Research Article ISSN 2767-5416

Journal of Medical Clinical Case Reports

Knowledge Gaps and Clinical Preparedness in the Management of Gingival Accidents among Dental Professionals

Karima Alfitory Ahmed

Department of Oral Pathology, Faculty of Dentistry, University of Sirt, Libya.

***Corresponding Authors**

Karima Alfitory Ahmed,
Department of Oral Pathology, Faculty of Dentistry, University of Sirt, Libya.

Submitted: 10 Apr 2026; **Accepted:** 17 Apr 2026; **Published:** 25 Apr 2026

Citation: Ahmed, K. A. (2026). Knowledge Gaps and Clinical Preparedness in the Management of Gingival Accidents among Dental Professionals. *J Medical Case Repo 8*(2):1-4. DOI : https://doi.org/10.47485/2767-5416.1150

Abstract

Gingival accidents are common clinical occurrences in dental practice and may negatively affect patient outcomes if inadequately managed. This study aimed to assess knowledge gaps and clinical preparedness among dental professionals regarding the management of gingival accidents.

A cross-sectional survey was conducted using a structured electronic questionnaire distributed via social media platforms. A total of 219 dental practitioners participated. The questionnaire assessed demographic characteristics, knowledge, clinical preparedness, and training needs. Data were analyzed using descriptive statistics and inferential tests, with significance set at $p < 0.05$.

Most participants (76.3%) reported encountering gingival accidents; however, only 51.1% felt confident in managing them, and less than half adhered to standardized protocols. Knowledge levels were moderate, with deficiencies in immediate management and complication recognition. A significant association was found between clinical experience and knowledge level ($p < 0.05$). The majority (81.3%) expressed the need for additional training.

These findings indicate notable gaps in knowledge and preparedness, highlighting the need for enhanced education, practical training, and standardized clinical guidelines.

Keywords: Gingival accidents; Dental professionals; Knowledge; Clinical preparedness; Training needs; Cross-sectional study

Introduction

Gingival tissues play a critical role in maintaining oral health and supporting functional and esthetic outcomes in dental practice. Despite advancements in restorative materials and clinical techniques, iatrogenic gingival injuries remain a common complication during routine dental procedures such as cavity preparation, matrix placement, and restorative finishing (World Health Organization [WHO], 2022); Rawal et al., 2004). These gingival accidents may lead to inflammation, delayed healing, patient discomfort, and compromised treatment outcomes if not properly managed (Umesh et al., 2022).

The increasing use of resin-based restorative materials and adhesive techniques has improved clinical performance; however, these procedures are often technique-sensitive and may increase the risk of soft tissue trauma if adequate precautions are not taken (Halim et al., 2025; Braga, et al., 2005). Moreover, factors such as improper isolation, over-instrumentation, and lack of operator experience have been identified as contributing factors to gingival injuries in clinical settings (Mount, 2002; Sidhu, 2010).

Previous studies have emphasized that the longevity and success of dental restorations are not solely dependent on the materials used but also on the clinician's ability to manage surrounding soft tissues effectively (Opdam et al., 2014; Lynch et al., 2011). Inadequate management of gingival tissues can result in suboptimal marginal adaptation, increased plaque accumulation, and long-term periodontal complications (Brännström, 1986).

Despite the clinical importance of gingival health, variability exists in dentists' knowledge, clinical decision-making, and management practices related to gingival accidents (Burke, et al. 2003). Continuous professional education and training are therefore essential to ensure appropriate handling of such complications and to improve patient care outcomes.

A recent study by Ahmed et al. (2025) reported a high incidence of gingival accidents among dental professionals, along with variability in management approaches and a significant need for further training (Ahmed et al., 2025). These findings highlight the necessity to further explore knowledge gaps and clinical preparedness in this area.

Therefore, the present study aims to assess knowledge gaps and clinical preparedness in the management of gingival accidents among dental professionals, with the goal of identifying areas for improvement in education and clinical practice.

Materials and Methods

Study Design and Participants

This study was designed as a cross-sectional survey aimed at evaluating knowledge gaps and clinical preparedness in the management of gingival accidents among dental professionals. The study targeted licensed dentists from various specialties and levels of clinical experience.

