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Original Article

# Impact of Social Media on Oral Health Awareness and Treatment Knowledge

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## ABSTRACT

**Objective:** To assess the impact of social media on oral health awareness and treatment knowledge in Pakistan, evaluating its role as an educational tool and its influence on oral hygiene behaviors.

**Methodology:** This cross-sectional study was conducted with 110 participants recruited through convenience sampling. Data were collected via structured interviews with a bilingual questionnaire covering demographics, oral hygiene practices, social media usage, and oral health knowledge. Statistical analyses examined associations between social media usage and oral health outcomes, including brushing frequency and knowledge levels.

**Results:** The participants had a mean age of 38.71 ± 8.56 years, with 61% males and 39% females. Most participants (93.6%) considered oral health as important as physical health, and 85.5% believed poor oral hygiene fosters systemic disease. Social media users (38.2%) demonstrated better brushing practices, with after-meal brushing reported only by users (11.9%, p = 0.002). However, no significant difference in oral health knowledge was found between users and non-users (p = 0.633). Among users, Google (69%) and YouTube (19%) were the primary sources, but 43.6% expressed doubts about the reliability of online information.

**Conclusion:** This suggests that social media can be used innovatively to improve oral health awareness and behaviors in Pakistan. Although social media is still not widely used, it has an effect mainly on practices such as brushing behavior. However, misinformation and doubts about the reliability of online information present challenges. Targeted interventions, culturally relevant content, and enhanced digital health literacy are essential to maximize social media's role in bridging knowledge gaps and promoting preventive oral health practices.

**Keywords:** Oral health awareness, Oral hygiene behaviors, Social media, Treatment knowledge

## INTRODUCTION

Regionally, in many parts of Asia and the Middle East, the use of social media in healthcare is growing rapidly. It has become an essential tool for public health campaigns, improving engagement with audiences and facilitating easier access to healthcare information. Social media platforms have been effective in educating the public about oral health, creating awareness on preventive care, and offering insights into various treatment options.

The advent of social media has revolutionized how individuals' access and share information, connecting people across geographical boundaries. In healthcare, particularly oral health, social media has emerged as a critical platform for disseminating knowledge, influencing treatment decisions, and promoting preventive care. Platforms like Facebook, Instagram, WhatsApp, and YouTube are widely used to share educational materials and enhance communication between healthcare providers and patients. Studies show that social media not only raises awareness about oral health issues but also fosters behavioral change in oral hygiene practices, especially among younger demographics and urban populations[1,2].

Despite the rising burden of dental caries, periodontal diseases, and oral cancers in several countries such as Pakistan and the subcontinent, social media has not been fully harnessed as a tool for positive impact[3]. The cultural, economic and infrastructural barriers do not allow raising awareness regarding oral health and there is also limited access to dental care in Pakistan[4]. Conversely, social media presents a solution to fill these gaps at low cost and on a wider scale[5,6]. India-based evidence indicated that WhatsApp and Instagram are more effective in imparting knowledge regarding oral health and decisions regarding dental treatment because of their visual and interactive nature[7,8].

Additionally, social media provides the ability to reach healthcare professionals directly so that patients are able to ask questions, obtain trustworthy information, and combat misinformation relating to dental treatments[7]. A study reported a significant gain after education through social platforms where social media is prevalent and easy to use[8], while other studies reported that education via Instagram could greatly improve participants' knowledge regarding oral hygiene practices with an emphasis on targeting[9-11]. Although studies have highlighted the use of social media among dentists and its influence on dental practice, as well as its impact on dental education, relatively few studies have examined the use and influence of social media on dental practice in Southeast Asia[12-14].

This study was conducted for the assessment of the role of social media to impart awareness about oral health and knowledge about treatment in Pakistan and its effectiveness as an educational tool and change of behavior. This research could help in strategizing future interventions to improve oral health by understanding the key drivers of the same and where exactly needs the most effort.

## METHODOLOGY

This cross-sectional study aimed to evaluate the impact of social media on oral health awareness and treatment knowledge in Pakistan. A total of 110 participants were selected through convenience sampling, ensuring a diverse representation in terms of gender, socioeconomic status,

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education levels, and occupations. The sample size was calculated using the WHO sample size calculator, considering a sufficient knowledge rate of 13.5% from a prior study[23], with a margin of error of 6.5% and a confidence level of 95%.

