

ASSESSING DENTAL KNOWLEDGE, ATTITUDES, AND AWARENESS AMONG MEDICAL PRACTITIONERS IN BENGHAZI, LIBYA

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ABSTRACT

Background: Oral diseases affect billions worldwide and significantly impact overall well-being and quality of life. Medical practitioners are essential for integrating oral health into their practice, as early recognition and management of these often treatable conditions can lead to improved health outcomes.

Objective: The primary objective of this study was to assess the dental knowledge, attitudes, and awareness of medical practitioners in Benghazi, Libya, and to identify gaps in their understanding of oral health and its connection to systemic health. The study also aimed to explore the role of medical practitioners in promoting oral health and their ability to recognize and manage dental emergencies and systemic conditions with oral manifestations.

Results: The study revealed that a majority of general practitioners (80.6%) exhibited varying levels of dental knowledge. While 76.9% understood the importance of daily brushing in preventing tooth decay, misconceptions regarding dental issues were prevalent, such as only 38% associating brushing with oral ulcers. Awareness of dental emergencies was mixed; for instance, only 42.8% correctly identified Ludwig's angina as a dental infection, highlighting gaps in knowledge about critical conditions.

Conclusion: The study highlighted the need for improved dental education among medical professionals in Benghazi to enhance patient care and early detection of dental-related conditions. The findings underscore the importance of integrating dental knowledge into medical practice to ensure comprehensive healthcare delivery.

KEYWORDS: Dental knowledge, Attitudes, Awareness, Medical practitioners, Oral health, Systemic health, Dental education.

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INTRODUCTION

Oral diseases are among the most prevalent non-communicable diseases worldwide, affecting nearly 3.5 billion people. It is estimated that 2.3 billion people globally suffer from caries of permanent teeth, and 530 million children experience tooth loss due to dental caries in primary teeth ⁽¹⁾. These conditions not only impact oral health but also have significant implications for overall health and quality of life. Medical practitioners play a crucial role in addressing these issues by integrating oral health into their practice and effectively managing oral health concerns ⁽²⁾. Despite their high prevalence, oral diseases are often highly treatable if recognized early and managed effectively, leading to successful outcomes ⁽³⁾.

Conditions such as diabetes, cardiovascular diseases, and gastrointestinal disorders can manifest in the oral cavity, making it a potential diagnostic site for early detection and intervention ⁽⁴⁾. The oral cavity serves as a gateway for numerous microorganisms that can cause infections and diseases in various organs outside the mouth ⁽⁵⁾. Furthermore, systemic diseases often present with oral manifestations, and in some cases, these oral signs may precede the development of other systemic symptoms ^(6,7). Routine oral examinations can thus play a critical role in identifying both local and systemic disorders, enabling timely treatment and improved health outcomes ⁽⁸⁾.

Despite the clear connection between oral and systemic health, dental knowledge among healthcare professionals, including medical practitioners, is often limited compared to the general population ⁽⁹⁾. Studies have shown that physicians frequently lack awareness of dental diseases, systemic conditions with oral health consequences, and life-threatening dental emergencies ⁽¹⁰⁾. This gap in knowledge is particularly concerning given that medical providers often interact with underserved and vulnerable populations more frequently than dentists, placing

them in a unique position to identify and address oral health issues ⁽¹¹⁾.

In Libya, and specifically in Benghazi, there is a lack of research exploring the familiarity and perception of medical doctors regarding oral health ⁽¹²⁾. This study aims to fill this gap by evaluating the awareness, knowledge, and attitudes of medical practitioners in Benghazi toward dentistry. The findings will provide valuable insights into the current state of dental knowledge among medical professionals and highlight areas where improvements are needed to enhance patient care and early detection of dental-related conditions.

The study is particularly relevant given the high prevalence of oral diseases in Libya and the critical role that medical practitioners can play in promoting oral health. By understanding the gaps in dental knowledge and awareness among medical professionals, healthcare organizations and educational institutions can develop targeted interventions to improve oral health education and integrate it into medical practice. This, in turn, will contribute to better health outcomes and a more comprehensive approach to patient care.

MATERIAL AND METHODS

The study employed a cross-sectional questionnaire survey to assess the dental knowledge, attitudes, and awareness among medical practitioners in Benghazi, Libya. The target population comprised 6,135 doctors registered with the Doctors Syndicate of Benghazi, and a sample size of 362 was determined to achieve a 95% confidence level with a $\pm 5\%$ margin of error. The questionnaire, adapted from a validated instrument by Mehrotra et al. in 2015 ⁽¹³⁾, was divided into three sections: demographic information, knowledge assessment, and attitudes and awareness. The demographic section collected data on age, gender, years in practice, and specialty. The knowledge assessment included multiple-choice questions on dental health topics

such as causes of tooth decay, identification of dental specialties, and oral manifestations of systemic diseases. The attitudes and awareness section used to assess participants' beliefs about dental health behaviors, the importance of regular dental visits, and the role of medical doctors in oral health. The questionnaire was pilot-tested for clarity before finalization. Data were collected with questionnaires distributed directly to practitioners in public and private hospitals, clinics, and centers. Participants provided informed consent, and all responses were kept confidential. The high response rate of 99.45% was achieved through on-site completion and immediate return of the questionnaires.

