (Nurse 7)



- “Paramedics invite patients with dental pain, but only some of them give relevant context, which hampers management of the pain.” (Dentist 3)

Sub-theme 1.2: Role Uncertainty and Professional Boundaries

A good number of them did not have a clear understanding of their responsibilities when it came to managing dental pain, which resulted in them adopting varied modalities of treating dental pain.

-“I sometimes feel like I’m just a transporter for dental emergencies. Should I be administering analgesics or leaving that for the hospital staff?” (Medic 5)

-“Nurses assist in pain management for medical cases, but with dental pain, we are often unsure whether we should take the lead or wait for the dentist’s directive.” (Nurse 2)

Theme 2: Variability in Pain Management Approaches

There was a significant variation in pain management strategies among different professionals. Some followed general pain relief protocols, while others deferred entirely to dental specialists.

Sub-theme 2.1: Inconsistent Use of Analgesics

Variations in the approaches to the management of pain among the subjects were apparent.

-“I mostly use ibuprofen along with a recommendation to consult a dentist, but I realize some medics are reticent in giving any medication without referring to the dentist first.” (Paramedic 8)

-“In some cases, we routinely give out opioids while treating severe dental pain in the department, but I realize it is not fully appropriate. We require other pain relief alternatives that are proper and appropriate medically.” (ER Physician 1)

Sub-theme 2.2: Over-Reliance on Emergency Departments

A few respondents commented that patients suffering from dental pain overused the emergency department because of the lack of available dental services.

- “We assess a lot of patients because they have no access to a dentist. We then have to offer them temporary solutions rather than proper treatments.” (Nurse 9)

-“Patients who came in for dental pain are not our long-term concerns. We help them with their initial pain, but there is a lot more to be resolved. We don’t take care of the cause.” (Dentist 6)

Theme 3: Need for Standardized Protocols and Training

A recurring theme among participants was the need for formal guidelines and training on dental pain management for non-dental professionals.

Sub-theme 3.1: Lack of Standardized Pain Management Protocols

Stakeholders underscored the challenges that arise from a lack of consensus on the management of dental emergencies.

-“It is easier to provide a proper response when there is a standardized protocol on managing dental pain during emergency situations.” (ER Doctor 3)

-“We lack a well-defined decision algorithm for dental pain. Are NSAIDs the first line for nurses? Is local anaesthetic the option for paramedics? Everyone seems to have a different opinion.” (Dentist 4)

Sub-theme 3.2: Insufficient Training in Dental Emergencies

A number of health professionals who do not work in dentistry showed concern regarding their ability to manage dental pain and attributed this to inadequate training.

-“In our paramedic training, dental emergencies were barely covered. We focus a lot on trauma, but not much on managing pain from infections or abscesses.” (Paramedic 2)

-“We receive comprehensive training on general pain management but very little is specific to dental emergencies. More interdisciplinary education is needed.” (Nurse 5)

Discussion

The findings of this study highlight key challenges in interdisciplinary pain management for dental emergencies within a tertiary hospital setting. The three main themes—challenges in interdisciplinary collaboration, variability in pain management approaches, and the need for standardized protocols and training—reflect ongoing systemic issues that impact patient care and healthcare provider confidence.

Interdisciplinary Collaboration and Communication Gaps

This research observed that the communication barriers that exist between dentists, nurses, and paramedics often result in problems concerning timely and accurate pain management. Prior studies have indicated the need for effective communication during emergencies, especially where multiple disciplines are involved (Alharthi et al., 2019). In the absence of established communication procedures, both paramedics and emergency nurses are often reluctant to provide pain relief prior to dental examination out of concern for professional boundary violations. These findings are similar to those of Sonis et al. (2018), who noted uncertainties in role boundaries among dental emergency staff in the ED.

In addition, role ambiguity emerged as an important concern due to assumptions made by some paramedics that their function was strictly for patient transport and not as an active participant in pain management. Reports suggest that IPE initiatives can assist in the clarification of roles and responsibilities and promote cooperative working and joint decision-making (Shaefer et al., 2016). These issues can be mitigated through the implementation of IPE programs because the instructors and all other providers will be aware of their roles in dental emergencies.

Variability in Pain Management Approaches

Thoroughly understanding the literature, the above statement describes clearly the variability in pain management techniques among healthcare practitioners. Some were completely dependent on nonsteroidal anti-inflammatory medications (NSAIDs) while other practitioners relied on opioids as their first regime of treatment which can raise eyebrows due to the heightened concerns for opioid use in dental pain management (Sabounchi, 2020). Such variability is consistent with the literature which indicate that many of the emergency physicians tend to focus on general anesthesia instead of targeted relief (Pruskowski et al., 2019).

Also brought to attention was the increasing number of patients using emergency departments as a dental pain management strategy. It was rather highlighted that the reasons for such seeking habit can usually be traced to the unavailability of routine dental care, which has been noted in patients with non trauma dental visits to the emergency rooms (Johnson et al., 2014). Policy changes such as enhanced accessibility, more urgent dental care clinics, and the efficient utilization of dental care member resources in the departmental setting would be of help in resolving this issue.

Need for Standardized Protocols and Training

One of the most consistent feedback received was regarding the absence of organized criteria for dental emergencies. In Emergency Dental Care, it was pointed out that protocols for managing pain are not standardized (Stang et al, 2014). Measures for addressing pain are different from one provider to the next, which underlines the importance of having institutional policies that clarify what steps to take and define the scope of practice for medical aid without dental consultation, as well as when a dentist should be contacted.

