

## Original Research Article

# Utilization, perception, and challenges of using social media in dental public health activities among public health dentists of India: a pilot study

Shifa Thakrar, Sujal Parkar\*

Department of Public Health Dentistry, Government Dental College and Hospital, Ahmedabad, Gujarat, India

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### \*Correspondence:

Dr. Sujal Parkar,

E-mail: [drsujal\\_pcd@live.com](mailto:drsujal_pcd@live.com)

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## ABSTRACT

**Background:** Social media has transformed public health dentistry by providing accessible tools to enhance community engagement and oral health outcomes. This study is aimed to assess utilization, perception and challenges of social media in dental public health activities among public health dentists of India.

**Methods:** A cross-sectional pilot questionnaire survey was conducted in April, 2025. A self-designed, pre-tested 26-items questionnaire consisting of 10 close-ended questions for utilization, and 16 items based on Likert-scale (10 for perception and 6 for challenges). The questionnaire was formulated with Google Forms and distributed to public health dentists via email and personal online communication. Responses were noted in proportions.

**Results:** Total 48 public health dentists have participated. The mean age was  $39.69 \pm 6.89$  years having male predominance ( $n=31$ , 64.58%). The 25 (52.08%) participants use social media for 1-2 hours daily. The 31 (64.58%) respondents believed that social media helps in spreading oral health awareness, and 35 (72.92%) supported its use for tobacco cessation. While, 38 (79.17%) advocated for government regulations to prevent misinformation. All participants acknowledged presence of inaccurate oral health content on social media. 32 (66.67%) participants agreed about ethical concerns of social media in dentistry and 28 (58.33%) refrained from using social media professionally due to fear of online trolling.

**Conclusions:** While social media is increasingly recognized as a valuable tool in dental public health, its effective utilization is hindered by several challenges.

**Keywords:** Challenges, Perception, Public health dentistry, Social media, Utilization

## INTRODUCTION

The term “social media” is broad and continues to evolve with time. It refers to online platforms and tools that enable individuals and communities to connect, communicate, and interact in real time.<sup>1</sup>

Through these platforms, users can share information, ideas, personal thoughts, images, and various types of content instantly. Social media also provides a space where people can openly express their opinions and engage in discussions on topics that interest them.<sup>1</sup>

Social media plays a central role in our daily lives today. A wide range of platforms are available, such as Facebook, Instagram, WhatsApp, Snapchat, Twitter, and YouTube. Among these, YouTube, WhatsApp, and Facebook consistently rank as the most popular and frequently used, as per the data from Hootsuite.<sup>2</sup> These digital platforms offer opportunities to strengthen professional collaboration, support ongoing education, improve patient communication and care, and contribute to public health initiatives.<sup>3</sup>

Social media has significantly influenced various sectors, including business, education, and politics-and Public

Health Dentistry is not an exception. Today, a variety of digital tools are available for healthcare professionals. As the use of these technologies continues to grow, it is essential for the Public Health Dentists to embrace and integrate them effectively to enhance community engagement and patient health outcomes.<sup>3</sup>

In the field of Dental Public Health, it provides a cost-effective, interactive, and widely accessible medium to support education, advocacy, research, and clinical practice. In addition to these, they also hold considerable promise for public health campaigns for a variety of reasons. One key advantage is their ability to reach large population. Another benefit is the ability to share messages directly with personal networks, which can make the communication feel more trustworthy and engaging compared to traditional health promotion methods.<sup>4</sup> Additionally, social media platforms often see higher levels of user interaction and engagement than typical web-based interventions. Lastly, since these platforms encourage users to actively participate and create content, the messages shared can have a greater impact than those presented through conventional websites.<sup>5</sup> During public health crises such as the COVID-19 pandemic, social media proved indispensable for disseminating timely and accurate information regarding safe dental practices, infection control, and the use of teledentistry.<sup>6</sup>

