

Influence of Social Media on the Perception of Dentofacial Aesthetics: A Cross-Sectional Study

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ABSTRACT

Background: Social media has become an influential tool with its usage increasing immensely in recent years. This study aimed to assess the impact of social media on the perception of dentofacial aesthetics and its gender-wise comparison among general population of Pakistan.

Methods: This cross-sectional study was conducted from November 2022 to March 2023 using an online questionnaire developed on Google Forms, distributed among 500 participants via WhatsApp and Facebook groups among males and females with 18 years or above operating any social media account, using non-probability convenience sampling. SPSS version 25 was used, and categorical variables were compared using Chi-Square Test. $p < 0.05$ was significant.

Results: Out of a total of 455 people who responded, 125 (27.5%) were male, and 330 (72.5%) were female. Females were very frequent ($n=244$, 53.6%) users of social media ($p=0.029$), spending 4 to 6 hours every day ($p=0.01$). There was a significant gender disparity in social media usage, with females predominantly using Instagram ($n=308$, 93.3%) ($p<0.001$), Snapchat ($n=170$, 51.5%) ($p=0.012$), and TikTok ($n=76$, 23%) ($p=0.042$). Furthermore, smile is a key aesthetic element, according to most respondents ($n=425$, 93.4%). Four out of ten ($n=169$, 37.1%) followed aesthetic surgeons on social media, and around one-half (236, 51.9%) were influenced by social media beauty standards.

Conclusion: The impact of social media on Pakistani population can be considered as high. People nowadays are influenced by social media applications and are seeking aesthetic treatment as an outcome. It is the responsibility of dentists to educate patients about the best treatment options.

Keywords: Dentists, Esthetics, Social media.

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INTRODUCTION

Social media usage and influence have tremendously increased in recent years, with thousands of new users joining every day¹. Recently, advertisements, either on television or social media, have opinionated and asserted that a vibrant, toothy smile is a symbol of joy and attractiveness. Moreover, it has changed beauty standards and trends among the general population and dentists dealing with dentofacial esthetics². In recent years, increased exposure to idealized images seen on social media has increased the esthetic treatment demands of the patients³. People are now more than ever willing to get veneers, crowns, bleaching, fillers, and even complex surgeries and procedures to achieve that higher standard of 'ideal smile' widely promoted on social media by social media influencers and celebrities⁴.

It is human nature to compare ourselves to others, which leads to unhappiness with our bodies¹. Newer beauty standards influenced by social media, globalization, and ideals shown on the internet-fueled this dissatisfaction, leading to increased demand for invasive and noninvasive surgical procedures such as fillers, Botox, rhinoplasty, plastic surgery, etc^{5,6}. People are now more inclined towards these procedures, especially after seeing before and after glamorous pictures, oblivious of their side effects^{5,7}.

These new ideal beauty standards, coupled with social media and globalization, led to the rise of plastic surgeons' popularity and demand all over the world. A study in America reported that nearly half of their respondents used Google to get information about cosmetic surgery, and more than half used Facebook to find a plastic surgeon⁶. People who considered going through surgical procedures more frequently were more likely to follow a plastic surgeon on social media than people who considered going for surgical cosmetic procedures less frequently^{7,8}.

According to a study conducted on young women in Pakistan, the influence of social media posts about cosmetic treatment contributed to opting for cosmetic treatment procedures⁹. According to a study conducted on young adults in south India, more than half of the people affirmed that their self-confidence and social life were affected by their tooth color, and more than a quarter of people said that advertisements about teeth whitening had impacted them regarding the importance of teeth whitening¹⁰.

This study aimed to assess the impact of social media on the perception of dentofacial aesthetics in the general population of Pakistan and to compare the influence of social media on dentofacial aesthetic perceptions between male and female participants,

identifying any significant disparities or patterns in influence and attitude.

METHODS

The present study is a descriptive cross-sectional design, that was carried out between November 1, 2022, and March 1, 2023. The study received approval from the Institutional Review Board (IRB) of the University College of Medicine and Dentistry (Ref No: UCD/ER-CA/22/12). Voluntary participants' consent and statement of confidentiality were included in the questionnaire. Online questionnaires developed using Google Forms (Google Inc.) were distributed through WhatsApp and Facebook groups among the general population of Pakistan, using a non-probability convenience sampling technique. Based on a prior study, we estimated the prevalence of the influence of social media on facial esthetics to be 48.5%⁸. Utilizing a 95% confidence interval and a 5% margin of error, we calculated a minimum sample size of 384 participants for our study. The sample size was later raised to 500 participants for better representation and more precise estimation of population parameters.

The inclusion criteria included males and females 18 years or above using any social media account. Mentally disabled people, people below 18 years of age, and those without social media accounts were excluded from the study.

