Original Article

Determining the impact of orthodontic patients' characteristics on their usage and preferences of social media

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الكلمات المفتاحية: تقويم الأسنان؛ مريض تقويم الأسنان؛ استخدام وسائل التواصل الاجتماعي

الملخص

أهداف البحث: تهدف هذه الدراسة إلى تقييم استخدام مرضى تقويم الأسنان وتفضيلاتهم لوسائل التواصل الاجتماعية واستكشاف المنصات الأكثر فاعلية على معرفة المريض.

طرق البحث: تم استخدام تصميم مقطعي وصفي. واستعملت استبانة، وضعت للسؤال عن البيانات الديموغرافية، مع الأسئلة المتعلقة باستخدام وسائل التواصل الاجتماعي، والمنصات الأساسية المفضلة لهم. كما تم فحص مدى مصداقية الاستبانة وموثوقيتها. ثم تم اعتماد النسخة العربية النهائية واستخدام محرك جوجل لإرسال رابط الاستبانة إلى عامة الناس عبر مختلف منصات وسائل التواصل الاجتماعي والتطبيقات المتاحة لذلك.

النتائج: وافق ٤٧٧ مجيبا على المشاركة في هذه الدراسة (٢٧٤ من الإناث و٢٠٣ من الذكور) ولوحظ وجود اختلافات كبيرة بين الجنسين في استخدام وسائط التواصل الاجتماعي. وكان استخدام تطبيقات تويتر، وسناب شات، ويوتيوب أكثر بكثير بين الفئة العمرية ٢١-٣٠ سنة، في حين كان يفضل تطبيق إينستاجرام الفئة العمرية ١٣-٢٠ سنة. بينما كان تطبيق الواتساب الأكثر استخداما من قبل أولئك الذين تتراوح أعمارهم حوالي ٤٠ عاما. كما كان استخدام وسائل التواصل الاجتماعي أكثر وضوحا بين المتعلمين الجامعيين من قبل المشاركين في تقويم الأسنان وغير المراجعين لتقويم الأسنان. وكان استخدام تطبيقات تويتر، سناب شات، إينستاجرام، والواتساب أكثر شيوعا بكثير في فئة الدخل المتوسط مقارنة بغيرهم. وكان تطبيق السناب شات الأكثر استخداما عند كلتا المجموعتين.

الاستنتاجات: كانت تطبيقات تويتر، وسناب شات، ويوتيوب هي المفضلة للمجموعة الوسيطة. كما كان استخدام إينستاجرام أكثر في مجموعة المراهقين، في حين كان الواتساب المفضل لدى كبار المشاركين. وكان استخدام وسائل التواصل الاجتماعي أكثر شيوعا بين المجموعة الجامعية المتعلمة، بغض النظر عما إذا كانوا مرضى تقويم الأسنان أو غير مرضى.

Abstract

Objective: This study aims to assess the impact of orthodontic patients' characteristics on their usage and personal preferences of social media.

Methods: We developed a descriptive cross-sectional study. The questionnaire contained demographic data and questions about the usage of social media and their preferred platforms. The validity and reliability of the questionnaire were examined. The final Arabic version was adopted, and Google Drive was used to conduct the survey. The survey link was sent to the general public via different social media platforms and applications.

Results: A total of 477 respondents participated in this study, which included 274 women and 203 men. Significant variation in the use of social media was observed between the genders. The use of Twitter, Snapchat, and YouTube was significantly higher in the 21—30-year-old group than in the other groups. Instagram was favoured by the 13—20-year-old group, while WhatsApp was most frequently used by those aged around 40 years. Social media usage was significantly more apparent among university graduates in both the orthodontic and non-orthodontic groups. The use of Twitter, Snapchat, YouTube, Instagram, and WhatsApp was significantly more common in the medium-income group than in any other group. Snapchat was the most commonly used platform across both groups.