Data were collected using a structured questionnaire through face-to-face interviews, and the questionnaire was developed in English and Urdu. The questionnaire collected demographics (age, gender, marital status, education and socioeconomic status), oral hygiene practices (e.g., how often they brush their teeth and whether they previously had toothaches), social media usage patterns (e.g., preferred platform, how often they use it and what is the purpose), and oral health knowledge (e.g., whether they know that oral health is important and that oral health is related to systemic health). The inclusion criteria included adults aged 18 years and above, residents of urban, peri-urban or rural Pakistan, active social media users or users with other access to social media, willing to give informed consent form before the study, and willing to engage in an interview. Exclusion criteria included professional or academic experience in oral health, impairments in cognition or communication and failure to complete the interview.

The data was meticulously entered and subsequently analyzed employing SPSS version 26. Descriptive statistical parameters were calculated, specifically in relation to the mean alongside standard deviation and frequency alongside percentage, and the dataset was scrutinized and presented with a 95% confidence interval.

## RESULTS

The research study included a sample size of 110 participants, exhibiting a mean age of 38.71 ± 8.56 years, the majority of whom fell within the age bracket of 30 to 50 years, thus suggesting a demographic profile that is largely representative of young to middle-aged individuals **(Figure I).** In the assessment of knowledge, the participants exhibited a notable degree of awareness, achieving a mean knowledge score of 7.59 ± 2.566. The majority of participants attained scores ranging from 6 to 10 **(Figure II).** The analysis of gender distribution revealed that 67 individuals (61%) identified as male, while 43 individuals (39%) identified as female, thereby indicating a notable male predominance **(Figure III).** Concerning oral hygiene practices, 51 participants (46.4%) indicated that they engaged in brushing their teeth once daily, 44 participants (40%) reported brushing twice daily, 5 participants (4.5%) brushed after every meal, and 10 participants (9.1%) admitted to brushing either irregularly or occasionally, thereby suggesting that a significant proportion adhered to a consistent dental hygiene regimen **(Figure IV)**.

As delineated in **Table I**, a predominant proportion of the study cohort was comprised of individuals who were married (65.5%), whereas 34.5% remained unmarried. In the context of educational attainment, the majority of participants possessed a graduate degree (46.4%), succeeded by those holding postgraduate qualifications (40.0%), with a smaller fraction having intermediate (7.2%), secondary (5.5%), or middle-level (0.9%) education. In terms of occupational status, 88.1% were engaged in occupations characterized by office-based environments, 6.4% were identified as housewives, and 5.5% participated in fieldwork. Concerning socioeconomic standing, over half (51.8%) indicated a monthly income within the range of Rs. 25,000-50,000, 44.6% reported earnings exceeding Rs. 50,000, while a mere 3.6% earned below Rs. 25,000.

The participants in the study demonstrated a strong belief in the importance of oral health, with 103 participants (93.6%) considering it as important as physical health, while only 7 participants (6.4%) disagreed. Furthermore, a significant majority, 94 participants (85.5%), believed that poor oral hygiene fosters systemic disease, with 16 participants (14.5%) expressing the opposite view. In terms of personal experience, 71 participants (64.5%) reported having suffered from toothache, whereas 39 participants (35.5%) did not. Among those who experienced toothache, the most common action taken to alleviate the pain was visiting the dentist, reported by 51 participants (71.8%). Other responses included taking painkillers (self-medication) by 13 participants (18.3%), discussing the issue with relatives or friends who had experienced toothaches (5 participants, 7.0%), and searching for information online about the causes and treatments for toothache (2 participants, 2.8%). The frequency of social media and internet use to obtain information about oral health problems, the findings indicate that 42 participants (38.2%) utilized social media or the internet for this purpose, while the majority, 68 participants (61.8%), did not. Among those who did seek information online, 24 participants (57.1%) searched for the causes of toothaches, and 18 participants (42.9%) looked for treatments related to toothaches. The primary source for obtaining oral health information was Google, used by 29 participants (69.0%), followed by YouTube (19.0%) and Facebook (11.9%). When assessing the perceived reliability of the information available online, 45 participants (40.9%) believed it was accurate, while 17 participants (15.5%) did not, and 48 participants (43.6%) were uncertain about its reliability. Regarding knowledge about oral health care, the results showed that 29 participants (26.4%) had inadequate knowledge, whereas 81 participants (73.6%) demonstrated adequate knowledge, as shown in **Table II.**

