



Role of Social Media in Dental Health Promotion and Behavior Change in Qassim Province, Saudi Arabia

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Abstract

Aim: To measure the prevalence of using social media to gain and exchange oral health information among Qassim province population, evaluating the impact of social websites in changing oral health behaviors and identify the barriers that influence peoples' use of social media as an essential source. **Methods:** A cross-sectional study was conducted among Qassim province population using an anonymous electronic questionnaire and distributed electronically through emails and social networking sites "e.g. Twitter, WhatsApp and Path". 2029 subjects completed the questionnaire. Data from the completed questionnaires were analyzed using the SPSS Statistical Software Package (v. 21). All statistical analyses were carried out at a significance level of $p < 0.05$. Results were analyzed and compared using chi-square test. **Results:** Most of respondents (64%) were using social media in oral health related reasons. The most used applications in oral health related reasons were Twitter (53.8%), Instagram (40.9%), and YouTube (36.7%). The majority (79.7%) stated that accessibility and easiness of getting information is the key reason for using social media as a main source while (50.3%) of the respondents selected the communication difficulty with experts as the main reason for not considering the social media a source. **Conclusions:** High impact of social media in changing oral health behaviors. In addition, respondents' preference of using social media for getting oral health information for its easiness and accessibility but the communication with the experts was a barrier.

Keywords: Social Media, Oral Health Promotion, Behaviors, Twitter, Oral Hygiene.

1. Introduction

Social media are an evolving and dynamic applications with hundreds of platforms and millions of users. They have been defined as "a group of Internet-based applications that build on Web 2.0 technology, that allow users to create and exchange of their contents [1]. Social media applications such as Facebook and Twitter have gained their popularity because of their easy way to connect with friends, family, and colleagues across distances [2].

Recently, social media has emerged as an alternative platform for sharing, and even seeking, health information. A survey conducted by Fox and Jones (2009) [3], indicated that as many as 39% of online health information seekers used social media, and a fraction of them had also followed their contacts' health experiences or updates, posted their own health-related comments, gathered health information, or joined a health-related group. A more recent research has shown that Twitter was used for health-oriented question-and-answer tasks [4]. In public health, the centers for disease control and prevention is actively using social media [5].

Several motives for using the Internet in general for health-related issues can be distinguished. One of the most important motives is health information seeking, which refers to seeking information on a disease, treatment and/or medicines. Another motive is improving the efficiency. This motive not only refers to cost reduction by using the Internet for health-related reasons but also to improving the quality of healthcare for example by the possibility to compare different health care providers on the Internet [6].

A review by Oakley and Spallek (2012) [7], described the impact that social media is having on the provision of U.S. health care, as well as the opportunities and challenges associated with this burgeoning technology particularly in dentistry and dental education. Given the rapid growth in the popularity of social networking applications and the relative paucity of available information about their utility in dental education, those authors suggested that to maximize the benefits and minimize the risks of utilizing social media in dentistry, additional research is needed.

Therefore, the purpose of our study was to measure the prevalence of using social media to gain and exchange oral health information among Qassim province population, evaluate the impact of social websites in changing oral health behaviors and identify the barriers that influence peoples' use of social media as an essential source.

2. Material and Methods

2.1 Study Setting

A Cross-sectional study through anonymous questionnaire-based survey was conducted among Qassim province population after it was approved by Qassim University Dental Research Facilitation Committee. Questionnaire was distributed electronically through emails and social networking sites "e.g. Twitter, WhatsApp, and Path"

2.3 Study subjects

Only 2029 subjects completed the questionnaire. Out of the

total sample, 21% were males and 79% were females. Ages of respondents ranged from 15 to 50 years with a mean age of 28.73 ± 10.3 years.

2.4 Questionnaire

A specially designed questionnaire form was prepared in Arabic language based on previously published studies [2]. [8-10]. The questionnaire was semi-structured and pre-tested to check the validity and reliability. The pre-testing of paper-based questionnaire was done by running a pilot test on 40 dental students. The result of the pilot study was evaluated and a reliability coefficient (α) of 0.80 or more was considered adequate. The result of pilot study was not included in the main study.