Conclusion: Our study revealed that Twitter, Snapchat, and YouTube were the preferred social media applications for the middle-aged group. The use of Instagram was greatest in the teenage group, while WhatsApp was favoured by the older groups. Social media usage was most prevalent among university graduates, regardless of whether they were orthodontic or non-orthodontic patients.

Keywords: Orthodontics; Orthodontic patients; Patients' knowledge; Social media; Social media impact

Introduction

Social media is defined as a type of interactive technology through which people can share their opinions, knowledge, and health information, and interact with one another. Social media has significantly changed people's communication styles.[1] It helps users to quickly access content, which may include personal information, documents, videos, or pictures. Currently, whether you are watching a television programme, surfing the Internet, or even listening to a radio programme, you will be interrupted by advertisements.[2] Social media has become an alternative to reach customers to promote products and services.[2] There are several social media platforms, including Facebook, Twitter, YouTube, and Instagram. One of the most popular platforms is Facebook, which has dramatically grown into a worldwide network of more than 2.6 billion users since it was founded in 2004. Nowadays, patients resort to social media when they search for solutions to their problems or look for healthcare provisions. Likewise, practitioners have also utilised these platforms to share their knowledge with patients and colleagues, and promote themselves in the community.[3] The widespread use of social media can be credited to its advantages, which include independence, speed, ease of use, and availability of information.[4] At present, orthodontic patients can quickly obtain information by using various social media platforms and applications. For example, they can find information regarding the types of orthodontic appliances, the advantages and disadvantages of orthodontic treatments, costs, and duration of each treatment modality. However, this may either have a positive or negative effect on the treatment course depending on the quality of the information accessed.[5] Therefore, during treatments, orthodontists are advised to help their patients use social media appropriately.

In 2019, a systematic review found that data on orthodontics, the feelings of patients, and other psychosocial factors are transmitted via social media.[3] A recent randomised controlled study conducted by Al-Silwadi et al.[6] also found that providing audio-visual information to orthodontic patients via YouTube resulted in a significant increase in patient awareness. Another study conducted by Al-Moghrabi et al.[7] investigated the content of Twitter posts related to orthodontic retainers. They found that personal opinions on orthodontic retainers were widely posted on Twitter, and most of the publicly available tweets indicated a negative experience of retainer wear. It is believed that social media follows current cultural and social trends. This impacts the demand for treatment and satisfaction, as many individuals associate orthodontic treatment with social norms and modern beauty standards.[5] Hence, the evaluation of social media content is essential to understanding the motivation factors, expectations, and experiences of orthodontic patients.[8]

A lot remains unknown about the effects of social media on orthodontic practice, and very few studies have examined the connections between social media and orthodontics.[5–7] Therefore, this study aims to assess orthodontic patient use and preferences around social media and explores the most effective forms on the patient's knowledge by comparing popular platforms.

Materials and Methods

. A descriptive cross-sectional design was used in this study. The questionnaire used was formulated and divided into three sections: demographic data, subjects in need of orthodontic treatment, and subjects not in need of orthodontic treatment. To examine the validity of the questionnaire, the following procedures were carried out: the first step was to invite three assessors (one professor, two associate professors) to carefully read the questionnaire and provide their feedback on the number of questions, the clarity of the questions, grammatical mistakes, whether or not the time was appropriate, the structure, and its contents. In the second step, ten assessors from different specialities were invited to examine the questionnaire's reliability. The second panel was requested to participate in this study by answering the questionnaire. One week later, they were invited back to complete the questionnaire again. Finally, the responses from the two rounds were compared to confirm the questionnaire's reliability. The final questionnaire was then translated into Arabic and sent to a language expert to scrutinise and correct if needed. The corrected Arabic version was adopted, and the Google Drive template was used. Finally, a link was sent to the general public through different social media platforms and applications.

