



Use of Social Media to View and Post Dentistry-related Information in Bahrain: A Cross-Sectional Study

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Objectives: Healthcare-related information sharing via social media is on the rise following the coronavirus disease 2019 (COVID-19) pandemic. Dental practices primarily use social media to search, share, and communicate health-related information. Considering the increasing trend of using social media, the primary aim of the present study was to identify the use of social media by dentists and laypeople to post and view dentistry-related content in Bahrain. **Methods:** This questionnaire-based cross-sectional study included adult participants and dentists. A pretested validated questionnaire was administered. The chi-square test for association was used to assess the association between categorical outcomes. A p -value of ≤ 0.05 was considered statistically significant. **Results:** In total, 249 adult participants and 53 dentists were included. A substantial majority (83.5%) of the participants reported that they always used social media to view dentistry-related content, and 69.8% of the dentists felt that patients who use social media have better oral health awareness. A longer duration of social media usage showed significant associations with particularly viewing dentistry-related content ($p = 0.008$) and contacting dentists directly through social media for consultation ($p = 0.055$). **Conclusions:** An extremely high percentage of the younger population in Bahrain is using various social media to discuss dentistry. This engagement should be wisely managed to promote dentistry-related information sharing, which can lead to increased awareness related to overall dental health. There is a definite need to enforce certain standard operating procedures in every country that will prevent the misuse of this technological advancement.

Keywords: Social Media, Dental Health Education, Dentist Patient Relations, Internet, Access to Health Care

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I. Introduction

The use of social media has become an indispensable part of our day-to-day life. Social media platforms are primarily used for searching, sharing, and communicating information, including information related to health and disease [1]. Many dental practices have taken advantage of the evolving nature of social media to share dentistry-related content, including posts related to maintaining oral health, up-to-date treatment options, current trends in materials used in dentistry, and the cost of treatments [1-3]. These posts are mainly in the form of posters, interactive blogs, or mini-

video presentations, which are attractive and intriguing [3]. Since these posts are made in the local language using non-professional terms, they help dental practices stay in close communication with laypeople, which is one of the main goals of effective patient care. A recent descriptive mapping analysis of dentistry-related posts on social media reported that clinically relevant information was provided in the majority of the blogs and podcasts [3]. Topic analysis showed that 55% of bloggers were practicing dentists or hygienists, followed by consultants (30%) and media, including publishers, discussion board hosts, and professional organizations and corporations (9%) [3]. Overall, social media is used as a platform to provide health education, conduct marketing, and communicate with the public.

Numerous social media platforms are currently available, including Snapchat, Facebook, Instagram, WhatsApp, Twitter, and YouTube. According to a recent report, Facebook and YouTube are the most popular and frequently used social media platforms in Bahrain [4]. Despite the widespread use of social media, these platforms have legal and ethical issues. The main challenge is related to the privacy and piracy of the content being posted [5]. A recent study on Twitter posts revealed that 56.53% of posts were related to esthetic dentistry, out of which only 5.5% was educational content. The majority of the posts were advertisements and personal highlights [6]. Abu-Ghazaleh et al. [7] also presented similar results in a study on dental trauma in social media, finding that 56.2% of the posts on Facebook were advertisements. These studies indicate that although bloggers claim that dental education is the prime indication to use social media, it is more commonly used for advertisements.

Recent surveys have reported the increasing dissemination of misinformation related to the coronavirus disease 2019 (COVID-19) pandemic, mainly through social media. The rapid spread of misinformation through social media is leading to a high level of confusion [8,9]. Although social media plays a constructive role in raising awareness regarding particular situations, digital health literacy is still reported to be low [10,11]. The use of social media to post dentistry-related content is acknowledged by governing bodies such as the General Dental Council in the United Kingdom [12]. Dentists who use social media must be fully aware of the updated guidance for dentists on the use of social media, which was published in 2016. E-professionalism, which is defined as behavior related to professional standards and ethics when using electronic communications, must be strictly adhered to in order to enhance the digitalization of society [13].

