How access to online health information affects the dental hygiene client experience

Amanda McKay*, BDSc(DH), RDH

ABSTRACT

Objective: Due to the widespread availability of online information, oral care providers are no longer the main source of oral health information for clients. This shift in the balance of knowledge has the potential to alter clients' experiences and relationships with their oral care providers, including dental hygienists. This review explores how access to online health information has influenced clients' experiences with their dental hygienists. **Method:** A narrative literature review of quantitative, qualitative, and mixed-method studies concerning clients' experiences with online health information and how it has influenced the client–health care professional relationship was completed. The electronic databases searched were Google Scholar™, PubMed, and CINAHL. Twenty-three studies published between 2005 and 2020 were included. **Results and discussion:** The majority of clients used the internet to access health information to be better informed about health issues. Both clients and health care providers had concerns about the legitimacy and accuracy of various online information sources. Clients faced various communication facilitators and barriers when discussing this information with their health care provider. A positive response by the health care provider led to an improved client–clinician relationship, whereas a negative response led to distrust among all parties. Clients would be open to e-health literacy training by their dental hygienists. **Conclusion:** Clients' access to online health information can either improve or worsen their experiences and relationships with their dental hygienists, depending on the response by the dental hygienist when these topics are broached. Dental hygienists should consider taking time to provide e-health literacy training to clients during consultations.

RÉSUMÉ

Objectif : Étant donné la grande disponibilité d'information en ligne, les prestataires de soins buccodentaires ne sont plus la source principale d'information sur la santé buccodentaire pour les clients. Ce changement dans la répartition des connaissances a le potentiel de modifier les expériences et les relations que les clients ont avec leurs prestataires de soins buccodentaires, notamment avec les hygiénistes dentaires. Le présent examen explore comment l'accès à l'information sur la santé en ligne a influencé les expériences des clients avec leurs hygiénistes dentaires. **Méthode :** Une revue narrative de la littérature a été effectuée sur les études quantitatives, qualitatives et à méthodes mixtes relatives aux expériences des clients en matière d'informations sur la santé en ligne et la façon dont elles ont influencé la relation entre les clients et les professionnels de la santé. Des recherches ont été menées dans les bases de données électroniques Google Scholar™, PubMed et CINAHL. Vingt-trois études publiées entre 2005 et 2020 ont été retenues. **Résultats et discussion :** La majorité des clients ont utilisé Internet pour accéder à de l'information sur la santé afin d'être mieux informés sur les questions de santé. Tant les clients que les prestataires de soins de santé avaient des préoccupations quant à la légitimité et à l'exactitude des diverses sources d'information en ligne. Les clients ont fait face à divers facilitateurs et obstacles de communication lorsqu'ils discutent de cette information avec leur prestataire de soins de santé. Une réponse positive du prestataire de soins de santé a contribué à une amélioration de la relation client–clinicien, alors qu'une réponse négative a semé la méfiance entre les partis. Les clients seraient réceptifs à obtenir une formation sur la littératie en cybersanté par leurs hygiénistes dentaires. **Conclusion :** L'accès des clients à l'information sur la santé en ligne peut soit améliorer ou empirer les expériences ou les relations qu'ils ont avec leurs hygiénistes dentaires, selon la réponse de l'hygiéniste dentaire lorsque ces sujets sont abordés. Les hygiénistes dentaires devraient songer à prendre le temps de donner une formation sur la littératie en cybersanté aux clients pendant les consultations.

Keywords: dental client; dental hygiene; dental hygiene client experience; dentistry; health communication; internet; online health information
CDHA Research Agenda category: capacity building of the profession

INTRODUCTION

The development and growth of the internet has exponentially expanded society's ability to share ideas and knowledge. Increasingly, people are using this source to access health information and to gain knowledge about their health conditions.[1-8]

The option of having easily accessible health information at one's fingertips has caused a shift in the balance of knowledge between health professional and client.[5,9] Health care providers (HCP) are no longer the only source of health information for their clients, which has

*Alumna, Dental Hygiene Degree Completion Program, University of British Columbia, Vancouver, BC, Canada

Correspondence: Amanda McKay; amandabridge89@gmail.com

allowed the traditional one-sided conversation to evolve into an informed discussion.[7,9]

As HCPs, dental hygienists need to be cognisant of both the positive and negative effects of online health information on clients.[5] To best serve their clients, it is necessary for dental hygienists to be conscious of the unique expectations and needs of the internet-informed client. Using this knowledge, dental hygienists can better adapt to provide clients with effective, tailored care.

