Factors associated with internet use to obtain oral health-related information

Alcir José de Oliveira Júnior, PhD[1]; **Beatriz Loureiro Santos**[2]**; Fábio Luiz Mialhe**, PhD[3]

1. National Coordination of Oral Health, Ministry of Health, Federal District, Brazil

2. Graduated in Dentistry, Faculdade de Odontologia de Piracicaba, Universidade Estadual de Campinas (UNICAMP), São Paulo, Brazil

3. Department of Health Sciences and Pediatric Dentistry, Faculdade de Odontologia de Piracicaba, Universidade Estadual de Campinas (UNICAMP), São Paulo, Brazil

Corresponding Author: Fábio Luiz Mialhe, PhD
Department of Health Sciences and Pediatric Dentistry
Universidade Estadual de Campinas
Faculdade de Odontologia de Piracicaba
Piracicaba, São Paulo
Brazil
Phone:+55 (19) 98226-1515
Email: mialhe@unicamp.br

ABSTRACT

Background: The internet popularization of recent decades has led to an increased search for oral health information by patients, but little is known about which factors may interfere in this process. This cross-sectional study investigates factors associated with internet use to obtain oral health-related information in a sample of adults. **Methods:** Adults users of six Primary Health Care (PHC) centers located in a city located in the interior of the state of São Paulo, Brazil, participated in the study. Data were collected on socioeconomic, behavioral and dental characteristics, and internet use to obtain information about oral health. Simple and multiple logistic regression was performed for analysis between predictor variables and the outcome (internet use). **Results:** A sample of 301 adults participated in the study. In the final adjusted model, users with secondary education (OR=2.53; 95% CI:1.11–5.79), who more frequently searched the internet for health information (OR=2.89; 95% CI: 1.25–4.20), who thought the internet was more useful for making health decisions (OR=2.56; 95%CI: 1.47–4.48), who spoke to a health professional in the last 12 months about some information obtained on the internet (OR=3.10; 95% CI: 1.77–5.44), whose last dental consultation was due to urgent reasons (OR=2.30; 95% CI: 1, 25–4.23) and who had greater autonomy in decision-making related to dentistry (OR=1.89; 95% CI: 1.10–3.27) were more likely to use the internet to obtain oral health-related information ($p<0.05$). **Conclusion:** Sociodemographic, behavioral and dental factors were associated with internet use to obtain oral health-related information in adults.

Keywords: internet use; oral health; primary health care

CDHA Research Agenda category: access to care and unmet needs

INTRODUCTION

The internet popularization of recent decades has sparked the interest of the scientific community, especially following the emergence and popularization of mobile devices.[1] According to global estimates from July 2024, there were 5.45 billion internet users worldwide which amount to 67.1 percent of the global population.[2]

In health care, internet use has advanced the application of telemedicine, characterized by the provision of health services via remote data transmission such as messaging via text, audio, photos and videos, favoring health access to vulnerable populations, social minorities and users who live in places of difficult access, such as rural areas.[3] More specifically, in dental health care, teledentistry has been enabling the continued training of oral health teams, the guidance of users remotely in various situations, and bringing Primary Health Care (PHC) closer together with specialized dental care in developing joint diagnostics.[4-6]

Moreover, users worldwide have been adopting the internet as an important source of health information, including oral health.[7,8] A study conducted with high school students in Indonesia found that teenagers who searched for oral health information on the internet brushed their teeth more than students who did not use the internet.[7] A study conducted with adults users of the public dental service in Australia observed that users with greater decision-making autonomy regarding oral health had the habit of seeking information about it on the internet.[9]

However, the scientific literature lacks research on which factors favor information-seeking behavior about oral health on the internet by users. Investigating these variables is important because digital health literacy is a fundamental aspect to be promoted by countries and institutions, and is even featured on the World Health Organization's (WHO) global strategy on digital health until 2025.[10] Thus, research must explore and understand the determinants associated with information search about oral health among internet users.

Based on this evidence, future applications on internet use to prevent diseases and promote oral health can be better planned and conducted within society.[11]

Hence, this study investigated the factors (sociodemographic, behavioral and dental variables) associated with internet use to obtain oral health-related information in a sample of PHC adult users.

