



The powerful effects of social media platforms on orthodontic patient knowledge's improving, attitude management and its influence on financial income of the orthodontic clinic

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Abstract

The aim of this study was increasingly influencing the health care landscape, so orthodontic patients can easily obtain information about orthodontic. The aim of this study was to investigate the benefits of using social media sites as a source of information to orthodontic patients for improving their knowledge about orthodontic care and treatment and the extend of its on reduce the duration of orthodontic treatment (DOT) and investigate the potential benefits of using social media platforms in marketing in orthodontic practices to increase the financial income of orthodontic clinics. 150 orthodontic patients were recruited as participants from the orthodontic clinic at the Near East University (in North Cyprus). The patients were 13 years and over from both sexes. Patients were excluded if they were not users of social media sites, had a history of previous orthodontic treatment, craniofacial syndrome, or low mental abilities. About 74% of the participants (mostly females) confirmed that social networking sites were the major driver for them to take the decision to come to the orthodontist and start orthodontic treatment. 73% of the respondents reported using social media sites as a source of information related to orthodontic treatment, where the Instagram was the most used program.

Keywords Contemporary hospitals · Investigate the benefits · Patient cooperation · Landscape of patients

Introduction

Internet-based social media have become a major source of thought, a crucial method for communication development and its impact as a critical influencer on an individual's attitude about health issues cannot be overlooked. Social media are defined as online technologies and practices that people use to share opinions, experiences, and perspectives (Nelson et al. 2015) In this internet-driven age, patients have a wealth of health and medical information at their fingertips (Househ et al. 2014). Due to their popularity, social networking sites have become an essential component of the overarching digital marketing strategy and are no longer optional in marketing health services provided by health facilities and private medical clinics to engage with patients

on the platforms they use the most. Through platforms like YouTube, Instagram, and Facebook, physicians and health systems can share relevant health alerts, receive patient feedback, and bolster their brand with a focus on creating trust. In surveys, it was found out that 80% of internet users are using social media platforms for accessing health information, preferably because these media provide visual and audio information (Househ et al. 2014). By communicating with patients online, hospitals and physicians establish the foundation for a positive relationship. In addition to this, precisely targeted ads via social media platforms assist in personalized patient outreach. By engaging and interacting on the social platforms that their patients frequent, health systems can revitalize their word-of-mouth referrals, improve communication, enhance patient education and health promotion and provide better care by ensuring that patients continuously engage with the health system. Many pages and accounts on social networking sites talk about orthodontic treatment methods and have become platforms for sharing images related to the daily life of patients who experienced different orthodontic treatments. Like many patients communicate their treatment experiences and attitudes through

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social media sites as publishing pictures, comments' or posts and share these images with their followers (Jorgensen 2015; Henzell et al. 2013). On the other hand, some orthodontists use social media sites to educate patients through publishing some similar cases having orthodontic treatments, which in turn encourage them to start orthodontic treatment, and thus increase the financial income of their clinics. Although the knowledge and skills of the clinician are the major factors of success in orthodontic treatments, patient cooperation and cooperative parents in the case of children and adolescent patients is another crucial factor in achieving the desired results. Increasing health awareness through following up these accounts that talk about orthodontic treatment (Lau et al. 2011), enhances patient cooperation with the orthodontist and help communicate information simply and effectively to patients (Allan and Hodgson 1968). This is going to be reflected directly by reducing the efforts made by the orthodontist and consequently reducing the treatment time (chair time). We hypothesized that social media intervention vs. usual care would improve patient attendance and oral hygiene, reduce bracket de-bonding, and as a result reduce the duration of orthodontic treatment (DOT).

Objective

The motivation for undertaking this study was to investigate the benefits of using social media sites as a source of information to orthodontic patients for improving their knowledge about orthodontic care and treatment, to determine if these sites have an effective role in deciding to start orthodontic treatment and evaluate how published audio-visual information will improve patient's attendance, cooperation and oral hygiene, reduce bracket de-bonding and consequently reduce the duration of orthodontic treatment (DOT).

On the other hand, we wanted to investigate how orthodontic patients use social media sites to share their treatment-related experiences and attitudes towards braces. Additionally, it was important to investigate the potential benefits of using social media platforms in marketing and communication strategies in orthodontic practices to increase the financial income of orthodontic clinics.

Methods

This study is designed as a prospective questionnaire study and is approved by the Ethics Committee of the Near East University. 150 orthodontic patients were recruited as participants from the orthodontic clinic at the Near East University (in North Cyprus).

The patients were 13 years and over from both sexes. Patients were excluded if they were not users of social media

sites, had a history of previous orthodontic treatment, craniofacial syndrome, or had low mental abilities. The questionnaire was carried out during June, July, and August 2020. All eligible patients visiting the orthodontic clinic during that period were approached by the clinic's receptionist and invited to participate in the survey. The questionnaire was anonymously answered in the clinic's waiting room, usually before the patient's scheduled appointment (Alhayani and Ilhan 2010; Alhayani et al. 2021a, 2021b).

