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The use of web-based orthodontics in a sample of orthodontists and dental students

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Abstract: The aims of this study was to find out the accessibility, belief and the perceived effectiveness of web-based orthodontics in samples of orthodontic specialists and dental students. Four hundred questionnaires (self-administered and electronic forms) were distributed to orthodontists and final year dental students. The survey contained several questions about demographic distribution and websites including their type, benefits and managerial bodies. The data showed that the response rate was 64.4% and the majority of the participants used the Internet webs regularly. Nearly a third of the internet users were looking for treatment modality and general information related to orthodontics and according to group interest. The majority of the respondents preferred to use professional societies and social media to surf for orthodontic related information; the most commonly medium was the Facebook followed by Instagram. About 85% of the respondents agreed that orthodontic specialists followed by production companies were the bodies managing the webs. About two-thirds of the users believed that education and advertisement were the main purposes for the visited webs. This study highlighted the importance of websites for seeking general orthodontic information, treatment modality and teaching materials. Professional societies and social media, the most visited webs, were believed to be run privately for education and advertisement purposes.

Keywords: Orthodontics, Web-bases orthodontics, Social media.

1. Introduction

The World Wide Web, a global source of health-related information, in all scales and scopes, is being increasingly used by health professional and general population . It has previously observed that, in a survey conducted by the web-based company, about 33 million people in the UK had used the Internet. In the past decades, Web-based social networks have received a huge attention in the health field by dental practitioners, researcher as well as health centers and specialists . The popularity of the social media has become a mean of marketing dental products provided by medical facilities and private dental clinics . The internet has opened the doors widely for orthodontic products manufacturing companies to reach a wider audience including non-orthodontists. Some companies simplified the patient's treatment and made it easily manageable and doable for general dental practitioners . It was found that some dentists used the Internet to support clinical practice, helped adopting new treatment techniques for patient, and obtained an information on new materials or products . Indeed, some of these ideas may compromised the professionalism and contradict the specific patient's individuality or concerns i.e. focusing on the patients' needs rather than demand . Social media can act as a vehicle for professional, personal developments and learning activity through enabling targeted communities to communicate, collaborate and share ideas. These include Social Networking Sites (SNS) such as Facebook, and micro blogging platforms such as Twitter, Snapchat and Instagram . Many dental schools are using social media to promote their courses and communicate with their students . This was greatly facilitated by the computers where students/ users interaction brings higher level of learning objectives. Additionally, the contents and teaching materials can be updated regularly and distributed easily for different areas of subjects of interest . In dentistry, social media has been used to promote new dental techniques (through uploaded videos on YouTube), advertise private dental practices, as well as sharing of research, through twitter and the linkedin websites, of leading journals and conferences . It is unsurprisingly, nowadays, that patients could get dental products including orthodontic appliances delivered to their home with the treatment protocols, uploaded to their smartphone, without the need for a dentist or an orthodontist supervisions . To the best of the authors knowledge, choosing the scope of websites by orthodontists and/or dental students hasn't been investigated in relation to orthodontics. Therefore, the aims of this study was to investigate the acceptability, belief and the perceived effectiveness of web-based orthodontics in samples of orthodontic specialists and dental students.

2. Materials and Methods

2.1 Study design

This is a quantitative cross-sectional study, in the form of self-administered questionnaire. The questionnaires were distributed to major academic institutes and private orthodontic clinics. Moreover, an electronic form of the questionnaire sent via the local orthodontic society website, its social network and their membership e-mails. This study approved by the ethics and scientific committee (Ref 221/2018).

2.2. Study sample and technique

In the present study, the population included orthodontist specialists with the following postgraduate qualifications i.e. PhD degree, Master degree, Diploma, Certificate issued by the Ministry of Health; and undergraduate dental students (final year) studying at three major dental schools in Baghdad province. Overall, a total of 150 surveys were distributed to orthodontists and 250 were distributed to dental students. Incomplete and improperly filled forms were excluded in both groups. The questionnaire was distributed to the participants who agreed and consented to participate in the study. The survey instrument consisted of two parts; the first part contained an information about the gender, age and graduate/ specialty status. The second part composed of several questions including:

1. Type of websites the users preferred to surf.
2. Kind of orthodontic-related webs surfed.
3. The person or entity(s) responsible for the administration of the web.
4. Real purpose of the web.

2.3. Statistical analysis

Descriptive statistics expressed by frequencies and percentages represented in tables and charts.

3. Results

The questionnaire was completed by 97 orthodontists giving a response rate of 64.4%, whilst 202 dental students completed the forms resulted in a response rate of 80.8%. All orthodontists have answered positively to the question related to the use of Internet websites for orthodontic purposes. However, 88% of undergraduate dental student have surfed orthodontic related websites. Orthodontist specialists who work at the academic setting represented the majority of specialist participants (75%). According to gender, the respond rate of female participants was higher in specialist and students groups (55% and 74% respectively) as shown in Table 1.

Table 1: Response rate in general, according to the gender and Web users for orthodontic information.

