Social Media and Dental Practitioner's Knowledge of Misinformation, Infodemic and Fact-Checking on Dental Information

Sachin Naik[1,2*], Darshan Devang Divakar[1], Chitra Jhugroo[1]
[1]Department of Dental Health, College of Applied Medical Sciences, King Saud University, Riyadh, 11433, Saudi Arabia
[2]Public Health, Texila American University, South America, Guyana

Abstract

Social media is currently among the most popular web activities among dental professionals. The study aimed to assess social media usage, knowledge about misinformation, infodemic and fact-checking among dental professionals on dental information. The current study design was a descriptive cross-sectional study conducted among dental professionals from Riyadh City, Saudi Arabia. The questionnaire comprised demographic data of study participants and knowledge about misinformation, infodemic and fact-checking about social media use for their dental profession. Descriptive statistics were used for analysis. A total of 1192 dental practitioners responded to the questionnaire. In our study, most participating dentists were young and had 1-5 years of experience (51%). Most participants responded that sometimes (49%), they fact-check social media content about dental information. The google is the most used to check the fact content. About 90% of dentists never received notification about factual errors. The knowledge about misinformation and fact-checking is moderate among dental practitioners.

Keywords: Dental practitioner, Dentists, Descriptive study, Fact-checking, Misinformation, social media.

Introduction

The term "Social media (SM)" is frequently used to describe a tool on the internet that enables individuals to engage with one another and exchange data, ideas, photos, videos, and other forms of content [1]. The young average age in Saudi Arabia contributes significantly to rising SM usage [2].

The use of SM is currently among the most popular web activities. In 2020, over 3.6 billion individuals used it; by 2025, it is predicted that the number will be closer to 4.41 billion. Saudi Arabians have averaged three hours and twenty-four minutes daily in year [3].

Utilization of SM is on the rise in various sectors of life, including the healthcare industry [4]. SM and digital technologies have evolved into significant medical digital resources. Web 2.0 and SM were initially developed solely for social purposes. WhatsApp, Snapchat, Facebook, Instagram, Twitter, YouTube, and other services are examples of Web 2.0 [5].

Fake news refers to false information or misinformation that pretends to be real news. They are extensively disseminated via the internet and SM, leading many uninformed readers to believe they are genuine. They are frequently made up as a jest or to influence political opinion. Misinformation is the communication of an unintentional occurrence that is correctable [6].

Dental health "fake news" has expanded in popularity recently, such as using charcoal toothpaste or other healthful things to strengthen teeth. The latter items are frequently

recommended without fluoride, mistakenly regarded as a "toxin." Constant promotion of these products across numerous SM platforms contributes to their perceived authority [7]. Rapid technological advancements and data accessibility have significantly increased the effectiveness and precision of algorithms to combat fake news [8].

Even though the General Medical Council (GMC) and General Dental Council (GDC) issued their SM policies in response to an increase in healthcare professionals' use of SM, technology has advanced since the publication of these documents [9].

Very few studies are conducted to assess the knowledge about misinformation and fact-checking among dentists. Therefore, the present study assessed SM usage, knowledge about misinformation, infodemic and fact-checking among dental professionals.

Materials and Methods

Study Area and Population

A descriptive cross-sectional study was conducted in Riyadh, Saudi Arabia, among dental practitioners.

Eligibility

Inclusion Criteria

Dental practitioners who were willing to take part in the study and who gave their informed consent (and were older than 18 years old).

Exclusion Criteria

Dentists who have either retired or are otherwise not actively practicing dentistry at the time of the data collection.

Sample Size and Sampling Technique

The number of registered dentists and the data on dentists were collected from the Saudi Commission for Health Specializations. Previously published studies provided information on the number of registered dentists (SCHS) [10].

In Riyadh, 5,211 dental practitioners have been permitted to practice their profession legally.

Sample Size Calculation

The following formula was utilized to determine the appropriate size of the sample:

Using the equation, the sample size was calculated based on a confidence interval of 95%.

$$Sample\ Size\ (n) = \frac{Z^2 \frac{\propto}{2} P\ (1-P)D}{E^2}$$

Z=1.96.

P= 50% (if 50% of participants use SM)D (Design effect) = 2.5.

E (Margin of error) = 12%.

Considering the correction factor (response rate of 60%) sample size derived was 1100.

Although the required minimum sample size was 1100, we collected 1192 to increase the credibility of the results.

Data Collection Tool and Procedure

There were two sections to the questionnaire. Demographic information on research participants was included in Section 1. Section 2's questions focused on the participant's knowledge of misinformation on SM and fact-checking addressing SM use in their field of work as dentists. The standardized questionnaire was created based on earlier research with comparable goals [11, 12].

The email was used to respond to the questionnaire. Personal interactions were developed with some hospitals and clinics to collect data from them. The World Health Organization (WHO) infodemic management training program has trained and qualified the primary investigator in controlling infodemics in health misinformation.