The questionnaire was prepared in two languages (English, Turkish) and divided into three parts. The first part contained basic socio-demographic information (e.g., age, gender) and the stage of orthodontic treatment (before, after or during the treatment). The second part of the survey included thirteen questions assessing the information of patients about their cases and the role of social media in the decision to go for orthodontic treatment (Kwekha-Rashid et al. 2021; Failed 2021; Abu-Rumman 2021). Additionally, this part was concerned to identify orthodontic pages or social media sites that each patient used to rely upon to gain information related to orthodontic treatment. The last part focused on how orthodontic patients communicate their treatment experiences and attitudes through social media sites (Facebook, Instagram, Twitter) and if the participants or their friends had posted topics, comments, or photos on their accounts about braces.

In the other section of this study, we created a page on the social networking site (Instagram) (ortho.for.me); all patients who participated in the questionnaire were asked to follow it. Some cases that underwent orthodontics treatment at the Near East University were uploaded with maintaining the required privacy measures (Abu-Rumman et al. 2021; Alhayani et al. 2021c; Hasan and Alhayani 2021). Video clips related to orthodontic treatment specialized in orthodontics caring and oral hygiene maintenance were uploaded too.

This page aimed to raise awareness of orthodontic patients about their orthodontic treatments. Further 40 patients had been selected from our orthodontic clinic who were characterized by a lack of cooperation (lack commitment to appointments, dropped many braces, and those who were not committed to putting elastic). We asked 20 of them (first group) to follow this page (ortho.for.me) and go through all the daily published information to assess how their cooperation is improved and compared the results with the second group. Evaluate the impact of this page on the income of the orthodontic clinic.

Results

150 patients participated in this survey, this sample included numerous nationalities and human races, but the majority of the who participated were from Turkish citizenship, 50%

females, and 50% males. The age groups of the patients participated were as follows: 13–18 years (28%), 18–25 years (45.3%), older than 25 years (26.7%). Figure 1.

Most of the participants 97.3% were under treatment, although no significant differences were apparent between them and those who had either not started treatment yet or completed treatment Table 1.

About 74% of the participants (mostly females) confirmed that social networking sites were the major driver for them to take the decision to come to the orthodontist and start orthodontic treatment Table 2.

73% of the respondents reported using social media sites as a source of information related to orthodontic treatment especially in the age group (18–25 years), (Table 2) where the Instagram was the most used program for patients who participated in the questionnaire in the rate of 32.7% (n=49), and in the second place was YouTube 24.0% (n=36), then Facebook 15.3% (n=23) and Twitter 5.3% (n=8) (Fig. 2).

A large number of participants 69.3% linked between the number of followers on social media and the quality of the orthodontist's work, where they believed that the greater number of followers is a solid indicator of a reliable and competent orthodontist (Table 3).

Few participants (8.7%) used these platforms to share photos or videos related to orthodontic treatment preferred by females over males Table 4.

Few participants (8.7%) used social networking sites as a platform to share photos or videos related to orthodontic treatment preferred by females than males (Table 4).

We did a test containing questions related to orthodontic treatments and found out that a large number of those who use social media as a source of information related to

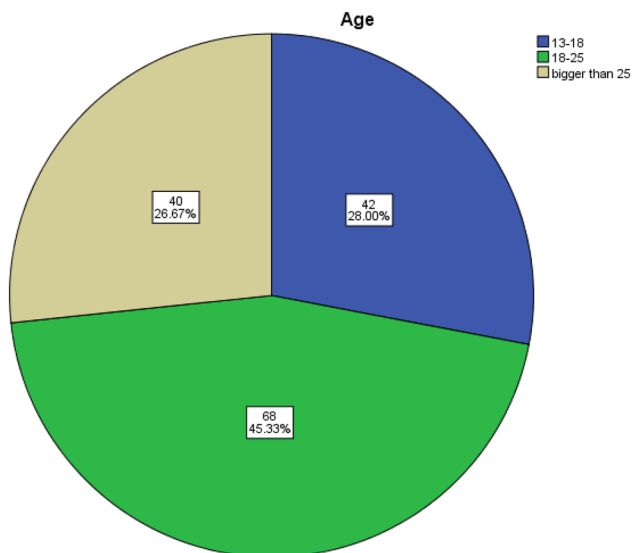


Fig. 1 The ratio between the ages of those who participated in the questionnaire

Table 1 Effect of social media to make decision to start orthodontic treatment: participants' response

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----|-----------|---------|---------------|--------------------|
| Valid | Yes | 111 | 74.0 | 74.0 | 74.0 |
| | No | 39 | 26.0 | 26.0 | 100.0 |
| Total | | 150 | 100.0 | 100.0 | |

orthodontic treatment have much greater information and knowledge compared to those who do not use social media or do not follow accounts related to this topic, Where 92% people who use social media as a source to gain information answered correctly, while just 15% of those who do not use social media to gain information answered correctly.