The questionnaire was used for assessing using social media to gain and exchange oral health information. The purpose of the study was explained. The questionnaire consisted of two parts:

- 1- The first part was concerned with demographic data including age, gender and education.
- 2- The second part of the questionnaire included the following items:
 - a. Using of internet/social media in general health related reasons.
 - b. General sources to get oral health information
 - c. Using of social media to receive or share oral health information
 - d. Advantages of using social media as a main source in getting oral health information
 - e. Barriers of using social media in getting oral health information
 - f. Most topics the respondents searched/viewed through social media those are related to oral health and how often they are doing it.
 - g. Awareness towards the references importance of the given information through social media, and social media effects in changing oral health behaviors.

2.5 Statistical analysis

Data from the completed questionnaires were analyzed using the SPSS Statistical Software Package (v. 21, SPSS Inc., Chicago, USA). All statistical analyses were carried out at a

significance level of p<0.05. Results were analyzed and compared using chi-square test.

Results

Most of the respondents 1299 (64%) were using social media in oral health related reasons. The females were using the internet and social media for seeking oral health information than males (66.7% and 53.9 % respectively) with statistically significant difference between both genders (Table 1).

The results related to the general sources of oral health information that's determined by gender demonstrated that the most used sources for both males and females was Internet and social media (71.1%), health professionals (56.9%), family and friends (30.6%), TV (15.3%) and Magazines/Brochures/Journals (13.8%). (Figure 1).

It is apparent from (table 2) that in response to the question about the applications used for getting oral health information, most of those surveyed generally indicated that Twitter 53.8%, Instagram 40.9%, and YouTube 36.7%. The difference was statistically significant between males and females who were using Twitter, Instagram and Facebook. The majority of the male and female respondents (70.4% of males and 50.2% of females) indicated Twitter as the most used application for getting oral health information. (36.6%) of male respondents selected Youtube as second most used application followed by Instagram (25.7%). On the contrary, (44.2%) of the females selected Instagram as second most used application followed by YouTube (36.8%).

The use for LikedIn and Path were not analyzed, since these social media were barely used by respondents for both general and oral health related reasons.

Table 1: Use Internet for seeking oral health information

	Gender						X ² (p)
	Males		Females		Total		
	No.	%	No.	%	No.	%	
Yes	230	53.9%	1069	66.7%	1299	64.0%	24.224 (p<0.001)*
No	197	46.1%	533	33.3%	730	36.0%	
Total	427	100.0%	1602	100.0%	2029	100.0%	

X²: Chi Square test

*: significant at p<0.05

Table 2: Responses of the most used applications for getting oral health information

	Gender						X ² (p)
	Male (N1=230)		Female (N2=1069)		Total (N=1299)		
	No.	%	No.	No.	%	No.	
Twitter	162	70.4%	537	50.2%	699	53.8%	31.076 (p<0.001)*
Instagram	59	25.7%	472	44.2%	531	40.9%	26.808 (p<0.001)*
Youtube	84	36.5%	393	36.8%	477	36.7%	0.005 (0.945)
Whatsapp	69	30.0%	337	31.5%	406	31.3%	0.205 (0.651)
Snapchat	38	16.5%	162	15.2%	200	15.4%	0.272 (0.602)
Facebook	30	13.0%	37	3.5%	67	5.2%	35.528 (p<0.001)*
Telegram	12	5.2%	24	2.2%	36	2.8%	6.206 (0.013)*