State of the literature
Most of the literature that explores how access to online health information has affected clients' experiences with their health providers has focused on the relationship between clients and their medical doctors. There is a paucity of research focused specifically on dental hygiene clients' online habits and their interactions with an oral health professional. Of the current studies or literature reviews with a dental focus, each focused more readily on the clients' online information-seeking habits or oral health providers' perceptions, and less on the clients' experience during their dental appointments.[10-13] This narrative literature review aims to explore how access to online health information has influenced clients' experiences with their dental hygienist and discuss how dental hygienists may adapt to better treat internet-informed clients.

METHODS
For this narrative review, searches of the electronic databases of Google Scholar™, PubMed, and CINAHL for full-text and qualitative studies using the following topics: online health information, internet-informed patient or patient experience were undertaken. Only full-text and peer-reviewed articles were included in the review. Any study older than 2000, or not published in English, was excluded. Primary search terms were online health information, patient experience, internet, dental patient, dentistry, health communication, online health seeking, and clinician–patient relationship.

Twenty-three studies fulfilled the eligibility criteria and were included in the review: 7 quantitative studies, 13 qualitative studies, and 3 mixed-methods studies. All studies were published between 2005 and 2020.

RESULTS AND DISCUSSION
Why and how do clients use the internet?
An overwhelming theme across the literature confirmed that clients used the internet to access health information to be better informed about health issues.[2,6,7,10,14-18] Commonly, studies found that clients used this information as a guide to determine whether or not to seek professional health care advice, or additionally, to prepare for the consultation.[1,10,14,19-22]

Clients also frequently sought online health material to clarify information after consultations with their health providers.[1,2,7,14,17,21] By expanding their knowledge of their health conditions through online health information seeking, clients gained a sense of empowerment over their conditions.[15-17,19]

Studies found that many clients used Google® as their starting point, as opposed to searching specific health sites.[15,18] Overwhelmingly, clients chose to use the internet as a health information source as they valued the anonymity, convenience, and quantity of information that the internet provides with just a click of a button.[2,4-6,17,18] While it was found that clients would prioritize the knowledge of the HCP, describing it as more trustworthy and reliable, clients still liked to use online health information as a supplemental source.[2,4,7,14,19]

While the majority of the research was based on systemic health issues, studies have found that these patterns are also being seen with oral health.[10,13,23] Many dental hygiene clients had also obtained oral health information online.[13] Studies have reported that dental clients research specific topics online such as cosmetic dentistry, gingivitis, tooth grinding, dental amalgams, and implants, among others.[10,23]

Concern with online information
Studies commonly reported that clients had concerns about the credibility and limitations of online sources of health information.[2,4,7,17] Many clients were wary of health information found on websites where they felt that companies or people were attempting to sell them products, or that were sponsored by third parties.[2,17] More frequently, clients expressed concerns over their own e-health literacy skills to evaluate the accuracy and legitimacy of online health information.[15,19]

While oral health providers found online health resources useful for their personal continuing education, they also expressed worries over clients misinterpreting this oral health information and treatment options.[23] Oral health providers were concerned that clients may not fully understand how the information found may or may not apply to their own specific needs.[23]

Clients also frequently reported information overload when attempting searches online.[14,15,17] Some felt this led to an increase in anxiety after searching online health information.[14]

Communication of internet use with clinicians
Several studies found that the majority of clients never showed or discussed their online findings during consultations with their HCP.[7,14,21] Some clients revealed they used the online material as a guide to discern what questions to ask their HCP or to increase their own confidence in bringing up questions, although they would not disclose their sources.[16,19]

Alternatively, when the topic of online health information was raised, it was equally initiated by HCPs and clients.[21] The majority of clients discussed their online findings to support their relationship with their HCP, not to challenge it.[7]

HCPs found there was generally a 3-pronged response when clients initiated the topic of online health information.[3] First, clients would ask a clarification question to better understand the topic.[3] Second, they would see if this information could be applied to their situation.[3] Third, clients would ask for tests or diagnoses based on what they had found online.[3]

