https://doi.org/10.37723/jumdc.v16i2.1051

J. Univ. Med. Dent. Coll.2025;Vol.16(2): 1082-1087
ISSN (Print) 2221-7827, ISSN (Online) 2310-5542
https://www.jumdc.com

Review Article

Open Access

Common prescription errors among dentists in the middle east: A comprehensive literature review

Hala Afifi [a] *Sarah Dheaa [b], Farah Albanna [c], Farah Alqaderi [c]

[a] *Associate Professor, Pharmaceutical Sciences, College of Dentistry, City University Ajman, UAE.*
[b] *5th year Student, College of Dentistry, City University Ajman, Ajman, UAE.*
[c] *General Practitioner, College of Dentistry, City University Ajman, Ajman, UAE.*
Correspondence: a.hala@cu.ac.ae*

ABSTRACT

Prescription errors in healthcare pose significant risks, leading to adverse patient outcomes and escalating healthcare costs. In dentistry, mistakes such as incorrect drug choice or dosage can result in serious complications. Although these risks are recognized globally, limited research specifically addresses dental prescription errors in the Middle East. This study aims to investigate common prescription errors in the region's dental field and identify contributing factors to improve patient safety and care standards. A literature review was conducted using databases such as Google Scholar, Scopus, and PubMed, focusing on dental prescription errors in Middle Eastern countries. Findings revealed frequent issues, including wrong drug selection, unsafe medications, inappropriate treatment duration, incomplete patient data, incorrect dosage, and poor communication. The study emphasizes the urgent need for targeted interventions, including continuous professional training, routine audits, and the implementation of electronic prescribing systems. Enhanced collaboration among healthcare providers is essential to foster vigilance and ensure safer dental prescribing practices.

KEYWORDS: Dentistry, Patient Safety, Drug Interactions, Prescription Errors, Dental Care.

INTRODUCTION

Medications such as painkillers, antibiotics, and antimicrobials play a major role in treatment planning and are vital in treating dental infections. Nevertheless, antimicrobials may carry risks, including significant side effects and legal implications for prescribing dentists. Since most dental practices involve antibiotics, anti-inflammatories, muscle relaxants, and pain relievers, dental practices require a better understanding of medications and prescriptions. To maintain high treatment standards and patient safety, accurate prescriptions are key, necessitating careful choice of drugs along with transparent communication with patients.
Prescription errors in dentistry are a global phenomenon, though precise global statistics are limited. It influences professional standards and clinical quality. This study works to disclose patterns of dental prescription errors in the Middle East, highlighting improving patient safety in dental care. A significant clinical error is an unintentional fault from trusted practices that increases patient risk or decreases treatment effectiveness, necessitating attentiveness to warrant safe care [1].

Both general practices and hospitals encompass prescription errors, risking patient safety. The risks involve serious side effects, antibiotic resistance, increased hospital visits, and lengthier stays. Despite the short visits of dental treatments, numerous dentists lack adequate knowledge of medications, leading to prescription errors. Surveys in the UAE display differences in dentists' knowledge of managing patients using antiplatelet medications, entailing the need for evidence-based practices. Updated guidelines and formal training should be provided for dental schools and health authorities to aid in delivering safer patient care [2].

A marked reduction in prescription errors is required to enhance patient safety and quality of care. A higher standard of training, dentist-patient communication, and updated guidelines are vital to executing this. This review aims to examine dental prescription errors in the Middle East, identify frequent causes and issues, and suggest methods to tackle them. By the end of this review, readers will have an improved understanding of dental prescription errors and the steps required to overcome them, eventually raising the standards of dental healthcare and enhancing patient safety [3].

Research regarding dental prescription errors is extensive. The Middle East has provided studies on the frequency and type of errors in dental prescriptions. Some studies reported that dentists perceived they lacked knowledge of dental drugs, while others observed poor patient communication on interactions and side effects. Moreover, most practices were sensible, yet certain errors included overuse of metronidazole and incorrect treatments. Nevertheless,

How to cite this: *Afifi H, Dheaa S, Albanna F, Alqaderi F. Common prescription errors among dentists in the middle east: A comprehensive literature review. Journal of University Medical & Dental College. 2025;16(2):1082-1087.*

dentists indicated better practices in some countries, even without standardized guidelines [4-6].

Antibiotics and painkillers are customary prescriptions in dentistry, where pain often leads to unscheduled visits. NSAIDs are favored for pain relief but carry risks such as heart and gastrointestinal issues, necessitating careful prescription. Antibiotics ought to be used carefully to prevent antibiotic side effects and resistance. Patient education and communication regarding drug use are key in reducing prescription errors whilst refining care.

