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Evaluation of Dental Advice Delivery: A Comparative Study of General Practitioners and Specialists in Benghazi.

Hunaida Budajaja,[1] Mubarakah Abraheem[1], Amal Gaber[1]*, Osama Ahmadi[1], Hala Fathallah Benghasheer[1]

1 Department of Dental Public Health and Preventive Dentistry, Faculty of Dentistry, University of Benghazi, Libya.

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ABSTRACT

Oral health education is a crucial aspect of dental care, as proper guidance from dentists can significantly influence patients' oral hygiene habits. This study investigated whether dentists in Benghazi provide dental advice to patients and examined differences between general practitioners (GPs) and specialists in delivering such advice. This cross-sectional study included 246 dentists from public clinics and the Faculty of Dentistry at the University of Benghazi. Data were collected through a structured questionnaire covering sociodemographic details, oral health practices, and advice given to patients. Analysis was conducted using IBM SPSS version 24, employing descriptive statistics and chi-square tests to compare GPs and specialists. Results showed that both GPs and specialists consistently provided oral hygiene and smoking-related advice, with no significant difference ($p > 0.05$). GPs (68.2%) were slightly more likely to offer preventive advice than specialists (62.9%), while specialists (85.4%) provided dietary advice more frequently than GPs (75.2%), though these differences were not significant ($p > 0.05$). However, a significant difference was observed in professional treatment advice, with 98.9% of specialists providing it compared to 92.4% of GPs ($p = 0.028$). These findings highlight the need for standardized preventive care strategies to enhance patient education and oral health outcomes. However, the inconsistent advice provided by dentists may be due to insufficient training in preventive care and the treatment-oriented nature of Libya's dental health system.

Keywords: Advice, dental, general practitioners, oral hygiene, practice, specialists.

Corresponding Author: Amal Gaber, amal.gaber@uob.edu.ly

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1.INTRODUCTION

Oral health care is fundamental to the well-being and quality of life of individuals.[1, 2] It is essential for maintaining good oral hygiene and preventing systemic diseases that can arise from untreated dental issues.[3, 4] Willie Sai Ho</author></authors></contributors><titles><title>The role of oral health in the prevention of systemic diseases</title><secondary-title>Universal Library of Medical and Health Sciences</secondary-title></titles><periodical><full-title>Universal Library of Medical and Health Sciences</full-title></periodical><volume>1</volume><number>1</number><dates><year>2024</year></dates><urls></urls></record></Cite></EndNote> Improving public awareness about dental issues and providing adequate information on oral diseases, including risk factors and preventive measures, plays a critical role in promoting better oral hygiene practices, early detection of dental problems, and timely intervention.[5, 6]

Improper diet, smoking, and poor oral hygiene are significant factors influencing the occurrence of various oral diseases.[7, 8] Oral hygiene practices vary across countries, with differences in self-care practices like daily flossing and brushing with fluoride toothpaste and accessibility to dental care.[9, 10] Enhanced knowledge of oral health leads to better hygiene routines and healthier lifestyle choices.[2, 9]

Dental professionals, including general dentists and specialists, play a pivotal role in delivering essential preventive advice to their patients. Effective primary prevention through advice on oral hygiene practices, clinical preventive measures, dietary habits, smoking cessation, and professional treatments from both GPs and specialists can prevent common oral health issues.[11, 12]

However, there is a limited understanding of the extent to which dentists in Benghazi are fulfilling their role in delivering preventive dentistry through advice. It is also unclear whether specialized dentists have a better grasp of the importance of providing advice to improve community dental health, particularly in underserved and high-risk communities. This study aims to determine whether dentists in Benghazi provide dental advice to

their patients and identify any differences between general practitioners (GPs) and specialists in this regard. By investigating this, we hope to gain insights into the participating dentists' understanding of preventive measures and their commitment to properly implementing these measures as part of oral healthcare delivery services. Ultimately, this research seeks to contribute to the development of improved healthcare policies that will benefit the Libyan population in the long term.