X²: Chi Square test

*: significant at p<0.05

Fig. 1: the general sources of oral health information

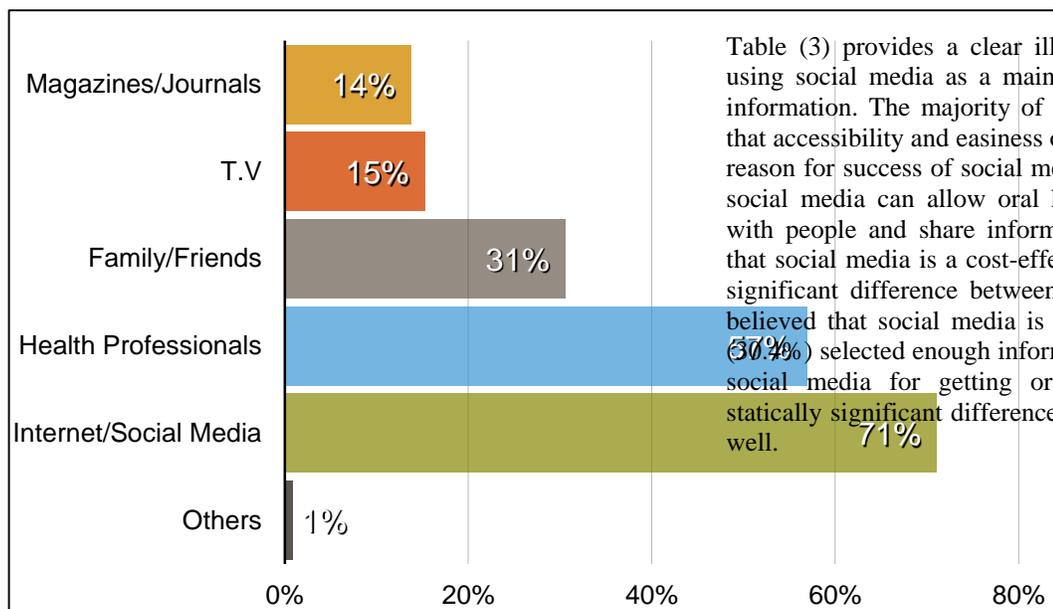


Table (3) provides a clear illustration of the advantages of using social media as a main source for getting oral health information. The majority of the respondents (79.7%) stated that accessibility and easiness of getting information is the key reason for success of social media, (48.2%) also believed that social media can allow oral health professionals to interact with people and share information easily, (41.5%) believed that social media is a cost-effective option with a statistically significant difference between males and females, (33.6%) believed that social media is general for all age groups and (30.4%) selected enough information as an advantage of using social media for getting oral health information with a statically significant difference between males and females as well.

Table 3: Respondents' responses for advantages of using social media as a main source in getting oral health information

	Gender						X ² (p)
	Male (N1=230)		Female (N2=1069)		Total (N=1299)		
	No.	%	No.	%	No.	%	
Accessibility/easiness	193	83.9%	842	78.8%	1035	79.7%	3.089 (0.078)
Free	118	51.3%	421	39.4%	539	41.5%	11.081 (0.001)*
Professionals interaction	112	48.7%	514	48.1%	626	48.2%	0.029 (0.866)
all population groups	89	38.7%	347	32.5%	436	33.6%	3.300(0.069)
Enough information	89	38.7%	306	28.6%	395	30.4%	9.071 (0.003)*

X²: Chi Square test
*: significant at p<0.05

Table (4) displays the barriers of using social media for getting oral health information. The majority of respondents (50.3%) selected the communication difficulty with experts as the main reason for the social media being unsuccessful, (36.2%) of the respondents believed that the lack of social media trustworthiness is a barrier, (26.0%) stated that they are

not interested in oral health issues with the only statistically significance difference between males and female, (25.6%) believed that the lack of information in social media make them unsuccessful as a source and (23.9%) selected the lack of time as a barrier for using social media to get oral health information.

Table4: Responses for the barriers of using social media in getting oral health information.

	Gender						X ² (p)
	Male (N1=230)		Female (N2=1069)		Total (N=1299)		
	No.	%	No.	No.	%	No.	
Communication difficulty	119	51.7%	535	50.0%	654	50.3%	0.217 (0.641)
Lack of trustworthiness	87	37.8%	382	35.7%	469	36.1%	0.359 (0.549)
Lack of time	50	21.7%	260	24.3%	310	23.9%	0.695 (0.405)
Not interested	76	33.0%	262	24.5%	338	26.0%	7.162 (0.007)*
Lack of information	69	30.0%	264	24.7%	333	25.6%	2.793 (0.095)

X²: Chi Square test
*: significant at p<0.05

The chart in figure 2 indicates the topics that respondents have searched/viewed through social media those are related to oral health, the results as following: oral Hygiene “such as proper methods of teethbrushing, flossing, best toothpaste ...” (54.5 %), Bleaching (50 %), Orthodontics (30.7%), Cosmetic prosthodontics “such as Veneers, Lumineers ... ” (24.4 %)

Pedodontics (21.9 %), Fillings (18.8%), Pulp therapy (17.0%), Surgeries (14 %), and (11.5 %) for each, Prosthodontics and Implants. There were highly statistically significant differences between males’ and females’ responses to bleaching, surgeries and prosthodontics topics including cosmetic treatment (p<0.001).