The questionnaire consisted of 18 close-ended questions. The first part targeted demographics such as age, gender, province, and monthly household income. The second part of the questionnaire dealt with the usage and influence of social media, people's perception of smiles and their facial esthetics, the effect of social media on facial/dental esthetics, the effect of social media on people's confidence about their facial aesthetics, and its effect on their daily lives. The questionnaire was validated by face validity through expert review. Moreover, a pilot investigation was done on 30 subjects, and changes were made accordingly. Item analysis using Cronbach's Alpha was performed, which came out to be 0.76.

SPSS version 25 (IBM Corporation, USA, New York) was used to input, store, and analyze data. Frequencies and percentages were displayed using descriptive statistics. The categorical variables were compared using the Chi-Square Test. A significance level of $p < 0.05$ was considered statistically significant.

RESULTS

A total of 500 people were approached; out of them, 455 responded. The response rate was 91%. The demographics of the respondents are tabulated in Table 1.

Table 1: The demographical information of the participants

Demographics		n	%
Age	Less than 20 years	80	17.6
	20 to 40 years	341	74.9
	More than 40 years	34	7.5
Gender	Male	125	27.5
	Female	330	72.5
Marital Status	Married	176	38.7
	Unmarried	279	61.3
Province	Punjab	421	92.5
	Sindh	12	2.6
	Khyber Pakhtunkhwa	10	2.2
	Baluchistan	12	2.6

The frequency of use of social media, type of social media platform, hours of use, following pages of facial esthetics on social media, and their gender-wise comparison have been illustrated in Table 2. There was a significant difference between males and females regarding the use of social media ($p=0.029$) and hours of use of social media. There was a significant differ-

ence between males and females regarding the use of social media platforms, except the platform of Twitter ($p=0.126$). Most females were Instagram, Snapchat, and TikTok users, whereas most males were using Facebook, Twitter, and other social media platforms (Table 2).

Table 2: Frequency of use of social media, type of social media platform, hours of use of social media, and their gender-wise comparison

Variables	n (%)	Male n (%)	Female n (%)	X ²	p-value
<i>Use of social media</i>					
Very frequently	244(53.6)	56(44.8)	188(56.9)	9.01	0.029
Frequently	162(35.6)	48(38.4)	114(34.5)		
Occasionally	43(9.5)	19(15.2)	24(7.2)		
Rarely	6(1.3)	2(1.6)	4(1.2)		
<i>Social Media Platform</i>					
Instagram	380(83.5)	72(57.6)	308(93.3)	84.01	<0.001
Facebook	268(58.9)	89(71.2)	179(54.2)	10.76	0.001
Snapchat	219(48.1)	49(39.2)	170(51.5)	5.50	0.012
Twitter	119(26.2)	38(30.4)	81(24.5)	1.60	0.126
TikTok	95(20.9)	19(15.2)	76(23)	3.36	0.042
Other	46(10.1)	21(16.8)	25(7.5)	8.48	0.004
<i>Hours of social media use</i>					
Less than 4 hours	159(34.9)	56(44.8)	103(31.2)	13.29	0.01
4-6 hours	164(36)	36(28.8)	128(38.7)		
7-8 hours	78(17.1)	24(19.2)	54(16.3)		
More than 8 hours	50(11)	7(5.6)	43(13)		
<i>Follow social media pages/profiles of esthetic surgeons</i>					
Yes	169(37.1)	42(33.6)	127(38.4)	0.92	0.127
No	286(62.9)	83(66.4)	203(61.5)		

X²= Chi -Square test (P-value ≤ 0.05 for statistical significance)

The respondents' views regarding the influence of social media on the perception of dentofacial esthetics and plastic surgery are tabulated in Table 3. Around 7 out of 10 respondents (n=353, 77.6%) have felt unsatisfied with their facial esthetics after looking at pictures of celebrities on social media with ideal esthetics. Around one-half (n=236, 51.9%) of the

respondents have considered going through facial/dental esthetic procedures under the influence of social media, and a significant proportion of them were females. Most respondents (302, 66.4%) have compared their facial esthetics to the ideal, at least once, after seeing pictures of celebrities on social media.