Considering the “new normal” owing to the COVID-19

pandemic, there has been a documented increase in the use of social media [14,15]. Some recent research has investigated the increased use of social media by undergraduates or newly graduated dentists [15,16]. This increased use needs to be studied in order to ensure that this advanced technology is being used wisely. Since the use of social media is influenced by social and cultural factors, results from certain geographic locations cannot be extrapolated to others. In addition, specific social media platforms are more favored in particular regions. Considering the increasing trend of using social media, especially during the COVID-19 pandemic, the primary aim of the present study was to characterize the use of social media by dentists and laypeople to post and view dentistry-related content on various social media platforms in Bahrain.

II. Methods

1. Study Design and Setting

The study was designed as a cross-sectional questionnaire-based study. Adult participants who attended 15 primary care dental clinics operated by the Ministry of Health in Bahrain were invited to complete a four-part questionnaire. The 15 clinics were selected based on convenience sampling. Participants were included irrespective of the chief complaint and the dental procedure performed. A systematic random sampling process was conducted (every third patient who walked into the clinic was included). Fifty-three dental practitioners were also included based on convenience sampling. The data were collected over a 6-month period from September 2021 to February 2022. The Primary Care Ethics committee of the Ministry of Health, Bahrain approved the study protocol (Primary Care research ethics committee, Ministry of Health, Bahrain). The present study is presented according to Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines [17].

2. Participants

In total, 249 adult participants over 12 years of age were included, irrespective of their gender or the presenting complaint, as well as 53 dental practitioners irrespective of their age, gender, specialty of training, or years of practice experience. All study participants signed a written informed consent form prepared according to the Declaration of Helsinki. Patients who were unable to comprehend the information from the questionnaire or did not provide written informed consent were excluded from the study. Considering that at least 30% of the population fit the inclusion criteria and

would visit the included primary care dental clinics, with a 95% confidence interval and 5% margin of error, a total sample of 250 was determined to be the minimum necessary sample. Hence, 250 participants were included. After the data collection was completed, one participant withdrew from the study. Hence, the final sample size analyzed in the present study was 249.

3. Variables and Data Sources

A battery of questions was divided into four parts to elicit information on participants' demographic characteristics, use of various social media platforms, choice of dentist and decision-making in dentistry based on social media posts, and types of dentistry-related posts on social media. This questionnaire was administered to patient participants. Another questionnaire was prepared for the dentist participants to collect information on their demographic data, years and specialty of their practice, and their opinion regarding social media use related to dentistry. Two external experts in the field of dentistry and public health evaluated and validated the series of closed-ended questions. Both questionnaires were pretested on 10 participants. Any ambiguities in the questions or responses were corrected before the actual study. Cronbach's alpha was used to check the reliability of the data obtained from the present sample.

4. Statistical Analyses

The demographic data were analyzed using descriptive statistics. The chi-square test for association was used to assess the association between the categorical outcomes that were assessed in the present study. A p -value of ≤ 0.05 was considered statistically significant. All statistical tests were performed using GraphPad InStat version 3.1 software (GraphPad Software, San Diego, CA, USA).

III. Results

1. Demographic Data of the Patient Participants

Data from 249 adult participants were included in the final analysis. Slightly over half of the participants (53.8%; $n = 134$) were women. The mean \pm standard deviation age of the study participants was 34.33 ± 6.96 years. The largest proportion of women (35%; $n = 47$) belonged to the age group of 31–40 years, similar to that of males (26.9%; $n = 31$). Most participants had a university degree (46.1%; $n = 115$) or a higher secondary education (51%; $n = 127$). Cronbach's alpha for the current sample was 0.74 indicating that the data from the sample were reliable. The key characteristics of

study participants are presented in Table 1.

2. Demographic Data of the Dentist Participants

Data from 53 dentists were included in the final analysis. The mean \pm standard deviation age of the dentist participants was 25.4 ± 4.25 years, and 64.1% ($n = 34$) were women. Furthermore, 42.1% ($n = 8$) of men and 58.5% ($n = 20$) of women belonged to the age group of 25–35 years. Furthermore, five (9.4%) participants were consultants, three (5.6%) were specialists, 21 (39.6%) were general dental practitioners, and 24 (45.2%) were dental residents. All consultants and specialists were above 35 years of age. Five general dental practitioners and 22 dental residents were 35 years of age or younger. Significantly, all the consultants, all the specialists, and the majority (85.7%) of the general dental practitioners had greater than 5 years of experience. The key characteristics of the dentist participants are presented in Table 1.