METHODS

This cross-sectional and analytical observational study was conducted with adults in a city in the interior of the state of São Paulo, Brazil between February and March 2020. The study was approved by the Research Ethics Committee of the Faculdade de Odontologia de Piracicaba, Universidade Estadual de Campinas (CAAE: 61605316.5.0000.5418), following the Helsinki Declaration principles.

Inclusion criteria consisted of PHC users aged over 18 years old who had Brazilian Portuguese as their mother tongue without obvious signs of cognitive disorders, not be under the influence of alcohol or drugs, and who signed the informed consent form. Users who did not met these criteria were excluded from the sample.

Initially, six Primary Health Care (PHCU) units with Family Health teams were randomly selected. Then, a sample of 50-60 adults who lived next each PHCU was selected by means of a simple random sampling process carried out after the researchers had consulted the primary care information system of each PHCU, and individuals who fulfilled all the inclusion criteria were invited to participate in the study. Recruitment of participants was performed through home visits of residents. Data were collected during home visits by two researchers previously trained to apply the questionnaires and accompanied by health agents from each unit.

The researchers developed the questionnaires, based on other studies, to be answered in 10 minutes maximum in the form of an interview. The researchers were present to assist users understanding and interpreting the questions to avoid possible errors and thus reduce potential sources of bias in the questionnaire responses. A pilot study was conducted with 20 PHCU users who did not participate in the study. No changes to the questionnaire structure were suggested.

Our outcome variable was internet use to obtain information about oral health, which was assessed through the question "Have you ever used the Internet to search for any information related to your oral health?" ('yes' or 'no' answers).

Predictor variables of internet use to obtain information about oral health were classified into:

- Sociodemographic variables: sex (female or male); age (dichotomized by median - up to 42 years old or over 42 years old); ethnicity (white/yellow or black/mixed race/indigenous); living at home (living alone or living with someone) and schooling (up to primary or secondary education or tertiary education).
- Behavioral variables: tobacco use (yes or no); frequency of internet search for health information: less frequently (never/rarely/sometimes) or more frequently (often/very often); how useful do you think the internet is in helping you make decisions about your health: less useful (not useful/little useful/not sure) or more useful (useful/very useful); and whether the user have spoken to any health professional in the last 12 months about any health information obtained on the internet (yes or no).
- Dental variables: motivation to take care of oral health was assessed through the following question "How motivated do you feel to take care of your oral health?", and responses were dichotomized into "higher motivation" (almost always/often) or "lower motivation" (sometimes/ rarely). Reason for last dental appointment were dichotomized

into ‘maintenance’ (routine/cleaning/orthodontic appliance) or ‘urgency’ (pain/broken tooth/decayed tooth/prosthesis fracture). How the user generally experiences decision-making related to dentistry was evaluated by the Control Preferences Scale (CPS) instrument, adapted for Dentistry.[9,11] The CPS enables identification of respondent’s perceived role in dental treatment. Participants were asked to select one out of 5 themes that reflected their preferred role when making a dental treatment choice. They were provided with five themes of the CPS and were scored as follows: 5 = ‘I make the final decision about which treatment I will receive’; 4 = ‘I make the final selection after seriously considering my dentist’s opinion’; 3 = ‘My dentist and I share the responsibility for the decision about which treatment is the best for me’; 2 = ‘My dentist makes the final decision about which treatment will be used but has seriously considered my opinion’; and 1 = ‘I leave all decisions regarding my treatment to my dentist’. Responses were dichotomized into ‘high autonomy’ (options 1 to 3) or ‘low autonomy’ (responses 4 and 5). Additionally, answers were collected about whether gums bled during brushing (yes or no) and whether the participant had already had a tooth extracted due to dental pain (yes or no).

Statistical analysis

Descriptive analyses were performed for each variable studied. Individual associations of each variable with the dependent variable (having already used the internet to obtain information about oral health) were analyzed by simple logistic regression models. From these models, crude odds ratios were estimated with 95% confidence intervals.

Variables with $p<0.20$ in individual analyses were imputed in a multiple logistic regression model, whereas those with $p\leq0.05$ remained in the final model when analyzed together in the multiple model. The cut-off point of $p<0.20$ was adopted because it is widely

used in the health literature, with the aim of selecting and retaining in the final model only the truly significant predictors in the analyzed data set.