The use of social media or the internet for obtaining information about oral health was examined in association with variables. In the proportion of having proper knowledge regarding oral healthcare, 76.19% of social media users demonstrated strong knowledge relative to 72.06% of non-users ($p = 0.633$). The distribution of gender was similar, with 59.52% of social media users and 61.76% of non-users being male ($p = 0.815$). There was a significant difference ($p = 0.002$) in brushing frequency as the after-meal brushing was practiced by 11.90% of social media users, while among the non-users, no one practiced it. Both groups accepted oral health as an integral component of overall health ($p = 0.543$), and 83.33% of users and 86.76% of non-users ($p = 0.620$) believed that poor oral hygiene promotes systemic diseases. 66.67% of users and 63.24% of non-users ($p = 0.715$) reported toothache history. Perception regarding the reliability of information on the internet/social media differed significantly, with 47.62% of users perceiving it as reliable, compared to 36.76% of non-users ($p = 0.005$). The association was not significant by age ($p = 0.202$) and occupation ($p = 0.304$) since most of the participants had ages 36–70 years and worked office jobs as shown in **Table III.**

**Figure I**

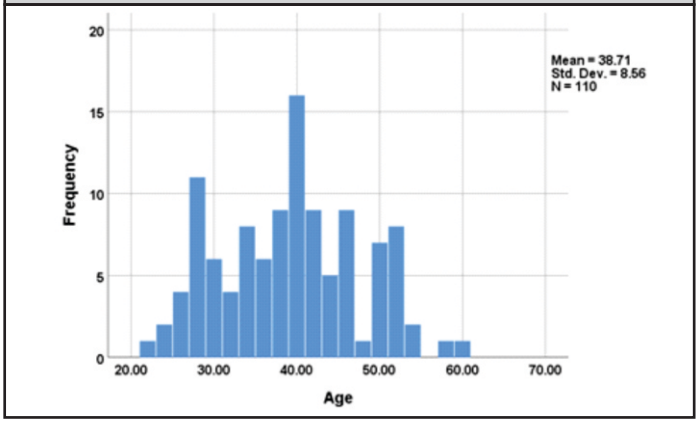


**Figure II**

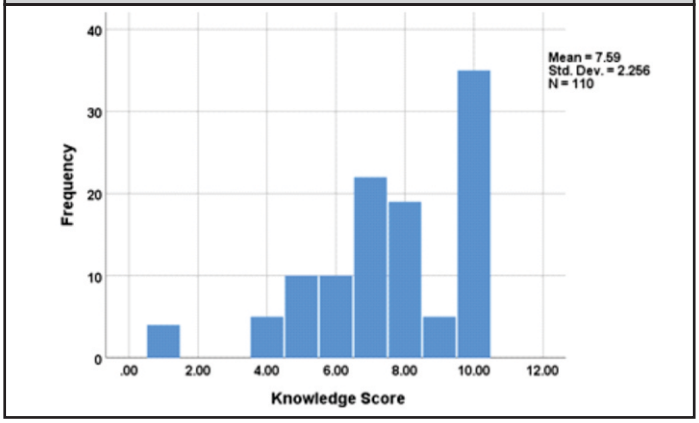


**Figure III**

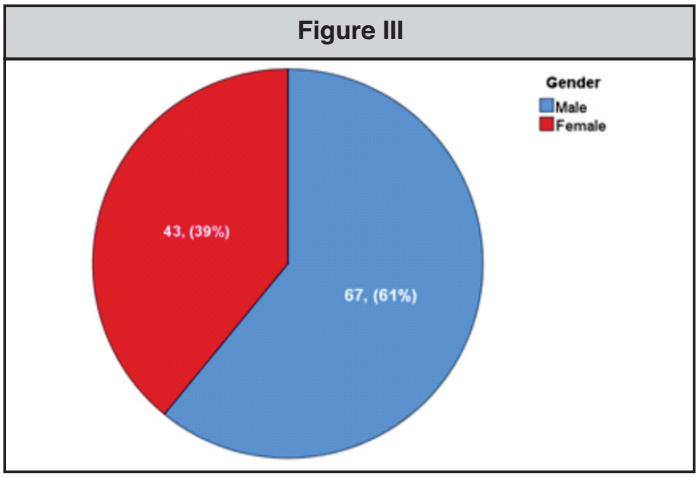


**Figure IV**

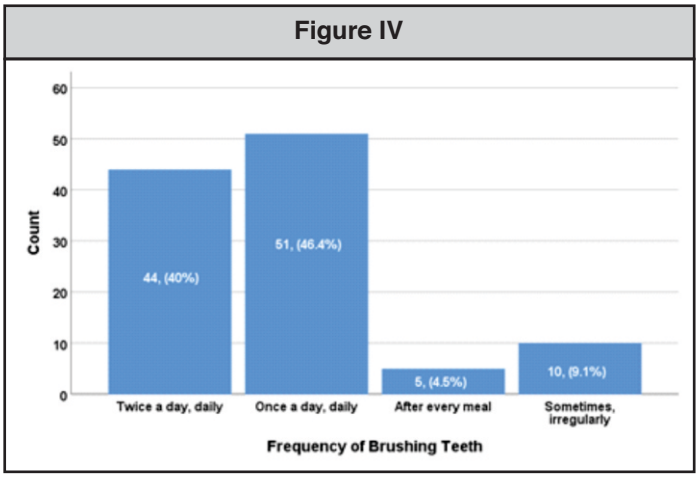


**Table I: Characteristics of Study Participants (n=110)**

| Participant Characteristics | | Frequency | Percent (%) |
|---|---|---|---|
| Marital status | Married | 72 | 65.5 |
| | Unmarried | 38 | 34.5 |
| Education | Middle | 1 | 0.9 |
| | Secondary | 6 | 5.5 |
| | Intermediate | 8 | 7.2 |
| | Graduate | 51 | 46.4 |
| | Postgraduate | 44 | 40.0 |
| Occupation | Housewife | 7 | 6.4 |
| | Office job | 97 | 88.1 |
| | Field work | 6 | 5.5 |
| Socioeconomic Status | Rs. < 25,000/- | 4 | 3.6 |
| | Rs. 25,000----50,000/ - | 57 | 51.8 |
| | Rs. > 50,000/- | 49 | 44.6 |

| Table II: Distribution of Oral Health Importance (n=110) | | | |
|---|---|---|---|
| **Oral Health Survey Items** | | **Frequency** | **Percent** |
| Think of oral health as important as physical health | Yes | 103 | 93.6 |
| | No | 7 | 6.4 |
| Think poor hygiene fosters systemic disease | Yes | 94 | 85.5 |
| | No | 16 | 14.5 |
| Ever suffered from a Toothache | Yes | 71 | 64.5 |
| | No | 39 | 35.5 |
| If yes, done to ease the pain | Took pain killer (self-medication) | 13 | 18.30 |
| | Visited the dentist | 51 | 71.84 |
| | Searched on the internet about toothache causes and treatment | 2 | 2.81 |