Sample	Response rate	Male	Female	Web users
Orthodontists	64.4%	45%	55%	100%
Dental students	80.8%	26%	74%	88%

Figure 1 shows that the highest percentage of orthodontists (37.1%) were looking for treatment modalities and management scheme followed by the teaching materials (27.8%). On the other hand, the majority of the students were surfing for general orthodontic information followed by teaching materials (37.6% and 31.2% respectively).

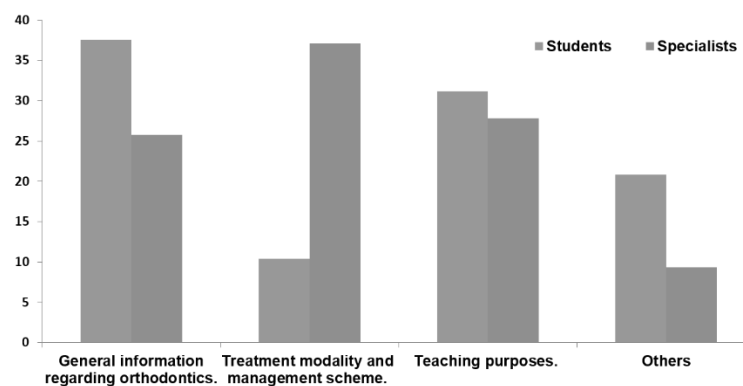


Figure 1: The main interesting categories of Web users (in %).

The most commonly visited type of orthodontic related webs is the professional societies and social media. Nearly half of the orthodontists (46.4%) preferred to use professional societies websites to surf for orthodontic related information. Whereas more than a half of the dental students (54.9%) preferred social media. The most commonly visited medium was the Facebook followed by Instagram. Interestingly, social media was the most surfed website when considering the collective number of both orthodontists and students. Surprisingly, none of the orthodontists surfed official web applications (Fig 2).

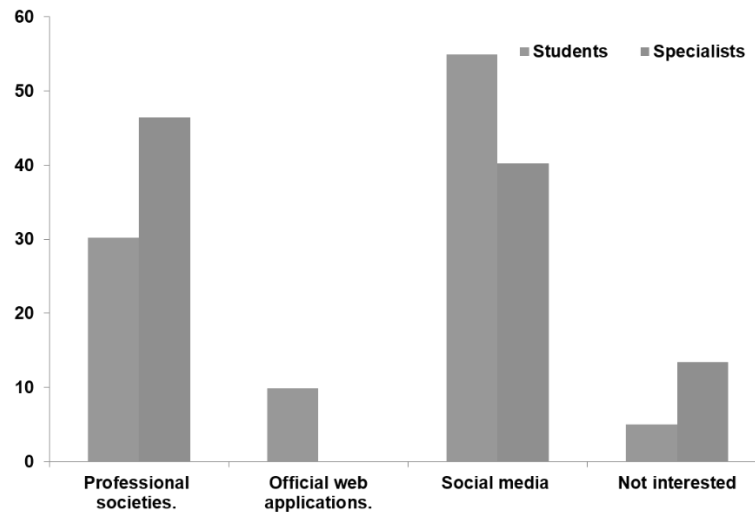


Figure 2: Respondents rate for the visited websites (in %).

The majority of orthodontic web surfers agreed that orthodontic specialists were the bodies managing the orthodontic-based webs (75.3% and 54.9% respectively). Whereas (30.2%) of dental students believed that production companies ran these webs as shown Figure 3.

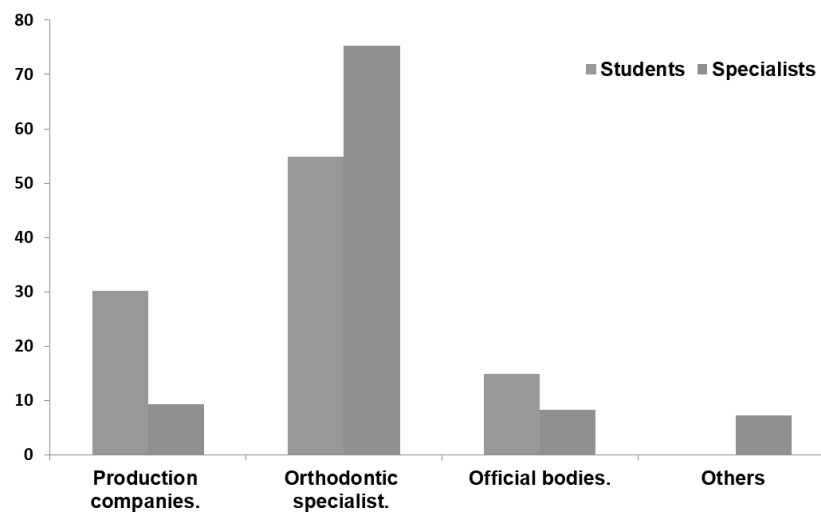


Figure 3: Responsible bodies launch and manage the webs (in %).