Based on the multiple regression model, adjusted odds ratios were estimated with 95% confidence intervals. Model fit was assessed using the Akaike Information Criterion (AIC). All analyses were conducted using the R program and a 5% significance level. In addition, the sample calculation was performed using the Gpower and EpiInfo programs. The sample size of 301 participants had an 80% test power (β=0.20) with a 5% significance level (α=0.05) for prevalences around 38% and minimum detectable odds ratio of 2.0. This sample size is also in line with the minimum number of cases per variable indicated in logistic regression analyses.[12-14]

RESULTS

Our study sample totaled 301 adults aged from 18 to 65 years (mean = 40.4; SD =13.4), of which 66.4% were female and 38.2% had already used the internet to obtain oral health information. Notably, 19.9% had only primary education and 71.4% sporadically searched for health information on the internet. Moreover, 51.5% thought that the internet was less useful for making decisions about one's health. Interestingly, 32.2% spoke to a health professional in the last 12 months about some information they obtained on the internet and 74.4% presented low motivation to take care of their oral health. Furthermore, 72.1% attended their last dental appointment due to maintenance reasons. Additionally, 22.6% said that their gums usually bleed when brushing their teeth and 55% had already had their teeth extracted due to pain or tooth decay.

The multiple logistic regression model indicated that users with secondary education (OR=2.53; 95% CI:1.11–5.79), who more frequently searched the internet for health

information (OR=2.89; 95% CI: 1.25–4.20), who thought the internet was more useful for making health decisions (OR=2.56; 95%CI: 1.47–4.48), who spoke to a health professional in the last 12 months about some information obtained on the internet (OR=3.10; 95% CI: 1.77–5.44), whose last dental consultation was due to urgent reasons (OR=2.30; 95% CI: 1, 25–4.23) and who had greater autonomy in decision-making related to dentistry (OR=1.89; 95% CI: 1.10–3.27) were the variables that remained significantly associated with the outcome 'internet use to obtain information about oral health' in the final model ($p<0.05$), as shown in Table 1.

DISCUSSION

In the present study, we conducted an investigation of the associations between socioeconomic, behavioral and dental variables with internet use to obtain oral health-related information in a sample of Brazilian users of primary healthcare services. Our findings show that all these variables are important factors associated with internet use to obtain oral health-related information among PHC services' adult users. Thus, this research contributes to a better understanding of the phenomenon and use profile of this information and communication technology among health services users by oral health teams.[15]

Education stood out among the independent variables associated with the outcome: users with secondary education were more likely to search the internet for oral health information than those with only primary education. These findings corroborate those of Harris and Chestnut[16] and Gowdar et al.[17], who found a statistically significant difference between individuals in searching for oral health information on the internet depending on their schooling level. Additionally, it confirms the results of Hanna et al.[9], who observed an association between individuals with higher schooling years and greater use of the internet to

obtain oral health information. All these findings suggest that less literate users have greater difficulty in seeking health- and oral health-related information and even interpreting it.

We also found an association between users who more frequently searched for information about general health on the internet and using the internet to obtain oral health information. The lack of dental research on this association provides originality for this finding and encourages future studies to confirm it.

Another variable that remained associated with the outcome was declaring the internet as useful in helping with health-related decision-making. This question, extracted from the electronic Health Literacy Scale (eHEALS)[18], show the importance of some electronic health literacy (eHL) skills in searching for oral health information. Other studies also indicate that eHL is a predictive factor for digital health information search.[19,20]

Individuals who reported having spoken to a health professional in the last 12 months about information they obtained on the internet was also associated with the outcome in the final model. No other dentistry study on this association was found, which makes our finding innovative, but research on the field of general health by Madrigal and Escoffery[21] found statistically significant differences about the search and use of digital information for general health behaviors when comparing groups of adults in which the outcome variable was 'being a carrier of chronic disease or not' and the independent variable 'having spoken to a health professional to get a second opinion.' It is therefore believed that users who are most interested in searching for health information on the internet are also those who question health professionals the most during care.

