

Original article

Association Between Social Media Use and Orthodontic Knowledge, Attitudes, and Treatment Decision-Making Among Young Adults in Libya: A Cross-Sectional StudyIbrahim Erfida*^{ID}, Refaat Elnajar^{ID}*Orthodontics, Pediatric and Preventive Dentistry Department, Faculty of Dentistry, Misurata, Misurata University, Misurata, Libya***Corresponding email.** i.erfida@gmail.com**Abstract**

Social media has become an important source of health information and may be associated with patients' knowledge, attitudes, and decisions regarding orthodontic treatment. However, evidence from Libya remains limited. This study was conducted to evaluate the association between social media and orthodontic knowledge, attitudes, and decision-making regarding orthodontic treatment among young adults in Libya. A cross-sectional online survey among young adults in Libya was conducted between January and June 2026. A structured online questionnaire was distributed to Libyan adults aged 18–35 years using convenience sampling. The questionnaire assessed demographic characteristics, social media use, orthodontic knowledge, attitudes toward social media content, and treatment-related decision-making. Descriptive statistics, chi-square tests, Pearson correlation, and multivariable logistic regression analyses were performed using SPSS version 27. Statistical significance was set at $p < 0.05$. A total of 450 questionnaires were distributed, and 412 complete responses were analyzed. TikTok (37.9%) and Instagram (30.6%) were the most commonly used platforms for orthodontic information. The mean knowledge score was 7.99 ± 1.72 , with 57.7% demonstrating good knowledge. Positive attitudes toward orthodontic information on social media were observed in 41.2% of participants. Social media encouraged 58.7% of participants to consider orthodontic treatment, while 65.0% reported that online images influenced their treatment expectations. Frequent online searching for orthodontic information (AOR=3.12), daily social media use exceeding three hours (AOR=2.36), positive attitudes (AOR=2.81), and good knowledge (AOR=1.74) were significantly associated with social media-related decision-making. Social media use was significantly associated with reported orthodontic knowledge and treatment-related decision-making among young adults in Libya. Evidence-based digital communication by orthodontists is essential to improve public awareness and reduce misinformation.

Keywords: Social media; Orthodontics; Knowledge; Attitudes; Decision-making; Libya; Young adults.**Introduction**

Orthodontic treatment has evolved considerably over recent decades from a procedure primarily aimed at correcting malocclusion and functional impairments to one that also addresses facial esthetics, psychological well-being, and oral health-related quality of life. Consequently, the demand for orthodontic treatment has increased substantially among adolescents and young adults, who frequently seek treatment for both functional correction and improvement in dental appearance and self-confidence [1,2]. The rapid expansion of digital technologies has fundamentally transformed the way individuals access health-related information. Social media platforms—including Instagram, TikTok, YouTube, Facebook, and Snapchat—have become major sources of information for young adults, allowing users to obtain health information instantly through photographs, short videos, testimonials, and interactive discussions [3].

The visual nature of orthodontic treatment has encouraged orthodontists, dental clinics, and commercial companies to use social media not only for patient education but also for professional communication and marketing. Educational posts explaining treatment procedures, before-and-after photographs, patient testimonials, and promotional videos have become increasingly common across multiple platforms. These digital tools may improve public awareness of orthodontic treatment and enhance communication between clinicians and potential patients [4,5].

Despite these benefits, concerns have emerged regarding the quality, reliability, and scientific accuracy of orthodontic information available on social media. Recent systematic reviews have shown that a substantial amount of orthodontic-related content contains incomplete, misleading, or commercially biased information, often emphasizing esthetic outcomes while providing limited discussion of diagnosis, treatment planning, potential risks, retention, or possible complications [6,7]. Such misinformation may create unrealistic expectations, reduce confidence in professional advice, and influence patients' treatment preferences before they consult an orthodontist.

