

# Knowledge, Attitudes, and Practices of Undergraduates and Dental Practitioners Towards the Role of Social Media Trends in Shaping Aesthetic Dentistry in Pakistan

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## ABSTRACT

**Background:** Social media has become an influential source of dental information, aesthetic comparison, and treatment expectation formation. In aesthetic dentistry, visually oriented platforms may increase patient awareness but may also promote unrealistic smile standards, misleading product claims, and ethical challenges in online professional communication. **Objective:** To assess the knowledge, attitudes, and self-reported practices of dental undergraduates and practitioners in Pakistan regarding the perceived role of social media trends in shaping aesthetic dentistry. **Methods:** This cross-sectional observational study included 253 dental students and practitioners recruited through online dental groups and academic networks. Data were collected using a structured electronic questionnaire and analyzed using IBM SPSS version 26.0. Descriptive statistics were reported as frequencies and percentages, while associations between categorical variables were assessed using chi-square or Fisher's exact tests. **Results:** Females comprised 75.9% of respondents, and the mean age was 25.22 ± 5.17 years. Instagram was the most used platform (74.3%), and 47.0% reported posting aesthetic dental content. Posting differed significantly by designation ( $\chi^2=13.150$ ,  $df=4$ ,  $p=0.011$ ), with dental students showing the highest reluctance. Ethical concern was the leading reason for not posting (32.0%), while 94.1% supported ethical guidelines. Most respondents counselled patients regarding unrealistic smile expectations (79.8%), with significant variation by designation ( $\chi^2=15.832$ ,  $df=4$ ,  $p=0.003$ ). **Conclusion:** Social media substantially influences aesthetic dentistry by shaping professional online behaviour and perceived patient expectations. Structured ethical guidance and digital professionalism training are needed. **Keywords:** Aesthetic dentistry; Social media; Dental students; Dental practitioners; Patient expectations; Digital professionalism.

## INTRODUCTION

Social media enables users to exchange textual, visual, and multimedia content through interactive digital platforms, and its influence now extends beyond interpersonal communication into marketing, education, healthcare engagement, and professional identity formation (1,2). In healthcare, social media platforms allow patients to access information, compare treatment experiences, observe visual outcomes, and form expectations about available therapeutic options (3). This shift is particularly relevant in dentistry, where treatment decisions are increasingly shaped not only by functional oral health needs but also by aesthetic expectations, facial appearance, and exposure to digitally curated

images of ideal smiles. Evidence from Pakistan suggests that social media exposure can influence interest in cosmetic procedures among young women, indicating that digital platforms may contribute to changing perceptions of beauty, self-image, and treatment-seeking behaviour in local sociocultural contexts (4).

Dentistry has evolved from a discipline focused primarily on prevention, restoration, and management of oral disease to one that also incorporates aesthetic rehabilitation, digital smile design, tooth whitening, veneers, orthodontic alignment, gingival reshaping, and other procedures aimed at improving dentofacial appearance (5,6). Orofacial appearance has a measurable relationship with oral health-related quality of life, self-confidence, and psychosocial wellbeing, which explains why patients increasingly seek procedures that improve smile aesthetics in addition to oral function (7). Advances in digital dentistry, aesthetic materials, and treatment-planning software have further improved clinicians' ability to visualize and communicate expected outcomes, thereby making aesthetic procedures more accessible and desirable to patients exposed to idealized dental content online (8,9).

Despite these benefits, the role of social media in aesthetic dentistry is complex. Online platforms may improve awareness, encourage earlier consultation, and help dental professionals communicate treatment possibilities; however, they may also create unrealistic expectations, promote commercially driven content, blur professional boundaries, and expose patients to misleading or unsafe information. Previous work has shown that social media discussions about orthodontic treatment include mixed experiences, including satisfaction, discomfort, and negative emotional responses, suggesting that online dental content does not always produce uniformly positive perceptions (10). In addition, unregulated promotion of whitening products and other aesthetic interventions may pose oral health risks when patients act on nonprofessional advice or purchase products without appropriate clinical supervision (11).