3. Use of Social Media to View Dentistry-related Content

In total, 83.5% ($n = 208$) of the participants agreed that they always used social media to view dentistry-related content. The majority of the participants (71.4%; $n = 178$) also felt that the dentistry-related content on social media was simple and easy to understand (Table 2). Furthermore, 34.9% ($n = 85$) of the participants used all the social media platforms mentioned, including WhatsApp, Facebook, Twitter, Instagram, Snapchat, and YouTube, to view dentistry-related content. A longer duration of social media usage showed significant associations with viewing dentistry-related content ($p = 0.008$) and contacting dentists directly through social media for consultation ($p = 0.055$) (Table 3). WhatsApp was preferred and used for more than 6 hours per day by 66 participants, followed by Instagram ($n = 56$). Additionally, 90.1% ($n = 219$) of those who always or rarely used social media stated that they used it for more than 6 hours per day (Figure 1). The types of dentistry-related posts most frequently viewed by participants are presented in Figure 2. Although 87.9% of the participants were aware of the government dental social media platform run by the Ministry of Health in Bahrain, only 28.3% actually used this platform to view dentistry-related content. Despite the widespread use of social media, 88.3% ($n = 220$) of the participants stated that they would consider the dentist's opinion on their final treatment plan.

4. Use of Social Media to Post Dentistry-related Content

Two consultants (40%), one specialist (33.3%), six general dental practitioners (28.5%), and 15 dental residents (62.5%)

Table 1. Demographic data of study participants

Category	Variable	n (%)	p-value	
Patient participants (n = 249)	Sex and age		0.003*	
	Male	115 (46.1)		
	18–30 yr	27 (23.4)		
	31–40 yr	31 (26.9)		
	41–50 yr	29 (25.2)		
	51–60 yr	20 (17.3)		
	≥ 61 yr	8 (6.9)		
	Female	134 (53.8)		
	18–30 yr	38 (28.3)		
	31–40 yr	47 (35)		
	41–50 yr	40 (29.8)		
	51–60 yr	8 (5.9)		
	≥ 61 yr	1 (0.7)		
		Education level		0.007*
		University	115 (46.1)	
	Male	44 (38.2)		
	Female	71 (61.7)		
	Higher secondary	127 (51)		
	Male	70 (55.1)		
	Female	57 (44.8)		
	Primary	7 (2.8)		
	Male	1 (14.2)		
	Female	6 (85.7)		
Dentist participants (n = 53)	Gender and age		Not commutable	
	Male	19 (35.8)		
	25–35 yr	8 (42.1)		
	36–45 yr	6 (31.5)		
	46–55 yr	4 (21)		
	> 55 yr	1 (5.2)		
	Female	34 (64.1)		
	25–35 yr	20 (58.8)		
	36–45 yr	9 (26.4)		
	46–55 yr	4 (11.7)		
	> 55 yr	1 (2.9)		

Continued on the next page.

stated that they always used social media to post dentistry-related content. Instagram (78%; n = 39) and WhatsApp (20%; n = 10) were the most preferred social media platform by dentists for posting dentistry-related content. Furthermore, 69.8% of the dentists felt that patients who used social media to view dentistry-related content had better oral health-related awareness. Hence, they believed that social

media is a good platform for patient education (Table 2). The younger dentists used social media for dentistry more than the older dentists (Figure 3).

IV. Discussion

The present study investigated the use of various social me-

Table 1. Continued

Category	Variable	n (%)	p-value
	Specialty and years of experience		0.001*
	Consultants	5 (9.4)	
	0–5 yr	0	
	> 5 yr	5 (100)	
	Specialists	3 (5.6)	
	0–5 yr	0	
	> 5 yr	3 (100)	
	General dentists	21 (39.6)	
	0–5 yr	3 (14.2)	
	> 5 yr	18 (85.7)	
	Residents	24 (45.2)	
	0–5 yr	15 (62.5)	
	> 5 yr	9 (42.8)	

* $p \leq 0.05$ (chi-square test for association).

dia platforms to view and post dentistry-related content by laypeople and dentists. This cross-sectional study included 249 adult participants and 53 dentists. Almost all of the adult participants (97.5%) used social media either always or rarely to view dentistry-related content. In addition, 94.2% of the dentists in Bahrain used social media to post dentistry-related content. Younger participants showed a greater affinity for social media, and an extremely high percentage of the younger population in Bahrain was found to be using various social media platforms to discuss dentistry. This is because the advanced technology of high-speed internet and smartphones is readily available in Bahrain and is cost-effective. According to the World Bank, more than 90% of the population in Bahrain had internet connections between 2010 and 2014 [18,19]. In the present study, the six adult participants (2.4%) who stated that they never used social media were over 60 years of age. Furthermore, 66.6% of the dentist participants who did not use social media thought that social media complicated patient education.