2.METHODS

2.1.Study design & population

A cross-sectional study was conducted targeting dentists (both GPs and specialists) from public dental clinics and the Faculty of Dentistry of the University of Benghazi. A convenience sampling method was employed. The population of the current study consists of 246 Libyan dental practitioners in Benghazi City.

2.2.Study Instrument & Data Collection

Data was gathered through an online questionnaire. A self-generated questionnaire was prepared based on previous relevant international literature.13 The questionnaire was constructed based on the objectives of the study.

The first draft was sent to a dental public health specialist for content validity. Based on expert feedback, some items needed to be excluded or further refined, e.g., double-barrel items. The internal consistency of the questionnaire was also evaluated by the reliability coefficients (Cronbach's Alpha), which ranged between 0.71 to 0.86.

The questionnaire consists of three Sections: Section 1: participants' sociodemographics, which includes (Gender, age, marital status, place of residency, and monthly income). Section 2: Seven items on oral health practices (Frequency of brushing, use of fluoride toothpaste, flossing habits, and consumption of sugar-containing snacks or drinks). Section 3: nineteen items on advice provided to patients; these questions were grouped into categories, which included the following advice categories: oral hygiene practices, clinical preventive measures, dietary habits, smoking cessation, and professional treatments.

2.3.Statistical Analysis

Data was analyzed using SPSS version 24. Descriptive statistics were re-

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ported using frequencies and percentages for sociodemographic characteristics, oral health practices, and dietary habits. Chi-Square was used to compare differences in proportions between GPs and specialists regarding sociodemographic characteristics, oral health practices, dietary habits, and types of oral health advice provided. All statistical analyses were performed with a significance level set at $p < 0.05$.

2.4.Ethical Considerations:

The study was approved by the ethics committee at the Faculty of Dentistry, Benghazi, Libya (approval no. 0255). All participants were assured of the confidentiality and privacy of their responses, and the informed consent was obtained from all participants along with the completed self-administered questionnaire.

3.RESULTS

The majority of the participants were females (71.5%), aged between 36 and 45 years (44.3%). Most of the participants were married (61.0%) and GPs (63.8%), while specialists accounted for 36.2%. Most participants live in Benghazi (86.6%), with 13.4% residing around Benghazi. Regarding the income level, 27.2% of the participants reported earning more than 2000 LD, and the rest majority reported earning 2000 LD or less, whereas (39.8%) earned 1000-2000 LD, and 32.9% earned less than 1000 LD. A majority of participants (83.3%) reported no medical problems, while 16.7% indicated they had medical issues (see Table (1)).

Table (1): Sociodemographic Characteristics

Sociodemographic Characteristics	N (%)
Gender	
Male	70 (28.5)
Female	176 (71.5)
Age groups	
20-35 years	95 (38.6)
36-45 years	109 (44.3)
46-60 tears	40 (16.3)
Marital status	
Single	96 (39)
Married	150 (61)
Specialty	
GP	157 (63.8)
Specialists	89 (36.2)
Residence	
Benghazi	213 (86.6)
Around Benghazi	33 (13.4)
Income	
< 1000 LD	81 (32.9)
1000 -2000 LD	98 (39.8)
> 2000 LD	67 (27.2)
Total	246 (100)

The majority of both GPs (89.2%) and specialists (94.4%) reported regular brushing habits, with specialists showing slightly higher adherence, although the difference was not statistically significant ($p > 0.05$). The use of fluoride toothpaste was more common among specialists (67.4%) compared to GPs (54.1%), with a statistically significant difference ($p = 0.042$). The effect size by Phi & Cramer's V was 0.121, which is a moderate effect. Flossing habits were similar between the two groups, with 63.1% of GPs and 59.6% of specialists reporting regular flossing ($p > 0.05$)(see Table (2)).

