

EFFECTS OF DENTAL MEDIA HYPE ON PATIENTS' PERCEPTION OF TREATMENT

An Undergraduate Research Scholars Thesis

by

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ABSTRACT

Effects of Dental Media Hype on Patients' Perception of Treatment

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Living in the digital age has allowed patients to receive misguided information due to the rise of non-credible sources available to the public. Research has shown that up to 75% of people worldwide use the internet to access medical information. Websites, such as YouTube®, are common sites where patients look to access medical information, however not all medical information is factual. There is an increased number of websites disseminating information that is unsupported by scientific research to simply capture readers' attention for their own benefit. Most of the health education that patients encounter online is outdated, inaccurate, and potentially harmful to the reader. Viewing of inaccurate information of the internet may affect patients' perceptions of dentistry. Additionally, the influence of media on public opinion may lead patients' to potential harmful decisions regarding their health. Communication between the practitioner and patient could help reduce dental misinformation from spreading out in the public. The intent of our research is to bring awareness and educate oral healthcare professionals on the impact of dental media hype on patient's perceptions of dental treatment. Our primary research goal is to provide the oral healthcare professional with the tools to educate their patients on where to find scientific evidence-based research online. Secondly, oral healthcare

professionals assist patients in looking beyond the headlines when making decisions about receiving dental treatment. As dental professionals, it is our responsibility to do what is in the best interest of the dental patient, which includes introducing methods of finding credible dental sources.

DEDICATION

We dedicate our research to our parents for their constant support through our educational journey while attending Caruth School of Dental Hygiene at Texas A&M University College of Dentistry. Their faith, love, and encouragement is a major contributing factor to our success in our professional career.

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KEY WORDS

American Dental Hygienists' Association (ADHA)

The High-Level Expert Group (HLEG)

American Dental Association (ADA)

US Department of Agriculture (USDA)

Health and Human Services (HHS)

The Guidelines Advisory Committee (DGAC)

Oral Health Care Professionals (OHCP)

American Association of Endodontics (AEE)

American Association of Dental Research (AADR)

INTRODUCTION

Research has shown that up to 75% of people worldwide use the internet to access health information.¹ Patients often research their symptoms online before consulting with a professional. Armed with unsupported information found on the internet, patients are more likely to challenge or disagree with the dental professional diagnosis. Most of the dental education that patients encounter online is outdated, inaccurate, and potentially harmful to the patient.² Oral healthcare professionals should educate patients on the differences between evidence-based literature versus non-evidence-based literature. Access to credible sources of information may assist patients in making informed decisions about their oral health. It is important for oral healthcare professionals to recognize how non-evidence-based information may change patients' perceptions of recommended treatment. The purpose of oral healthcare education is to guide patients towards alternative high-quality oral health information to improve their oral care. This research supports the current American Dental Hygienists' Association's (ADHA) research agenda focused on professional development of education and evaluation. Becoming informed on how media has an influence in oral health education will help ensure that patients as well as dental professionals become educated and aware of the rising role of media in patients' perception towards dentistry and how to address false claims. This research will help recognize the increasing influence of media on patients' perception of oral care, apply methods to differentiate scientific evidence from distorted research, and effectively recognize and select quality evidence based sources for oral health needs.

SECTION I

INCREASING ROLE OF MEDIA IN DENTISTRY

Objective 1

Living in a generation where people rely on the internet to obtain answers for their dental concerns has allowed for patients to make dental decisions based on media hype. YouTube ® and social media websites now give patients new educational alternatives that are underdeveloped and unmonitored, allowing for anyone to have easy access to misguided information.³ As dental educators, we should be able to recognize how websites are shaping patients' perceptions about dentistry and oral healthcare.² The High-Level Expert Group (HLEG) report from the European Commission, Silva et al. 2019, “described disinformation, as inaccurate, misleading information presented and promoted to deliberately cause harm to the public or to create profit”.² Many articles and videos found online are intended to appear captivating to attract the reader from factual dental education regardless of its accuracy. To bring more public notice, popular news articles alter the title of their news articles or videos to make it sound intriguing to attract public viewers.

For example, popular news outlets distort primary facts and run with false claims without properly interpreting the guidelines from the American Dental Association (ADA), US Department of Agriculture (USDA), and the Health and Human Services (HHS). Headlines such as “Feeling Guilty About Not Flossing? Maybe There’s No Need”, which was published by the *New York Times*, created controversy after the USDA and HHS decided to omit the recommendation of flossing as part of their 2015 U.S. Dietary Guidelines for Americans.⁴ This title article gave an opportunity for patients to falsely believe that flossing was no longer

necessary to maintain good oral health since it had been omitted from the dietary guidelines. The *New York Times* is a prestigious news outlet that has worldwide influence, which allowed for this story to gain attraction from patients, the ADA, and the USDA. The Dietary Guidelines Advisory Committee (DGAC) later released a statement saying that they had made a conscious decision to focus on food and nutrient intake (i.e., added sugar) for their dietary guidelines.⁴ In fact, HHS reaffirmed the importance of flossing in a statement to the ADA, which stated: “Flossing is an important oral hygiene practice. Tooth decay and gum disease can develop when plaque is allowed to build up on teeth and along the gum line. Professional cleaning, tooth brushing, and cleaning between teeth have been shown to disrupt and remove plaque.”⁴ This is just one example on how a media source inaccurately reported false information allowing quickly for it to cause a change in the public’s opinion.