Finally, a very positive result was found through the page we created on the social media site (Instagram) in terms of increasing patient cooperation and in terms of increasing our clinic income.

Discussions

The outcomes resulting from orthodontic treatment depend on many factors. Clinician factor plays the main part but patient factors such as patient knowledge and cooperation are increasingly being recognized as fundamental for achieving optimal treatment outcomes (Li et al. 2016). The power that technology exerts on modern society is undeniable whether in the sciences or the world of social life. Recently, social media platforms have played a significant critical role in healthcare as reported in numerous studies (Antheunis et al. 2013).

Our study is divided into two parts: the first part is a questionnaire which has two sections. The first section is related to the use of social media as a source of information for orthodontic patients; the second section of the questionnaire determines how orthodontic patients use social media sites and how they shared their orthodontic treatment experiences and thoughts. In the second part of this study, we created a page on the social networking site (Instagram) and asked the participating patients to follow it.

Table 2 Social media sites as a source for obtaining information: participants' response

| | | Frequency | Percent | Valid percent | Cumulative percent |
|-------|-----|-----------|---------|---------------|--------------------|
| Valid | Yes | 110 | 73.3 | 73.3 | 73.3 |
| | No | 40 | 26.7 | 26.7 | 100.0 |
| Total | | 150 | 100.0 | 100.0 | |

Fig. 2 Comparison between the main social media sites that are used to obtain information related to orthodontic treatment

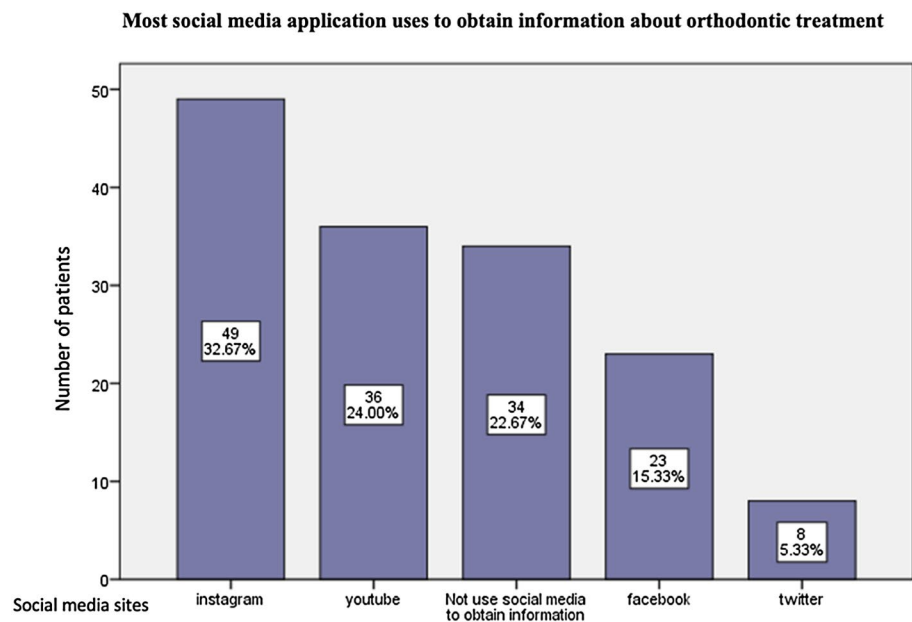


Table 3 Too much followers means good doctor: participants' response

| | | Frequency | Percent | Valid percent | Cumulative percent |
|-------|-------|-----------|---------|---------------|--------------------|
| Valid | Yes | 104 | 69.3 | 69.3 | 69.3 |
| | No | 46 | 30.7 | 30.7 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

Table 4 Social networking sites as a platform to share photos or videos related to orthodontic treatment: participants' response

| | | Frequency | Percent | Valid percent | Cumulative percent |
|-------|--|-----------|---------|---------------|--------------------|
| Valid | Yes | 13 | 8.7 | 8.7 | 8.7 |
| | No | 132 | 88.0 | 88.0 | 96.7 |
| | I didn't start orthodontic treatment yet | 5 | 3.3 | 3.3 | 100.0 |
| | Total | 150 | 100.0 | 100.0 | |

Then, we studied the impact of these platforms on increasing the cooperation of patients and increasing the income of the clinic. Our study sample may not be representing the general orthodontic population because only patients being treated at the dental school were allowed to participate. In the first section of the questionnaire, we found that 73% of patients use social networking sites as a source to obtain information related to orthodontic treatments and care, the majority were adult females (Pfeil et al. 2009). Almost all of

them used Instagram with YouTube being the second most popular social media sites. This is maybe because they are convenient and easily accessible methods for orthodontists and patients to communicate. Additionally, people tend to absorb information easier as audio-visual content rather than traditional ways. Most of the participants preferred to seek information directly from their orthodontists. This study showed that a lot of patients who used social media as a source of information have improved their knowledge about orthodontic treatment significantly in comparison to non-users of social media (Al-Silwadi et al. 2015). The observed differences in knowledge may be significant enough to positively impact the outcomes of orthodontic treatment including the time consumed and efforts exerted by orthodontists (Henzell et al. 2013).