METHODOLOGY

This literature review follows the PICO framework to structure the research question:
Population (P): Dentists practicing in the Middle East.
Intervention (I): Prescription practices, including errors related to medication type, dosage, and administration.
Comparison (C): Studies comparing different prescription practices, interventions, or protocols to mitigate errors.
Outcome (O): Identification of common prescription errors, their causes, and their impact on patient safety and professional standards in dental practice.

This study is a literature review and does not involve direct interaction with human subjects or personal data. Ethical considerations were maintained by ensuring accurate representation and citation of original studies and by upholding integrity and objectivity throughout the review process. As the study solely analyzes existing literature, no ethical approval was required.

This research employs a literature review methodology to evaluate existing research on prescription errors among dentists in the Middle East. The study examines common types of prescription errors, their causes, and their impact on patient safety and professional standards in dental practice. The research is based on a comprehensive analysis of peer-reviewed literature from electronic databases.

The study was conducted over a six-month period, from January to June 2024, to allow for a thorough and systematic review of relevant literature.Data were collected from various electronic databases, including PubMed, Scopus, Web of Science, and Google Scholar. The search covered articles published between January 2010 and December 2023 to ensure the inclusion of recent and relevant studies on dental prescription errors.

A purposive sampling method was used to select studies based on predefined inclusion and exclusion criteria. The sample size was determined by identifying all relevant studies meeting the inclusion criteria within the defined publication period. Due to the nature of the systematic review, no formal sample size calculation was necessary.

A structured search strategy was implemented using the following keywords: "dental prescription errors," "antibiotic errors in dentistry," "medication mistakes in dental practice," "dentist prescribing issues," "Middle East dental practices," and "patient safety in dental prescriptions." Boolean operators (AND, OR) were used to refine the search and retrieve relevant studies.

Inclusion criteria included studies focusing on prescription errors in dental practice, research conducted in Middle Eastern countries, articles published in peer-reviewed journals, studies available in English, and both qualitative and quantitative studies. Exclusion criteria included studies focusing on non-dental healthcare professionals, articles not available in English, studies published before January 2010, and conference abstracts, editorials, and commentaries without substantial data.

As this study is a literature review, no apparatus, drugs, or chemicals were used. Data extraction was conducted independently by two reviewers to ensure accuracy and reduce bias. Extracted data included study characteristics (authors, year of publication, country, study design), types of prescription errors identified, causes of prescription errors, and recommendations for reducing errors. Discrepancies between reviewers were resolved through discussion and consensus.

The study evaluates key outcome variables, including the types and frequency of prescription errors in dental practice, primary causes of these errors such as knowledge gaps and systemic issues, their impact on patient safety including adverse drug reactions, and the regulatory and professional implications of prescription errors in dentistry.

The extracted data were analyzed using a thematic analysis approach. Common themes and patterns related to prescription errors were identified and categorized. The analysis focused on understanding the frequency of different types of errors, the underlying causes, and the impact on patient safety and professional practice.

RESULTS

Definition of Medication Prescription Errors:
Any unintentional deviation from the standard practice is considered a prescription error. This reduces the effectiveness of the treatment and increases the risk of harm. A high level of monitoring to achieve the highest standard of healthcare is required to avoid such errors [1].

Common Types of Prescription Errors:
Prescri Table-I: Summary of prescription errors in the middle east with examples. ption errors in dentistry are prevalent across Middle Eastern countries, with multiple studies highlighting their frequency. Common errors include incorrect drug selection, dosage miscalculations, failure to check medical histories, and inappropriate duration of treatment [2,3].A summary of reported prescription errors from studies in the Middle East is provided in Table-I.

Table-I: Summary of prescription errors in the middle east with examples.

Type of Error	Impact	Example	Study Reference
Incorrect drug selection	Reduced treatment efficacy, antimicrobial resistance	Misuse of metronidazole or amoxicillin instead of first-line drugs like Penicillin V	8, 17
Dosage errors	Adverse drug reactions, increased hospital visits	Overdosing NSAIDs or antibiotics leads to severe side effects	22
Inappropriate treatment duration	Increased risk of antibiotic resistance	Overprescribing antibiotics beyond necessary durations	17
Inadequate patient history review	Drug allergies, contraindications	Failure to review medical history or inquire about allergies	28
Contraindicated medications	Increased bleeding risks, serious drug interactions	Prescribing NSAIDs to patients on warfarin causes bleeding risks	44
Lack of patient communication	Poor adherence to prescriptions, safety risks	Failure to educate patients on drug interactions and side effects	6,7

Prevalence of Dental Prescription Errors in the Middle East:

Dental prescription practices in the Middle East exhibit notable discrepancies, influenced by variations in clinical training, guideline adherence, and resource availability. While some countries demonstrate promising prescribing behaviors, others reveal significant gaps in drug knowledge, patient counseling, and compliance with best practices. The following studies highlight these regional differences:

Saudi Arabia: many dentists lacked access to updated drug information [6].