RESULT

The study provided valuable insights into the demographic characteristics, dental knowledge, attitudes, and awareness among medical practitioners in Benghazi, Libya. As shown in Table 1, the demographic data revealed that the majority of participants were male (57.5%) and general practitioners (80.6%), with smaller proportions of specialists (14.4%) and consultants (5.0%). This distribution highlights the predominance of general practitioners in the sample, who play a critical role in patient care and early detection of dental issues.

TABLE (1) Demographic Data of Participants

Category	Subcategory	Number of Participants	Percentage
Gender	Male	207	57.5%
	Female	153	42.5%
Specialty	General Practitioners	290	80.6%
	Specialists	52	14.4%
	Consultants	18	5.0%

The results in Table 2 demonstrated varying levels of dental knowledge among participants. A majority (76.9%) recognized the importance of daily brushing in preventing tooth decay and periodontal disease. However, fewer respondents understood its role in preventing oral ulcers (38%), oral cancer

(26%), or tooth proclination (19%). Regarding factors contributing to tooth decay, 61.4% correctly identified sugar-containing foods as a key factor, while misconceptions such as using tooth powder (6.1%) or brushing once daily (3.1%) were also noted. For gingival and periodontal diseases, 38.3% correctly identified plaque and calculus as the main culprits, but a significant proportion attributed these conditions to dental caries (35.6%) or fractured restorations (19.4%).

Knowledge of dental specialties was mixed, with 68.9% correctly identifying orthodontics, but some confusion with other disciplines like hypodontia (16.1%) and odontology (11.4%). Most participants (86.4%) agreed that scaling does not cause adverse effects. However, some believed it could lead to tooth sensitivity (33.1%) or increased tooth mobility (22.8%). Attitudes toward dental visits were generally positive, with 71.1% recommending visits every six months, though 18.6% believed patients should only visit when in pain. In cases of dental abscess, 51.1% would prescribe antibiotics and analgesics, while 44.7% would refer the patient to a dentist.

Awareness of dental emergencies and systemic diseases, as shown in Table 3, was also mixed. While 42.8% correctly identified Ludwig's angina as a dental space infection, many misidentified it as a cardiac (41.9%) or renal (6.1%) condition. Similarly, 60.8% recognized cavernous sinus thrombosis as a life-threatening dental complication, but some misidentified it as Hodgkin's lymphoma (14.7%) or a brain tumor (13.1%). Finally, 62.2% correctly identified the gastrointestinal system as the most commonly affected by oral manifestations of systemic diseases.

Overall, the findings highlight gaps in dental knowledge and awareness among medical practitioners, particularly in identifying dental emergencies and understanding the oral-systemic health connection.

TABLE (2) Section “A” of Knowledge and Attitudes toward Dental Health

Category	Statement	Percentage
Benefits of Daily Brushing	Daily brushing prevents tooth decay and periodontal disease	76.9%
	Daily brushing prevents oral ulcers	38%
	Daily brushing prevents oral cancer	26%
	Daily brushing prevents tooth proclination	19%
Factors Contributing to Tooth Decay	Daily consumption of sugar-containing foods	61.4%
	Smoking	29.4%
	Using tooth powder	6.1%
	Brushing teeth once daily	3.1%
Factors Responsible for Gingival/Periodontal Diseases	Plaque and calculus	38.3%
	Dental caries	35.6%
	Teeth with fractured restorations	19.4%
	Tongue inflammation	6.7%
Knowledge of Dental Specialties	Orthodontics	68.9%
	Hypodontia	16.1%
	Odontology	11.4%
	Lasodontics (unknown specialty)	3.6%
Side Effects of Dental Scaling	Scaling does not cause side effects	86.4%
	Causes tooth sensitivity	33.1%
	Increases tooth mobility	22.8%
	Increases interdental spaces	18.6%
	Causes thinning of teeth	11.9%

TABLE (2) Section “B” Knowledge and Attitudes toward Dental Health

Category	Statement	Percentage
Attitudes Toward Dental Visits	Patients should visit the dentist every 6 months	71.1%
	Patients should visit only when in pain	18.6%
	Patients should visit every 2 months	8.1%
	Patients should visit every 2-5 years	2.2%
Handling Dental Abscess	Prescribe antibiotics and analgesics	51.1%
	Refer the patient to a dentist	44.7%
	Ignore the issue	4.2%
Attitudes Toward Dental Treatment	Dental treatment improves patients' quality of life	86.4%

TABLE (3) Awareness of Dental Emergencies and Systemic Diseases

Category	Statement	Percentage
Knowledge of Dental Emergencies	Ludwig's Angina as a dental space infection	42.8%
	Ludwig's Angina as a cardiac disease	41.9%
	Ludwig's Angina as a venous disease	9.2%
	Ludwig's Angina as a renal disease	6.1%
Knowledge of Cavernous Sinus Thrombosis	Cavernous sinus thrombosis as a life-threatening condition due to untreated dental infection	60.8%
	Misidentified as Hodgkin's Lymphoma	14.7%
	Misidentified as a brain tumor	13.1%
	Misidentified as myelofibrosis	11.4%
Knowledge of Oral Manifestations of Systemic Diseases	Gastrointestinal system	62.2%
	Cardiovascular system	19.4%
	Respiratory system	14.2%
	Renal system	4.2%

DISCUSSION

This cross-sectional survey aimed to assess the knowledge, attitudes, and awareness of dental health among medical practitioners in Benghazi, Libya. The findings provide valuable insights into the current state of dental knowledge and competencies among this important group of healthcare providers.