Dental practitioners increasingly utilize social media platforms to disseminate educational content, such as instructional videos and presentations, demonstrating various dental procedures as well as oral hygiene techniques. These resources not only serve as valuable learning tools for peers but also enhance the knowledge base of dental students. Moreover, virtual interactive sessions between students and mentors facilitate discussions on key learning outcomes, diagnostic considerations, and patient treatment planning. Such pedagogical approaches have the potential to strengthen communication skills, promote critical thinking, and advance the quality of dental education. In addition, social media serves as a medium for practitioners to promote their clinical services and publicize professional activities, including workshops, conferences, and continuing education programs.<sup>6</sup>

Through extensive literature review, there is no research found on how public health dentists in India are utilizing social media platforms in their professional activities. Understanding their perceptions, current usage patterns, and the challenges they face is critical to developing strategies that can enhance the effectiveness of digital tools in oral health promotion.

Hence, this study was aimed to assess utilization, perception, and challenges of using social media in dental public health activities among Public Health Dentists of India with an objective to develop an appropriate questionnaire for the same.

## METHODS

### *Study design and setting*

A pilot based cross-sectional questionnaire survey was done in the month of April, 2025 among the Public Health Dentists of India.

### *Ethical considerations*

Prior to the commencement of the study, ethical clearance was obtained from the institutional ethics committee of Government Dental College and Hospital, Ahmedabad (Ref No: IEC GDCH/ PHD.3 /2025). The study was conducted in accordance with the ethical standards of the Declaration of Helsinki. As this was a cross-sectional study, the design and reporting adhered to the STROBE (Strengthening the reporting of observational studies in epidemiology) guidelines.

### *Sampling frame*

The sampling frame was obtained from Indian Association of Public Health Dentistry (IAPHD) headquarters.

### *Sample size calculation*

Sample size was calculated by using Cochran's formula:

$$n = \frac{z_{\alpha}^2 P(1-P)}{d^2}$$

where, P is the response rate from the study done by Bahabri et al=64%.<sup>7</sup>

$z_{\alpha}^2$ =95% confidence interval= 3.84, d= allowable error= 20% of the response rate=12.8%

Hence, the sample size came out to be 54.

### *Questionnaire design and validation*

A structured, self-administered questionnaire consisting of 26 items was developed in English. The questionnaire was divided into four sections: Demographic information of participants such as age, gender, designation, affiliation, years of experience. Ten closed-ended questions to assess the utilization of social media by the participants such as commonly used device, duration of using social media daily, most commonly used platforms and purpose of using social media. Ten Likert-scale items (ranging from strongly agree to disagree) to evaluate perception of participants for using social media in dental public health activities. Six Likert-scale items (ranging from strongly agree to disagree) addressing the challenges faced in using social media such as ethical concerns, confidentiality, misinformation about oral health, etc.

Content validity was ensured through expert review by subject specialists, assessing the questionnaire for relevance and clarity. Face validation was performed, achieving a validity index of 0.85.

### Data collection

The final version of the questionnaire was digitized using Google Forms, allowing for easy distribution and automated data collection. The survey link was shared via email and personal messaging platforms (such as WhatsApp and Telegram) to reach all the Life members of IAPHD practicing or affiliated with institutions across different regions of India.

The survey remained open for responses for a period of two weeks. Reminders were sent periodically to encourage participation. Only one response per participant was permitted to avoid duplication.

Participation was completely voluntary. No incentives were offered for the same. Data were automatically collected in Google Sheets, and only the principal investigator had access to the database. All information was kept confidential and used solely for the purpose of this study.

### Statistical analysis

Data collected through the Google Form were automatically compiled into a Microsoft excel spreadsheet and cleaned. Frequencies and percentages

were used to summarize the categorical variables such as demographic characteristics as well as responses to questionnaire.

## RESULTS

Total 48 Public Health Dentists among India participated in the survey. The mean age of participants was  $39.69 \pm 6.89$  years. The demographic characteristics of the participants is mentioned in Table 1. A majority of participants were male ( $n=31$ , 64.58%). Out of 48 participants, 34 participants (70.83%) were having experience of >9 years in the field of Public Health Dentistry and 25 participants (52.08%) were working as a professor in either government or private dental institutes.