One's reason for the last dental appointment was another variable associated with the outcome. In a study with high school students in Saudi Arabia by means of questionnaire application, Maharani et al.[7] compared the association of using Google search and/or social media to obtain information about oral health with visiting the dentist regularly and tooth

brushing. The authors found that using social media to obtain oral health-related information was associated with greater brushing frequency and less regularity of visits to the dentist. Google searching oral health information was associated with searching for information on the causes and treatment of oral diseases.[7]

Users who demonstrated greater decision-making autonomy related to dentistry showed a statistically significant association with the outcome. Similar findings with the outcome 'searching the internet for information about third molars' was found in a study conducted in Australia with adults at a dental clinic, in which users who had a preference for decision control regarding oral health showed associations with greater internet search to obtain information about third molars.[9] These findings suggest that users with greater decision-making autonomy related to dentistry are more proactive in searching the internet for information about oral health.

As for the prevalence of internet use to obtain oral health-related information, 38.2% of respondents reported having already used the internet to obtain information on this topic. Other studies have shown different percentages depending on the country and study population. For example, Harris and Chestnutt[16] found a prevalence of 3% in a sample of adults in the UK, whereas Hanna et al.[9] obtained a prevalence of 52.7% in Australian adults, and Gowdar et al.[17] found a prevalence of 71.3% among adults in Saudi Arabia. In a study conducted with adolescents from Indonesia, Maharani et al.[7] observed a prevalence of 93.7%. These differences can be attributed to the country, culture and age group of the population studied. Additionally, Gowdar et al.[17] was the most recent published study and therefore their results may have been influenced by people's greater interest in accessing health information on the due to after the COVID-19 pandemic.

Our results highlight the need for dialogue on the subject during dental appointments and exams, a fact that must be considered when developing treatment plans with patients. A

relevant measure to be taken by health professionals is to raise awareness among patients about how and where to seek reliable health information.[16,17] According to the systematic review conducted by Borges do Nascimento et al.[23] on infodemics and misinformation in health, the internet can provide 'fake news' on topics related to general health which, according to the authors, requires the development of legal policies, such as creating and promoting awareness campaigns about the use of health information available on the internet, and improving health-related content broadcasted by the mass media, including official channels of governments and health organizations worldwide. In dentistry, studies have shown that misinformation on the internet and social media was associated with gum diseases, root canal treatment, toothache, fluoride (including anti-fluoridation propaganda), and dental caries.[24-27]

As with information on general health, oral health professionals must know the sources of dental information that health care users access to make decisions about their oral health given that several sources on the internet present incorrect information, as demonstrated by Zanatta et al.[28] and Lopez de Coca et al.[29]

This study has some limitations. Among them, clinical examinations were not conducted and, therefore, clinical parameters could not be evaluated. The study not investigating in more detailed how the internet was accessed (i.e., mobile or desktop), which digital platforms were most used (Google, social media) and to what degree and frequency, the type of device used to access the Internet, the sites used and the type of sites visited. Additionally, taking account that we used a data-driven approach for variable selection based in other studies rather than a theoretical model, this approach has limitations, such as omitting key confounders and the potential for overfitting in the final model. Therefore, our results are valid only for the sample evaluated. However, the present study brings innovative findings that can help in developing new studies and theoretical models for better understanding the

variables associated with internet use to obtain oral health-related information by adult users. Future studies should be conducted in other settings, with larger samples and countries such as North America and Europe to confirm the present findings.

CONCLUSIONS

Internet use to obtain oral health-related information was associated with level of education, frequency of searching for health information on the internet, how useful participants though the internet is in helping them make decisions about health, whether they had spoken to a health professional in the last 12 months about any health information obtained on the internet, the reason for the last dental appointment and how the user generally experiences decision-making related to dentistry.

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CONFLICTS OF INTEREST

The authors have declared no conflicts of interest.

PRACTICAL RELEVANCE

- Patients are currently more active in searching for oral health information on the internet, but few mention this behavior to their health teams. Knowledge of the factors associated with this phenomenon by oral health teams can help improve communication with patients to clarify doubts and misinformation.

• Oral health teams must be prepared to provide dental information to this population based on the best possible scientific evidence, as well as indicating the best internet sources of evidence.

REFERENCES

1. Polanco-Levicán K, Salvo-Garrido S. Understanding Social Media Literacy: A Systematic Review of the Concept and Its Competences. Int J Environ Res Public Health 2022;19(14):8807. doi: 10.3390/ijerph19148807.

