

The Use of Instagram Among Dental Patients in Saudi Arabia

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doi: 10.5455/aim.2024.32.54-60.

ACTA INFORM MED. 2024, 32(1): 54-60

Received: JAN 09, 2024

Accepted: FEB 24, 2024

ABSTRACT

Background: The use of social media platforms has become increasingly popular in various professional fields, including dentistry. Among these platforms, Instagram has gained significant attention due to its visual nature and widespread popularity. The potential of Instagram as a tool for dental education, patient engagement, and professional networking has been the subject of several studies. **Objective:** This paper aims to investigate the use of Instagram among dental patients and examine its implications for the dental industry. **Methods:** This cross-sectional study was conducted in Saudi Arabia between September and December 2023 and involved 478 anonymous dental patients who responded to survey invitations. The questionnaire addressed demographics, Instagram usage, and factors influencing the selection of a dentist. Data analysis employed IBM SPSS Statistics, presented as descriptive statistics and bivariate analysis. **Results:** Of the respondents, 66.6% preferred Instagram to follow dentists. Demographically, younger age correlated with increased Instagram use. Over half used Instagram 2-3 times daily, with evenings being the preferred time. Notably, 48.3% visited a dentist's Instagram account. Recommendations, qualifications, and online reviews were crucial factors in choosing a dentist, while before-and-after photos, engagement, and content quality mattered on Instagram. **Conclusion:** Instagram serves as a valuable tool in oral healthcare, fostering patient engagement, education, and community building. Dental practitioners should leverage Instagram judiciously, emphasizing its supplementary role to professional consultations rather than a substitute for personalized dental advice.

Keywords: Social media, dentists, dental care, patients, marketing, Saudi Arabia.

1. BACKGROUND

The use of social media platforms has become increasingly popular in various professional fields, including dentistry. Among these platforms, Instagram has gained significant attention due to its visual nature and widespread popularity. The potential of Instagram as a tool for dental education, patient engagement, and professional networking has been the subject of several studies. For instance, research has shown positive responses from dental students regarding the use of social media, including Instagram, in dental curricula (1). Furthermore, Instagram has been identified as a platform that can enhance students' virtual learning experiences in dental projects (2). Additionally, Instagram has been recognized as a potential tool to enhance anatomy learning at dental

schools (3). Moreover, Instagram has been acknowledged as a means for dental professionals to present their brands and engage with potential patients through digital marketing (4).

The role of Instagram in oral health promotion has been a subject of interest, with various studies shedding light on its potential impact. Instagram has been recognized as a platform that can effectively disseminate oral health information and promote dental health knowledge in an engaging way (5, 6). Furthermore, research has shown that Instagram can be utilized to enhance dental health knowledge, making it an effective tool for health education (5). Additionally, Instagram has been noted to be mainly used by dental professionals, indicating its relevance in the dental community and its potential for

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professional engagement and knowledge sharing (7). In the context of the COVID-19 pandemic, social media, including Instagram, has played a crucial role in disseminating oral health information and facilitating communication among dental professionals and the public (8, 9).

Instagram has been identified as a dominant channel for business marketing targeting young adults, with its use in the aesthetic medical field continuing to increase (10). Moreover, Instagram's role in dentistry has been highlighted, with dentists using the platform for advertising purposes, leading to a significant shift in the pattern of publications towards marketing and information dissemination (11). Additionally, Instagram has been recognized as an attractive and effective tool for promoting and sharing dental cases and interacting with the community (5). The platform's potential to share information in an engaging way has allowed dental professionals to showcase their clinical work and provide a unique method of learning (6). Furthermore, Instagram has been identified as a platform predominantly used by dental professionals, indicating its significance in the dental community (7).

However, the use of Instagram in dentistry also raises important considerations regarding professional conduct, patient confidentiality, and ethical guidelines. The United Kingdom General Dental Council Guidance on social media emphasizes the importance of maintaining professionalism, confidentiality, and appropriate boundaries when using social media platforms, including Instagram (12). Additionally, the impact of social media, including Instagram, on dental practice promotion and professionalism has been a subject of research, highlighting the need for ethical considerations in social media use within the dental profession (13).