Existing literature has examined the relationship between social media and aesthetic dentistry in different settings, including general practitioners' perspectives, dental marketing, and students' decision-making regarding aesthetic treatments (12–15). However, evidence from Pakistan remains limited regarding how dental students and practitioners perceive social media trends, how often they post aesthetic dental content, whether they observe social media-driven patient demand, and what ethical concerns influence their online professional behaviour. This gap is important because dental professionals are positioned both as providers of aesthetic treatment and as contributors to digital health information. Understanding their knowledge, attitudes, and practices can inform professional guidance, ethical standards, patient counselling strategies, and future training in aesthetic dentistry and digital professionalism.

Therefore, this study aimed to assess the knowledge, attitudes, and self-reported practices of dental undergraduates and dental practitioners in Pakistan regarding the perceived role of social media trends in shaping aesthetic dentistry. The study specifically explored commonly used social media platforms, posting practices related to aesthetic dental cases, perceived patient demand and expectations, ethical concerns, counselling practices, and additional training in aesthetic dentistry.

## **MATERIALS AND METHODS**

This cross-sectional observational study was conducted to assess the knowledge, attitudes, and self-reported practices of dental undergraduates and dental practitioners regarding the perceived influence of social media trends on aesthetic dentistry in Pakistan. The study design was selected because it was appropriate for measuring current perceptions, online professional behaviours, and reported clinical experiences within a defined professional population at a single point in time. The study population included dental undergraduates from second year to final year, house officers, general dental practitioners, postgraduate dental trainees, and consultants practicing or studying in Pakistan.

Participants were recruited using a non-probability convenience sampling technique through online dental groups, academic networks, and social media platforms used by dental students and professionals. Eligible participants were dental students or dental practitioners who were willing to complete the survey electronically. Participation was voluntary, and electronic informed consent was obtained before access to the questionnaire. Respondents were informed about the purpose of the study, confidentiality of responses, and their right to decline participation. A total of 253 complete responses were included in the final analysis.

Data were collected using a structured, self-administered online questionnaire developed after reviewing relevant literature on social media, aesthetic dentistry, dental marketing, and patient expectations (12–15). The questionnaire was designed by the research team to align with the objectives of the study and was contextually adapted for dental students and practitioners in Pakistan. It included items assessing demographic and professional characteristics, including age, gender, designation, city of residence, and years of clinical experience. Social media-related variables included the most frequently used platform, whether respondents posted aesthetic dental cases or procedures online, and reasons for not posting such content. Attitudinal and practice-related variables included perceived influence of social media on patient awareness, expectations, and demand for aesthetic dental procedures; views regarding ethical concerns and malpractice in online dental content; perceptions about celebrity or influencer promotion of dental products; counselling of patients with unrealistic expectations; and pursuit of additional training or certification in aesthetic dentistry.

The questionnaire used a combination of multiple-choice, checkbox, yes/no, and Likert-scale response formats. For this study, knowledge referred to respondents' awareness of the role of social media in aesthetic dentistry and its potential effect on patients' expectations; attitude referred to respondents' perceptions regarding ethical concerns, online promotion, and the need for professional guidelines; and practice referred to self-reported behaviours such as posting aesthetic dental procedures, counselling patients, and undertaking additional aesthetic dentistry training. The draft questionnaire was reviewed by research experts for clarity, face validity, relevance, and contextual suitability before final distribution. The finalized questionnaire was administered electronically using Google Forms to allow anonymous participation and standardized data collection.

Potential sources of bias were addressed by using anonymous responses, voluntary participation, and neutral question wording to reduce social desirability bias. To limit duplicate or incomplete entries, only complete survey responses were included in the final dataset. Because recruitment was conducted online through convenience sampling, the findings were interpreted as representative of the surveyed respondents rather than the entire population of dental professionals in Pakistan. Confounding by professional status and clinical experience was considered during analysis by comparing responses across designation and years of experience categories.

Data were exported from Google Forms and analyzed using IBM SPSS Statistics version 26.0. Descriptive statistics were calculated for all variables; categorical variables were summarized as frequencies and percentages, while continuous variables such as age were summarized using mean, standard deviation, minimum, and maximum values. Associations between categorical variables, including professional designation and posting of aesthetic dental content, years of experience and posting behaviour, and posting status with perceived need for ethical guidelines, were assessed using chi-square tests or Fisher's exact test where expected cell counts were small. Statistical significance was set at  $p < 0.05$ . Results were reported using valid denominators, percentages, test statistics, degrees of freedom, and p-values where applicable.