Social media has therefore become more than a source of information; it increasingly influences healthcare decision-making. Before seeking orthodontic treatment, many individuals review treatment outcomes displayed online, compare different treatment options, evaluate patient testimonials, examine clinicians' social media profiles, and consider online reviews when selecting healthcare providers. Previous studies have demonstrated that exposure to orthodontic content on platforms such as Instagram and TikTok is associated with increased motivation to pursue orthodontic treatment and greater interest in esthetic treatment modalities, particularly among young adults and female users. [8,9]

The increasing promotion of direct-to-consumer orthodontic products, particularly clear aligners, has raised concerns regarding unrealistic expectations, inappropriate case selection, and insufficient emphasis on professional diagnosis and supervision.[10] Recent qualitative studies have also shown that young adults perceive social media as an accessible and convenient source of orthodontic information and frequently rely on digital platforms when choosing orthodontic providers. Factors such as clinic reputation, patient testimonials, before-and-after photographs, number of followers, treatment cost, and online engagement may all influence provider selection and treatment expectations.[11] These findings illustrate that social media plays a substantial role not only in increasing awareness but also in shaping attitudes and behavioral intentions toward orthodontic treatment.

Although the influence of social media on orthodontic care has been investigated in several countries, most published evidence originates from Europe, North America, and parts of Asia. Cultural differences, healthcare systems, accessibility of orthodontic services, and patterns of social media use vary considerably between countries, limiting the generalizability of existing evidence to North African populations. Moreover, evidence regarding the influence of social media on orthodontic knowledge, attitudes, and treatment-related decision-making in Arab countries remains limited.

In Libya, internet accessibility and social media use have increased rapidly, particularly among university students and young adults. Nevertheless, to the best of our knowledge, Limited evidence is available regarding how social media is associated with orthodontic knowledge, attitudes, and treatment decision-making among Libyan young adults. Understanding these relationships is important for identifying knowledge gaps, addressing online misinformation, and supporting the development of evidence-based digital communication strategies that promote informed patient decision-making and responsible orthodontic health education. Therefore, the present study aimed to evaluate the influence of social media on knowledge, attitudes, and decision-making regarding orthodontic treatment among young adults in Libya using a nationwide cross-sectional survey. Specifically, the study sought to assess participants' orthodontic knowledge, identify the social media platforms most commonly used for orthodontic information, evaluate attitudes toward online orthodontic content, and determine the extent to which social media influences decisions related to seeking orthodontic treatment and selecting orthodontic providers.

Methods

Study Design and Participants

An online cross-sectional survey was conducted among young adults from different regions of Libya between January and June 2026 to assess the association between social media use and orthodontic knowledge, attitudes, and treatment decision-making. The study was reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Ethical approval

Ethical approval for this study was obtained from the Research and Consultation Department of the Faculty of Dentistry, Misurata University. All participants provided electronic informed consent before completing the questionnaire. Participation was voluntary, and the confidentiality and anonymity of participants' responses were maintained throughout the study.

Eligible participants were Libyan residents aged 18–35 years who actively used at least one social media platform and were able to understand Arabic. Dental students, dentists, orthodontists, prosthodontists, other oral health professionals, incomplete questionnaires (>20% missing data), and duplicate responses were excluded.

Sample Size and Sampling

The minimum required sample size was calculated using Cochran's formula with a 95% confidence level, 5% margin of error, and an assumed prevalence of 50%, yielding 384 participants. To account for incomplete responses, the target sample was increased by 10%. A convenience sampling method was used. The questionnaire link was distributed electronically through Facebook, WhatsApp, Telegram, and university student groups to recruit participants from different regions of Libya. Although participants were recruited from different regions, the convenience sampling method may limit the generalizability of the findings.

Questionnaire Development

The questionnaire was developed after reviewing relevant literature and previously validated instruments on social media use and orthodontic treatment. It was translated into Arabic using a forward–backward translation procedure and reviewed for cultural appropriateness. The final questionnaire consisted of five sections: (1) demographic characteristics, (2) social media use, (3) knowledge of orthodontic treatment, (4) attitudes toward orthodontic information on social media, and (5) the influence of social media on orthodontic treatment decision-making.

Knowledge was assessed using 10 multiple-choice questions (score range: 0–10), categorized as poor (0–4), moderate (5–7), or good (8–10). Attitudes were measured using ten statements rated on a five-point Likert scale, with higher scores indicating more positive attitudes toward obtaining orthodontic information through social media.