2. Statista. Number of internet and social media users worldwide as of July 2024 (in billions) [cited 2024 Aug 21]. Available from: https://www.statista.com/statistics/617136/digital-population-worldwide/

3. Romli R, Abd Rahman R, Chew KT, Mohd Hashim S, Mohamad EMW, Mohammed Nawi A. Empirical investigation of e-health intervention in cervical cancer screening: A systematic literature review. PLoS One. 2022;17(8):e0273375. doi: 10.1371/journal.pone.0273375.

4. Flores APDC, Lazaro SA, Molina-Bastos CG, Guattini VLO, Umpierre RN, Gonçalves MR, et al. Teledentistry in the diagnosis of oral lesions: A systematic review of the literature. J Am Med Inform Assoc. 2020;27(7):1166-1172. doi: 10.1093/jamia/ocaa069.

5. Gurgel-Juarez N, Torres-Pereira C, Haddad AE, Sheehy L, Finestone H, Mallet K, et al. Accuracy and effectiveness of teledentistry: a systematic review of systematic reviews. Evid Based Dent. 2022 ; 8:1–8. doi: 10.1038/s41432-022-0257-8.

6. Oliveira Júnior AJ, Mialhe FL. Saúde digital e a odontologia no Brasil no âmbito do Sistema Único de Saúde. REAS. 2022 J;15(6):e10510. doi: 10.25248/reas.e10510.2022.

7. Maharani DA, El Tantawi M, Yoseph MG, Rahardjo A. The use of internet platforms for oral health information and associated factors among adolescents from Jakarta: a cross sectional study. BMC Oral Health. 2021;21(1):22. doi: 10.1186/s12903-020-01387-x.

8. Almoddahi D, Machuca Vargas C, Sabbah W. Association of dental caries with use of internet and social media among 12 and 15-year-olds. Acta Odontol Scand. 2022;80(2):125-130. doi: 10.1080/00016357.2021.1951349.

9. Hanna K, Sambrook P, Armfield JM, Brennan DS. Internet use, online information seeking and knowledge among third molar patients attending public dental services. Aust Dent J. 2017;62(3):323-330. doi: 10.1111/adj.12509.

10. WHO. Global strategy on digital health 2020-2025. [cited 2024 Aug 21]. Available from: https://www.who.int/docs/default-source/documents/gs4dhdaa2a9f352b0445bafbc79ca799dce4d.pdf

11. Chapple H, Shah S, Caress AL, Kay EJ. Exploring dental patients' preferred roles in treatment decision-making - a novel approach. Br Dent J. 2003;194(6):321-7; discussion 317. doi: 10.1038/sj.bdj.4809946.

12. Peduzzi P, Concato J, Kemper E, Holford TR, Feinstein AR. A simulation study of the number of events per variable in logistic regression analysis. J Clin Epidemiol. 1996;49(12):1373-9. doi: 10.1016/s0895-4356(96)00236-3.

13. Faul F, Erdfelder E, Lang AG, Buchner A. G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behav Res Methods. 2007;39(2):175-91. doi: 10.3758/bf03193146.

14. Centers for Disease Control and Prevention. EpiInfo. Version 7.2. Atlanta, USA. 2021.

15. Grau-Muñoz A. Estrategias ante el uso de Internet por población usuaria en Atención Primaria: una clasificación sociológica [A proposal of sociological classification of Internet

use in primary health care]. Gac Sanit. 2021;35(5):420-424. Spanish. doi: 10.1016/j.gaceta.2020.08.008.

16. 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):70-3. doi: 10.1111/j.1601-5037.2005.00129.x.

17. Gowdar IM, Arishi FO, Ateen AM, Alzuabi AA, Al-Ahmari AA, Khojah AB. Use of Internet as a Source of Oral Health Information in Riyadh Region, Saudi Arabia. J Pharm Bioallied Sci. 2022;14(Suppl 1):S331-S334. doi: 10.4103/jpbs.jpbs_817_21.

18. Mialhe FL, Moraes KL, Sampaio HAC, Brasil VV, Vila VDSC, Soares GH, et al. Evaluating the psychometric properties of the eHealth Literacy Scale in Brazilian adults. Rev Bras Enferm. 2021;75(1):e20201320. doi: 10.1590/0034-7167-2020-1320.