Table (2): Oral health practices based on specialty

Oral health practices		GP n (%)	Specialist n (%)	X^2	P value
Brushing	Regular	140(89.2)	84 (94.4)	1.893	0.169
	Irregular	17(10.8)	5(5.6)		
Fluoride Toothpaste	Yes	85(54.1)	60(67.4)	4.137	0.042**
	No	72(45.9)	29 (32.6)		
Flossing	Yes	99 (63.1)	53 (59.6)	0.296	0.586
	No	58 (36.9)	36 (40.4)		

*Chi-square test **Significance: ($p < 0.05$)

When examining the addition of sugar to hot beverages, it was observed that a higher proportion of specialists (69.7%) reported this behavior compared to GPs (60.5%). However, this difference did not reach statistical significance ($p > 0.05$). On the other hand, GPs reported a significantly higher frequency of consuming sugar-containing snacks or drinks 'more than twice a day' (41.4%) compared to specialists (7.9%) ($p < 0.001$). The effect size by Phi & Cramer's V was 0.273, which is a very strong effect Additionally, a significant difference was observed in the behavior of managing sugar intake, with specialists (40.4%) more likely to reduce the frequency of sugar intake, whereas GPs (51.6%) leaned towards reducing the amount of sugar consumed ($p = 0.004$). The effect size by Phi & Cramer's V was 0.162, which is a strong effect (see Table (3)).

Table (3): Dietary practices based on specialty

Dietary practices		GP n (%)	Specialist n (%)	X^2	p value
Sugar in hot drinks	Yes	95(60.5)	62(69.7)	2.061	0.151
	No	62(39.5)	27(30.3)		
Frequency of eating sugar-containing snacks or drinks	Never	15 (9.6)	10(11.2)	32.638	0.000**
	Once a day	46(29.3)	37(41.6)		
	Twice a day	31(19.7)	35(39.3)		
	More than twice a day	65(41.4)	7(7.9)		
The most important behavior regarding sugar	Reduce the frequency of sugar	33 (21.0)	36 (40.4)	10.983	0.004**
	Reduce the amount of sugar	81 (51.6)	32 (36)		
	Avoid sticky food	43 (27.4)	21 (23.6)		

*Chi-square test **Significance: ($p < 0.05$)

Table 4 summarizes the types of advice provided by the participants based on their specialty. Both GPs and specialists consistently provided oral hygiene and smoking-related advice with no statistically significant difference ($p > 0.05$). Preventive advice was slightly more common among GPs (68.2%) than specialists (62.9%), while specialists were more likely to provide dietary advice (85.4%) compared to GPs (75.2%), though these differences were not statistically significant ($p > 0.05$). A significant difference was found in professional treatment advice, with higher proportions of specialists (98.9%) providing this compared to GPs (92.4%). The effect size by Phi & Cramer's V was 0.102, which is a moderate effect at a $p = 0.028$).

Table (4): Type of provided advice based on specialty

Type of advice	GP n (%)		Specialist n (%)		Chi-Square Value	P Value
	Yes	No	Yes	No		
Oral Hygiene Advice	156 (99.4)	1 (0.6)	88 (98.9)	1 (1.1)	0.167	0.683
Clinical Preventive Advice	107 (68.2)	50 (31.8)	56 (62.9)	33 (37.1)	0.695	0.404
Dietary Advice	118 (75.2)	39 (24.8)	76 (85.4)	13 (14.6)	3.569	0.059
Smoking Advice	129 (82.2)	28 (17.8)	71 (79.8)	18 (20.2)	0.213	0.644
Professional treatment advice	145 (92.4)	12 (7.6)	88 (98.9)	1 (1.1)	4.824	0.028**

*Chi-square test **Significance: ($p < 0.05$)

The percentage of dentists who reported giving advice regarding different categories or fields was generally high. Almost all participating dentists answered "yes" to at least one of the questions related to oral hygiene advice. Additionally, 94.7% reported giving advice related to professional treatment questions. The lowest percentage was in the dietary advice section, where about 78.9% of dentists answered "yes" to at least one dietary advice-related question (see Figure 1).