Table 3: Views of the respondents regarding the influence of social media on the perception of dentofacial esthetics and plastic surgery

Variables	n(%)	Male n (%)	Female n (%)	X ²	p-value
<i>Smile is an important esthetic feature</i>					
Yes	425(93.4)	115(92)	310(93.9)	0.93	0.62
No	8(1.8)	2(1.6)	6(1.8)		
Maybe	22(4.8)	8(6.4)	14(4.2)		
<i>Facial esthetics affect confidence levels</i>					
Yes	350(76.9)	94(75.2)	256(77.5)	0.67	0.712
No	59(13)	16(12.8)	43(13)		
Maybe	46(10)	15(12)	31(9.3)		
<i>Change in facial esthetics can improve self-confidence</i>					
Yes	275(60.4)	85(68)	190(57.5)	10.52	0.005
No	97(21.3)	14(11.2)	83(25.1)		
Maybe	83(18.2)	26(20.8)	57(17.2)		
<i>Observing ideal beauty standards on social media changes the perception of dentofacial esthetics</i>					
Yes	241(53)	70(56)	171(51.8)	0.63	0.244
No	214(47)	55(44)	159(48.1)		
<i>Feel unsatisfied with facial esthetics after looking at pictures of celebrities on social media with ideal esthetics</i>					
Most of the time	62(13.6)	17(13.6)	45(13.6)	2.96	0.397
Sometimes	172(37.8)	46(36.8)	126(38.1)		
Rarely	119(26.2)	39(31.2)	80(24.2)		
Never	102(22.4)	23(18.4)	79(23.9)		
<i>Considered going through any dentofacial esthetic procedures under the influence of social media</i>					
Most of the time	33(7.2)	8(6.4)	25(7.5)	9.91	0.019
Sometimes	119(26.2)	25(20)	94(28.4)		
Rarely	84(18.5)	17(13.6)	67(20.3)		
Never	219(48.1)	75(60)	144(43.6)		
<i>Compare facial esthetics to people after seeing their pictures on social media</i>					
Most of the time	56(12.3)	14(11.2)	42(12.7)	5.28	0.152
Sometimes	131(28.8)	27(21.6)	104(31.5)		
Rarely	115(25.3)	36(28.8)	79(23.9)		
Never	153(33.6)	48(38.4)	105(31.8)		

X²= Chi -Square test (P-value ≤ 0.05 for statistical significance)

The comparison of the perception of dentofacial esthetics with the frequency of use of social media is exhibited in Table 4. There was a significant difference between the frequency of social media use and the perception of dentofacial esthetics. Those respon-

dents who were more frequent users of social media were more unsatisfied with their facial esthetics and were influenced and inclined towards getting a procedure when it comes to dentofacial esthetics (Table 4).

Table 4: The comparison of the perception of dentofacial aesthetics with the use of social media

Statements	n (%)	Frequency of Social Media Use				χ ²	p-value
		Very frequently	Frequently	Occasionally	Rarely		
<i>Observing ideal beauty standards on social media changes the perception of dentofacial esthetics</i>							
Yes	241(53)	144(59)	78(48.1)	15(34.8)	4(66.6)	11.19	0.011
No	214(47)	100(40.9)	84(51.8)	28(65.1)	2(33.3)		
<i>Feel unsatisfied with facial esthetics after looking at pictures of celebrities on social media with ideal esthetics</i>							
Most of the time	62(13.6)	44(18)	16(9.8)	2(4.6)	0(0)	29.75	<0.001
Sometimes	172(37.8)	92(37.7)	60(37)	18(41.8)	2(33.3)		
Rarely	119(26.2)	64(26.2)	50(30.8)	5(11.6)	0(0)		
Never	102(22.4)	44(18)	36(22.2)	18(41.8)	4(66.6)		
<i>Considered going through any dentofacial esthetic procedures under the influence of social media</i>							
Most of the time	33(7.2)	29(11.8)	4(2.4)	0(0)	0(0)	26.15	0.002
Sometimes	119(26.2)	67(27.4)	36(22.2)	14(32.5)	2(33.3)		
Rarely	84(18.5)	42(17.2)	38(23.4)	4(9.3)	0(0)		
Never	219(48.1)	106(43.4)	84(51.8)	25(58.1)	4(66.6)		
<i>Compare facial aesthetics to people after seeing their pictures on social media</i>							
Most of the time	56(12.3)	44(18)	12(7.4)	0(0)	0(0)	34.71	<0.001
Sometimes	131(28.8)	77(31.5)	44(27.1)	6(13.9)	4(66.6)		
Rarely	115(25.3)	57(23.3)	43(26.5)	15(34.8)	0(0)		
Never	153(33.6)	66(27)	63(38.8)	22(51.1)	2(33.3)		

χ²= Chi -Square test (P-value ≤ 0.05 for statistical significance)

DISCUSSION

The advent of social media has brought about a transformative shift in how individuals perceive themselves and others. Social media platforms like Instagram, TikTok, and Snapchat have become central hubs for individuals to share images of themselves, often curated to present an idealized version of their appearance^{1,5,7}. In the current study, most respondents were very frequent users of social media; more females were using Instagram, Snapchat, and TikTok, while most men were using Facebook, Twitter (now known as X), and other social media platforms, and the most visited platform was Instagram. The results of the present study were consistent with the studies conducted in Russia, Turkey, and the United Kingdom,

where the most used social media website was Instagram. Nonetheless, in the USA, especially in North America, the most used platform was Facebook^{6,11-14}.