In light of these developments, it is essential to critically examine the role of Instagram in dental education, patient engagement, professional networking, and ethical considerations within the dental profession.

2. OBJECTIVE

This paper aims to investigate the use of Instagram among dental patients and examine its implications for the dental industry.

3. MATERIAL AND METHODS

Study design

This cross-sectional study was conducted between September and December of 2023 on a sample of Instagram users in Saudi Arabia.

Study participants:

The study included participants aged 18 years and older, who use Instagram on regular basis and who visited a dentist at least once in the past twelve months. No exclusion criteria were applied.

Sample size calculations

The sample size was calculated using surveymonkey (<https://www.surveymonkey.com/mp/sample-size-calculator/>), a confidence level of 95% and a margin of error of 5% were considered. The total number of Instagram users in Saudi Arabia is 26800000 as stated in Saudi Arabia social media statistics (<https://gs.statcounter.com/social-media-stats/all/saudi-arabia>) The minimum sample size calculated was 385, if response distribution was set to be 50%.

Measurement tools

The questionnaire was constructed from pre-validated surveys (14, 15). Some changes and additions were carried out to fit the scope of this research. The survey comprised of 17 lose-ended questions divided in three parts. The first section addressed demographic information such as age, gender, main practice area, region and income. The second section discussed the personal use of Instagram (time, frequency of use, ...etc.). While in the third section, participants were asked to rank dental marketing strategies as "very important", "important" and "not important". In addition to successful tools of engagement in Instagram. As well as factors affecting the selection of a dentist/ dental clinic from the point of view of study participants by labeling each statement as "very important", "important" and "not important".

The survey was pretested on a pilot group of 20 Instagram users (a reliability coefficient (alpha) of 0.75 before distribution to ensure questions clarity and overall acceptability of the survey. Minimal corrections were made based on the feedback obtained from the pilot group subjects.

Data collection procedure:

Study subjects were invited to participate in this study voluntarily. A convenience sample was selected from different dentists' Instagram accounts followers list. The survey was created using Google forms and then distributed to subjects through Instagram direct messages. A reminder message was sent on a weekly basis as means of follow-up for non-respondents. Invitations to join the survey clearly indicate that joining the survey is voluntary and anonymous. An informed consent was obtained from all subjects. In addition, this study was carried out in accordance with relevant guidelines and regulations.

Data analysis

The data was entered in IBM SPSS Statistics for Windows, version 22 (IBM Corp., Armonk, NY, USA) for data management and analysis. Descriptive statistics computed to identify frequencies and percentages. While bivariate analysis (chi-square test) compared the demographic variables (age, gender and education level) with the Instagram features. A p-value of < 0.05 was considered statistically significant.

4. RESULTS

Between September and December 2023, 1000 survey invitations were sent out to anonymous dental patients via Instagram direct messages, 478 responses were returned, indicating a response rate of 47.8 %. Out of 478 participants, 458 participants responded with the completed survey (survey completion rate of 95.8%). The demographic information of the 458 study participants is shown in Table 1.

Over one third of the study participants (n=169, 36.9%) were between the ages of 15 and 34 years. Female participants were slightly more than males (n=248, 54.14%). The majority of the participants (n=323, 70.5%) had a high school diploma or under. As for occupation, over half of the participants (n=268, 58.5%) were unemployed followed by government employed (n=105, 22.9%), private employed (n=55, 12%) and least were students (n=30, 6.6%). Half of the participants (n=231, 50.4%) were from the central region followed by the eastern region (n=118, 25.8%), western region (n=50, 10.9%), southern region (n=38, 8.3%) and least was northern

Variables	N (%)
Age in years	
15-34	169 (36.9)
35-44	156 (34.1)
≥45	133 (29)
Gender	
Male	210 (45.9)
Female	248 (54.1)
Education Level	
Secondary school and under	323 (70.5)
University	135 (29.5)
Occupation	
Government	105 (22.9)
Private	55 (12)
Unemployed	268 (58.5)
Student	30 (6.6)
Location	
Eastern	118 (25.8)
Western	50 (10.9)
Central	231 (50.4)
Northern	21 (4.6)
Southern	38 (8.3)
Income Level in SAR	
<4000	210 (45.9)
4000-10000	142 (31)
11000-20000	75 (16.4)
>20000	31 (6.8)

Table 1. Demographic information of study participants (n = 458)

region (n=21, 4.6%). A majority of the participants (n=210, 45.9%) had an income level of less than 4000 SAR “equivalent to \$1066”.