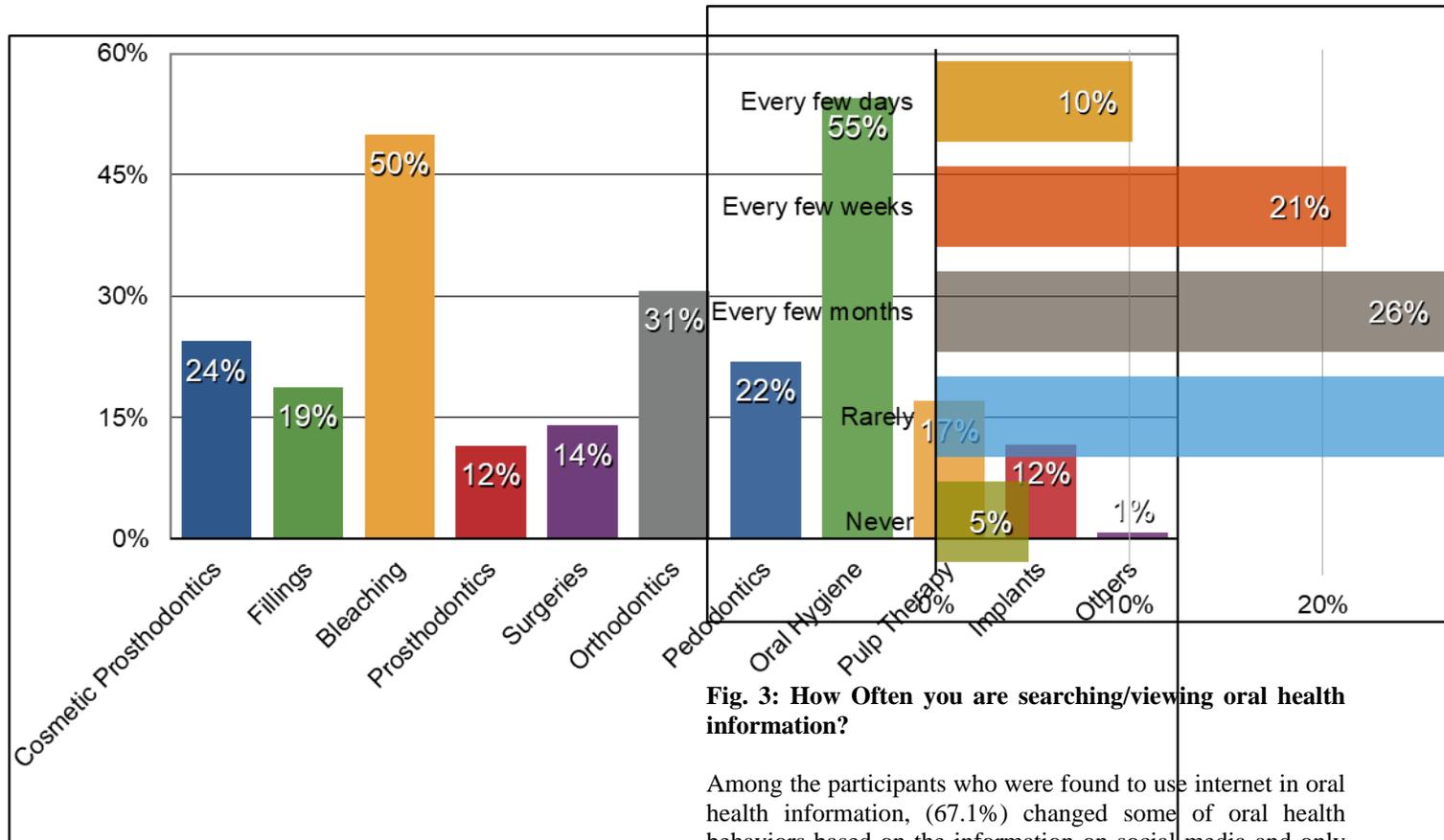


Fig. 2 The topics that respondents have viewed through social media

Data on how often the respondents are searching for oral health information are shown in (Figure 3). According to the calculation of total scores from 1 to 5 (every few days, every few weeks, every few months, rarely, and never), the results showed that (37.5 %) of respondents claimed that they rarely search to get oral health information, (26.3 %) were searching every few months, (21.2%) of them every few weeks and (10.2%) of respondents reported that they search every few days for getting oral health information.

Fig. 3: How Often you are searching/viewing oral health information?

Among the participants who were found to use internet in oral health information, (67.1%) changed some of oral health behaviors based on the information on social media and only (6.6%) of them didn't change their behaviors based on online information with a statistically significant difference between males and females (Table 5).

Most of participants (74.9%) expressed the belief that oral health information online should be referenced, while only (3.2%) of them didn't find it necessary with statistically significant difference between males and females answers where males were more aware towards the reference importance (Table 6).