The primary role of a dental hygienist is to educate patients regarding their oral health care. Patients may make decisions about whether or not to use dental floss based on a notable title article that could change the perception of the patient. As educators, the information given should explain to patients that based on research, flossing has shown to reduce proximal caries and that it is additive in promoting oral health.⁴ Flossing has been neglected by patients young and old due to the main reason that there is a lack of motivation, patients may not know how to properly floss, or present with a dexterity issue.⁵ If patients are already struggling with introducing an effective flossing routine, patients are more likely to be unmotivated to start flossing due to false media claims. To address the patient's concerns about new products or questionable claims, the clinician can demonstrate to the patient that with current science based articles it can discredit the false media claims. Understanding the whole story can assist patients in making a decision based on evidence. Taking the time to demonstrate proper oral care

techniques may also allow patients to see favorable results and make them less likely to believe false media claims. Recognizing the rising role of media in dental education will allow oral health professionals and patients to be more aware when an article or video is trying to promote education or just obtain readership.

SECTION II

EVIDENCE BASED VERSUS NON-CREDIBLE SOURCES

Objective 2

Dental patients who web browse about oral health care on the internet tend to be apprehensive about their dental needs, which often leads them to self diagnose with false information. It is critical for patients reading online to know if the content regarding oral health care is portraying any biased views. Dental patients may be skeptical about a dental provider's treatment plan based on unverified dental sources posted on the internet. To be able to differentiate between a credible vs non credible source, one needs to consider if the content was peer reviewed and check the domain of the web-based source (.gov, .edu, or .org). Free and easily accessible video streaming websites allow patients a convenient, and efficient way to receive dental and medical information.¹ The internet has various sources of information for dental related topics and, people are easily influenced by catchy headlines, which are created based on the writer's opinion. YouTube ® is a public website that accepts videos and comments from everyone and allows for anonymous access.³ YouTube ® continues to be an accessible platform for endorsing a variety of dental products, such as charcoal based dentifrices and teeth whitening products. Companies pay for the placement of their ads and YouTube ® benefits financially. The trust cost of the advertisement is paid by the consumer who needs to differentiate between fact from fiction.⁷ Use of buzzwords within product labels can easily grab customer's attention and can have a strong influence on their purchasing decisions. In 2017, Brooks et al. recommended manufacturers to limit promoting charcoal based dentifrices until clinical trials demonstrated that the products were safe and effective.⁶ Oral healthcare

professional have found insufficient scientific evidence to show the therapeutic, cosmetic and health benefits claimed by charcoal based dentifrice.⁶ Advertisements of dental products tend to have research bias to influence the results for marketing purposes. Research that is funded by the company selling the product may skew their findings to support the product's claims. This can easily mislead dental patients as oral care products often highlight the phrase "recommended by dentists". As oral health care professionals, our primary role is to educate our patients, as these unsubstantiated claims of oral benefits can put patients at risk for damage to their oral health. Promoting the welfare of patients is an ethical duty entrusted upon health care practitioners. It is of great value to convey both sides of evidence-based research and distorted research for the sake of health promotion and disease prevention in our patients. The goal is to present a viewpoint to patients browsing on the internet, to look beyond the headlines, and guide them to properly identify scientific evidence-based research. Oral health care professionals should advise their patients to check the dates of the sources they find on the internet, if outdated or inaccurate. Oral health care professionals should also be cautious about the dental articles they are accessing on the internet in order to avoid deliberately conveying disinformation to their patients. Oral health care professionals need to keep pace with growing technological advancement in dentistry and make use of a potential evidence- based approach to patient care.⁸ Oral care professionals can take CE courses that provide knowledge about the media's role in dentistry and its influence on patients. Also, educational pamphlets can be created to educate patients about the increasing non-credible sources on the internet and ways to avoid such commercial sites. Dental professionals should educate patients on how evidence-based information aids in making informed health decisions. Secondly, the dental professionals can educate the patient on where to find evidence-based information. Lastly, Oral health care professionals can offer insight into the

harms of following non-evidence based recommendations and the impact on their oral and systemic health by identifying and discussing the significant hazard of non-evidence based oral care trends and enlighten towards clinically relevant oral care practice according to the patient's preference and needs.