Questionnaire Validity and Pilot Study

The questionnaire was given to a sample of 10 individuals, including dentistry professors, administrators, and experts, to validate it. After collating and reviewing the findings, the questionnaire underwent the required revisions.

The validity of the questionnaire was examined to arrive at the kappa value of 0.7. In a pilot study with a small sample size (n = 30), we asked for input on how to make the questionnaire easier to understand and shorter. Everyone who responded to the survey was heard, and we used their recommendations to improve the final questionnaire. Following suggestions, the researchers ultimately decided to use the questionnaire to gather data for the study.

Data Analysis

Descriptive statistics were utilized to determine the means and frequencies for all sample inferences and questionnaire items. The replies were scored on a 5-point scale to gauge knowledge of misinformation (Always, Usually, Sometimes, Rarely, Never).

Results

A total of 1100 dental practitioners responded to the questionnaire. Majority of the respondents were male (68%) dentists. Most respondents were specialists (64%) compared to general practitioners (36%). In our study, most dentists were young and had 1-5 years of experience (51%) (Table 1).

Table 1. Demographic Details of Participants

Characteristic		Number(N)	(%)
Gender	Female	379	32
	Male	813	68
Speciality	General Dentist	430	36
	Specialist	762	64
Sector	Private	764	64
	Government	428	36
Experience (Year)	1-5	612	51
	6-10	348	29
	>11	232	20

Most of the participants said, sometimes (49%) they fact check about the contents in the SM. Most of them had never heard about the term infodemic. About 36% of dentists cite their work before forwarding it to the SM. Google is the most commonly used to check about the fact content. Interestingly, over 90% of dentists never received notification about the factual errors. For the question, would you say that most SM posts can be trusted 47% of the respondents said Most SM can be trusted (Table 2) (Figure 1).

Table 2. Knowledge about Misinformation and Fact-checking about Social Media M Use for their Dental Profession

Questions	Response	(%)
How often do your fact-check your content	Always	20
	Usually	10
	Sometimes	49
	Rarely	10
	Never	10
Have you heard of the term infodemic	Yes	36
	No	64
How often do your fact-check other dentists' work before sharing it	Always	9
	Usually	21

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	Sometimes	39
	Rarely	19
	Never	12
When citing a source, do you also fact-check the source	Always	9
	Usually,	36
	Sometimes	27
	Rarely	13
	Never	15
What tools do you commonly use to verify facts	Google	43
	Scholar articles	22
	Books	14
	Interview	14
	Other	7
Have you ever been notified your content included factual errors	Yes	10
	No	90
Generally speaking, would you say that most SM posts can be trusted or that you can't be too careful in dealing with them	You cant be too careful	Most of SM can be trusted
	53	47
Would you say that people sharing SM posts trying to be helpful most of the time or that they are mostly just looking out for themselves	Look for themselves	Try to be helpful
	45	55
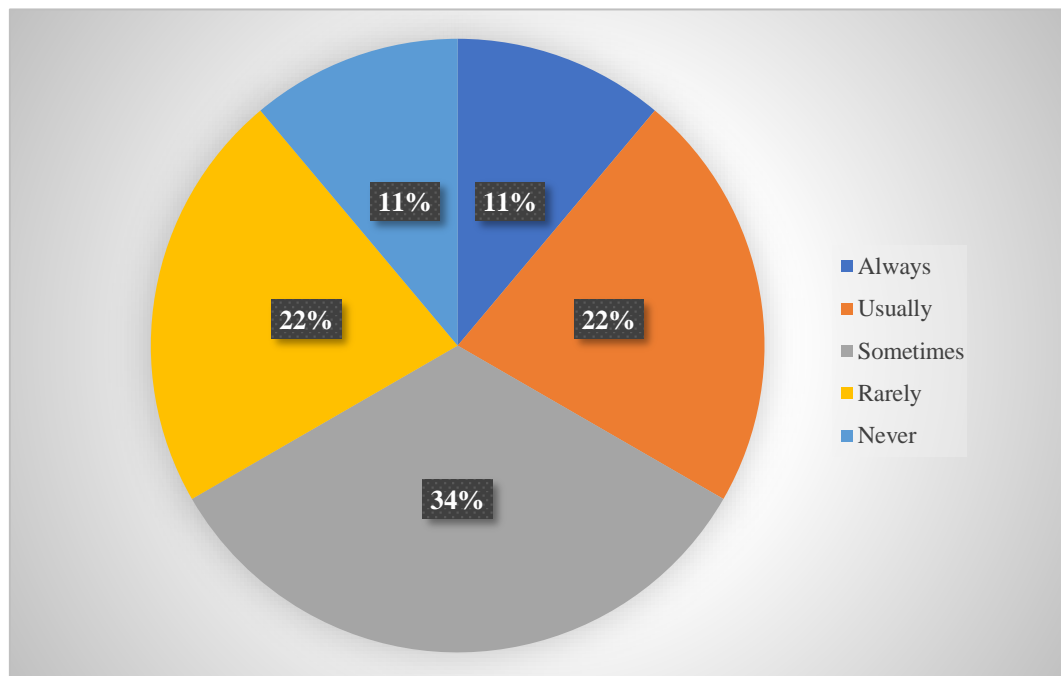
Figure 1. Percentage of Dentists Checked Fact Content of the Dental Information