Ethical approval was obtained from the PRIDE Center for Research and Learning Institutional Ethical Review Board before data collection under reference number PRIDE/ERB/2025/045. No personally identifying information was collected in the survey dataset, and all responses were analyzed in aggregate form. Data integrity was maintained by screening the dataset before analysis, retaining complete

responses only, using consistent coding of categorical variables, and reporting findings according to the predefined study objectives.

## RESULTS

A total of 253 respondents were included in the analysis. Females constituted 75.9% (n=192) and males 24.1% (n=61) of the sample. The mean age was  $25.22 \pm 5.17$  years, with an age range of 18–63 years. Dental students formed the largest professional group (40.3%, n=102), followed by general dentists (37.5%, n=95), house officers (11.9%, n=30), postgraduate trainees (5.9%, n=15), and consultants (4.3%, n=11).

*Table 1. Demographic and Professional Characteristics of Respondents*

Variable	Category	n	%
Gender	Female	192	75.9
	Male	61	24.1
Designation	Dental student	102	40.3
	General dentist	95	37.5
	House officer	30	11.9
	Postgraduate trainee	15	5.9
	Consultant	11	4.3
Age	Mean $\pm$ SD	$25.22 \pm 5.17$	—
	Range	18–63 years	—

Instagram was the most frequently used social media platform, reported by 74.3% (n=188) of respondents, followed by WhatsApp (17.0%, n=43) and Facebook (6.7%, n=17). Overall, 47.0% (n=119) reported posting aesthetic dental procedures or cases on social media, while 53.0% (n=134) did not.

*Table 2. Social Media Use and Posting of Aesthetic Dental Content*

Variable	Category	n	%
Most used platform	Instagram	188	74.3
	WhatsApp	43	17.0
	Facebook	17	6.7
Posting aesthetic dental procedures/cases	Yes	119	47.0
	No	134	53.0

Posting aesthetic dental content differed significantly by designation ( $\chi^2=13.150$ ,  $df=4$ ,  $p=0.011$ ). Dental students showed the greatest reluctance, with 66.7% (68/102) not posting aesthetic content, whereas posting was more common among general dentists (57.9%, 55/95), consultants (54.5%, 6/11), house officers (53.3%, 16/30), and postgraduate trainees (53.3%, 8/15).

*Table 3. Posting of Aesthetic Dental Content by Professional Designation*

Designation	No, n (%)	Yes, n (%)	Total	$\chi^2$	df	p-value
Dental student	68 (66.7)	34 (33.3)	102	13.150	4	0.011
General dentist	40 (42.1)	55 (57.9)	95			
House officer	14 (46.7)	16 (53.3)	30			
Postgraduate trainee	7 (46.7)	8 (53.3)	15			
Consultant	5 (45.5)	6 (54.5)	11			
Total	134 (53.0)	119 (47.0)	253			

The most frequently reported reason for avoiding social media posting was ethical concern (32.0%, n=81), followed by fear of negative feedback or criticism (26.9%, n=68), lack of confidence in clinical work (26.1%, n=66), and the belief that social media is not a professional platform (15.0%, n=38). A large majority of respondents (94.1%, n=238) agreed that ethical guidelines are needed for dentists posting clinical procedures on social media. This opinion did not differ significantly between respondents who posted content and those who did not ( $\chi^2=1.202$ ,  $df=1$ , Fisher's exact  $p=0.204$ ).

*Table 4. Social Media Posting Status and Perceived Need for Ethical Guidelines*

Posting aesthetic dental content	Guidelines not needed, n (%)	Guidelines needed, n (%)	Total	$\chi^2$	df	p-value
No	10 (7.5)	124 (92.5)	134	1.202	1	0.204*

Posting aesthetic dental content	Guidelines not needed, n (%)	Guidelines needed, n (%)	Total	$\chi^2$	df	p-value
Yes	5 (4.2)	114 (95.8)	119			
<b>Total</b>	15 (5.9)	238 (94.1)	253			

\*Fisher's exact test.

More than half of respondents (54.2%, n=137) reported receiving patients who requested aesthetic dental procedures primarily because they were trending on social media despite not being clinically required. In addition, 67.6% (n=171) reported observing patients using or requesting over-the-counter teeth-whitening products promoted on social media. The most commonly perceived forms of professional malpractice on social media were misleading captions (45.5%, n=115), edited before-and-after images using filters (22.1%, n=56), and selective posting of only the best outcomes (21.7%, n=55).