Communication facilitators and barriers

The decision of the client to discuss online health information or not was influenced by multiple factors. Facilitators included if their HCP listened, acknowledged their efforts to be more informed, and offered to further the discussion about the information.[3,7] The body language of the HCP when the topic was first broached was an extremely important factor in whether or not clients continued this conversation.[7] The HCP initiating the topic and asking open, unassuming questions to understand the motivations of the clients was very helpful in making clients feel confident in discussing their online habits truthfully.[3,14]

Studies found that clients often experienced barriers to communicating this online information, such as resistance, fear of judgement, embarrassment, and lack of time.[2,7,14] Clients were often worried about offending their HCP or did not want to be seen as telling them how to do their jobs.[7,14] Additionally, clients did not want to mention sources they were not confident were credible or information they did not fully understand.[7,14] Once the topic was broached, any negative reaction from their HCP, such as the HCP becoming disinterested or pre-emptively discrediting the information, prevented the client from continuing the conversation or from bringing up online information in the future.[3,7]

Effect on the client–clinician relationship and health outcomes

The HCP's reaction to the client's online seeking habits had a significant impact on the client–clinician relationship.[7,14,20] Generally, the HCP reacted in 1 of 2 ways: either negatively or with a positive, client-centred approach.[1]

When online information seeking was introduced, some HCPs reacted by feeling threatened and defensive.[1] Several HCPs experienced anxiety when information beyond their area of expertise was discussed, which may have contributed to their defensive, dismissive behaviour.[7] Additionally, some oral health providers expressed frustrations regarding the amount of time needed during consultations to first break down online misinformation and then reinform their clients of the correct treatment.[23] This negative response by the provider led to feelings of distrust between both the HCP and the clients, resulting in a deteriorated relationship.[4,7,14,20]

Alternatively, a positive, client-centred response from the HCP led to an improved client–clinician relationship.[7] A positive response included if the HCP was sensitive to and supportive of the client's needs and took their findings into consideration in the decision-making process.[8] This client-centred approach, with open, honest, and empathetic communication between all parties enhanced client satisfaction with their health care services and increased clients' trust in their HCP.[3,8,21] Additionally, clients found their provider more trustworthy when the HCP was honest about their level of knowledge of the online information.[7] Clients did not expect their HCP to know everything, but instead desired to be engaged in a research partnership with their HCP.[17]

Mutual trust in the client–clinician relationship is important as it can improve the client's experience within the health care system and lead to improved health outcomes.[7,8,24,25] When online health information was discussed with clients, the clients reported improved satisfaction and recalled medical information more accurately than when online information was not discussed.[21] Dental hygienists should encourage clients to be better informed, as well-informed clients are more compliant and report more satisfaction with health care services, thus also aiding in improving health outcomes.[3]

As a profession, where do dental hygienists go from here?

These studies reiterated the importance of dental hygienists being cognisant of how their communication styles may act as a barrier to or facilitator for effective communication and subsequently influence the client's experience during the consultation.[7,14] If dental hygienists initiate conversations about online health information with a positive, client-centred focus, they may remove barriers clients experience, leading to improved discussions, better-informed clients, and increased trust between all parties.[7,14]

Leading positive discussions about online health information does not always mean agreeing with the findings or saying "yes" to the proposed tests or diagnoses.[26] When a provider disagrees with the information, it is important to first validate the client's efforts and show the client that they are taking the information, and the client, seriously.[26] When providers validated clients' efforts to be better informed, clients reported increased satisfaction and reduced concerns with their providers.[26]

Dental hygienists can facilitate better communication during appointments by setting aside time to carefully evaluate and critique the client's online health information and fully answer any questions that the client may have.[7] As clients commonly expressed a desire for education on how to use the internet to find credible information, dental hygienists should also focus on teaching basic e-health literacy skills to clients.[7,10,14,15,17,20] This training may lead to greater client satisfaction with dental hygiene services and potentially improve oral health outcomes.[24,25]

As many HCPs discussed lack of time as a main barrier to being able to provide this service, future research is needed on efficient ways for dental hygienists to provide this service effectively to their clients within the real-life constraints of a dental hygiene appointment.[7,13,22]