The information about the use of Instagram among the study participants is presented in Table 2. When asked about the preferred social media platform to follow a dentist, the majority of the participants chose Instagram (n=305, 66.6%), this was followed by Snapchat (n=270, 59%), Twitter (n=135, 29.5%), TikTok (n=38, 8.3%) and the least was Facebook (n=7, 1.5%). As for the frequency of using Instagram, about one third of the participants (n=143, 31.2%) used Instagram 2-3 times per day. While evening (After 5PM) was considered the preferred time to use Instagram by over two thirds of the respondents (n=319, 69.7%). When asked if respondents visited and added the dentist’s Instagram account, those who agreed were n=221 (48.3%) and n=166 (36.2%) respectively. In regards to how respondents first encountered the dentist’s Instagram account, one third (n=148, 32.3%) mentioned it was through Instagram search, this was followed by the account being advertised by the clinic (n=114, 24.9%), a promotion paid ad (n=86, 18.8%), a recommendation of an Instagram user (n=85, 18.6%) and least (n=25, 5.5%) was through the use of hashtag (#). As for choice of communication method with a dentist through Instagram, over half of the respondents (n=248, 54.1%) did not communicate with their dentist via Instagram, while direct messages (DM) were the preferred method to communicate with a dentist via Instagram in 126 of the respondents (27.5%). When asked if they responded to interactive Instagram stories posted by a dentist, 44.1% (n=202) agreed to have responded.

The results of questions on factors affecting the selection of a dentist in Instagram are displayed in Table 3. The first part asked about the important factors choosing a dentist, a

Variables	N (%)
Preferred social media platform following a dentist	
Instagram	305 (66.6)
Snapchat	270 (59)
TikTok	38 (8.3)
Twitter	135 (29.5)
Facebook	7 (1.5)
Frequency of Instagram use	
Once weekly	77 (16.8)
Once daily	111 (24.2)
2-3 times/day	143 (31.2)
More than 3 times/ day	127 (27.7)
Preferred time to use Instagram	
Morning (8AM-12PM)	39 (8.5)
Afternoon (1PM-5PM)	100 (21.8)
Evening (After 5PM)	319 (69.7)
Visit dentist Instagram account	
Yes	221 (48.3)
Add dentist Instagram account	
Yes	166 (36.2)
Dentist Instagram account first encounter method	
Paid promotion Ad	86 (18.8)
Account advertised by the clinic	114 (24.9)
Through a recommendation of an Instagram user	85 (18.6)
Through Instagram search	148 (32.3)
Through a hashtag (#)	25 (5.5)
Choice of communication method with a dentist through Instagram	
Direct messages (DM)	126 (27.5)
Instagram stories	29 (6.3)
Instagram posts- comment	55 (12)
Do not communicate with dentist	248 (54.1)
Respond to interactive Instagram stories posted by dentist	
Yes	202 (44.1)

Table 2. The Use of Instagram among study participants (n = 458)

recommendation by family and friends was seen as very important/important in 98.2% (n=450) of the respondents, followed by the qualification of the dentist (n=448, 97.8%), online reviews (n=431, 94.1%), special offers (n=381, 83.4%) and the least was Instagram presence (n=250, 54.6%). The second part asked about the importance of factors when looking at a dentist’s Instagram account, before and after photos were considered very important/important in n=433, 94.5% of the respondents, this was followed by the biography of the dentist (n=431, 94.1%), the engagement with followers (n=413, 90.1%), the quality of posts (n=406, 88.6%), the original interesting content (n=351, 76.6%), the Instagram account layout (n=342, 74.7%), the number of followers (n=307, 67%), the number of likes (n=291, 63.5%) and least was the number of posts (n=289, 63.1%). While the last part asked about strategies in successful strategies in promoting a dentist’s Instagram account, where the account being advertised by the clinic was considered very important/important in 86% (n=394) of the respondents, this was followed by a recommendation of an Instagram user (n=375, 81.9%), through Instagram search (n=363, 79.3%), through hashtag (#) (n=305, 66.6%) and least was paid promotion ad (n=255, 55.7%).