19. Hautala GS, Comadoll SM, Raffetto ML, Ducas GW, Jacobs CA, Aneja A, et al. Most orthopaedic trauma patients are using the internet, but do you know where they're going? Injury. 2021;52(11):3299-3303. doi: 10.1016/j.injury.2021.02.029.

20. Lotto M, Maschio KF, Silva KK, Ayala Aguirre PE, Cruvinel A, Cruvinel T. eHEALS as a predictive factor of digital health information seeking behavior among Brazilian undergraduate students. Health Promot Int. 2021: daab182. doi: 10.1093/heapro/daab182.

21. Madrigal L, Escoffery C. Electronic Health Behaviors Among US Adults With Chronic Disease: Cross-Sectional Survey. J Med Internet Res. 2019;21(3):e11240. doi: 10.2196/11240.

22. Barreto MDS, Caram CDS, Dos Santos JLG, de Souza RR, Goes HLF, Marcon SS. Fake news about the COVID-19 pandemic: perception of health professionals and their families. Rev Esc Enferm USP. 2021;55:e20210007. doi: 10.1590/1980-220X-REEUSP-2021-0007.

23. Borges do Nascimento IJ, Pizarro AB, Almeida JM, Azzopardi-Muscat N, Gonçalves MA, Björklund M, Novillo-Ortiz D. Infodemics and health misinformation: a systematic

review of reviews. Bull World Health Organ. 2022;100(9):544-561. doi: 10.2471/BLT.21.287654.

24. Eliacik BK. Topical Fluoride Applications Related Posts Analysis on Twitter Using Natural Language Processing. Oral Health Prev Dent. 2021;19(1):457-464. doi: 10.3290/j.ohpd.b2048359.

25. Lotto M, Sá Menezes T, Zakir Hussain I, Tsao SF, Ahmad Butt Z, P Morita P, Cruvinel T. Characterization of False or Misleading Fluoride Content on Instagram: Infodemiology Study. J Med Internet Res. 2022;24(5):e37519. doi: 10.2196/37519.

26. Wang Y, McKee M, Torbica A, Stuckler D. Systematic Literature Review on the Spread of Health-related Misinformation on Social Media. Soc Sci Med. 2019;240:112552. doi: 10.1016/j.socscimed.2019.112552.

27. Lotto M, Jorge OS, Machado MAAM, Cruvinel T. Exploring online oral health misinformation: a content analysis. Braz Oral Res. 2023;37:e049. doi: 10.1590/1807-3107bor-2023.vol37.0049. PMID: 37255069.

28. Zanatta ET, Wanderley GPM, Branco IK, Pereira D, Kato LH, Maluf EMCP. Fake news: the impact of the internet on population health. Rev Assoc Med Bras.. 2021;67(7):926-930. doi: 10.1590/1806-9282.20201151.

29. Lopez de Coca T, Moreno L, Alacreu M, Sebastian-Morello M. Bridging the Generational Digital Divide in the Healthcare Environment. J Pers Med. 2022;12(8):1214. doi: 10.3390/jpm12081214.

Table 1. Crude and adjusted analysis of associations of variables with internet use for obtaining information about oral health (n = 301).

Parameter	Category	n (%)	Using the internet to obtain information about oral health		Crude OR (95%CI)	p-value	Adjusted OR (95%CI)	p-value
			*Yes	No				
			n (%)	n (%)				
Sociodemographics								
Sex	Female	200 (66.4%)	77 (38.5%)	123 (61.5%)	1.04 (0.63–1.70)	0.8827	-	-
	Male	101 (33.6%)	38 (37.6%)	63 (62.4%)	Ref			
Age	≤ 42 years	157 (52.2%)	67 (42.7%)	90 (57.3%)	1.49 (0.93–2.38)	0.0963	-	-
	> 42 years	144 (47.8%)	48 (33.3%)	96 (66.7%)	Ref			
Ethnicity	White/Yellow	198 (65.8%)	72 (36.4%)	126 (63.6%)	Ref		-	-