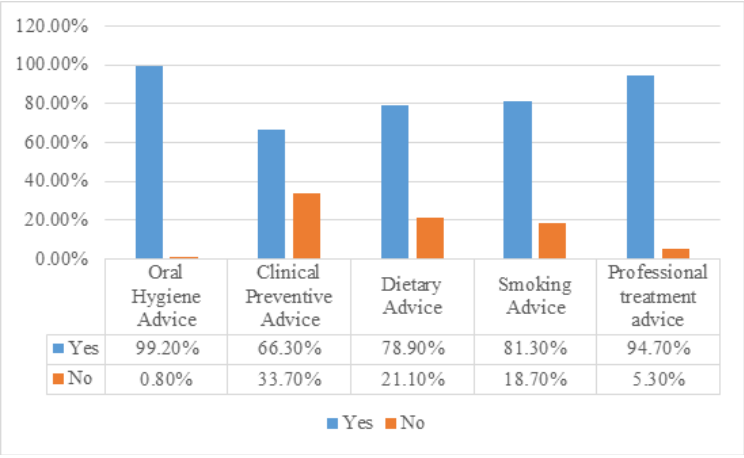

Figure (1): Types of provided advice for all participants

4.DISCUSSION

Dental professionals play a vital role in promoting oral health through preventive advice. Effective primary prevention encompasses guidance on oral hygiene practices, clinical preventive measures, dietary habits, smoking cessation, and professional preventive treatments. Understanding the differences in how dental advice is delivered by general dentists and specialists is essential for optimizing patient care and ensuring a more effective approach to oral disease prevention.

This study highlights several findings regarding the oral health practices and types of dental advice provided by dentists in Benghazi, Libya. The sociodemographic data revealed a higher proportion of female participants, reflecting global trends that indicate an increasing number of women entering the dental profession.

The participants demonstrated strong adherence to regular brushing and the use of fluoride toothpaste, consistent with Haresaku et al.14 Both GPs and specialists exhibited high brushing rates (>89%), but only moderate flossing adherence (around 60%), highlighting a gap in optimal practices. Specialists were more likely to use fluoride toothpaste than GPs. These findings align with other studies where high proportions of dentists reported brushing twice daily.15-17 Iranian dentists also reported high brushing and flossing rates, with three-quarters using fluoride toothpaste regularly.15 Croatian dentists exhibit similarly high oral hygiene standards, with 57% brushing twice daily and 92% flossing regularly.16 Additionally, approximately 44% of dentists in Saudi Arabia brush their teeth twice daily, and about 70% floss regularly. 17 Although participants demonstrated strong adherence to regular brushing, the discrepancy between the high proportion of brushing and the lack of fluoridated toothpaste while brushing is noteworthy. This may indicate a lack of deep knowledge about the components of fluoride toothpaste since most commercial toothpastes contain sodium fluoride, even if not in optimum amounts. This raises the question of whether most participants are unaware of the ingredients in toothpaste or if they tend to use natural products that primarily do not have fluo-

ride as a main component.

The research highlighted significant differences in dietary habits and sugar management attitudes between GPs and specialists. Contrary to specialists, GPs significantly consume sugary snacks more frequently. They believe that the behavior that needs modification is the amount of sugar consumed. This may indicate their lack of awareness about the key risk factors for caries and the critical behaviors necessary for reducing the cariogenic potential of sugar. Specialists, on the other hand, were more focused on reducing the frequency of sugar intake. This can also be explained by the fact that GPs, who often have more frequent patient appointments, might experience irregular mealtimes and rely on quick, sugary snacks. In contrast, specialists, with more structured schedules, may have a more regulated approach to snacking. These findings suggest that targeted interventions and educational programs could promote healthier dietary choices tailored to each group's unique circumstances. The higher consumption of sugar-containing snacks among GPs contrasts with Li et al. (2020),18 who found more uniform dietary habits among dental professionals in China, possibly due to cultural and regional differences in dietary preferences and awareness levels. A similar study by Athikom et al. (2024)19 observed significant variations in dietary behaviors among undergraduates, postgraduates, and practicing dentists, revealing a weak association between knowledge and healthy dietary behaviors across educational levels.