Sample Size and Data Collection

A total of 219 dental practitioners participated in the study. Data were collected using a structured, self-administered electronic questionnaire developed via Google Forms. The questionnaire was distributed through social media platforms, including professional WhatsApp groups and Facebook communities, to ensure wide accessibility and participation.

Participation was voluntary and anonymous. Inclusion criteria included practicing dentists willing to complete the questionnaire, while incomplete or duplicate responses were excluded from the final analysis.

Questionnaire Design and Validation

The questionnaire was developed based on a review of relevant literature and previously published studies. It consisted of four main sections:

1. Demographic and professional characteristics
2. Knowledge related to gingival accidents
3. Clinical preparedness and management practices
4. Perceived training needs

To ensure clarity and validity, the questionnaire was reviewed by a panel of experts in restorative dentistry and periodontology. A pilot study was conducted on a small sample of dentists (n = 15) to assess clarity, relevance, and reliability. Minor modifications were made based on feedback, and pilot responses were excluded from the final analysis.

Ethical Considerations

The study adhered to ethical research principles. Participants were informed about the purpose of the study, and informed consent was obtained electronically prior to participation. Data confidentiality and anonymity were strictly maintained.

Statistical Analysis

Data were entered and analyzed using Statistical Package for the Social Sciences (SPSS), version 26 (IBM Corp., Armonk, NY, USA). Descriptive statistics, including frequencies and percentages, were used to summarize categorical variables.

Where appropriate, inferential statistical tests such as the Chi-square test were applied to assess associations between variables (e.g., level of experience and knowledge or preparedness). A p-value < 0.05 was considered statistically significant.

Results

A total of 219 dental professionals participated in this study. The findings are presented according to the main sections of the questionnaire.

Demographic and Professional Characteristics

The majority of participants were general practitioners, with varying years of clinical experience.

Table 1: Demographic Characteristics of Participants (n = 219)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	98	44.7%
	Female	121	55.3%
Years of Experience	<5 years	85	38.8%
	5–10 years	72	32.9%
	>10 years	62	28.3%
Specialty	General Dentist	140	63.9%
	Specialist	79	36.1%

Knowledge of Gingival Accidents

Most participants demonstrated moderate knowledge, with noticeable gaps in specific clinical scenarios.

Table 2: Knowledge Assessment

Question	Correct Response (n)	Percentage (%)
Identification of gingival injury types	150	68.5%
Causes of gingival accidents	162	74.0%
Proper immediate management	128	58.4%
Complications of untreated injury	119	54.3%

Overall Knowledge Level

- Good: 90 (41.1%)
- Moderate: 85 (38.8%)
- Poor: 44 (20.1%)

Clinical Preparedness and Practice

Although many participants encountered gingival accidents, preparedness varied.

Table 3: Clinical Experience and Preparedness

Variable	Yes (n)	Percentage (%)
Have encountered gingival accidents	167	76.3%
Confident in managing gingival injuries	112	51.1%
Follow standard clinical protocols	105	47.9%

Training Needs

A high proportion of participants expressed the need for further training.

Table 4: Training Needs

Variable	Yes (n)	Percentage (%)
Need additional training	178	81.3%
Interested in workshops/courses	185	84.5%
Prefer hands-on training	160	73.1%

Statistical Analysis

A **Chi-square test** revealed a significant association between **years of experience and knowledge level** ($p < 0.05$), indicating that dentists with more experience demonstrated higher knowledge scores.

No statistically significant association was found between **gender and preparedness level** ($p > 0.05$).

Discussion

The present study aimed to evaluate knowledge gaps and clinical preparedness in the management of gingival accidents among dental professionals. The findings revealed that although a considerable proportion of participants had encountered gingival injuries in clinical practice, notable deficiencies in knowledge and preparedness still exist.

In this study, more than two-thirds of participants reported previous exposure to gingival accidents, highlighting that such incidents are relatively common in daily dental practice. This finding is consistent with previous studies reporting that soft tissue injuries, including gingival trauma, frequently occur during routine dental procedures and may be underestimated in clinical settings (Qamar & Shoaib, 2024). Despite this high exposure rate, only about half of the respondents expressed confidence in managing such cases, indicating a discrepancy between clinical experience and competence.