Validity and Reliability

Content validity was evaluated by a panel of five experts in orthodontics, prosthodontics, dental public health, epidemiology, and research methodology. A pilot study involving 30 participants was conducted to assess clarity and readability; these responses were excluded from the final analysis. The questionnaire demonstrated good internal consistency, with a Cronbach's alpha of 0.87.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 27.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were presented as frequencies, percentages, means, and standard deviations. Associations between categorical variables were assessed using the Chi-square test. Binary logistic regression analyses were performed to identify factors associated with social media-related orthodontic treatment decision-making. Adjusted odds ratios (ORs) with 95% confidence intervals (CIs) were reported. Statistical significance was considered at $p < 0.05$.

Results

Participant Characteristics and Social Media Usage

A total of 450 questionnaires were distributed, and 412 complete responses were included in the final analysis. The mean age of participants was 23.1 ± 4.5 years (range: 18–35 years). Females represented the majority of participants (68.0%), while males accounted for 32.0%.

Most participants were aged 18–22 years (51.9%), had university-level education (69.4%), and were students (67.0%). Participants were recruited from several regions of Libya, with the highest proportion from the western region (67.0%).

Regarding social media usage, more than half of participants reported using social media for more than three hours daily (53.4%). TikTok was the most commonly used platform for orthodontic information (37.9%), followed by Instagram (30.6%). Furthermore, 69.4% of participants reported using social media for health-related information, and 59.2% had searched online for orthodontic-related information.

Table 1. Demographic characteristics and social media usage patterns among participants (n=412)

Variable	Category	n %
Age group	18–22 years	214 (51.9)
	23–27 years	132 (32.0)
	28–35 years	66 (16.1)
Gender	Male	132 (32.0)
	Female	280 (68.0)
Educational level	Secondary education	96 (23.3)
	University education	286 (69.4)
	Postgraduate education	30 (7.3)
Residence	Western region	276 (67.0)
	Eastern region	96 (23.3)
	Southern region	40 (9.7)
Employment status	Student	276 (67.0)
	Employee	82 (19.9)
	Unemployed	54 (13.1)
Most commonly used platform	TikTok	156 (37.9)
	Instagram	126 (30.6)
	Facebook	72 (17.5)
	YouTube	38 (9.2)
	Snapchat/others	20 (4.8)
daily social media use	<1 hour	46 (11.2)
	1–3 hours	146 (35.4)
	>3 hours	220 (53.4)
Use social media for health information	Yes	286 (69.4)
	No	126 (30.6)

Searched orthodontic information online	Yes	244 (59.2)
	No	168 (40.8)

Knowledge Regarding Orthodontic Treatment

The mean knowledge score was 7.99 ± 1.72 out of 10 (range: 2–10). More than half of participants demonstrated good orthodontic knowledge (57.7%), while 34.5% had moderate knowledge. The highest correct response rates were observed for the importance of regular follow-up visits (92.7%) and oral hygiene during treatment (90.8%). The lowest correct response rate was observed for knowledge regarding clear aligner suitability (57.3%).

Table 2. Knowledge regarding orthodontic treatment among participants based on individual items and total score (n=412)

Knowledge item	Correct responses n %
Purpose of orthodontic treatment	352 (85.4)
Dentist responsible for orthodontic assessment	366 (88.8)
Benefits of orthodontic treatment	326 (79.1)
Appropriate age for orthodontic evaluation	274 (66.5)
Duration of orthodontic treatment	298 (72.3)
Importance of oral hygiene during treatment	374 (90.8)
Need for retention after treatment	342 (83.0)
Clear aligners suitability	236 (57.3)
Importance of regular follow-up	382 (92.7)
Effect of poor compliance	348 (84.5)
Knowledge score: 7.99 ± 1.72	
Knowledge level	n (%)
Poor (0–4)	32 (7.8)
Moderate (5–7)	142 (34.5)
Good (8–10)	238 (57.7)

Attitudes Toward Social Media Orthodontic Information

Participants showed generally favorable attitudes toward orthodontic information on social media, although most were classified as having moderate attitudes (47.6%). Positive attitudes were observed among (41.2%) of participants. Participants showed the highest agreement regarding the need for more orthodontic educational content provided by professionals (4.5 ± 0.6) and greater trust in orthodontists compared with general online content (4.4 ± 0.7).