Table 2 shows the utilization of social media by the study participants. All the 48 (100%) study participants use smart phone for the social media access. More than half of the study participants ( $n=25$ , 52.08%) use social media 1-2 hours per day and research was the main purpose of using social media. Regarding the social media platforms, WhatsApp was most commonly used platform followed by YouTube, Instagram, and Facebook.

Perception of social media usage by the study participants is shown in Table 3. 64.58% study participants strongly agreed on spreading oral health awareness by using social media as well as 79.17% believed of having a regulatory approach by the government to prevent misinformation. Whereas, 16.67% remained disagree on any behavioural change in the patients following social media usage.

**Table 1: Demographic characteristics of the study participants, (n=48).**

Demographic variables		N (%)
Mean age (in years)		39.69±6.89
Gender	Male	31 (64.58)
	Female	17 (35.42)
Qualification	MDS	45 (93.75)
	PhD	09 (18.75)
Experience	0-4 years	11 (22.92)
	5-9 years	03 (6.25)
	>9 years	34 (70.83)
Designation	Senior lecturer	11 (22.92)
	Reader	12 (25.00)
	Professor	25 (52.08)
Affiliation*	Government institution	16 (33.33)
	Private institution	29 (60.42)
	Private practice	08 (16.67)

\*The no. of responses may exceed 100% owing to the scope for the participants respond to multiple choices in affirmative.

**Table 2: Utilization of social media by study participants.**

Questions	Responses, n (%)
Which device do you primarily use to access social media?	Smart phone-48 (100)
	Tablet-3 (6.25)
	Laptop-12 (25)
	Desktop computer-2 (4.17)

Continued.

Questions	Responses, n (%)
How much average time per day you spend in using social media?	1-2 hours-25 (52.08)
	3-4 hours-16 (33.33)
	>5 hours-7 (14.58)
For which purpose you are using social media? (Select all that apply)*	Personal-37 (77.08)
	Professional-41 (85.42)
	Entertainment-40 (83.33)
If professional then which of the following best describes your main motive to use social media? *	Teaching-20 (41.67)
	Research-29 (60.42)
	Oral health promotion-17 (35.42)
	Tobacco cessation-10 (20.83)
	Patient consultation-9 (18.75)
Which platforms do you use for professional/ public health communication? (Select the 3 most commonly used platforms)*	Facebook-20 (41.67)
	WhatsApp-33 (68.75)
	Instagram-22 (45.83)
	Telegram-3 (6.25)
	X (Twitter)-2 (4.17)
	YouTube-22 (45.83)
	LinkedIn-11 (22.92)
	Others-3 (6.25)
Do you have your own dental clinic/department page on any of the social media platform?	Yes-21 (43.75)
	No-27 (56.25)
Do you follow any dental or public health organizations on social media?	Yes-34 (70.83)
	No-14 (29.17)
Have you used social media to conduct online webinars or educational sessions?	Yes-32 (66.67)
	No-16 (33.33)
If yes, which platform do you use to conduct online webinars or educational sessions?	Zoom-31 (64.58)
	Google Meet-29 (60.42)
	Microsoft teams-11 (22.92)
	Webex-10 (20.83)
	Skype-1 (2.08)
Do you use social media for social networking with other public health professionals?	Others-1 (2.08)
	Yes-35 (72.92)
	No-13 (27.08)

\*No. of responses may exceed 100% owing to the scope for participants respond to multiple choices in affirmative.

**Table 3: Perception of using social media by study participants.**

Questions	Strongly agree, N (%)	Agree, N (%)	Neutral, N (%)	Disagree, N (%)
Do you believe social media helps in spreading awareness about oral health?	31 (64.58)	12 (25)	3 (6.25)	2 (4.17)
Do you think social media improves patient education and engagement?	24 (50)	17 (35.42)	6 (12.50)	2 (4.17)
Do you agree that social media can be used effectively for tobacco cessation awareness?	21 (43.75)	14 (29.17)	7 (14.58)	6 (12.50)
Do you think that there can be behavioural change in the patients due to social media usage?	23 (47.92)	11 (22.92)	6 (12.50)	8 (16.67)
Do you agree that use of social media has improved oral health literacy of the general public in India?	16 (33.33)	16 (33.33)	11 (22.92)	5 (10.42)
Do you agree that social media has helped in reaching rural and underserved populations for oral health education?	17 (35.42)	13 (27.08)	11 (22.92)	7 (14.58)
Do you agree that social media has improved the patient-dentist communication?	16 (33.33)	16 (33.33)	12 (25)	4 (8.33)
Do you think that training should be given to public health dentist regarding the use of social media?	21 (43.75)	15 (31.25)	5 (10.42)	7 (14.58)

Continued.