The assessment of knowledge demonstrated that while general awareness of gingival injuries and their causes was acceptable, deficiencies were evident in areas related to immediate management and potential complications. This aligns with findings reported by Qamar and Shoaib (2024), who emphasized that gaps in clinical knowledge may directly impact treatment outcomes and patient satisfaction (Qamar & Shoaib, 2024). Similarly, other studies have highlighted that inadequate understanding of soft tissue management can lead to delayed healing, increased patient discomfort, and potential long-term complications (Demarco et al., 2023; Josic et al., 2023).

Clinical preparedness among participants was found to be suboptimal, with less than half reporting adherence to standardized protocols. This is in agreement with previous research suggesting variability in clinical decision-making and management approaches among dental practitioners (Ulku & Unlu, 2024). The lack of standardized guidelines or insufficient familiarity with them may contribute to inconsistent practices, ultimately affecting the quality of patient care.

A significant association was observed between years of clinical experience and knowledge level, indicating that more experienced practitioners tend to demonstrate better understanding and decision-making abilities. This finding is supported by earlier studies showing that clinical exposure and continuous practice enhance professional competence and confidence (Rodolpho et al., 2022). However, the absence of a significant relationship between gender and preparedness suggests that clinical competence is more strongly influenced by experience and training rather than demographic factors.

One of the most important findings of this study is the high demand for additional training, with the majority of participants expressing interest in further education, particularly hands-on workshops. This is consistent with previous literature emphasizing the importance of continuous professional development in improving clinical outcomes and bridging knowledge gaps (Bourgi et al., 2024; Bompolaki et al., 2022). Modern dental education increasingly highlights the need for practical training and simulation-based learning to enhance clinicians' ability to manage complications effectively.

The findings of this study underscore the importance of integrating targeted educational programs into both undergraduate and continuing dental education curricula. Emphasis should be placed on the prevention, early detection, and management of gingival accidents, as well as the development of standardized clinical protocols. Furthermore, the incorporation of evidence-based guidelines and clinical training modules may help reduce variability in practice and improve patient outcomes.

Despite its strengths, this study has some limitations. The use of a self-reported questionnaire may introduce response bias, and the distribution via social media may limit the generalizability of the findings. Additionally, the cross-sectional design does not allow for causal inferences. Future studies are recommended to include larger, more diverse populations and to explore the effectiveness of targeted educational interventions.

Conclusion

The present study highlights the presence of significant knowledge gaps and suboptimal clinical preparedness among dental professionals in the management of gingival accidents. Although a large proportion of practitioners reported encountering such incidents in clinical practice, confidence in management and adherence to standardized protocols remain limited. The findings emphasize the need for strengthening both theoretical knowledge and practical skills to ensure effective prevention and management of gingival injuries.

Furthermore, the strong demand for additional training, particularly hands-on clinical workshops, reflects the necessity for continuous professional development. Enhancing educational strategies at both undergraduate and postgraduate levels, along with the implementation of evidence-based clinical guidelines, may contribute to improving practitioner competence and patient outcomes.

Limitations

This study has several limitations that should be acknowledged. First, the use of a self-administered questionnaire may introduce response bias, as participants might overestimate their knowledge or clinical competence. Second, the distribution of the survey via social media platforms may limit the generalizability of the findings, as it may not fully represent all dental professionals. Third, the cross-sectional design of the study restricts the ability to establish causal relationships between variables. Additionally, the reliance on self-reported data rather than direct clinical observation may affect the accuracy of the reported practices.

Future Directions

Future research should focus on conducting longitudinal and interventional studies to evaluate the effectiveness of targeted educational programs in improving knowledge and clinical preparedness. Expanding the sample size and including participants from different geographical regions and clinical settings would enhance the generalizability of the findings. Moreover, incorporating objective clinical assessments and simulation-based evaluations could provide a more accurate measure of practitioners' competencies. The development and implementation of standardized clinical guidelines for the management of gingival accidents are also recommended to ensure consistency in practice and improve patient care.