Table 5: change some of oral health behavior depending on information that found on social media

	Gender						X ² (p)
	Male (N1=230)		Female (N2=1069)		Total (N=1299)		
	No.	%	No.	No.	%	No.	
Yes	141	61.3%	730	68.3%	871	67.1%	9.237 (0.010)*
No	25	10.9%	61	5.7%	86	6.6%	
May be	64	27.8%	278	26.0%	342	26.3%	

X²: Chi Square test
*: significant at p<0.05

Table 6: important for you to have a reference of the given information through social media

	Gender						X ² (p)
	Male (N1=230)		Male (N1=230)		Male (N1=230)		
	No.	No.	No.	No.	No.	No.	
Yes	178	77.4%	795	74.4%	973	74.9%	8.666 (0.015)*
No	13	5.7%	29	2.7%	42	3.2%	
Sometimes	39	17.0%	245	22.9%	284	21.9%	

χ^2 : Chi Square test

*: significant at $p < 0.05$

4. Discussion

Access to health-related information has increased significantly because of patients' freedom of access and a related increase in the publication of medical information by public and private sources^[11]. Different populations are using internet whether on their computers or through mobile devices, and they are increasingly using these social media for seeking health information. Although social media is considered as a potential tools for health education, it requires careful application and may not always achieve the expected outcomes^[12].

The purpose of the current study was to measure the prevalence of using social media as a source of oral health information among Qassim province population, evaluate the impact of social media in changing oral health behaviors and identify the barriers to use the social media to gain health information.

The current survey showed that (64%) of all respondents were using Internet and social media for oral health information. This is lower than the Americans are using the Internet to search for health information (80% in 2011) in the pew project^[13] and closer to the health information seekers in Scotland in 2015 (68.4%)^[14]. Many possible explanations for the lower number of health information seekers; first, people trust their healthcare providers more than online source. Second, only a minority of those with internet access are likely to use e-mail or social media to communicate with medical professionals. Third, most individuals with internet access are unlikely to make their medical records available via the internet, even if they are protected^[15].

The results of the present study revealed that among the users of social media in Qassim province, Twitter was the most common application used by (53.8%) of them. In contrast to earlier findings, however, a study by Antheunis et al (2013)^[6] in Netherland found that Facebook is the most commonly used application by gynecology patients (88.5 %). On the other hand, the Instagram was ranked in the present study as the second social media application used by (40.9%) of the respondents. While in Neherland, Twitter was the second preferred application (66.2%)^[6].

The advantages of applying new information and communication technologies in healthcare have well been established^[16]. social media hold considerable potential value because they enable new ways of access to and sharing of information^{[1],[17]}. In the current study more than three-quarter (79.7%) of the participants stated that that accessibility and easiness of getting information is the key reason for the success of social media. This conclusion agrees with a research conducted by Elof et al (2014)^[9] which found (61%) of the participants believed that online social network can allow health promotion campaigns to share information more easily.

Moreover, about half of participants (48.1%) found communication with the oral health professionals as one of the main advantages of using the social network for gaining oral health information. That was revealed by many researchers as Bacigalupe G (2011)^[18]. and Chou et al (2009)^[19] who found

social support, collaboration and participation of the stakeholders involved and increase individuals' connectivity and enable users' direct participation

Also, The majority of respondents in the current study (50.3%) found communication difficulty as the main barrier for using social media for getting oral health information followed by credibility and trustfulness which was the second most common barrier by (36.1%) of the participants. A more direct contact with health professionals via social media would resolve a large part of patients' barriers to social media usage in terms of the unknown credibility status of online health information^[6].

Regarding behavior change based on online oral health information, about (67.1%) of respondents believed that they changed some of the oral health behaviors based on the information on social media. Behavioral change theories have proven importance in developing successful online health promotion activities. Interventions that were strongly based on theory had a greater impact than those that were not^[20]. And this was also clear in respondents' answers regarding the reference, as about (75%) of them found references are essential for oral health information online.

The limitation of this study is that it was conducted with population from only one region, although the participants were from diverse locations, with different educational levels. so findings may not generalize to other populations or settings. Further, the responses were self-reported, and perhaps those most interested in the topic chose to complete the survey.

Conclusions

- Majority of Qassim population uses the social media for seeking oral health information.
- Accessibility and easiness of using social media is main cause of gaining oral health information online.
- communication with the oral health professionals is the main barrier for using social media for health education and getting oral health information

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