Questions	Strongly agree, N (%)	Agree, N (%)	Neutral, N (%)	Disagree, N (%)
<b>Do you think that there should be a regulatory approach by government to prevent misinformation about oral health?</b>	38 (79.17)	5 (10.42)	4 (8.33)	1 (2.08)
<b>Do you agree that social media is a more effective mass communication tool compared to traditional one-way channels like television, newspapers, and radio?</b>	27 (56.25)	13 (27.08)	5 (10.42)	3 (6.25)

Table 4: Challenges faced by public health dentists in using social media.

Questions	Strongly agree, N (%)	Agree, N (%)	Neutral, N (%)	Disagree, N (%)
<b>Do you agree that there are challenges in using social media in the field of public health dentistry?</b>	16 (33.33)	17 (35.42)	8 (16.67)	7 (14.58)
<b>Do you think that there can be misleading or incorrect oral health information on social media?</b>	33 (68.75)	14 (29.17)	0	1 (2.08)
<b>Do you feel that lack of time prevents you from using social media professionally?</b>	11 (22.92)	15 (31.25)	12 (25)	10 (20.83)
<b>Do you think social media can compromise patient confidentiality if not used carefully?</b>	10 (20.83)	12 (25)	14 (29.17)	12 (25)
<b>Do you think that there can be ethical concerns while using of social media for dentistry?</b>	32 (66.67)	13 (27.08)	2 (4.17)	1 (2.08)
<b>Does fear of being trolled prevents you from using social media for professional purposes?</b>	28 (58.33)	15 (31.25)	2 (4.17)	3 (2.08)

Challenges of social media use by the study participants highlighted in the Table 4. The 33.33% of the participants strongly agreed on having challenges while using social media in the field of Public Health Dentistry as well as 45.83% had patient confidentiality concerns. The 25% remained neutral for not using social media effectively due to time constraints.

## DISCUSSION

The present study was aimed to assess utilization, perception, and challenges of using social media in Dental Public Health activities among Public Health Dentists of India. To the best of our knowledge, this was the first study to consider the social media use in Dental Public Health activities by the Public Health Dentists of India. So, findings from this survey offer novel insights into an emerging domain of public health communication and outreach activities. As digital communication tools increasingly influence healthcare delivery and education, understanding their role in Public Health Dentistry is vital for promoting effective, patient-centred public health strategies.

### Utilization of social media

The findings revealed that all the participants use smart phone, citing its portability as a key factor. Majority of the participants uses WhatsApp, followed by YouTube, Instagram, and Facebook. These findings were in the line

with Hootsuite report of most frequently used social media platforms such as, YouTube, WhatsApp, and Facebook.<sup>2</sup> It is also found similar in the data of Statista under the category of most used social media platform type in India in 2023 survey, which showed that WhatsApp is most frequently used by Indian population followed by Facebook.<sup>8</sup> As per 2024 survey, YouTube was the most used social media platform in India with each user spending an average of 29 hours and 37 minutes per month on the online video platform. Facebook and Instagram were the second and third most used apps.<sup>8</sup> The findings indicate a varied yet significant level of social media utilization among public health dentists in India. While more than half of them not having clinic or departmental social media page, this might be due to resources constraints in terms of time and social media experts and privacy concerns for patients' data. A larger proportion actively engage with content relevant to their field and follow dental or public health organizations to expand the knowledge and stay connected with other professionals of the similar field.<sup>9</sup> Social media is also being leveraged for capacity building, with 66.67% using it to conduct webinars or educational sessions to provide cost-effective education. They also utilize these platforms for networking with fellow public health professionals, highlighting social media's growing role in fostering professional collaboration and peer support. These patterns reflect a shift toward integrating digital tools in public health dentistry, though the relatively lower percentage of institutional presence on social platforms