Many dental practices use social media as a tool for patient engagement and marketing. A recent survey in the United Kingdom by Parmar et al. [20] reported that 55% of the dentist sample had active social media accounts to share and post dentistry-related content. This is similar to the present study in Bahrain, where 45.2% of our sampled dentists always used social media. The same study by Parmar et al. [20] also reported that 44% of the patient sample were ready to establish a relationship with a dentist through their social media accounts. In the present study, a significant number

of participants who used social media also contacted dentists through their social media pages. This indicates that patients prefer to use social media platforms in order to establish an initial relationship with a dentist. A randomized controlled trial on dentist-patient communication through social media to reduce dental anxiety reported that online communication with patients before the operation was sufficient to reduce their dental anxiety [21]. This indicates that social media can be used not only for marketing, but also to prepare patients before dental visits by establishing a very good rapport with the patient. This also helps to reduce the chairside time. Additionally, social media should be included in the future as a new modality of patient communication. This means of communication must be included in the undergraduate dental curriculum to educate newly graduating dentists on the advantages and disadvantages of using social media as a tool to communicate with our patients. The regulations and guidance on such use must also be taught at an undergraduate level.

Dentistry-related posts on social media are mainly in the form of blogs, videos, interactive material, and podcasts, primarily in the local language. In the present study, 71.4% of the participants felt that the content on social media related to dentistry was simple and easy to understand. A recent study reported that, 89 hosts maintained at least 3 modalities such as a blog, a Twitter account, and a Facebook account. Dentists and dental hygienists comprised 55% of these hosts [3]. The use of multiple platforms by the same host has also been reported in many previous studies [3,6,7,15,20]; how-

Table 2. Use of social media for dentistry-related content

Category	Variable	n (%)	p-value
Patient participants (n = 249)	Always	208 (83.5)	0.934
	Male	95 (45.6)	
	Female	113 (54.3)	
	Never	6 (2.4)	
	Male	3 (50)	
	Female	3 (50)	
	Rarely	35 (14)	
	Male	17 (48.5)	
	Female	18 (51.4)	
Dentist participants (n = 53)	Always	24 (45.2)	0.120
	Simplified patient education	18 (75)	
	Complicate patient education	6 (25)	
	Never	3 (5.6)	
	Simplified patient education	1 (33.3)	
	Complicate patient education	2 (66.6)	
	Rarely	26 (49)	
	Simplified patient education	13 (50)	
	Complicate patient education	13 (50)	
Dentist felt that	Patient perspective of oral health is improved using social media	37 (69.8)	Not applicable
	Patient perspective of oral health is not improved using social media	16 (30.1)	
Patient participants felt that	Social media makes it simple to understand dentistry-related content	178 (71.4)	Not applicable
	Social media makes it difficult to understand dentistry-related content	71 (28.5)	
Patients awareness regarding government official social media for dentistry	Aware	219 (87.9)	0.000*
	Use	62 (28.3)	
	Does not use	157 (71.6)	
	Not aware	30 (12)	
Patient participants mentioned that their final treatment plan will be based on	What the dentist feels is appropriate	220 (88.3)	Not applicable
	What I feel is appropriate and based on social media	29 (11.6)	
Patient participants mentioned that their choice of dentist will be based on	Active social media account of the dental facility and the number of likes and followers	37 (14.8)	Not applicable
	Dentist qualification	114 (45.7)	
	Recommendations of friends and family	96 (38.5)	

* $p \leq 0.05$ (chi-square test for association).

ever, the advantages and disadvantages of a single host using multiple accounts have not been previously reported. The same study [3] also stated that hosts varied in how regularly they posted. Practicing dentists, unsurprisingly, posted considerably less often than companies, media, and consultants.