Previous studies have reported the daily use of social media between 5 to 10 hours, with more aggressive use and dependency among younger age groups¹⁵⁻¹⁸. In the present study, most participants, especially females, were using social media for 4 to 6 hours daily.

In the present study, most of the respondents (n=286, 62.9%) were not following any aesthetic surgeon, which shows that not many people are actively seeking or engaging in invasive or non-invasive

cosmetic procedures information; among the people who were following aesthetic surgeons, most were females. These findings were consistent with the results of a study by Kenneth et al., which showed that the majority of the people in the USA were not following any plastic or aesthetic surgeon⁶.

In the current study, the majority of the participants (n=425, 93.4%) agreed that a smile is an important aesthetic feature, admitted that their facial aesthetics affect their confidence (n=350, 76.9%), and agreed that a change in their facial aesthetics would improve their self-confidence. These findings were consistent with the results of the studies conducted by Armalaite et al., Shaista et al., Obeid et al., and Khalid et al.^{7,8,19,20}. In the current study, around one-half of the participants (n=241, 53%) agreed that beauty standards on social media affected their perception of dentofacial aesthetics. These results were consistent with the findings of the previous studies^{8,21}. Social media platforms substantially influence shaping beauty standards, including those related to dentofacial aesthetics. Celebrities and influencers often set trends in appearance, and dental treatments, such as teeth whitening, veneers, and orthodontic procedures, have become highly visible on these platforms^{7,8,22}. More than two-thirds of the respondents (n=352, 77.6%) in the present study felt unsatisfied, at least once, with their facial esthetics after looking at the pictures of celebrities on social media with ideal esthetics.

The influence of social media on dentofacial aesthetics directly impacts individuals' treatment decisions. Research has shown that individuals are increasingly seeking orthodontic and cosmetic dental treatments to achieve the ideal esthetics they see on social media^{4,8,23}. In this study, one-fourth of the respondents (n=119, 26.2%) 'sometimes' considered going through dental or facial aesthetic procedures under the influence of social media, especially females. Moreover, the respondents who exhibited a higher frequency of social media usage demonstrated greater dissatisfaction with their facial esthetics and displayed a heightened inclination to be influenced towards seeking dentofacial esthetic procedures.

While social media can be a valuable source of information, it is also rife with misinformation and unrealistic expectations. Individuals may encounter sensationalized before-and-after photos, anecdotal stories, or unverified claims about dental treatments. This can lead to unrealistic expectations and dissatisfaction when real-life outcomes do not match the idealized images shared on social media^{24,25}.

The use of convenience sampling might limit the generalizability of the findings. The study relies on self-reported measures from an online questionnaire, which can be subject to biases like social desirability or

inaccurate self-assessment. Moreover, the study primarily focuses on a few social media platforms and may not consider the impact of emerging or less popular platforms or the overall digital ecosystem.

Future research should consider longitudinal designs to observe how perceptions of dentofacial aesthetics change over time with continued social media use. Qualitative methods like interviews or focus groups could provide deeper insights into individual experiences and perceptions regarding dentofacial aesthetics and social media influence. Researching the effectiveness of educational or interventional strategies to mitigate the negative effects of social media on self-perception could be valuable for dental professionals and public health initiatives.

CONCLUSION

Social media's impact on dentofacial aesthetic perception is significant. A majority of survey participants, particularly women who engage with social media for 4 to 6 hours daily, believe that enhanced facial aesthetics can elevate self-confidence. Forty percent follow aesthetic surgeons online, and about fifty percent are swayed by social media's beauty norms. Frequent social media users expressed increased dissatisfaction with their facial esthetics and showed a greater inclination to be influenced toward seeking dentofacial esthetic procedures. Exposure to celebrities' idealized images often leads to dissatisfaction with their facial features. Dental professionals must recognize these trends and offer factual advice to those aiming to enhance their dentofacial appeal in today's digital era.

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CONFLICT OF INTEREST

The authors state they have no competing interests.

ETHICAL APPROVAL

The study received approval from the Institutional Review Board (IRB) of the University College of Medicine and Dentistry (Ref No: UCD/ERCA/22/12).

AUTHORS CONTRIBUTION

MT: Conception and design, critical revision of the manuscript for important intellectual content, and Statistical expertise. HH: Conception and design, statistical analysis and interpretation of the data, drafting of the article, investigation, data curation, and draft preparation. US: Conception and design, critical revision of the article for important intellectual content, drafting of the manuscript, data curation. FI: Collection and assembly of data, drafting of the manuscript, data analysis, and interpretation of results. MH: Literature search, critical revision of the manuscript for important intellectual content, data interpretation, and proofreading. SA: Literature search, critical

revision of the manuscript for important intellectual content, drafting of the manuscript.

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