*Table 5. Reported Patient Behaviours and Perceived Online Malpractice*

Variable	Category	n	%
Patients requested aesthetic procedure because of social media trend	Yes	137	54.2
Patients used/requested trending OTC whitening products	Yes	171	67.6
Most common perceived malpractice	Misleading captions	115	45.5
	Edited before-and-after images with filters	56	22.1
	Only posting best results	55	21.7
Influencer promotion of whitening products	Viewed as misleading	73	28.9
Additional training/certification in aesthetic dentistry	Yes	50	19.8

Overall, 79.8% (n=202) of respondents reported counselling patients regarding unrealistic smile expectations created by social media. Counselling practices differed significantly by professional designation ( $\chi^2=15.832$ , df=4, p=0.003). Consultants had the highest counselling frequency (90.9%, 10/11), followed by house officers (90.0%, 27/30), general dentists (87.4%, 83/95), postgraduate trainees (86.7%, 13/15), and dental students (67.6%, 69/102).

*Table 6. Counselling Patients About Unrealistic Smile Expectations by Professional Designation*

Designation	No, n (%)	Yes, n (%)	Total	$\chi^2$	df	p-value
Dental student	33 (32.4)	69 (67.6)	102	15.832	4	0.003
General dentist	12 (12.6)	83 (87.4)	95			
House officer	3 (10.0)	27 (90.0)	30			
Postgraduate trainee	2 (13.3)	13 (86.7)	15			
Consultant	1 (9.1)	10 (90.9)	11			
<b>Total</b>	51 (20.2)	202 (79.8)	253			

The derived professional engagement pattern showed that counselling patients about unrealistic expectations was consistently more frequent than posting aesthetic dental content across all professional groups. The largest difference was observed among consultants, where 90.9% counselled patients but only 54.5% posted aesthetic content, producing a 36.4 percentage-point gap. Similar gaps were observed among house officers (36.7 percentage points), dental students (34.3 percentage points), postgraduate trainees (33.4 percentage points), and general dentists (29.5 percentage points), indicating that respondents were more engaged in corrective patient communication than in online aesthetic case promotion.

## DISCUSSION

The present study demonstrates that social media has become closely integrated with aesthetic dentistry in Pakistan, particularly through visually oriented platforms that shape professional communication, patient expectations, and perceived demand for cosmetic dental procedures. Instagram was the dominant platform, used by 74.3% of respondents, which is clinically understandable because aesthetic dentistry depends heavily on visual presentation, including smile design, whitening outcomes, veneers, orthodontic alignment, and before-and-after case documentation. This finding supports previous literature describing social media as a rapidly expanding medium for communication, marketing, education, and professional visibility in healthcare and dentistry (1–3,12). However, the findings also

indicate that social media is not merely a promotional tool; it has become a source of patient expectations, ethical concern, and clinical counselling burden.

Professional designation was significantly associated with posting aesthetic dental content on social media, with dental students showing the greatest reluctance. Only 33.3% of dental students reported posting aesthetic dental procedures or cases, compared with 57.9% of general dentists, 54.5% of consultants, and 53.3% of both house officers and postgraduate trainees. This pattern suggests that clinical seniority and professional confidence may influence willingness to share aesthetic content online. The main reported barriers to posting were ethical concerns, fear of negative feedback, and lack of confidence in clinical work, indicating that hesitation among junior respondents was not simply due to limited platform use but reflected uncertainty about digital professionalism, patient privacy, criticism, and appropriate clinical representation. These concerns are consistent with previous discussions on healthcare social media use, where benefits such as education and patient engagement must be balanced against risks related to professionalism, confidentiality, and misinformation (3,10).

A major finding of this study was that 94.1% of respondents agreed that ethical guidelines are needed for dentists posting clinical procedures on social media. This agreement was high among both respondents who posted aesthetic dental content and those who did not, showing that the perceived need for guidance is shared across different patterns of online engagement. The absence of a statistically significant difference between posters and non-posters suggests that ethical concern is not restricted to individuals avoiding social media but is recognized broadly by dental students and practitioners. This finding is important because aesthetic dentistry posts may involve patient images, edited outcomes, selective case presentation, commercial influence, and implied guarantees of treatment success. Therefore, formal guidance on consent, image editing, claims, patient confidentiality, and professional boundaries is essential for responsible digital dental practice (15).