In the present study, adult participants reported that they equally saw clinical or practice-related posts related to prevention, restorations, esthetic procedures, and oral hygiene

maintenance. A recent study also reported that there was a balanced mix of clinical, professional, and management information across all social media platforms [3]. This indicates that dentists are posting clinically relevant information. However, a limitation of this study was that it only asked only questions about clinical posts.

Social media researchers have reported that traditional media drove reach, while social media created intimacy and

Table 3. Associations between variables and social media use

Variable	Using social media to specifically search dentistry-related content	Select dentist based on social media popularity	Consult a dentist through their social media account
Age	0.731	0.828	0.714
Sex	0.660	0.333	0.990
Education level	0.506	0.501	0.935
Use social media generally for a longer duration	0.008*	0.180	0.055*

* $p \leq 0.05$ (chi-square test for association).

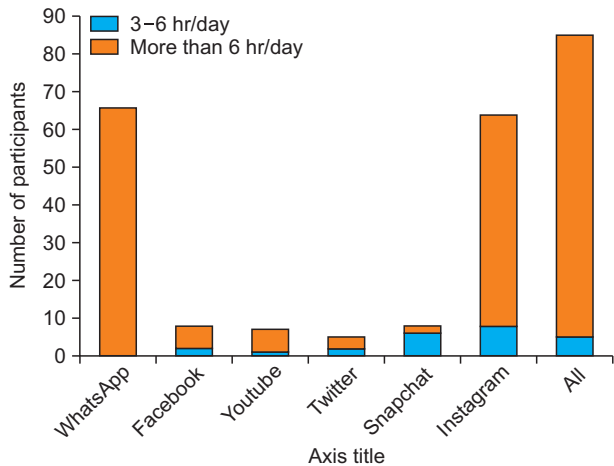


Figure 1. Social media platforms preferred for discussing dentistry.

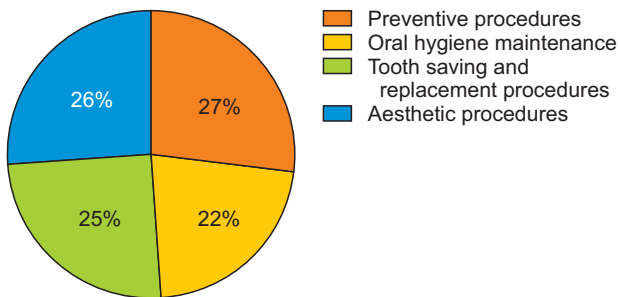


Figure 2. Types of dentistry-related posts seen by patients.

engagement [22]. This engagement is essential and should be used wisely for practice management. This research is a basis to show the extensive use of online resources, which will continue to evolve in the future. This engagement should be wisely used to promote dentistry-related information sharing, which can lead to increased awareness related to overall dental health. There is a definite need to enforce certain standard operating procedures in every country, which will prevent the misuse of this technological advancement. The study is limited by the cross-sectional nature of the study design, as a subjective questionnaire-based study. Future stud-

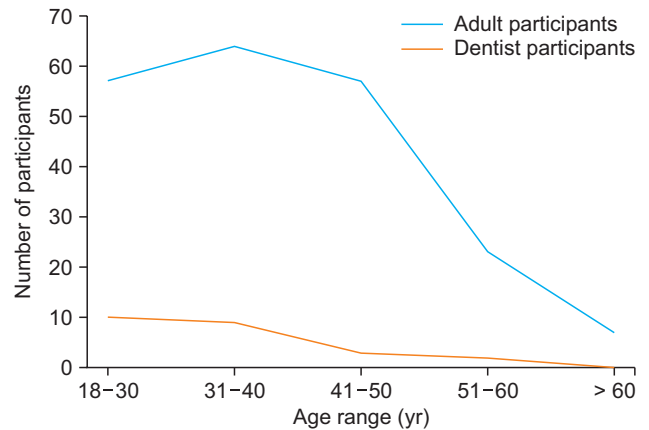


Figure 3. Study participants who always used social media for dentistry.

ies should focus on collecting the same information directly from social media platforms or databases that can show the data more reliably. More information related to the content that is published on social media platforms should be analyzed to identify how social media can be widely used.

Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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