Turkey: 80% of dentists reported rarely counseling patients on drug side effects [7].

Iran: while prescribing guidelines were generally followed, excessive metronidazole use (36%) and incorrect first-line antibiotic choices were observed [8].

Oman: 65% of prescriptions were error-free despite the lack of standard guidelines [9].

Contributing Factors to Prescription Errors

A variety of factors contribute to prescription errors in dental practice, ranging from inadequate knowledge to systemic limitations in resource availability:

Knowledge Gaps: Insufficient pharmacological understanding among dentists often leads to incorrect medication choices, increasing the risk of prescription errors [5].

Non-Adherence to Guidelines: Research from Saudi Arabia and Iran indicates that many dentists do not consistently follow national or international prescribing standards, contributing to variations in treatment quality [6,7].

Communication Barriers: A Turkish study revealed that most dentists fail to counsel patients adequately on drug interactions and potential side effects, heightening medication-related risks [8].

Limited Access to Resources: A study in Saudi Arabia identified a lack of readily available drug information as a major obstacle to accurate and safe prescribing practice [9].

Commonly Used Medications in Dental Practice

Painkillers

Pain management is a significant aspect of dental care, with NSAIDs (non-steroidal anti-inflammatory drugs) being the most commonly prescribed analgesics. These medications act by inhibiting cyclooxygenase (COX) enzymes, reducing inflammation and pain [10]. However, prolonged use is associated with gastrointestinal and cardiovascular risks [11]. Table 2 presents the most frequently prescribed NSAIDs in dental practice, their indications, and associated risks.

Table-II: List of commonly used NSAIDs in dental practice, their indications, and associated risks.

NSAID	Indications	Risks
Ibuprofen	Pain, inflammation	GI ulcers, renal issues
Naproxen	Pain, arthritis	GI ulcers, cardiovascular risks
Diclofenac	Pain, osteoarthritis	Liver toxicity, GI issues
Celecoxib	Selective COX-2 inhibitor	Cardiovascular risks, GI issues

Antibiotics:

Antibiotics are widely used in dentistry to manage bacterial infections. However, inappropriate antibiotic prescriptions contribute to antimicrobial resistance [12]. A study in Iran reported that 36% of dental prescriptions included metronidazole unnecessarily, increasing resistance risks [13]. Table-II outlines common antibiotics used in dental infections.

Table-II:Demonstrates microbiological analysis of common oral infections, associated bacterial species and recommended antibiotics.

Condition	Microorganisms	Recommended Antibiotics
Healthy oral cavity	Anaerobic streptococcus, Peptostreptococci, Veillonella	None (normal flora)
Hospitalized patients	Aerobic Gram-negative bacilli	Broad-spectrum antibiotics
Dental caries	Streptococcus mutans	Amoxicillin, Clindamycin
Gingivitis and periodontitis	Anaerobic Gram-negative bacilli	Metronidazole, Clindamycin
Pericoronitis	Peptostreptococci, Fusobacterium, Bacteroides	Penicillin V, Amoxicillin
Periodontal abscess	Prevotella, Fusobacterium, Capnocytophages	Metronidazole, Clindamycin

DISCUSSION

This section interprets the study's findings in relation to existing literature and outlines potential improvements in prescribing practices.

Importance of Studying Medication Prescription Errors among Dentists

Many dentists lack sufficient drug knowledge leading to prescription errors. Prescription errors may lead to some serious negative impacts on the patient's health and safety. Many consequences like antibiotic resistance, inappropriate drug usage, severe side effects as well as extended treatment time result from it. A recent study from UAE showed variability in the knowledge level amongst dentists on the management approaches with patients taking antiplatelet medications. Enhancing evidence-based knowledge, clinical guidelines, and necessary training are needed urgently to ensure safe and effective patient care [3] .

The widespread nature of dental prescription errors in the Middle East suggests multiple contributing factors:

Limited pharmacological training: Many dentists lack in-depth drug knowledge, leading to incorrect drug selection and improper dosin [6,7].