Table 3. Attitudes toward orthodontic information obtained from social media

Attitude level	n (%)
Negative (<30)	46 (11.2)
Moderate (30–39)	196 (47.6)
Positive (≥ 40)	170 (41.2)
Statement	Mean $\pm$ SD
Social media increased my orthodontic knowledge	4.1 ± 0.9
Provides useful orthodontic information	3.9 ± 1.0
Before/after photos increase interest	4.2 ± 0.8
Online orthodontic information may be inaccurate	4.0 ± 0.9
Trust orthodontists more than general content	4.4 ± 0.7
Verify information with specialists	3.7 ± 1.1
Influencers affect my perception	3.5 ± 1.2
Advertisements affect decisions	3.6 ± 1.1
Social media creates unrealistic expectations	4.1 ± 0.8
More professional educational content is needed	4.5 ± 0.6

* Attitude scores were calculated from ten Likert-scale items (range: 10–50), with higher scores indicating more positive attitudes.

Social Media and Orthodontic Treatment Decision-Making

Social media use was commonly reported as being associated with orthodontic treatment-related decisions among participants. More than half reported that social media influenced their consideration of orthodontic treatment (58.7%). Before and after images affected treatment expectations in 65.0% of participants.

Table 4. Social media-related orthodontic treatment decision-making (n=412)

Decision-related factor	Yes n (%)	No n (%)
Social media encouraged considering orthodontic treatment	242 (58.7)	170 (41.3)
Before/after images affected expectations	268 (65.0)	144 (35.0)
Used social media to search for orthodontists/clinics	226 (54.9)	186 (45.1)
Influenced orthodontist/clinic selection	174 (42.2)	238 (57.8)
Influenced appliance preference	192 (46.6)	220 (53.4)
Increased interest in clear aligners	184 (44.7)	228 (55.3)
Recommended orthodontic treatment due to social media	238 (57.8)	174 (42.2)

Predictors Associated with Social Media-Related Decision-Making

Social media-related decision influence was defined as participants reporting that social media affected their orthodontic treatment decisions (yes/no). Multivariable logistic regression analysis identified several factors independently associated with social media-related orthodontic decision influence. Active searching for orthodontic information was the strongest associated factor (AOR=3.12, 95% CI: 2.05–4.75, $p<0.001$).

Table 5. Multivariable logistic regression analysis of factors associated with social media-related orthodontic decision-making

p-value	95% CI	Adjusted OR	Factor
0.044	1.01–2.01	1.42	Female vs Male
0.016	1.10–2.58	1.68	Age group (18–22 years vs. 28–35 years)
<0.001	1.55–3.59	2.36	Daily social media use (>3 hours/day vs <1 hour/day)
<0.001	2.05–4.75	3.12	Searching orthodontic information online
0.005	1.18–2.57	1.74	Good orthodontic knowledge (vs moderate/poor knowledge)
<0.001	1.90–4.16	2.81	Positive attitude toward social media orthodontic information (vs moderate/negative attitude)

Reference categories were male gender, age group 28–35 years, social media use <1 hour/day, no online orthodontic searching, moderate/poor knowledge, and negative/moderate attitude

Discussion

The present study investigated the association between social media use and orthodontic knowledge, attitudes, and treatment-related decision-making among young adults in Libya. The findings demonstrated that social media has become an important source of orthodontic information, with TikTok and Instagram being the most frequently used platforms. Higher social media exposure, active searching for orthodontic information, positive attitudes toward online orthodontic content, and better orthodontic knowledge were significantly associated with greater reported influence of social media on orthodontic treatment decisions.

The increasing dependence on social media for health-related information among young adults has been widely reported. Digital platforms provide rapid access to healthcare information and allow patients to explore treatment options before consulting healthcare professionals. However, the reliability and scientific quality of online health information remain variable. In orthodontics, this issue is particularly relevant because treatment outcomes are highly visual and are frequently presented through photographs and short videos, which may strongly influence patients' expectations and perceptions. [12,13].

In the current study, TikTok was the most commonly used platform for orthodontic information, followed by Instagram. This finding reflects the growing importance of visual-based communication in orthodontic education and patient engagement. Previous studies evaluating orthodontic content on social media have demonstrated that although visual platforms can improve awareness and interest in orthodontic treatment, they frequently emphasize aesthetic outcomes while providing limited information regarding diagnosis, treatment limitations, retention, and possible complications [14,15]. Therefore, the increasing popularity of short-form video platforms highlights the need for orthodontic professionals to provide accurate and balanced educational content.