Statistical methods

Descriptive statistics such as frequencies and descriptive measures were obtained. Comparisons between groups and correlations between variables were performed using the chi-square test. All statistical analyses were carried out using the Statistical Package for the Social Sciences, version 20 (IBM Corporation, Chicago, Illinois, USA). The level of significance was set at $p < 0.05$.

Results

Table 1 shows the demographic data of the participants. A total of 477 respondents agreed to take part in this study, of which 274 were females and 203 were males. The majority were 21–30 years old. Approximately 342 came from the medium-income population and 349 had completed a university-level education.

Significant variations were observed in the gender comparison of social media usage, which is presented in Table 2. Females in the orthodontic group were found to use Instagram ($P < 0.05$) and WhatsApp applications ($P < 0.001$) more than males. In the non-orthodontic group, females used Snapchat ($P < 0.001$), Instagram ($P < 0.001$), and WhatsApp ($P < 0.05$) more significantly than males, while male participants used YouTube more than females.

Table 3 reveals the most frequently used social media platforms according to age group. Among the orthodontic patients, adults aged 21–30 used Twitter, Snapchat, and YouTube significantly more than the other groups, while Instagram was favoured by 13–20-year-olds. WhatsApp was most frequently used by those above the age of 40. A similar finding was observed in the non-orthodontic group, with the exception of Instagram, which was used more by 21–30-year-olds.

Table 4 presents social media users according to their education level. The use of social media was significantly more apparent among university groups in both the orthodontic and non-orthodontic groups.

An income-based comparison between groups is presented in Table 5. The use of Twitter, Snapchat, YouTube, Instagram, and WhatsApp among orthodontic and non-orthodontic groups was significantly more common in the medium-income group than in the other groups.

Table 6 compares the applications most used by the orthodontic and non-orthodontic groups. Participants in the non-orthodontic group were significantly greater users of social media than those in the orthodontic group, as indicated by the high usage percentage. Snapchat was found to be the most used platform in both groups, as it showed the

Table 1: Demographic data of the participants.

Variable		Participants (477)
Gender:	Male	203 (42.6%)
	Female	274 (57.4%)
Group:	Orthodontic	139 (29.1%)
	Non- orthodontic	338 (70.9%)
Age:	13–20	89 (18.7%)
	21–30	205 (43%)
	31–40	76 (15.9%)
	40	107 (22.4%)
Income:	Low	99 (20.8%)
	Medium	342 (71.7)
	High	35 (7.3%)
Educational level:	Primary	2 (0.4%)
	Preparatory	12 (2.5%)
	Secondary	114 (23.9%)
	University	349 (73.2%)

Table 2: Platform comparisons by gender for both groups.

Site	Orthodontic group (n: 139)				p-value	Non- orthodontic group (n: 338)				p-value
	Male (n: 61)		Female (n: 78)			Male (n:142)		Female (n:196)		
	N	%	N	%		N	%	N	%	
Twitter	13	65.0	7	35.0	0.1	32	57.1	24	42.9	0.19
Snapchat	21	52.5	19	47.5	0.8	28	33.3	56	66.7	0.000
Facebook	0	0.0	0	0.0	…….	1	25.0	3	75.0	0.49
YouTube	5	38.5	8	61.5	0.4	27	75.0	9	25.0	0.000
Instagram	12	36.4	21	63.6	0.04	12	21.4	44	78.6	0.000
What's app	9	29.0	22	71.0	0.002	39	41.5	55	58.5	0.03
Telegram	0	0.0	1	100.0	1.0	0	0.0	2	100.0	0.33
other	1	100.0	0	0.0	1.0	3	50.0	3	50.0	1.00

n = number.