Lack of standardized guidelines: Some countries, like Oman, demonstrate relatively lower error rates despite lacking clear antibiotic guidelines, indicating the need for region-wide regulations [9].

Patient expectations: In some cases, dentists feel pressured by patients requesting unnecessary antibiotics, leading to increased prescription rates [14].

Prescription errors arise from various factors, including lack of patient history review, incorrect dosage calculations, and poor adherence to guidelines [14].

These errors can be categorized into:

Knowledge-based errors: For example, prescribing an antibiotic to a patient with a known allergy [15].

Rule-based errors: Such as prescribing an incorrect dosage [16].

Memory-based errors: For instance, forgetting to discontinue a medication when it is no longer needed [17].

Action-based errors: Including prescribing the wrong medication due to distraction [18].

Consequences of Prescription Errors

Incorrect prescriptions lead to complications such as adverse drug reactions (ADRs), increased healthcare costs, and antibiotic resistance [19]. A UK study found that dentists over prescribed antibiotics due to previous treatment failures and patient demand [20]. Addressing these issues is crucial for improving patient outcomes.

Antibiotic Resistance

Dental antibiotics account for 7%-11% of prescriptions worldwide[21]. Overprescription of broad-spectrum antibiotics, such as cephalosporins, contributes to the rise of resistant bacterial strains, such as Methicillin-resistant Staphylococcus aureus (MRSA) [20].

Unwarranted antibiotic prescriptions for viral infections (e.g., herpes simplex) exacerbate resistance issues [21, 22].

Drug-Drug Interactions

NSAIDs and warfarin: Increased risk of internal bleeding due to CYP450 enzyme inhibition [23].

Fluconazole and warfarin: Elevates warfarin levels, increasing anticoagulant effects [23].

Ibuprofen and lithium: Interferes with lithium excretion, causing toxicity [21].

Risk Reduction Strategies

Electronic Prescribing Systems

Electronic prescribing systems have demonstrated significant potential in reducing medication errors in dental practices. A study from Egypt showed that integrating digital prescription tools reduced prescription errors by 2% and increased error-free prescriptions by 18.2% [24,25]. Implementing similar systems across Middle Eastern dental clinics could help:

- Reduce misprescriptions by cross-checking drug interactions in real-time.
- Ensure accurate dosage recommendations based on patient history.

Continuing Education and Training

Knowledge gaps remain a significant factor in prescription errors among dentists. A Saudi Arabian study found that continuing education significantly improved dentists' knowledge and confidence in prescribing medications [26-29]. Establishing mandatory pharmacology refresher courses for dentists across the region could:

- Enhance prescribing accuracy.
- Minimize errors stemming from outdated knowledge.

Clinical Audits

Clinical audits have proven effective in improving prescribing accuracy in various healthcare sectors, though their adoption in dentistry remains low in the Middle East [28]. Introducing routine audits in dental clinics could:

- Ensure compliance with prescription guidelines.
- Identify high-risk prescribing patterns and address them proactively.

Future research should delve into the impact of cultural and regulatory differences on prescription errors, as varying healthcare policies and educational standards across the Middle East may contribute to inconsistencies in prescribing practices. Additionally, investigating the effectiveness of clinical decision-support systems in reducing dental prescription errors could provide valuable insights into how technology-driven solutions can aid dentists in making safer and more accurate prescribing decisions [30].

Another crucial area of exploration is the role of patient education initiatives in reducing unnecessary antibiotic requests, which remain a significant contributor to antimicrobial resistance and inappropriate prescribing habits. Expanding the research scope to include a diverse sample of dental practitioners from different locations across the region will ensure a more comprehensive understanding of these issues and lead to the development of more effective strategies for improving prescription practices [28, 29].

Prescription errors among Middle Eastern dentists are a pressing issue that demands immediate attention. By addressing key contributing factors such as enhanced education, increased adoption of technology, and a deeper understanding of cultural influences on prescribing behaviors, significant improvements in dental care quality can be achieved. Continued research and the implementation of targeted interventions will be crucial in mitigating prescription errors while ensuring patient safety and overall healthcare improvements in the region.

CONCLUSION

This study examines dental prescription errors among practitioners in the Middle East, where dentists face issues such as incorrect dosages, wrong drug choices, and failure to review patient history. Contributing factors include outdated guidelines, patient expectations, time constraints, and insufficient pharmacology training, with cultural pressures often leading to unnecessary prescriptions.