Participants in the present study showed relatively good orthodontic knowledge, with more than half achieving a good knowledge score. However, misconceptions were identified regarding clear aligner suitability. Similar findings have been reported in studies evaluating online orthodontic information, where social media improved general awareness but did not always provide sufficient understanding of appropriate treatment indications. Online promotional content related to clear aligners may contribute to unrealistic expectations by focusing mainly on convenience and aesthetic benefits while minimizing the importance of diagnosis and professional supervision [15,16].

Regarding attitudes toward orthodontic information obtained through social media, participants generally demonstrated favorable attitudes while reporting greater trust in orthodontists compared with general online sources. This finding is consistent with previous research indicating that users appreciate professional-generated health information and consider healthcare professionals more reliable than non-professional sources. Active participation of orthodontists in digital

communication may therefore represent an effective strategy to improve oral health literacy and reduce misinformation [12,17].

An important finding of the present study was that searching for orthodontic information online was the strongest predictor of social media-related influence on treatment decision-making. Participants who actively searched for orthodontic information were more likely to report that social media affected their orthodontic decisions. Similar observations have been reported in Saudi Arabia, where social media platforms were found to influence patients' awareness, treatment preferences, and selection of orthodontic providers. Al-Gunaid et al. reported that social media significantly affected patients' decisions regarding orthodontic treatment, particularly among younger individuals who frequently used digital platforms for health information (18). Similarly, Aljarooshi et al. demonstrated that social media played an important role in adults' decisions regarding orthodontic treatment in Saudi Arabia, with online reviews, treatment outcomes, and digital content influencing patient perceptions [19].

The difference in preferred platforms between populations is also noteworthy. While some studies from Saudi Arabia reported Instagram as the dominant platform influencing orthodontic decisions, TikTok was the most frequently used platform in the present Libyan population. This difference may be explained by variations in age distribution, cultural factors, and changing social media trends among young adults. Female participants in this study showed slightly higher odds of reporting social media-related influence compared with males. Similar trends have been observed in studies investigating aesthetic dental treatment decisions, where females often demonstrate greater interest in appearance-related dental information and esthetic outcomes. However, these differences should be interpreted cautiously because social media behavior is influenced by multiple demographic and cultural factors [20].

The association between higher orthodontic knowledge and greater social media influence is an important finding. This may indicate that individuals who actively seek orthodontic information online are exposed simultaneously to educational material and persuasive content that shapes their expectations and treatment preferences. Therefore, improving the quality of orthodontic information available on social media may help transform digital exposure into informed decision-making rather than passive acceptance of online trends [13,21]. From a clinical perspective, the findings emphasize the responsibility of orthodontists, dental institutions, and professional organizations to actively participate in social media platforms. Evidence-based digital communication should focus not only on treatment outcomes but also on explaining indications, limitations, risks, retention requirements, and the importance of individualized diagnosis. Previous reviews have emphasized that improving the quality of online orthodontic information is essential to reduce misinformation and unrealistic expectations among patients [22,23].

Limitations of the Study

This study has several limitations. The cross-sectional design precludes causal inference between social media exposure and orthodontic decision-making. The use of online convenience sampling may have introduced selection bias and limited the generalizability of the findings. In addition, the reliance on self-reported data may be subject to recall and social desirability biases. Finally, the study assessed participants' perceptions rather than the quality or accuracy of orthodontic information available on social media. Future longitudinal studies incorporating content analysis of orthodontic-related social media posts are recommended.

Conclusion

This study demonstrated that social media use is associated with orthodontic knowledge, attitudes, and treatment-related decision-making among young adults in Libya. TikTok and Instagram were the most commonly used platforms for orthodontic information, reflecting the growing importance of visual digital communication in oral health education. Although participants showed generally good orthodontic knowledge and favorable attitudes toward online information, some knowledge gaps, particularly regarding clear aligner suitability, were identified. Frequent searching for orthodontic information, higher social media use, positive attitudes, and greater knowledge were associated with increased reported social media influence on treatment decisions. These findings highlight the importance of providing accurate, evidence-based orthodontic content through social media to improve public awareness, reduce misinformation, and support evidence-based patient decision-making.

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