| | Discussed with relative/friend who had previously experienced a toothache | 5 | 7.05 |
| Frequency of use social media /internet to obtain information about oral health problems | Yes | 42 | 38.2 |
| | No | 68 | 61.8 |
| If Yes, Searched the most on internet / social media | Cause of toothache | 24 | 57.1 |
| | Treatment of toothache | 18 | 42.9 |
| Source used the most to gain oral health information | Google | 29 | 69.05 |
| | YouTube | 8 | 19.05 |
| | Facebook | 5 | 11.90 |
| Think information available on the internet / social media is reliable or accurate | Yes | 45 | 40.9 |
| | No | 17 | 15.5 |
| | Not Sure | 48 | 43.6 |
| Knowledge about oral healthcare, how important good oral health is to overall health | Inadequate Knowledge | 29 | 26.4 |
| | Adequate Knowledge | 81 | 73.6 |

**Table III: Association of the use of social media for obtaining information about oral health with knowledge, gender & other factors**

| Factors Associated with Social Media Use for Oral Health | | Use of social media / internet to obtain information about oral health problems | | 95% Confidence Interval (P-value) |
|---|---|---|---|---|
| | | Yes (n=42) | No (n=68) | |
| Knowledge about oral health care, how important good oral health is to overall health | Inadequate Knowledge | 10 (23.81) | 19 (27.94) | 0.332-------1.954 (0.633) |
| | Adequate Knowledge | 32 (76.19) | 49 (72.06) | |
| Gender | Male | 25 (59.52) | 42 (61.76) | 0.415-------1.999 (0.815) |
| | Female | 17 (40.48) | 26 (38.24) | |
| Frequency of brushing teeth | Twice a day, daily | 19 (45.24) | 25 (36.76) | 0.890-------2.296 (0.002) |
| | Once a day, daily | 18 (42.86) | 33 (48.53) | |
| | After every meal | 5 (11.90) | 0 (0) | |
| | Sometimes, irregularly | 0 (0) | 10 (14.71) | |
| Think oral health as important as physical health | Yes | 39 (92.86) | 64 (94.12) | 0.173-------3.824 (0.543) |
| | No | 3 (7.14) | 4 (5.88) | |
| Think poor hygiene fosters systemic disease | Yes | 35 (83.33) | 59 (86.76) | 0.261-------2.229 (0.620) |
| | No | 7 (16.67) | 9 (13.24) | |
| Ever suffered from toothache | Yes | 28 (66.67) | 43 (63.24) | 0.518-------2.611 (0.715) |
| | No | 14 (33.33) | 25 (36.76) | |
| Think information available on the internet / social media is reliable or accurate | Yes | 20 (47.62) | 25 (36.76) | 1.041-------2.462 (0.005) |
| | No | 11 (26.19) | 6 (8.82) | |
| | Not Sure | 11 (26.19) | 37 (54.41) | |
| Age | < 35 years | 18 (42.86) | 21 (30.88) | 0.755-------3.731 (0.202) |
| | 36-70 years | 24 (57.14) | 47 (69.12) | |
| Occupation | Housewife | 2 (4.76) | 5 (7.35) | 0.132-------1.477 (0.304) |
| | Office job | 36 (85.71) | 61 (89.71) | |
| | Field work | 4 (9.52) | 2 (2.94) | |