Prescription errors pose risks like antimicrobial resistance, drug interactions, and treatment failures, increasing healthcare costs and legal liabilities. Improving pharmacology education, incorporating case studies, and using computerized prescribing systems can help reduce these errors.

Though the study's scope is limited, future research should explore the causes of errors and cultural influences on prescribing across a broader range of dental practices. Addressing these challenges will enhance patient safety and dental care quality.

In conclusion, accurate diagnosis, strong pharmacology knowledge, guideline adherence, and cultural awareness are essential for safe prescribing. This study provides a foundation for improving dental care and patient outcomes in the Middle East.

LIMITATIONS

This study acknowledges potential limitations, such as the reliance on published literature, that may introduce publication bias. Additionally, the exclusion of non-English studies may end in the omission of relevant research conducted in the Middle East. The variability in study designs and definitions of prescription errors across different studies may also impact the generalizability of the findings.

ACKNOWLEDGEMENT: I would like to express my sincere gratitude to the Research Directorate at City University Ajman for their invaluable support throughout this research. My thanks also go to the College of Dentistry for their guidance and contributions. Special appreciation is extended to the participants whose insights were crucial to this study.

CONFLICT OF INTEREST: None.

GRANT SUPPORT AND FINANCIAL DISCLOSURE: None.

REFERENCES:

1. Săndulescu O, Preoțescu LL, Streinu-Cercel A, Şahin GÖ, Săndulescu M. Antibiotic prescribing in dental medicine—best practices for successful implementation. Tropical Medicine and Infectious Disease. 2024;9(2):31. Doi:10.3390/tropicalmed9020031
2. Araghi S, Sharifi R, Ahmadi G, Esfehani M, Rezaei F. The study of prescribing errors among general dentists. Global Journal of Health Science. 2015;8(4):32-43. Doi:10.5539/gjhs.v8n4p32
3. Gaballah K, Hassan M. Knowledge and practice of dentists managing patients on antithrombotic medications: a cross-sectional survey. European Journal of Dentistry. 2022;16(04):775-780. Doi:10.1055/s-0041-1739436
4. Teoh L, Park JS, Moses G, McCullough M, Page A. To prescribe or not to prescribe? A review of the Prescribing Competencies Framework for dentistry. Journal of Dentistry. 2023;137:104654. doi:10.1016/j.jdent.2023.104654
5. Alomi YA, Alshammari AM, Alshammari KS. Perception of dentists about drug information resources in Saudi Arabia. PTB Reports. 2021;17(1).35-39. Doi:10.5530/PTB.2021.7.7
6. Kıroğlu O, Khan Z, Berktaş F, Öz E, Ünal İ, Karatas Y. Evaluation of the knowledge and practices about drug prescribing and adverse reaction reporting among Turkish dentists. European Journal of Therapeutics. 2023;29(1):74-80. Doi:10.58600/eurjther-188
7. Hashemipour MA, Navabi N, Lotfi S, Sepehri G, Rastgarian A. Pattern of logical drug prescription among Iranian general dental practitioners. Brazilian Research in Pediatric Dentistry and Integrated Clinic 2019;19:e4460. Doi:10.4034/PBOCI.2019.191.77
8. Al-Rashdi MS, Abdulaziz B, Al Balushi KA. Drug prescribing practices in dental care patients at a dental and maxillofacial surgery clinic in Oman. Oman Medical Journal. 2020;35(6):e191.Doi: 10.5001/omj.2020.87
9. Hargreaves K, Abbott PV. Drugs for pain management in dentistry. Australian Dental Journal. 2005;50(s2):S14-S22. Doi:10.1111/j.1834-7819.2005.tb00378.x
10. Hoxha M, Malaj V, Spahiu E, Spahiu M. Dentists knowledge about over the counter-NSAIDs: An emerging need for NSAID-avoidance education. Journal of Applied Pharmaceutical Science. 2020;10(1):070-076. Doi: 10.7324/JAPS.2020.101009
11. Poveda Roda R, Bagán JV, Jiménez Soriano Y, Gallud Romero L. Use of nonsteroidal antiinflammatory drugs in dental practice: A review. Medicina Oral, Patología Oral y Cirugía Bucal (Internet). 2007;12(1):10-18.
12. Petrovski M, Terzieva-Petrovska O. The most common used antibiotic drugs among dental medicine doctors. Macedonian Pharmaceutical Bulletin. 2020;66(Suppl 1):65-66. Doi:10.33320/maced.pharm.bull.2020.66.03.032