SECTION III

EXAMPLES OF DENTAL MEDIA HYPE AFFECTING DENTISTRY

Objective 3

Oral health care professionals should actively educate their patient population by providing key words that can help patients find relevant research results based on quality/credible information. Using different word choices can potentially improve or misdirect results while browsing the internet. Nason et. al. in 2015 conducted a study that showed that when people used the word “endodontics” on the search engine of YouTube®, the top results contained outdated and incomplete information.¹ This suggests that using the word “endodontics” is less common compared to a lay term such as “root canal”.¹ The use of lay terms may yield more current articles that are misleading. The uncommon use of the word “endodontics” may also indicate that oral health professionals have not uploaded current accurate content to YouTube®.¹ Dental professionals should consider relaying this information to their patients and discuss different websites where patients can access reliable information. Continuing education courses that focus on how media misinformation impacts patient’s perception of dental care would be beneficial for OHCPs. With this prospective education OHCPs would be better equipped to answer patient questions regarding dental media hype and any misleading trends.

Charcoal based products have recently become popular trends of discussion across social media and the internet. Charcoal based products are currently popular due to their claim over accelerated whitening.⁵ Evidence indicates that charcoal has an abrasive effect on enamel and gingival tissue.⁵ If a patient is using charcoal-based dentifrices, they might not be aware of the

abrasive effects charcoal has on their teeth. The dental health professional should provide quality education to their patients about the use of charcoal-based products and the potential harmful effects that accompany the product. Currently charcoal based products do not display the American Dental Association (ADA) Seal of Acceptance.⁵ In order for a product to display the ADA seal it has to be systematically reviewed and undergo testing to receive the ADA seal that will legitimize claims displayed on the back of a dental product. Obtaining the seal is no easy task. Educating the patient about the significance of oral hygiene products displaying the ADA seal serves as a simple intervention for patient education. The ADA seal should help the patient differentiate between products that will improve their oral health vs products that display unsubstantiated claims such as antimicrobial, antibacterial and antiviral properties.⁵ Many charcoal-based dental products do not display references or clinical trials to support their claims stated on their products.⁵ More independent research trails need to be conducted to determine if the charcoal-based products support the manufacturers claims of effectiveness. In the case of a charcoal-based product, industry-sponsored research would favor a manufacturer claims vs. an independent research trial would stay true to results no matter the outcome. Greenwall et Al. in 2019 suggested that the oral health care professionals educate their patients about these products being advertised with unsubstantiated claims.⁷ Charcoal dentifrices are just one of the many examples of how media hype has the ability to influence public perception based on appealing claims.

The *Root Cause* documentary debuted in the popular streaming/media service, © 2018 Netflix, Inc.⁹ The documentary is based on an individual who claimed that they developed certain health problems due to a root canal.⁹ An unidentified number of dentists and medical doctors contributed to the documentary. Their statement was that a myriad of health issues may

be attributed to root canal treatment. Health issues mentioned in the documentary ranged from unexplained agitation to cancer.⁹ Once the documentary was available online it took over the media and internet raising widespread curiosity and concern. People that have had endodontic therapy started to speculate and, in a sense, doubt their restorative dental treatment. The American Association of Endodontics (AAE) has a position statement regarding the *Root Cause* documentary. The AAE, American Dental Association (ADA) and the American Association of Dental Research (AADR) collaborated in writing a letter to the CEO of Netflix©, Reed Hastings in regard to the featured series *Root Cause*. The position statement addresses the medically unsupported claims, lack of accuracy, and the ongoing concern of the effect of the documentary in a person's everyday life.¹⁰ The documentary, *Root Cause*, made a claim that root canals have an association with various health issues, particularly linking breast cancer on the same side of the root canal. The letter written by the AAE, ADA and AADR made a strong stance against this claim by stating that it has been unsubstantiated over the course of years by peer-reviewed, scientific-based, evidence.¹⁰ The three organizations expressed their concern for this documentary continuing to be streamed by the public on Netflix©.¹⁰ The AAE, ADA and AADR are concerned that as long as the documentary can be streamed it may trigger people to become doubtful and resistant to endodontic treatment.¹⁰ The *Root Cause* documentary has brought confusion, stated unsupported information, and mislead the public.¹⁰ Netflix©, has not disclosed the reason why *Root Cause* was removed from their website. Media outlets are curious to know if the removal of the documentary is linked to the uncertainty it brought people who have received endodontic therapy or by the response of various dental professionals and dental associations. This documentary serves as another example of why it is important for oral health care professionals to stay current with what is being streamed online regarding the profession. A

dental clinician will know how to properly address a patient concern over the *Root Cause* documentary by using evidence-based responses over the long time reviewed endodontic therapy. The importance of a dental professional staying current with recent alarming dental trends is to educate people with dental concerns to look for answers in reliable sources such as peer-reviewed articles or government, educational and organization websites.

CONCLUSION

Dental professionals must be aware of how commercial websites intend to market a particular product, perspective, and shape the public's opinion to doubt dentistry as a profession.² Potential recommendations include dental professionals taking existing continuing education courses relating to evidence-based assessment of knowledge found on the internet. It is important for dental professionals to provide patients with examples of credible website domains and how to differentiate these from more commercial focused domains. Patients with dental concerns over bias research publications from industry-sponsored trials on the internet should be educated by dental professionals to look for answers in reliable sources such as peer reviewed articles for their oral health and safety. These effective strategies can assist healthcare providers in helping patients differentiate between accurate and inaccurate information found on various media outlets.

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