The results indicate that the majority of medical practitioners in Benghazi have a good understanding of the role of daily tooth brushing in preventing tooth decay and periodontal disease. However, their knowledge of the specific benefits of brushing, such as preventing oral ulcers, was more limited. This suggests a need to further educate medical professionals on the comprehensive oral health benefits of proper dental hygiene practices.

Regarding factors contributing to tooth decay, the participants demonstrated a reasonable grasp of the role of sugar-containing foods.⁽¹⁴⁾ However, some misconceptions were noted, with a proportion of respondents incorrectly identifying factors like tooth powder use and once-daily brushing as contributors to tooth decay. This highlights the importance of reinforcing evidence-based

understanding of the etiology of dental caries among medical practitioners.

For gingival and periodontal diseases, the participants were more divided in their responses, just over one-third identified plaque and calculus as the main culprits.⁽¹⁵⁾ A significant proportion attributed these conditions to dental caries or fractured restorations. This finding suggests that medical practitioners' needs to strengthen their knowledge of the primary etiological factors of periodontal diseases.

The survey also revealed gaps in the participants' understanding of dental specialties, with some confusing orthodontics with other disciplines.⁽¹⁶⁾ This lack of familiarity with the various fields of dentistry may hinder medical professionals' ability to make appropriate referrals and provide comprehensive care coordination for their patients.

Encouragingly, the majority of respondents recognized the adverse effects of scaling, with a significant proportion correctly identifying tooth sensitivity as a potential complication.⁽¹⁷⁾ This awareness underscores the participants' understanding of the importance of proper dental procedures and their potential impact on oral health.

Regarding attitudes, the medical practitioners generally demonstrated positive perspectives on the importance of regular dental visits and the role of dental treatment in improving patients' quality of life.⁽¹⁸⁾ However, a considerable proportion believed that patients should seek dental care only when in pain, which may contribute to delayed or neglected oral healthcare and suboptimal health outcomes.

The participants' awareness of life-threatening dental conditions, such as Ludwig's angina and cavernous sinus thrombosis, were somewhat mixed. While a substantial proportion correctly identified these as dental-related emergencies, a significant number mistakenly associated them with non-dental conditions.⁽¹⁹⁾ This highlights the need to further enhance medical practitioners' knowledge of the potential systemic complications that may arise from untreated oral infections.

The respondents demonstrated a reasonable understanding of the common oral manifestations of systemic diseases, with the majority correctly identifying the gastrointestinal system as the most commonly affected.⁽²⁰⁾ This awareness underscores the importance of medical professionals' ability to recognize and address the oral-systemic health connection.

The findings of this study align with previous research suggesting that, despite their medical training, many healthcare providers may have limited knowledge and awareness of dental diseases, their relationship to overall health, and the appropriate management of oral health issues.^(21,22) This underscores the need for strengthening dental education and interprofessional collaboration within the medical curriculum and continuing professional development programs.

The current study highlights the crucial need for improved dental knowledge among medical practitioners in Benghazi, particularly regarding the connection between oral health and systemic diseases. Similar to the findings among gynecologists, many practitioners demonstrated

misconceptions about how oral health conditions can affect pregnancy. Targeted educational interventions are essential to bridge these knowledge gaps, fostering a collaborative approach that promotes better health outcomes.⁽²³⁾

By addressing the identified gaps in dental knowledge, attitudes, and awareness among medical practitioners in Benghazi, Libya, healthcare organizations and educational institutions can play a crucial role in enhancing the overall oral and systemic health of the population. Improved integration of oral health education and interprofessional collaboration within the medical field can empower medical professionals to effectively identify, manage, and refer patients with oral health concerns, leading to better health outcomes and a more comprehensive approach to patient care.

CONCLUSION

The findings highlight critical gaps in dental knowledge and awareness among medical practitioners in Benghazi, Libya. There is a pressing need for enhanced dental education to empower these professionals in managing oral health effectively, thereby improving health outcomes and providing comprehensive care for patients.

Limitations

The cross-sectional design of the current study limits the ability to establish causal relationships between medical practitioners' knowledge and their practices regarding oral health. The sample size, while statistically sufficient, may not fully represent the diverse specialties within the medical field in Benghazi. The self-reported nature of the questionnaire may introduce response bias, as participants may overestimate their knowledge and attitudes towards dental health.

Ethics Approval

Ethics approval was obtained from the Ethics Committee of the Libyan International Medical University, reference number DEN-2023-00013.

Funding

This study was supported by the Libyan International Medical University.

Declarations

The authors declare that they have no conflicts of interest.

Data Availability

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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