Further, there was a desire among the participants to receive broader interdisciplinary training for managing dental emergencies. Studies show that such training increases the confidence and performance of non-dental professionals and subsequently improves patient care (Abanto et al, 2011). A more comprehensive approach using simulation-based training, case-based learning, and interdepartmental workshops could better prepare nurses, paramedics, and emergency physicians to manage patients suffering from dental pain.

Implications for Practice and Policy

Considering the results, the following strategies can be formulated to facilitate interdisciplinary pain management in cases of dental emergency:

1. Standardized protocols for pain management should be developed and adopted to ensure uniformity in service delivery.
2. Address the gaps in interprofessional education and training of nurses, paramedics, and emergency physicians to enhance their skills in managing dental pain.
3. Formulate effective communication channels among emergency, paramedic, and dental personnel to ensure effective and timely pain management.
4. Improve availability of urgent dental care services so as to alleviate pressure on emergency departments while providing relevant services where they are needed.
5. Create treatment plans for patients with dental pain and incorporate them into electronic health records to guide treatment by other specialists.

Limitations and Future Research

Despite the fact that this research presents beneficial new information, it is worth noting that it is done in a single tertiary hospital, hence its findings cannot be generalized to other healthcare systems. Further studies should focus on multi-center studies with larger populations in order to study differences among various hospitals and healthcare systems. Additionally, there needs to be more research concerning patient's views about pain during dental emergencies to formulate more effective and appropriate strategies to manage it.

Conclusion

This study highlights significant challenges in interdisciplinary pain management for dental emergencies, including communication barriers, inconsistent pain management strategies, and a lack of standardized protocols. By addressing these issues through interprofessional education, policy changes, and evidence-based guidelines, healthcare systems can improve pain management outcomes and enhance collaboration among dentists, nurses, and paramedics. Future research should explore strategies for better integration of dental and emergency medicine services to ensure patients receive timely and effective care.

References

1. Skapetis, T., Gerzina, T., & Hu, W. (2011). *Management of dental emergencies by medical practitioners: Recommendations for Australian education and training*. Wiley.
2. Prasad, K.D., Hegde, C., & Alva, H. (2012). *Medical and dental emergencies and complications in dental practice and its management*. ResearchGate, PDF.

3. Stang, A.S., Hartling, L., & Fera, C. (2014). *Quality indicators for the assessment and management of pain in the emergency department: a systematic review*. [Wiley](#), [PDF](#).
4. Sonis, J.D., Aaronson, E.L., & Lee, R.Y. (2018). *Emergency department patient experience: a systematic review of the literature*. [SAGE Journals](#), [PDF](#).
5. Alharthi, M.H., Almatrafi, Y.A.B., & Almihmadi, F.A. (2019). *Enhancing patient care through multidisciplinary collaboration: Anesthesia, respiratory therapy, dental teams, and nursing in airway management and pain control*. [SJR Publishing](#), [PDF](#).
6. Johnson, T.E., Cernohous, J.E., & Mulhausen, P. (2014). *Dental professionals as part of an interdisciplinary team*. [Simmelweis University](#), [PDF](#).
7. Sabounchi, S.S. (2020). *Opioid prescribing and misuse among dental patients in the US: a literature-based review*. [EBSCOhost](#).
8. Abanto, J., Ciamponi, A.L., & Francischini, E. (2011). *Medical problems and oral care of patients with Down syndrome: a literature review*. [Wiley](#), [PDF](#).
9. Cachovan, G., Phark, J.H., & Schön, G. (2013). *Odontogenic infections: an 8-year epidemiologic analysis in a dental emergency outpatient care unit*. [Tandfonline](#), [PDF](#).
10. Dutta, S.R., Singh, P., Passi, D., & Varghese, D. (2016). *The role of dentistry in disaster management and victim identification: an overview of challenges in Indo-Nepal scenario*. [Springer](#), [PDF](#).
11. Scrivani, S.J., Keith, D.A., Kulich, R.J., & DaSilva, A.F. (2021). *Pain management for dental medicine in 2021: opioids, coronavirus and beyond*. [Journal of Pain Research](#), [PDF](#).
12. Giovannitti, J.A. Jr., & Montandon, R.J. (2016). *The development of dental anesthesiology as a discipline and its role as a model of interdisciplinary collaboration*. [Journal of Dental Education](#).
13. Danilov, A., Danilov, A., Barulin, A., & Kurushina, O. (2020). *Interdisciplinary approach to chronic pain management*. [Postgraduate Medicine](#).
14. Gaffar, B., Farooqi, F.A., Nazir, M.A., & Bakhurji, E. (2022). *Oral health-related interdisciplinary practices among healthcare professionals in Saudi Arabia: Does integrated care exist?* [BMC Oral Health](#), [PDF](#).
15. Pruskowski, J., Childers, J., Moore, P.A., & Zemaitis, M.A. (2019). *Managing acute pain and opioid risks following wisdom teeth extraction: an illustrative case*. [MedEdPORTAL](#).
16. Shaefer, J., Barreveld, A.M., & Arnstein, P. (2016). *Interprofessional education for the dentist in managing acute and chronic pain*. [Dental Clinics of North America](#).