The results revealed that specialists were more likely to offer dietary and professional treatment advice, highlighting the influence of their advanced training and focused expertise in delivering care, which was also noted by Shmarina et al.20 While no significant differences were observed in providing oral hygiene, preventive, or smoking-related advice, GPs slightly preferred preventive advice, and specialists leaned towards dietary advice, with the near-significant p-value for dietary advice suggesting a trend needing further exploration. Both groups consistently provided advice, but specialists were more inclined to give detailed dental treatment guidance due to their focused training. Yusuf et al.21 observed that recent dental gradu-

ates increasingly see preventive activities as integral to their role. This perspective shift is largely due to the evolving emphasis on health promotion within dental education. However, many dentists still see their role primarily as diagnosing and treating issues, rather than preventive care, due to their training.22 The World Health Organization (WHO) recommended that most dentists consider smoking cessation counseling as a part of their role, despite time and training barriers,23-25 with newer graduates more likely to record smoking status and support cessation.25

Overall, the focus on preventive dental services is minimal in Libya, and the system is largely seen as treatment-oriented rather than geared toward prevention. In their exploratory case study, Aloshaiby et al 26 mentioned that while policy documents suggest that the Libyan healthcare system adopts a preventive services approach within primary healthcare, this does not accurately reflect the reality on the ground. A previous study conducted in Libya concluded that undergraduate dental programs fall short of equipping dentists with the skills for prevention-focused management and identified patient-related barriers as the most significant, with patients displaying a poor understanding of the potential for caries prevention.27 This study revealed high rates of dentists reported providing some sort of dental advice; however, this high percentage is misleading. In reality, most participants do not give comprehensive professional advice as intended; instead, they offer fragmented advice. For example, when they were asked whether they advise their patients to quit smoking, 59.8% answered yes. However, when combining responses of giving advice related to smoking cessation from other related questions, the percentage increased to 81.3%. This discrepancy indicates that dentists do not consistently provide complete and professional advice as part of a prevention-oriented approach, aligning with suggestions from previous studies that suggest the preventive approach is not adequately implemented in Libya.26, 27

In conclusion, this study found notable differences in dietary habits and attitudes towards sugar between GPs and specialists. GPs consume sugary snacks

more frequently, possibly due to their irregular schedules or due to better knowledge and oral health-related behavior in the specialists' group, which was reflected in the type of advice they provide, which tends to be more comprehensive. Moreover, the fragmented and inconsistent advice from dentists may stem from inadequate training in prevention-focused management within undergraduate programs and a lack of emphasis on prevention in Libya's dental health system, which remains largely treatment-focused. This contributes to a poor community understanding of oral disease prevention and increases the burden of oral health issues. This gap underscores the need for tailored interventions and the implementation of training programs to equip dentists with the skills to apply a preventive-oriented approach in dental faculties, ultimately improving prevention-focused care among dental professionals.

To address gaps in prevention-focused dental care, it is recommended to revise dental school curricula to include modules on oral disease prevention and patient education, provide training workshops for dentists, ensure the availability of preventive materials, and conduct public campaigns to raise awareness. Advocating for policies prioritizing preventive care can drive systemic changes in dental health practices.

While this study provides valuable insights into the current state of preventive care in Libya, addressing its limitations is crucial for future research. The use of a convenience sampling method restricts the generalizability of the findings; therefore, adopting a more representative random sampling approach would enhance validity. Additionally, the study's limited geographical scope, focusing solely on dentists from Benghazi, may not fully reflect the broader dental practice landscape in Libya. Expanding future research to include multiple cities would improve external validity and provide a more comprehensive perspective. Furthermore, the cross-sectional study design and reliance on self-reported data introduce potential biases, including social desirability bias. Future research should prioritize larger, more diverse samples and incorporate probability sampling methods where feasible. Additionally, qualitative methodolo-

gies were used to gain deeper insights into how dentists provide advice, the content of their advice, and their perceptions of its role in promoting oral health.

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