Table 3: Platforms comparisons by age for both groups.

site	Orthodontic group (n: 139)				p-value	Non- orthodontic group (n: 338)				p-value
	Age					Age				
	13–20	21–30	31–40	40		13–20	21–30	31–40	40	
Twitter	3	11	3	3	0.01	14	26	9	7	0.19
Snapchat	2	27	6	5	0.000	14	44	12	14	0.000
Facebook	0	0	0	0	……	0	2	0	2	0.98
YouTube	1	8	1	3	0.004	8	22	2	4	0.000
Instagram	16	11	3	3	0.000	20	22	8	6	0.000
What's app	2	7	7	15	0.002	7	22	21	44	0.000
Telegram	0	1	0	0	0.26	0	0	1	1	0.45
other	0	1	0	0	0.26	2	1	3	0	0.22

n = number.

Table 4: Platforms comparisons by educational level for both groups.

Variable	Orthodontic group (n: 139)			Non- orthodontic group (n: 338)		
	School Level	University Level	p-value	School Level	University Level	p-value
Twitter	4	16	0.0001	15	41	0.000
Snapchat	9	31	0.000	24	60	0.000
Facebook	0	0	......	2	2	1.0
YouTube	3	10	0.006	9	27	0.000
Instagram	14	19	0.22	22	34	0.024
What's app	7	24	0.0000	19	75	0.000
Telegram	0	1	0.16	0	2	0.05
other	0	1	0.16	0	6	0.001

n = number.

Table 5: Platform comparison by income for both groups.

site	Orthodontic group (n: 139)			p-value	Non- orthodontic group (n: 338)			p-value
	Income				Income			
	Low	Medium	High		Low	Medium	High	
Twitter	1	15	4	0.000	13	35	8	0.000
Snapchat	6	33	1	0.002	17	62	5	0.000
Facebook	0	0	0	—	2	2	0	0.22
YouTube	3	10	0	0.000	12	24	0	0.000
Instagram	11	19	3	0.02	11	42	3	0.000
What's app	5	20	5	0.000	13	75	6	0.000
Telegram	1	0	0	0.22	1	1	0	0.47
other	0	1	0	0.22	3	3	0	0.11

n = number.

Table 6: Comparison between groups for the most platform used.

Application	Orthodontic group (n: 139)		Non- Orthodontic group (n: 338)		p-value
	%	Valid Percent	%	Valid Percent	
Twitter	4.2	14.4	11.7	16.6	0.000
Snapchat	8.4	28.8	17.6	24.9	0.000
Facebook	0.0	0.0	0.8	1.2	0.05
YouTube	2.7	9.4	7.5	10.7	0.001
Instagram	6.9	23.7	11.7	16.6	0.01
What's app	6.5	22.3	19.7	27.8	0.000
Telegram	0.2	0.7	0.4	0.6	0.57
other	0.2	0.7	1.3	1.8	0.04

n = number.

highest valid percentage at 28.8%. However, WhatsApp and Instagram were also popular (27.8% for WhatsApp and 23.7% for Instagram).

Discussion

Social media is a brilliant instrument for entertaining people and sharing knowledge, however, it could also serve as a useful tool for communication between patients and clinicians when used effectively. With new technologies, we can expect our patients to research about us and read reviews of our services prior to visiting our offices. Accordingly, we should assume that they will go online to verify the recommendations of previous patients, and they may delve deeper and actively check for any complaints.[2] At the same time, social media can be used as one of the most effective tools for attracting patients to our services, as it offers multiple ways for orthodontists to reach out and engage with patients. It empowers both parties to communicate with each other at any time, without limitations.[9] With the recent digital revolution, social media has created a public relations platform that dentists can exploit to fulfil marketing activities in a timely and cost-effective manner. A lack of understanding in the attitudes held by orthodontists and patients towards social media usage may discourage them from reaping the benefits of the tool. However, we should evaluate the following questions: what is the behaviour of our orthodontic consumers? What is the best marketing channel for acquiring new patients? What is the future of social media in orthodontic marketing?