Discussion

Rumours and conspiracy theories travel rapidly on SM. Since SMs are homophilic, disinformation may thrive in isolated social circles. Misinformation and trust may harm patients. For instance, cancer patients utilizing

complementary medicine are more likely to decline evidence-based therapies [13]. According to the findings of our study, relatively few dentist's fact-check their content before posting.

According to the findings of the earlier study, 40% of fake news is spread on SM, and more than 20% of the false information comes from only one source [14]. An earlier study looked at the teaching usefulness of YouTube patient testimonies for implant dentistry and conducted a qualitative analysis of the subjects that were highlighted. Two hundred videos in total were watched. Results indicated that the bias of clinician-uploaded information may hamper the balance of testimonials on YouTube [15].

An investigation was made into how the COVID-19 epidemic affects dental healthcare professionals' anxiety levels. A high correlation was found between the prevalence of SM use and anxiety disorders, which were present in 31.7% of people and ranged in severity from moderate to severe. The COVID-19 SM infodemic has had a detrimental impact on psychological health. Regulating the quality and viability of health information on SM platforms calls for more effective strategies [16].

There are a few strategies for reducing fake news, like the ones listed below: Provide sources that support the user's ideologies; identify information being spread by bots and "cyborg" accounts; and optimize algorithms to ignore these manipulations. Users are warned that information may be false, which reduces their overall sharing [17].

To prevent aggravating the issue of misinformation, practitioners must carefully advertise their services. Dentists must continue offering dependable, factually accurate internet resources for information on dental health. Dentists and organized dentistry must educate individuals on how to evaluate the reliability of health information online to raise patients' oral health literacy. Dentists must teach patients how to assess the validity and applicability of information about oral health and any potential

bias, author credentials, and accessible scientific evidence.

While verifying the facts, the following factors should be considered.
1. Think about the source.
2. Go past the headlines.
3. Backing sources.
4. Verify whether others concur.
5. Is it a joke?
6. Examine your biases.
7. Consult professionals.
8. Think twice before sharing.

Fake news is used to spread misinformation on various subjects to misrepresent reality. In recent years, there has been an increase in fake news stories concerning dentistry, including those touting homemade whitening remedies and inaccurate dental advice. Similar stories frequently appear on YouTube and other SM platforms. Evidence-based dentistry does not have all the solutions; thus, patients and healthcare professionals regularly look for material to back up their beliefs on a particular subject. Tools that can be used to verify the accuracy of such information and help expose fake information are readily available. The greatest way to counteract the impact of false news is to enable people to create and promote a climate of "genuine news" [18].

A stealthy but no less harmful type of incorrect information has recently entered the dental field. Online dental products or service advertising posing as science or professional advice is widely available on SM and healthcare websites today. If dentists don't address the consequent patient misunderstandings, our informed-consent method will be compromised regarding credibility and integrity. Individuals increasingly turn to the internet to solve their dental problems. If they eventually decided on and had their dental care based on false and misleading information, the term "misinformed consent" would be more suitable. The way dentists and our profession react to any conflation of healthcare fact and fiction on the internet will determine how prospective patients

will view their relationship with their dental professional and how society will view the dental profession as the primary source of information on high-quality health [19].

A previous study was conducted to collect and evaluate the entry, development, origins, and content of therapeutically relevant SM in dentistry. The study compiled a list of blogs, podcasts, videos, and other SM that provide dentists with clinical knowledge. Evaluated host' media activity based on their combinations of modalities, entry and exit dates, posting regularity, genres of material, and audience size. The study revealed that dentists and hygienists post clinically useful material on SM. Eighty-nine blogs and podcasts provide clinically useful material [20].

Limitations

Since this was a cross-sectional study, people's understanding of fact-checking on SM may change. Because the study was restricted to dentists in Riyadh, the findings cannot be extended to the entire field of dentistry. An individual's "social acceptability" beliefs may not correctly represent reality when answering the quiz. All study participants responded voluntarily, leading to a low response rate. Because SM users are so prevalent, our study focused mostly on them; as a result, non-users' viewpoints were not included, which may have occurred owing to selection bias.

Conclusion

The knowledge about misinformation and facts was moderate among the dental professionals. If dentists are aware of the ethical issues surrounding the use of SM, they may be receptive to its usage. To achieve this, it is necessary to undertake more educational programs on ethical issues.

Acknowledgment

Conflict of Interest Statement

The authors declare that they have no conflict of interest.

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