Figure 4 demonstrates that over two-thirds of the users believed that education and advertisement were the main purposes for the visited webs. It seems that a large proportion of orthodontists (41.2%) believed that these websites provided an educational benefit, whereas advertisement was the choice of most undergraduate students (42.6%).

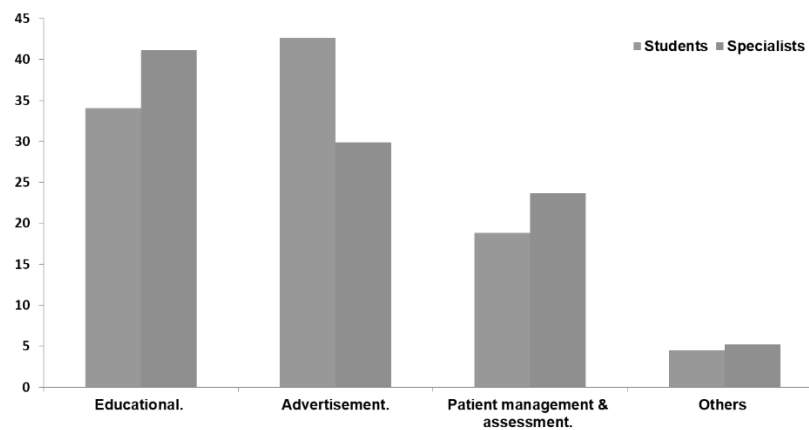


Figure 4: The perceived benefits of the visited webs (in %).

4. Discussion

World Wide Web has become a massive platform where people and health professionals are surfing for health-related information. In orthodontics, the websites have a large impact on practice; webs have popularized new and alternative treatment modalities and technological innovations. Social media platforms such as Facebook, YouTube and Instagram in addition to professional websites are reaching wide audience where users are able to receive information and give their instant feedback. Having said that, the benefits to and the belief of users surfing orthodontic related websites have still not yet investigated. Therefore, this survey study was designed to assess the belief and the perceive effectiveness of those webs from the perspectives of orthodontists and undergraduate dental students.

The data showed that the rate of participants who positively reacted to the survey was relatively acceptable for both orthodontists and dental students (64.4% and 80.8% respectively). This came in accordance with that reported by the US and the UK orthodontist surveys who found a respond rate of 60-70%. However, other studies involving dental students survey reported less respond rate (53%) compared to the current study. This could be due to the simplicity of the survey questions and the target population i.e. students were more reluctant to participate compared to specialists who have busy daily work.

The data extracted from the current research suggested that more than a third of the orthodontists were surfing for treatment modalities and management scheme. While, 37.6% of the students were seeking general information in orthodontics. This reflected the nature of the sample (professionalism); it is not surprising that orthodontists are more interested in treatment and management of the patient. This also justified why nearly half of the orthodontists used professional societies looking for orthodontic related information i.e. treatment modality and patient management. On the other hand, more than half of the dental students (54.9%) used social media especially Facebook and Instagram. This came in accordance with that reported by O'Brien who suggested that Facebook based orthodontics is becoming a widespread phenomenon where practitioners posted their cases for discussion. The popularity of these platforms facilitated by the 'handy' gadgets, installed with these applications, allowed many practitioners to post their cases in the absence of profound discussion, objectives and evidence-based information. This act rendered the pros and cons of these platforms debatable.

The majority of the respondents believed that advertisement and education were the priority for most of the visited websites. This finding accords with the findings of this study in which 75% of orthodontists surveyed works in academic institutions. The data agreed with the work of many researchers in this area linking the capabilities of social media on improving clinical education. It was reported that social media enhanced the understanding, professionalism, ethics and communication on clinical practice. Regarding the managerial bodies, more than 85% of the participant believed that Orthodontists and production companies were responsible for managing these webs. This reflects the beneficial outcomes as perceived by the participants. These results came in accordance with many studies that suggested that networks are often private and protected from the public and members of health specialists and the funding sources of many websites may be sponsored privately, advertising companies, research funding or professional associations. Furthermore, Mulimani and Vaid reported that orthodontics production bodies expanded their scope to evolve non-orthodontic practitioners willing to practice orthodontics to the market.

5. Conclusions

In the light of this observational study, all orthodontists and the majority of dental students using orthodontic related websites regularly for purposes related to each group. Professional societies and social media, the most visited webs, were believed to be run privately for education and advertisement purposes. Further investigations are needed to study the impact of webs on evidence-based practice i.e. web based orthodontics may become an alternative to science based practice

Study limitations

Although the survey primarily focused on the perception of dental students and orthodontists as web-users. The degree of expertise in using the technology may influence the results. It could be beneficial to expand the study population, use some inferential statistics, and involve elaborated questions that appraise the visited webs.

Conflicts of interest

The authors have no conflicts of interest to disclose.

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Author 1: methodology, writing—original draft preparation; methodology (sample collections and measurements); and Author 2: writing—review and editing. All authors have read and agreed to the published version of the manuscript.

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