The majority of patients trust the orthodontic that has a larger number of followers on social media sites than others with less number of followers which is a significant indicator of the importance of these social sites to broaden a trustworthy relationship with patients.

In the second section of the questionnaire, it was found that around 8.7% of participants had personally posted comments about braces, where females posted most of the photos and information on their social media accounts.

On the other hand, orthodontists who used social media to share their practice and information on the website had more new patients per year than those who did not. A lot of the previous studies found a correlation between the presence of social media and the number of visits of a new patient in hospitals (Smailhodzic et al. 2016). Which found out that social media use in orthodontic practice was fairly effective as a practice-building method (Nelson et al. 2015). This is also what we had been able to prove by creating a page on

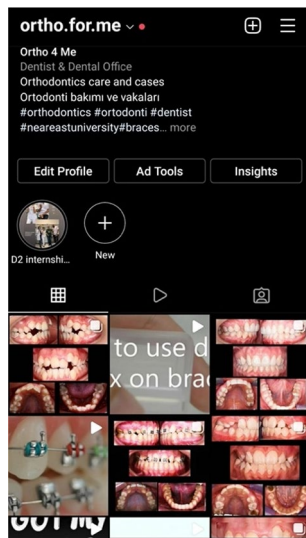


Fig. 3 The page that we created on the social networking site Instagram

the social networking site (Instagram) to study the impact of this platform on marketing and attracting patients. We received many messages talking about their intentions to start orthodontic treatment. Within a month, we noticed that several patients came to the clinic and showed their interest to start orthodontic treatment and this conclusively indicates the extent of the influence of social media in improving the income of the orthodontist.

As it is well known, new information and communication technology is one of the foundations of our daily life (Papadimitriou et al. 2020), we tried to study the impact of social media on patients' cooperation with orthodontic treatment. We selected 40 patients who are characterized by a lack of cooperation and lack of commitment to appointments, bad oral hygiene, and de-bonding orthodontic brackets continuously. Then, we asked 20 of them to follow the page we created on (Instagram) over two months during which we sent messages reminding them of their next orthodontic appointments (Fig. 3), methods of care of oral hygiene, and the ideal methods for eating during orthodontic treatment by sending audio-visual introductory clips. For the other group, we just gave some oral advice. We found that this page has a positive reflection on the first group compared to the other group, where their cooperation and commitment to their appointments have significantly improved.

Research in the field of social media use in orthodontic care is still at an early stage of development. Therefore, more research is necessary to better understand the impact of social media on patient knowledge, behavior, and orthodontic treatment outcomes. In this survey, the sample of patients used is very small and might not be representing all kinds of people who use different social media. It might be required to conduct

further studies that include a larger sample of patients where results are expected to differ according to the geographical area, culture, and the level of patient awareness. The relatively short questionnaire (15 questions) led to 100% completion by those who completed the study; however, using a few numbers of questions focused on the most important aspects of patient knowledge may constitute a limitation in identifying the gaps of patient knowledge as many topics are not covered. A more accurate evaluation measure of the differences in knowledge among patients could have been determined if the used questionnaire included more questions covering more topics, but it could have resulted in a decreased response.

Conclusion

Using social media to obtain orthodontic information was more common in females and younger adults, and Instagram was the most commonly used social media site among orthodontic patients.

It was found out that presenting audio-visual information through social media sites to orthodontic patients, on average, results in an improvement in knowledge-related care of the dentition and the appliances and increases patient's cooperation. It also improved the attendance of the patients and decreased the brackets bond failure; thus, the time needed for treatment and efforts done by the orthodontist compared with standard methods of providing information positive result was found through using social media sites as a way to increase patient cooperation and, on the other hand, increasing clinic income. We found using social media to obtain orthodontic information was more common in females and younger adults, it was apparent that social media played an important role in increasing patients cooperation and decrease (DOT), and increasing the income of the orthodontist as a cost-effective means of marketing when treating these patients..

It was apparent that social media played an important role in increasing the income of the orthodontist as a cost-effective means of marketing.

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Declarations

Conflict of interest All authors declare that they have no conflicts of interest.

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