13. Guerrini L, Monaco A, Pietropaoli D, Ortu E, Giannoni M, Marci MC. Antibiotics in dentistry: a narrative review of literature and guidelines considering antibiotic resistance. The Open Dentistry Journal. 2019;13(1). Doi:10.2174/1874210601913010383
14. Segura-Egea JJ, Gould K, Şen BH, Jonasson P, Cotti E, Mazzoni A, et al. Antibiotics in Endodontics: a review. International Endodontic Journal. 2017;50(12):1169-1184. Doi:10.1111/iej.12741
15. Ahmadi H, Ebrahimi A, Ahmadi F. Antibiotic therapy in dentistry. International Journal of Dentistry. 2021;2021(1):6667624. Doi:10.1155/2021/6667624
16. Gowri S, Mehta D, Kannan S. Antibiotic use in dentistry: A cross-sectional survey from a developing country. Journal of Orofacial Sciences. 2015;7(2):90-94. Doi:10.4103/0975-8844.164310
17. Oberoi SS, Dhingra C, Sharma G, Sardana D. Antibiotics in dental practice: how justified are we. International Dental Journal. 2015;65(1):4-10. Doi:10.1111/idj.12146
18. Contaldo M, D'Ambrosio F, Ferraro GA, Di Stasio D, Di Palo MP, Serpico R, et al. Antibiotics in dentistry: A narrative review of the evidence beyond the myth. International Journal of Environmental Research and Public Health. 2023;20(11):6025. Doi:10.3390/ijerph20116025
19. Alsulami Z, Conroy S, Choonara I. Medication errors in the Middle East countries: a systematic review of the literature. European Journal of Clinical Pharmacology. 2013;69:995-1008. Doi:10.1007/s00228-012-1435-y
20. Yamalik N, Pérez BP. Patient safety and dentistry: what do we need to know? Fundamentals of patient safety, the safety culture and implementation of patient safety measures in dental practice. International Dental Journal. 2012;62(4):189-196. Doi:10.1111/j.1875-595X.2012.00119.x
21. Hersh EV, Moore PA. Adverse drug interactions in dentistry. Periodontology 2000. 2008;46(1).109-142.
22. Newbrun E. Professional ethics and professional etiquette in dentistry: are they compatible?. Journal of the History of Dentistry. 2007;55(3):119-25.
23. Hersh EV, Moore PA. Three serious drug interactions that every dentist should know about. Compendium. 2015;36(6):739-744.
24. Kenawy AS, Kett V. The impact of electronic prescription on reducing medication errors in an Egyptian outpatient clinic. International Journal of Medical Informatics. 2019;127:80-87. Doi:10.1016/j.ijmedinf.2019.04.005
25. Heta S, Robo I. The side effects of the most commonly used group of antibiotics in periodontal treatments. Medical Sciences. 2018;6(1):6. Doi:10.3390/medsci6010006
26. Perea-Pérez B, Labajo-González E, Acosta-Gío AE, Yamalik N. Eleven basic procedures/practices for dental patient safety. Journal of Patient Safety. 2020;16(1):36-40. Doi:10.1097/PTS.0000000000000234
27. Al-Ansari A, Nazir MA. Dentists' responses about the effectiveness of continuing education activities. European Journal of Dental Education. 2018;22(4):e737-e744.Doi:10.1111/eje.12388
28. Al Zahrani A, Sikder MN. Clinical audit in dentistry: Saudi Arabian perspective. Saudi Journal of Oral Dental Research. 2023;8(2):65-75. Doi:10.36348/sjodr.2023.v08i02.002
29. Shahid AM, Jamal M, Siddiqi KM, Saleem MM, Baig MZ. Knowledge of practicing students and dental surgeons regarding anti-coagulation therapy of patients undergoing dental extractions. In Proceedings. 2024; 38(2): 85-89. Doi:10.47489/szmc.v38i2.453
30. Lavan AH, Gallagher PF, O'Mahony D. Methods to reduce prescribing errors in elderly patients with multimorbidity. Clinical Interventions in Aging. 2016;11:857-866. Doi.10.2147/CIA.S80280

Authors' Contribution:

Sarah Dheaa: Substantial contributions to the conception and design of the work.
Farah Albanna : The acquisition and analysis of data for the work and reviewing the manuscript.
Farah Alqaderi : Interpretation of data for the work and reviewing the manuscript.
Hala Afifi : Designing the work, Drafting, and reviewing it critically for important intellectual content.

Submitted for publication: 9-07-2024
Accepted after revision: 27-02-2025