CONCLUSION

This review explored how access to online health information has influenced clients' experiences with their dental hygienist and how dental hygienists can use this information to best serve the internet-informed client. The consistent trend in the literature was that clients' access to online health information either improves or worsens clients' experiences and relationships with their dental hygienist depending on how the dental hygienist responds to these topics during the consultation.[7,14,16,19] A client-centred response led to an improved client–clinician relationship, whereas a negative response by the HCP led to distrust between the HCP and the client and slowly deteriorated the relationship.[7,14,20]

This information can be used by practising dental hygienists to improve their communication techniques and thus facilitate better discussions with their clients.[7] This in turn may lead to more successful client–clinician relationships, increased trust between all parties, and potentially to improved health outcomes for dental hygiene clients.[7,14,24,25]

CONFLICTS OF INTEREST
The author has declared no conflicts of interest.

REFERENCES

1. McMullan M. Patients using the Internet to obtain health information: How this affects the patient-health professional relationship. *Patient Educ Couns*. 2006 Oct;63(1–2):24–28. doi: 10.1016/j.pec.2005.10.006. Epub 2006 Jan 6. PMID: 16406474.

2. Maslen S, Lupton D. "You can explore it more online": a qualitative study on Australian women's use of online health and medical information. *BMC Health Serv Res*. 2018 Dec 3;18(1):916. doi: 10.1186/s12913-018-3749-7. PMID: 30509261; PMCID: PMC6276182.

3. Caiata-Zufferey M, Schulz PJ. Physicians' communicative strategies in interacting with Internet-informed patients: results from a qualitative study. *Health Commun*. 2012;27(8):738–49. doi: 10.1080/10410236.2011.636478. Epub 2012 Jan 19. PMID: 22260422.

4. Mendes Á, Abreu L, Vilar-Correia MR, Borlido-Santos J. "That Should Be Left to Doctors, That's What They Are There For!" Exploring the reflexivity and trust of young adults when seeking health information. *Health Commun*. 2017 Sep;32(9):1076–1081. doi: 10.1080/10410236.2016.1199081. Epub 2016 Aug 2. PMID: 27485762.

5. Powell JA, Darvell M, Gray JA. The doctor, the patient and the world-wide web: How the internet is changing healthcare. *J R Soc Med*. 2003;96(2):74–76. doi: 10.1258/jrsm.96.2.74. PMID: 12562977; PMCID: PMC539397.

6. Dolce MC. The Internet as a source of health information: Experiences of cancer survivors and caregivers with healthcare providers. *Oncol Nurs Forum*. 2011 May;38(3):353–59. doi: 10.1188/11.ONF.353-359. PMID: 21531685.

7. Farnood A, Johnston B, Mair FS. A mixed methods systematic review of the effects of patient online self-diagnosing in the "smart-phone society" on the healthcare professional–patient relationship and medical authority. *BMC Med Inform Decis Mak*. 2020 Oct 6;20(1):253. doi: 10.1186/s12911-020-01243-6. PMID: 33023577; PMCID: PMC7539496.

8. Hou J, Shim M. The role of provider–patient communication and trust in online sources in Internet use for health-related activities. *J Health Commun*. 2010;15(Suppl 3):186–99. doi: 10.1080/10810730.2010.522691. PMID: 21154093.

9. Tan SS, Goonawardene N. Internet health information seeking and the patient–physician relationship: a systematic review. *J Med Internet Res*. 2017;19(1):e9. doi: 10.2196/jmir.5729. PMID: 28104579; PMCID: PMC5290294.

10. Harris CE, Chestnutt IG. The use of the Internet to access oral health-related information by patients attending dental hygiene clinics. *Int J Dent Hyg*. 2005;3(2):70–73. doi: 10.1111/j.1601-5037.2005.00129.x. PMID: 16451385.

11. Mattheos N. The Internet and the oral healthcare professionals: potential and challenges of a new era. *Int J Dent Hyg*. 2007;5(3):151–57. doi: 10.1111/j.1601-5037.2007.00248.x. PMID: 17615024.

12. Valizadeh-Haghi S, Rahmatizadeh S. eHealth literacy and general interest in using online health information: a survey among patients with dental diseases. *Online J Public Health Inform*. 2018;10(3):e219. doi: 10.5210/ojphi.v10i3.9487. PMID: 30680052; PMCID: PMC6335089.

13. Ní Ríordáin R, McCreary C. Dental patients' use of the Internet. *Br Dent J*. 2009;207(12):583–86; 575. doi: 10.1038/sj.bdj.2009.1137. PMID: 20019727.