Parameter	Category	n (%)	Using the internet to obtain information about oral health		Crude OR (95%CI)	p-value	Adjusted OR (95%CI)	p-value
			*Yes	No				
			n (%)	n (%)				
	Black, Mixed Race, Indigenous	103 (34.2%)	43 (41.7%)	60 (58.3%)	1.25 (0.77–2.04)	0.3621		
Living at home	Living alone	29 (9.6%)	10 (34.5%)	19 (65.5%)	Ref		-	-
	Living with someone	272 (90.4%)	105 (38.6%)	167 (61.4%)	1.20 (0.54–2.67)	0.6645		
Schooling	Primary education	60 (19.9%)	11 (18.3%)	49 (81.7%)	Ref		Ref	
	Secondary education	159 (52.8%)	66 (41.5%)	93 (58.5%)	3.16 (1.53–6.53)	0.0019	2.53 (1.11-5.79)	0.0276
	Tertiary education	82 (27.2%)	38 (46.3%)	44 (53.7%)	3.85 (1.76–8.43)	0.0008	2.51 (0.98-6.43)	0.0545
Behavioral								

Parameter	Category	n (%)	Using the internet to obtain information about oral health		Crude OR (95%CI)	p-value	Adjusted OR (95%CI)	p-value
			*Yes	No				
			n (%)	n (%)				
Tobaco use	Yes	39 (13.0%)	11 (28.2%)	28 (71.8%)	Ref		-	-
	No	262 (87.0%)	104 (39.7%)	158 (60.3%)	1.68 (0.80–3.51)	0.1718		
Frequency of searching for health information on the internet	Less frequently	215 (71.4%)	63 (29.3%)	152 (70.7%)	Ref		Ref	
	More frequently	86 (28.6%)	52 (60.5%)	34 (39.5%)	3.69 (2.19–6.22)	<0.0001	2.89 (1.25-4.20)	0.0075
How useful the internet is in helping you make decisions about your health	Less useful	155 (51.5%)	36 (23.2%)	119 (76.8%)	Ref		Ref	
	More useful	146 (48.5%)	79 (54.1%)	67 (45.9%)	3.90 (2.38–6.39)	<0.0001	2.56 (1.47-4.48)	0.0010
In the last 12 months the user has spoken to any health	Yes	97 (32.2%)	60 (61.9%)	37 (38.1%)	4.39 (2.63–7.34)	<0.0001	3.10 (1.77-5.44)	<0.0001

Parameter	Category	n (%)	Using the internet to obtain information about oral health		Crude OR (95%CI)	p-value	Adjusted OR (95%CI)	p-value
			*Yes	No				
			n (%)	n (%)				
professional about any health information he obtained on the internet	No	204 (67.8%)	55 (27.0%)	149 (73.0%)	Ref		Ref	
Dental								
Motivation to take care of your oral health	High motivation	224 (74.4%)	88 (39.3%)	136 (60.7%)	1.20 (0.70–2.06)	0.5111	-	-
	Low motivation	77 (25.6%)	27 (35.1%)	50 (64.9%)	Ref			
Reason for last dental appointment	Maintenance	217 (72.1%)	75 (34.6%)	142 (65.4%)	Ref		Ref	
	Urgency	84 (27.9%)	40 (47.6%)	44 (52.4%)	1.72 (1.03–2.87)	0.0374	2.30 (1.25-4.23)	0,0071

Parameter	Category	n (%)	Using the internet to obtain information about oral health		Crude OR (95%CI)	p-value	Adjusted OR (95%CI)	p-value
			*Yes	No				
			n (%)	n (%)				
How the user generally experiences decision-making related to dentistry	High autonomy	157 (52.2%)	73 (46.5%)	84 (53.5%)	2.11 (1.31–3.40)	0.0021	1.89 (1.10-3.27)	0,0224
	Low autonomy	144 (47.8%)	42 (29.2%)	102 (70.8%)	Ref		Ref	
Gums bled when brushing teeth	Yes	68 (22.6%)	25 (36.8%)	43 (63.2%)	0.92 (0.53–1.62)	0.7810	-	-
	No	233 (77.4%)	90 (38.6%)	143 (61.4%)	Ref			
Have you ever had a tooth extracted due to toothache or tooth decay?	Yes	166 (55.1%)	63 (38.0%)	103 (62.0%)	0.98 (0.61–1.56)	0.9198	-	-
	No	135 (44.9%)	52 (38.5%)	83 (61.5%)	Ref			

* Outcome event. Ref: Reference category for the independent variables. OR: Odds ratio. CI: Confidence interval. AIC (empty model)=402.37. AIC (final model)=335.75.