Table 4 shows the association between age, gender and education level with some Instagram features. The use of Instagram was significant with age as younger respondents (15-34 years old) reported more use of Instagram compared to older respondents (p= 0.018). The frequency of Instagram use was

significant with age as younger respondents (15-34 years old) reported more frequent use of Instagram (2-3 times a day) compared to older respondents ($p=0.005$). The time of Instagram use (Evening – after 5 pm) was not significant with age as there were no differences between the age groups ($p=0.486$). On the other hand, more younger respondents reported that they visited the dentist’s Instagram account compared to other age groups ($p=0.001$). Never the less, there were no association between age with adding the dentist’s Instagram account or interacting with Instagram stories ($p=0.24$ and 0.18 , respectively). Interestingly, there was no association between gender and education level with any of the Instagram features.

5. DISCUSSION

The use of social media in the dental field has been the subject of recent research. The results of this study indicated that a majority of dental patients (66.6 %) preferred to use Instagram as a social media platform to follow dentists, this was followed by Snapchat (59%) and Twitter (29.5%). This pattern was different from a study conducted in Jeddah, Saudi Arabia, that showed

Variables	N (%)		
	Very important	Important	Not important
Factors when choosing a dentist			
Instagram presence	101 (22.1)	149 (32.5)	283 (45.4)
Online reviews	326 (71.2)	105 (22.9)	27 (5.9)
recommendation by family and friends	368 (80.3)	82 (17.9)	8 (1.7)
special offers	226 (49.3)	156 (34.1)	76 (16.6)
Qualification of the dentist	397 (86.7)	51 (11.1)	10 (2.2)
Factors when looking at a dentist’s Instagram account			
Original interesting content	250 (54.6)	151 (33)	57 (12.4)
Before and after photos	339 (74)	94 (20.5)	25 (5.5)
Number of likes	157 (34.3)	134 (29.3)	167 (36.4)
Quality of posts	234 (51)	172 (37.6)	48 (11.4)
Number of posts	106 (23.1)	183 (40)	169 (36.9)
Account layout	150 (32.8)	192 (41.9)	116 (25.3)
Biography	306 (66.8)	125 (27.3)	27 (5.9)
Engagement with followers	281 (61.4)	132 (28.8)	45 (9.8)
Number of followers	149 (32.5)	158 (34.5)	151 (33)
Strategies in promoting a dentist’s Instagram account			
Paid promotion Ad	99 (21.6)	156 (34.1)	203 (44.3)
Account advertised by the clinic	206 (45)	188 (41)	64 (14)
Through a recommendation of an Instagram user	190 (41.5)	185 (40.4)	83 (18.1)
Through Instagram search	170 (37.1)	193 (42.1)	95 (20.7)
Through a hashtag (#)	135 (29.5)	170 (37.1)	153 (33.4)

Table 3. Factors affecting the selection of a dentist in Instagram (n = 458)

Instagram features	Age group in years			P-Value*	Gender		P-Value*	Education Level		P-Value*
	15-34	35-44	≥ 45 years		Male	Female		High school and under	University Graduate	
	n (%)	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
The use of Instagram	126 (41.3)	99 (32.5)	80 (26.2)	0.018*	143 (46.9)	162 (53.1)	0.531	213 (69.8)	92 (30.2)	0.648
Frequency of use (2-3 times a day)	52 (36.4)	48 (33.6)	43 (30.1)	0.005*	65 (45.5)	78 (54.5)	0.988	107 (74.8)	36 (25.2)	0.58
Time of use (Evening After 5 pm)	113 (35.5)	107 (33.5)	99 (31)	0.486	147 (46.1)	172 (53.9)	0.447	226 (70.8)	93 (29.2)	0.741
Visit dentist’s account	99 (44.8)	74 (33.5)	48 (21.7)	0.001*	102 (46.2)	119 (53.8)	0.9	154 (69.7)	67 (30.3)	0.703
Add dentist’s account	69 (41.6)	55 (33.1)	42 (25.3)	0.24	77 (46.4)	89 (53.6)	0.863	117 (70.5)	49 (29.5)	0.988
interactive stories response	77 (38.1)	75 (37.1)	50 (24.8)	0.18	96 (47.5)	106 (52.5)	0.523	148 (73.3)	54 (26.7)	0.253