14. Silver MP. Patient perspectives on online health information and communication with doctors: a qualitative study of patients 50 years old and over. *J Med Internet Res*. 2015;17(1):e19. doi: 10.2196/jmir.3588. PMID: 25586865; PMCID: PMC4319073.

15. Lee K, Hoti K, Hughes JD, Emmerton L. Dr Google and the consumer: A qualitative study exploring the navigational needs and online health information-seeking behaviors of consumers with chronic health conditions. *J Med Internet Res*. 2014;16(12):e262. doi: 10.2196/jmir.3706. PMID: 25470306; PMCID: PMC4275480.

16. Peña-Purcell N. Hispanics' use of Internet health information: an exploratory study. *J Med Libr Assoc*. 2008;96(2):101–107. doi: 10.3163/1536-5050.96.2.101. PMID: 18379664; PMCID: PMC2268221.

17. Synnot AJ, Hill SJ, Garner KA, Summers MP, Filippini G, Osborne RH, et al. Online health information seeking: How people with multiple sclerosis find, assess and integrate treatment information to manage their health. *Health Expect*. 2016;19(3):727–37. doi: 10.1111/hex.12253. Epub 2014 Aug 28. PMID: 25165024; PMCID: PMC5055229.

18. Escoffery C, Miner KR, Adame DD, Butler S, McCormick L, Mendell E. Internet use for health information among college students. *J Am Coll Health*. 2005;53(4):183–88. doi: 10.3200/JACH.53.4.183-188. PMID: 15663067.

19. Magsamen-Conrad K, Dillon JM, Billotte Verhoff C, Faulkner SL. Online health-information seeking among older populations: Family influences and the role of the medical professional. *Health Commun.* 2019;34(8):859–71. doi: 10.1080/10410236.2018.1439265. Epub 2018 Feb 23. PMID: 29474125; PMCID: PMC6230499.

20. Pluye P, El Sherif R, Granikov V, Hong QN, Vedel I, Galvao MCB, et al. Health outcomes of online consumer health information: a systematic mixed studies review with framework synthesis. *J Assoc Inf Sci Technol.* 2019;70(7):643–59. doi: 10.1002/asi.24178. Epub 2019 Jan 30. PMID: 31423458; PMCID: PMC6686988.

21. Sanders R, Linn AJ. A mixed method study investigating the impact of talking about patients' internet use on patient-reported outcomes. *J Health Commun.* 2018;23(9):815–23. doi: 10.1080/10810730.2018.1514443. Epub 2018 Oct 23. PMID: 30351205.

22. Fiksdal AS, Kumbamu A, Jadhav AS, Cocos C, Nelsen LA, Pathak J, et al. Evaluating the process of online health information searching: a qualitative approach to exploring consumer perspectives. *J Med Internet Res.* 2014;16(10):e224. doi: 10.2196/jmir.3341. PMID: 25348028; PMCID: PMC4285658.

23. Chestnutt IG, Reynolds K. Perceptions of how the Internet has impacted on dentistry. *Br Dent J.* 2006;200(3):161–65; discussion 149. doi: 10.1038/sj.bdj.4813195. PMID: 16474364.

24. Sabater-Galindo M, Fernandez-Llimos F, Sabater-Hernández D, Martínez-Martínez F, Benrimoj SI. Healthcare professional–patient relationships: Systematic review of theoretical models from a community pharmacy perspective. *Patient Educ Couns.* 2016;99(3):339–47. doi: 10.1016/j.pec.2015.09.010. Epub 2015 Oct 9. PMID: 26475728.

25. Fox S, Chesla C. Living with chronic illness: A phenomenological study of the health effects of the patient–provider relationship. *J Am Acad Nurse Pract.* 2008;20(3):109–17. doi: 10.1111/j.1745-7599.2007.00295.x. PMID: 18336687.

26. Bylund CL, Gueguen JA, Sabee CM, Imes RS, Li Y, Sanford AA. Provider–patient dialogue about Internet health information: An exploration of strategies to improve the provider–patient relationship. *Patient Educ Couns.* 2007;66(3):346–52. doi: 10.1016/j.pec.2007.01.009. Epub 2007 Feb 27. PMID: 17329062.