References

1. World Health Organization (2022). Oral health status and global burden of oral diseases. Geneva.
2. Rawal, S.Y., Claman, L. J., Kalmar, J. R. & Tatakis, D. N. (2004). Traumatic lesions of the gingiva: a case series, *Journal of Periodontology, 75*(5), 762–769. https://doi.org/10.1902/jop.2004.75.5.762
3. Umesh, S. G., Ramachandran, L., Karthikeyan, J., & Shankar, S. M. (2022). Trauma and the periodontal tissues: a narrative review. https://doi.org/10.5772/intechopen.108202
4. Halim, F. C., Soeroso, Y., Hutomo, D. I., Harsas, N. A., & Sulijaya, B. (2025). Effectiveness of restorative materials on combined periodontal restorative treatment of gingival recession with cervical lesion: a systematic review. *Heliyon, 11*(4), e42656. https://doi.org/10.1016/j.heliyon.2025.e42656
5. Braga, R. R., et al. (2005). Polymerization shrinkage and stress in resin composites. *Dent Mater*, 21, 70–77.
6. Mount, G. J. (2002). Glass ionomer cements: clinical considerations. *Oper Dent*. 27, 94–101.
7. Sidhu, S. K. (2010). Glass-ionomer cement restorative materials. *J Funct Biomater*. 1, 162–180.
8. Opdam, N. J., et al. (2014). Clinical factors influencing restoration longevity. *J Dent*, 42,123–130.
9. Lynch, C. D., et al. (2011). Factors influencing dentist treatment decisions. *J Den*t, 39, 635–642.
10. Brännström, M. (1986). Dentin sensitivity and postoperative pain. *J Endod*, 12, 241–247.
11. Burke, F. J. T., et al. (2003). Restorative material selection in general practice. *Br Dent J*, 194, 45–50.
12. Ahmed, K. A., Ibrahim, R., & Gehani, G. (2025). Incidence, Management Practices, and Training Needs for Gingival Accidents among Dental Professionals: A Survey-Based Study. A*frican Journal of Advanced Pure and Applied Sciences, 4*(1), 265–271. DOI: https://doi.org/10.65418/ajapas.v4i1.1146
13. Qamar, R., & Shoaib, M. (2024). Patient Preferences and Satisfaction in Aesthetic Restorative Treatments: A Qualitative Study. *Journal of Dental Care, 1*(1), 67–73.
14. Demarco, F. F., Cenci, M. S., Montagner, A. F., de Lima, V. P., Correa, M. B., Moraes, R. R., & Opdam, N. J. (2023). Longevity of composite restorations is definitely not only about materials. *Dental Materials, 39*(1), 1–12. DOI: https://doi.org/10.1016/j.dental.2022.11.009
15. Josic, U., D'Alessandro, C., Miletic, V., Maravic, T., Mazzitelli, C., Jacimovic, J., Sorrentino, R., Zarone, F., Mancuso, E., Delgado, A. H., Breschi, L., & Mazzoni, A. (2023). Clinical longevity of direct and indirect posterior resin composite restorations: an updated systematic review and meta-analysis. *Dental Materials, 39*(12), 1085–1094. DOI: https://doi.org/10.1016/j.dental.2023.10.009
16. Ulku, S. G., & Unlu, N. (2024). Factors influencing the longevity of posterior composite restorations: A dental university clinic study. *Heliyon, 10*(6). DOI: https://doi.org/10.1016/j.heliyon.2024.e27735
17. Rodolpho, P. A. D. R., Rodolfo, B., Collares, K., Correa, M. B., Demarco, F. F., Opdam, N. J., Cenci, M. S., & Moraes, R. R. (2022). Clinical performance of posterior resin composite restorations after up to 33 years. *Dental Materials, 38*(4), 680–688. DOI: https://doi.org/10.1016/j.dental.2022.02.009
18. Bourgi, R., Kharouf, N., Cuevas-Suárez, C. E., Lukomska-Szymanska, M., Haikel, Y. & Hardan, L. (2024). A literature review of adhesive systems in dentistry: key components and their clinical applications. *Applied Sciences, 14*(18), 8111. DOI: https://doi.org/10.3390/app14188111
19. Bompolaki, D., Lubisich, E. B., & Fugolin, A. P. (2022). Resin-based composites for direct and indirect restorations: clinical applications, recent advances, and future trends. *Dental Clinics, 66*(4), 517–536. DOI: https://doi.org/10.1016/j.cden.2022.05.003
20. Fernández, E., Gil, A. C., Caviedes, R., Díaz, L., Bersezio, C., & Fernández, E. (2026). Clinical longevity of direct dental restorations: an umbrella review of systematic reviews. Journal of Esthetic and Restorative *Dentistry, 38*(2), 307–324. DOI: https://doi.org/10.1111/jerd.70052