Table 4. The association between age, gender and education level with Instagram features. * Significant at $p=0.05$

Snapchat was the most popular platform for dental patients, followed closely by Instagram (16). This indicates a preference for visually-oriented platforms among dental patients, possibly due to the visual nature of dental procedures and outcomes. This suggests that dental patients recognize the potential of social media in engaging with dentists who showcase their work.

The study highlights patients’ inclination to communicate with their dentists via Instagram, using various channels like direct messages or post comments/stories. While direct references on patient-dentist communication on Instagram are lacking, multiple studies discuss the emerging use of social media, especially Instagram, in dental practitioner-patient interaction and its impact on communication and engagement. A study in Saudi Arabia found Instagram’s popularity among dental patients, suggesting a preference for visually-oriented platforms for communicating with dentists (16). Additionally, research on aesthetic dentistry indicates most practitioners view social media, including Instagram, as beneficial

for educating, advertising, and communicating with patients (17). Further research specifically focusing on patient-dentist communication on Instagram would provide valuable insights into this evolving area of dental practice. Notably, patient preferences lean towards visually-oriented platforms like Instagram for communication with dental practitioners, emphasizing social media’s role in establishing initial patient-dentist relationships.

This study’s findings agree with the results of several reports that age is associated with Instagram usage pattern. Where younger adults, particularly those aged 18-29 years old, appear to utilize Instagram more than older age groups, indicating age-related differences in social media platform usage (18-21). It is worth to mention that Instagram is relatively recent, where it started in 2010. Thus, someone could realize the larger effect of Instagram on younger generations who grew up with social media surrounding them. These findings have implications for both research and marketing strategies targeting different age groups. Researchers studying

social media behavior need to consider age-related factors in their analyses. Similarly, dental marketers whether dentists or dental products companies aiming to reach specific demographics on Instagram should be aware of these age-related differences to tailor their messaging and content accordingly.

Interestingly, there was no association between the pattern of Instagram use with gender in this study, which contradicts previous studies that showed an association between the pattern of Instagram use with gender. For instance, Saletti et al. identified gender-specific motives and patterns of Instagram use, suggesting a differential use of the platform among men and women (22). Furthermore, Utter et al. conducted an observational pilot study to examine the frequency with which men and women are featured in photos tagged with #health, providing insights into gender representations and engagement with health-related content on Instagram (23). It is possible that factors such as cultural differences, sample demographics, or changes in platform features could influence these dynamics. Marketers and content creators should be cautious about making assumptions based solely on gender when developing strategies for engaging audiences on Instagram. Instead, they should consider a range of factors, including age, interests, and cultural background, to create content that resonates with diverse audiences effectively.

Furthermore, this study found no association between the pattern of Instagram use with education level. Where some studies shed light on the association of Instagram usage patterns with education levels. For instance, Verduyn et al. critically reviewed the impact of social network sites on subjective well-being, which could be associated with individuals' education levels (24). Furthermore, Saletti et al. conducted a qualitative study to understand motives, usage patterns, and effects of Instagram use in youths, providing insights into the diverse usage patterns that may be associated with different education levels (22). Factors such as sample demographics, cultural differences, and changes in platform features may contribute to these differences and warrant further investigation. In addition, understanding how education level influences social media usage patterns can have implications for interventions aimed at promoting positive online behaviors and digital literacy. Tailoring interventions to specific educational backgrounds can help address potential disparities in access, usage, and well-being related to social media use.