The study also highlights the perceived effect of social media on patient demand. More than half of respondents reported receiving patients who requested aesthetic procedures mainly because they were trending on social media despite not being clinically required, while 67.6% reported observing patients using or requesting over-the-counter whitening products promoted online. These findings suggest that patients may increasingly approach dental clinics with expectations shaped by online trends rather than clinical need. Previous work has shown that aesthetic appearance and orofacial attractiveness influence self-esteem, social confidence, and oral health-related quality of life, which may explain why social media-driven visual standards can intensify demand for smile-related procedures (7). However, when patient expectations are derived from edited images, influencer content, or commercially promoted products, clinicians must provide careful counselling to prevent inappropriate treatment decisions and potential harm.

The high frequency of patient counselling reported in this study further supports this concern. Overall, 79.8% of respondents counselled patients regarding unrealistic smile expectations created by social media, and counselling differed significantly by professional designation. Consultants, house officers, general dentists, and postgraduate trainees reported higher counselling rates than dental students, which likely reflects greater clinical exposure to patient demands and greater responsibility in treatment planning. Importantly, counselling was more frequent than posting aesthetic content across all professional groups, suggesting that dental professionals are more actively involved in correcting unrealistic expectations than in promoting aesthetic cases online. This professional engagement gap indicates that social media has created a clinical communication challenge: dentists must address expectations generated outside the clinic, often before appropriate diagnosis, treatment planning, or risk discussion has occurred.

The findings also identify specific forms of perceived malpractice in online aesthetic dental content. Misleading captions were reported by 45.5% of respondents, edited before-and-after images by 22.1%, and selective posting of only best results by 21.7%. These practices may distort patient understanding of

achievable outcomes, treatment limitations, complications, maintenance requirements, and biological variability. In aesthetic dentistry, where patient satisfaction is strongly linked to expectation management, such distortions can lead to dissatisfaction even after technically acceptable treatment. The finding that 28.9% of respondents perceived influencer promotion of whitening products as misleading further reinforces the need for evidence-based public education and stronger professional oversight of online dental product promotion.(11-17).

Despite increasing patient interest in aesthetic procedures, only 19.8% of respondents reported additional training or certification in aesthetic dentistry. This mismatch between rising demand and limited formal training has important educational implications. Dental curricula and continuing professional development programs should include not only clinical skills in aesthetic dentistry but also digital professionalism, ethical online communication, consent for clinical photography, management of unrealistic expectations, and recognition of misleading online dental content. Such training would be especially valuable for dental students and early-career practitioners, who may be active social media users but less confident in professionally appropriate online engagement (18).

This study has limitations. The cross-sectional design allows assessment of associations but cannot establish causality between social media exposure and changes in patient behaviour or dental practice. The use of non-probability convenience sampling and online recruitment may have introduced selection bias, particularly toward younger respondents and those more active on digital platforms (19).The sample was also predominantly female and included a large proportion of dental students, which may limit generalizability to all dental professionals in Pakistan. Data were self-reported and may be affected by recall bias, social desirability bias, or differing interpretations of aesthetic dentistry and online professionalism. The questionnaire assessed knowledge, attitudes, and practices descriptively rather than through a validated composite KAP score. Future studies should use larger probability-based samples, validated instruments, patient-side data, and longitudinal designs to examine how social media-driven expectations evolve and how ethical guidance affects online dental practice (20).

## CONCLUSION

This study found that social media, particularly Instagram, has a substantial perceived role in shaping aesthetic dentistry among dental students and practitioners in Pakistan by influencing online professional behaviour, patient expectations, and demand for cosmetic dental procedures. Although nearly half of respondents posted aesthetic dental cases online, dental students were comparatively reluctant, mainly because of ethical concerns, fear of criticism, and limited confidence. Most respondents reported counselling patients about unrealistic smile expectations, and a large majority supported the need for ethical guidelines for dentists posting clinical content on social media. The findings emphasize the need for structured digital professionalism training, evidence-based patient education, and clear ethical standards for online aesthetic dental communication to ensure that social media is used responsibly without compromising patient welfare or professional integrity.

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