## DISCUSSION

The study underscores the growing potential of social media as an educational platform to enhance oral health awareness in Pakistan. Participants demonstrated a high level of recognition regarding the importance of oral health and its association with systemic health conditions, aligning with global research that emphasizes this critical connection[15,16,19]. Our study findings are supported by another study reporting knowledge before and after being given education about maintaining dental and oral health through Instagram social media results in the good category (59.5%) to (86.5%), in the sufficient category (37.8%) to (13.5%), and in the less category (2.7%) to no (0%) respondents with less knowledge category[23].

Despite this, the utilization of social media for seeking oral health information was moderate, with only 38.2% of participants engaging with these platforms. This suggests an underutilization of a powerful tool that could be leveraged to address oral health challenges on a broader scale. Platforms such as Google and YouTube emerged as the most frequently

used sources for obtaining oral health information, a pattern that mirrors findings from related studies conducted in India and Brazil, where similar online platforms dominate health information dissemination[2,16].

This study also found that, although there was no significant difference in oral health knowledge between social media users and non-users (p = 0.633), some specific behaviors were positively associated with social media usage. Interestingly, brushing after meals was only mentioned by users on social media (11.9% of posts, p = 0.002), again demonstrating that social media can have the potential to promote meaningful effects in the right direction[9,17]. But misinformation continues to be a significant obstacle to its efficacy.

These findings indicate an urgent need for tailored, appropriate interventions designed to leverage the opportunities social media offers for oral health education. Healthcare providers and organizations in Pakistan should engage more actively with popular platforms such as WhatsApp, Instagram, and YouTube and disseminate evidence-based and culturally sensitive content via these platforms. This way, they will fill in the knowledge gap between professionals and the masses, encourage preventive care and nudge individuals to receive dental treatment on time and in the correct manner. As we have previously seen during the COVID-19 pandemic, targeted social media campaigns to promote positive health behaviors and mitigate misinformation can be successful[17,20].

Additionally, the study emphasizes the importance of increasing digital health literacy to empower individuals to critically evaluate and differentiate between credible and unreliable sources of information. Incorporating oral health into current digital platforms and interactive, evidence-based campaigns can uniquely address and improve population health while building societal trust in professionally endorsed guidance[16,18].

Nevertheless, there are several limitations to the study. Due to a small sample size (n=110) and that the study uses convenience sampling; its findings may limit its generalizability. In addition, the consideration of an urban and peri-urban population also excluded many rural communities, in which access to social media and the internet may be markedly different. Consequently, we propose these limitations showcase the requirement of conducting much broader and representative studies to explore the audiences on social media needs with regard to oral health education by demographics.

Future research should explore the development of regulatory frameworks and the active involvement of dental organizations in monitoring and curating online content. By ensuring the accuracy and credibility of disseminated information, these measures can mitigate the risks of misinformation and self-diagnosis while maximizing the positive impact of social media on oral health awareness and behavior[17,21,22].

## CONCLUSION

This suggests that social media can be used innovatively to improve oral health awareness and behaviors in Pakistan. Although social media is still not widely used, it has an effect mainly on practices such as brushing behavior. However, misinformation and doubts about the reliability of online information present challenges. Targeted interventions, culturally relevant content, and enhanced digital health literacy are essential to maximize social media's role in bridging knowledge gaps and promoting preventive oral health practices.

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**Authors' Contributions:** All authors took part in this study to an equal extent. **Anwar B:** Data collection, drafting and conceptual framework. **Ghayas A:** Statistical analysis and result interpretation.

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