The frequency of Instagram usage in this study shows that more than half of the respondents use Instagram 2-3 times a day and more. Barry et al. found that the study participants checked their social media accounts including Instagram at least once per day (25). Additionally, Sakurai et al. asked participants to indicate their frequency of social networking service usage, including Instagram, with frequent usage defined as posting or checking more than a few times a week (26). Moreover, the study by Portugal & Siquara indicated that some individuals spend more than 2 hours per day on Instagram, which suggests a high frequency of usage among certain users (27). In this study, evenings (After 5PM) was considered the preferred time to use Instagram by over two thirds of the respondents. A study by Brown et al. indicated that pictures were mainly posted in the evening hours, suggesting that evening hours may be a popular time for posting on Instagram, potentially aligning with users' leisure time and in-

creased social media activity during these periods (28). Additionally, a study by Singh et al. highlighted the importance of social media post timing, which can increase the influence and impact of posts on users (29). This suggests that strategic timing, such as during the evening when user engagement is higher, may be beneficial for maximizing the impact of Instagram posts.

The respondents in this study indicated that they visited and added the dentist's Instagram account. Patients engage with health content on Instagram in various ways, including accessing information, participating in educational campaigns, and interacting with healthcare providers. For example, Aragão et al. utilized a social network campaign on Instagram to approach the target population, indicating that patients may engage with dental content and educational initiatives on the platform (30). Furthermore, Moraes et al. recruited dentists via email and Instagram, indicating that Instagram serves as a platform for professional networking and information dissemination, which may indirectly impact patient engagement with dental health content (31). The study by Harris & Bardey examined idealized online self-presentation on Instagram, suggesting that patients may interact with dental content and providers' profiles on the platform (32).

As shown in the results of this study, attracting patients to an Instagram account can be achieved through various strategies, including the dissemination of educational content, engaging in social media campaigns, and interacting with healthcare professionals. For instance, Moorhead et al. highlighted the benefits of social media for mass health communication, indicating its potential to attract patients (33). Additionally, Katz & Nandi emphasized the importance of ethical social media engagement by healthcare professionals, which can contribute to attracting patients to Instagram accounts (34). Furthermore, Maisner et al. discussed the promotion of publications through Instagram accounts, suggesting that targeted posts and hashtag utilization can enhance article engagement and attract patients (35). Additionally, Faradis & Luqman emphasized the use of Instagram as a direct marketing medium, which can attract the interest of potential consumers, including patients (36).

Limitations of the study

This study has some limitations; one possible limitation is the lack of a probability sampling technique. This may affect the generalizability of results to the Instagram users' population in Saudi Arabia. Second, it is quite challenging to discern between Instagram active users and users of other social media platforms by word of mouth. Another limitation might be self-reporting bias of study participants where they may overstate or understate their actual knowledge or practices related to Instagram, leading to a potential bias in the survey results. The landscape of social media, including Instagram, is dynamic and subject to rapid changes. Last but not least, rapid technological changes might also limit this study as survey results may become outdated quickly as new features, trends, or user behaviors emerge on the platform.

6. CONCLUSION

Age influenced Instagram use among the study sample none of the other demographics did. The use of Instagram for dental patients has emerged as a valuable and dynamic tool in

the realm of oral healthcare. This social media platform not only serves as a means of patient engagement but also acts as an educational resource, offering a visually compelling platform for dental professionals to share information, tips, and insights regarding oral health. The visual nature of Instagram allows for the easy dissemination of before-and-after images, educational graphics, and engaging content, fostering a stronger connection between dental practitioners and their patients.

Moreover, Instagram facilitates a sense of community by providing a space for patients to ask questions, share experiences, and stay updated on the latest advancements in dental care. The platform's interactive features, such as live sessions and stories, enable real-time communication, allowing dental professionals to address queries and concerns directly. Despite these advantages, it is essential to approach Instagram use in the dental field responsibly.

- **Patient Consent Form:** All participants were informed about subject of the study.
- **Ethical approval:** Ethical clearance was obtained from the Institutional Review Board (NCBE Registration No. HAP-05-D-003) at Imam Abdulrahman bin Faisal University. All participants gave informed written consent before participating in this study. (IRB-2022-02-222 dated 5-6-2022)
- **Author's Contribution:** K.A. gave substantial contributions to the conception or design of the work in acquisition, analysis, or interpretation of data for the work. K.A. had a part in article preparing for drafting or revising it critically for important intellectual content. K.A. gave final approval of the version to be published and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
- **Conflicts of interest:** There are no conflicts of interest.
- **Financial support and sponsorship:** None.

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