The results of this study revealed that 43% of the participants were between 21 and 30 years of age. Over 70% of participants were from the middle-income group and more than 70% had received a university-level education. These groups, therefore, represent the majority of social media users, and thus orthodontists are advised to focus mainly on these three patient categories. In the orthodontic group, it was found that females use social media more than do males, with the two most frequented applications for this group being Instagram (P < 0.05) and WhatsApp (P < 0.01). A similar observation was found in the non-orthodontic group, with the addition of Snapchat. In contrast, males showed a greater tendency to use YouTube than females (P < 0.001). Our findings support the results of other studies, which state that females utilise social media more than do males,[1,10] but

differ from those reported by Alnjadat et al. for university students.[11,12] Kristin et al.[1] found that over 90% of adults use social media, and that usage diminishes gradually with age. Our present study is consistent with these findings.

It was observed that 21–30-year-olds favour Twitter, Snapchat, and YouTube applications more than the other age groups, while the use of WhatsApp was characteristic of people around the age of 40. This may indicate that the younger the patient, the more likely they are to connect to the dental office using social media.[13] We assume that these platforms (Snapchat, Twitter, YouTube, and Instagram) can help young people to research and learn about topics that they care about and obtain quick answers to questions. WhatsApp, on the other hand, could be a useful application for older people to interact and connect with people or friends. These findings indicate that orthodontists should target younger people by creating pages or profiles on Twitter, Snapchat, and YouTube. They should also try to connect with teenagers through Instagram, while older people could be contacted via WhatsApp. Unsurprisingly, the use of social media was more prevalent among the well-educated group, regardless of whether they were orthodontic or non-orthodontic patients. This finding suggests that there is a positive correlation between level of education and use of social media. Consequently, orthodontic marketing should target this group specifically, and we should expect its members to arrive at the orthodontic clinic having gained knowledge through social media about orthodontic treatment modalities, procedures, and costs. In studying the behaviour of a well-educated group of health professionals, Hazzam and Lahrech[14] reported that WhatsApp had the highest number of users compared to social media applications such as Facebook and YouTube. This is relatively consistent with our present findings, in that highly educated participants preferred WhatsApp and Snapchat over other applications. It has been reported that Facebook is the most popular social media platform among patients and parents.[1,2] The results from our study do not support this finding, as Facebook had the lowest valid percentage among both orthodontic (0%) and non-orthodontic subjects (1.2%). This can be explained with reference to Jorgensen,[2] who stated that Facebook is a society of friends who have not joined the platform to be flooded with marketing posts. Another possible explanation is that since this study was conducted in KSA, the findings may be specific to this country. These trends may not be the same in other countries or populations.

It was found that Snapchat was the most popular platform for both orthodontic and non-orthodontic respondents and had the highest valid percentage at 28%. This can be explained by the following two reasons: first, Snapchat may be preferred by users as the photos and videos they share are automatically deleted after 24 h. Thus, they can communicate with each other without their photos being permanently stored in the application. The second reason is that social media and the ways in which customers use it change frequently because of the constant innovations. Therefore, what we know about it today is different from what it had been a year ago, and it will certainly be different in another year's time.

Finally, we think that it is important for orthodontists to have an online presence to sustain and develop their practice, as well as inspire and influence the public.

This survey was conducted online, which could have led to a biased result from a group that favours technology, thus being a limitation of this study.

Conclusions

Our study revealed that Twitter, Snapchat, and YouTube were the preferred social media applications for the middle-aged group. The use of Instagram was greatest in the teenage group, while WhatsApp was favoured by the older groups. Social media usage was most prevalent among university graduates, regardless of whether they were orthodontic or non-orthodontic patients.

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Conflict of interest

The authors have no conflict of interest to declare.

Ethical approval

This study was approved by the Ethical Committee, Faculty of Dentistry, Taibah University, KSA (TUCDREC/ 20191103/THGunaid - 28-Nov-2019).

Authors' contributions

THA conceived and designed the study, analysed and interpreted the data, and wrote the manuscript; AAA was responsible for data collection and helped in writing the manuscript; KMA and AMI provided design and data collection. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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