suggests untapped potential in outreach and public engagement.<sup>10</sup>

### **Perception of social media**

The positive perception of social media as a tool for oral health promotion underscores its growing relevance in public health dentistry as it can deliver visual, interactive, and user-friendly content. Majority of the respondents acknowledged the potential of these platforms in spreading oral health awareness. The role of social media in patient education and engagement was also perceived positively. This supports the notion that interactive platforms can facilitate better understanding of oral hygiene practices, treatment options, and preventive care, especially when traditional one-on-one interactions may be limited. In terms of tobacco cessation, more than half of the participants believed social media could be used effectively, although a relatively higher percentage expressed disagreement. This may point to scepticism about the depth and sustainability of behavioural change brought about by online interventions alone, cause deep seated habits require personal counselling and pharmacological interventions.<sup>9</sup> Similarly, a significant proportion disagreed that social media could lead to behavioural change in patients, suggesting that while social media may initiate awareness, it might not always translate into action without complementary support mechanisms. Interestingly, when asked whether social media improved oral health literacy among the general public in India, notable proportion remained neutral. This neutrality may stem from perceived limitations in reach, digital literacy, or the prevalence of misinformation, particularly in rural or underserved areas. An overwhelming of participants emphasized the need for a regulatory approach to prevent misinformation about oral health on social media. This highlights the concerns about credibility of online content, underscoring the need for government oversight and evidence-based content dissemination.<sup>10</sup>

### **Challenges of social media**

A prominent theme that emerged was the multifaceted challenges faced by public health dentists in social media engagement. These included a lack of formal training, time constraints, digital literacy issues among target populations, and the absence of institutional support or structured guidelines. These barriers are not unique to dentistry and have been reported across public health disciplines.<sup>11</sup> Moreover, misinformation and unverified content on social media were seen as major impediments to effective health communication. This concern mirrors the global issue of “infodemics”—the overabundance of information, both accurate and false—that can undermine public health efforts (WHO, 2020). For dental public health, where evidence-based messaging is critical, the lack of control over content dissemination poses a significant challenge.<sup>12</sup> A majority of participants agreed that challenges exist in using social media professionally,

suggesting that while its potential is recognized, barriers such as resource limitations, institutional guidelines, or personal apprehensions may hinder optimal use. The concern over misleading or incorrect oral health information was nearly unanimous, with 100% of respondents agreeing that misinformation is a critical issue. This reflects widespread apprehension about the credibility of content on social media, reinforcing the importance of regulatory oversight and dissemination of verified, evidence-based information.<sup>13</sup> Time constraints also emerged as a notable barrier; cause lack of time prevents professional social media engagement. This suggests that time management and workload pressures in clinical and academic settings may limit consistent digital activity. Concerns about patient confidentiality were moderately expressed. This underlines the need for clear institutional guidelines and awareness on handling sensitive patient data while maintaining professional boundaries online. Ethical considerations were widely acknowledged that social media usage could pose ethical dilemmas. These concerns likely pertain to content accuracy, professionalism, advertising practices, and the balance between personal and professional endeavours. Interestingly, fear of being trolled was also a considerable concern, suggesting that negative online interactions may deter some professionals from using social media for outreach or education. This emphasizes the psychological and reputational risks perceived by users and highlights the need for support systems to address digital harassment.<sup>14</sup>

### **Limitations**

A major limitation of this study is the results are likely to be subject to responder bias, as those more inclined to use social media might have been more likely to respond.

### **CONCLUSION**

The findings of this study underscore the dual nature of social media as both a valuable asset and a potential source of concern in the field of Dental Public Health. The overwhelmingly positive perception toward its educational capabilities highlights the growing integration of digital tools in public health outreach. However, despite its promise, the professional utilization of social media is significantly hampered by a range of challenges.

### **Recommendations**

Future studies should aim to capture a more comprehensive and accurate picture of social media use in dental public health practice by including general dentists and other specialties as well.

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