Original Article

Factors associated with oral health literacy among users of primary health care: a cross-sectional study

Fernanda Maria Rovai Bado[1] (ID), Alcir José de Oliveira Júnior[2] (ID), Manoelito Ferreira Silva Junior[3] (ID), Gustavo Hermes Soares[4] (ID), Karine Laura Cortellazzi[2] (ID), Fábio Luiz Mialhe[2*] (ID)

[1] Department of Health, Piracicaba City Hall, Piracicaba, São Paulo, Brazil.

[2] Department of Health Sciences and Pediatric Dentistry, Piracicaba Dental School, University of Campinas, Piracicaba, São Paulo, Brazil.

[3] State University of Southwest Bahia, Bahia, Brazil.

[4] Australian Research Centre for Population Oral Health, The University of Adelaide, Adelaide, SA, Australia.

Corresponding author:
Prof. Dr. Fábio Luiz Mialhe
Avenida Limeira 901, Areão
Piracicaba, SP, Brasil
ZIP 13414-903
E-mail: mialhe@unicamp.br

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Aim: To analyze associations between sociodemographic factors, self-perception, self-care practices in health with Oral Health Literacy (OHL) levels among users of Primary Health Care (PHC). **Methods:** A cross-sectional and analytical study was performed in Piracicaba (São Paulo), Brazil, in 2018, with a convenience sample of users of PHC that were aged over 18 years. Data were collected with a questionnaire by a trained dentist in two Family Health Units. The outcome variable was OHL, measured by the OHLA-B instrument, which was dichotomized by median into low (≤8 point) and high (>8 point). The independent variables were sociodemographic conditions (age, sex, self-declared skin color, and education), self-perceived oral health and self-care practices in health (tooth brushing frequency, smoking habits, reason for the last visit to the dentist, and source of health information search). Unadjusted and adjusted analyses were performed between OHL and independent variables for multiple logistic regression model (p≤0.05). **Results:** The sample consisted of 450 adults. A total of 54.7% had a low OHL. After adjusting for sex and age, OHL was associated with skin color (OR=0.57; 95%CI=0.37-085), educational level (OR=4.92; 95%CI=3.16-7.79), health information from health professionals (OR=2.40; 95%CI=1.42-4.16) and internet (OR=2.88; 95%CI=1.59-5.32), toothbrushing >1 time a day (OR=3.23; 95%CI=1.27-9.92) and smokers (OR=0.42; 95%CI=0.23-0.73). After adjusting for sex, age and income, OHL was associated with (OR=0.63; 95%CI=0.41-096), educational level (OR=4.06; 95%CI=2.57-6.51) and smokers (OR=0.48; 95%CI=0.26-0.84). **Conclusions:** Low OHL was associated with socioeconomic factors, source of information and smoking. This fact highlights the importance of health professionals to promote OHL.

Keywords: Health literacy. Oral health. Primary health care.

Introduction

Primary Health Care (PHC) ensures the well-being of the population by focusing on its needs[1]. In the oral health field, PHC is responsible for prevent and controlling the main oral diseases. In Brazil, oral diseases represent one of the three main reasons why people seek health treatments, and this fact indicate the need for coordinated actions between society and health services[2].

However, for health services to be able to solve problems and monitor them, it is necessary efficient communication processes between users and providers, since it is a critical component in health care[3]. In this context, it is essential to reflect on how people understand and use the information provided by oral health teams to manage their self-care[4].

Individuals access health information from several sources, which have different degrees of usefulness and accuracy[5]. All of these issues are dealt with by the field of Health Literacy (HL), which is defined as the cognitive and social skills that determine motivation and the ability of individuals to gain access to, understand and use information in order to promote and maintain good health[6]. Although there are multiple definitions, it is of mutual agreement that HL contemplates more than reading pamphlets, scheduling appointments, understanding medicine labels or performing actions prescribed by health professionals[7-9].

High levels of HL enable better decision-making about health self-care, as well as the use of services in an optimized form, including healthier lifestyles and successful management of the social determinants of health[8]. Limited levels of LS are associated with individuals with low education and worse socioeconomic conditions, which together cause worse health outcomes[8,9].

Likewise, Oral Health Literacy (OHL) is a variable associated with the maintaining and promotion of good oral health[10-12]. Studies have shown associations of this construct with the modality and frequency of dental visits by the population and diverse outcomes in oral health[10-12]. Therefore, OHL should be considered an important factor by Oral Health Teams in treatment planning and management strategies for the population. However, little is known about the factors that are associated with OHL in users of health services in the Brazil despite the several studies already carried out in the country[10-18].

This study aimed to investigate the associations between sociodemographic factors, self-perception and self-care practices with OHL among adult users of PHC.

Materials and methods

This cross-sectional study was conducted with adult users of Family Health Units (FHU) in a medium-sized city located at the state of São Paulo, Brazil, in 2018. It was approved by the Research Ethics Committee of the Piracicaba Dental School (protocol 140/2014), and all subjects signed the Free and Informed Consent Form.

The sample size of 450 participants provided a test power of 90% ($\beta=0.10$) with a significance level of 5% ($\alpha=0.05$) for the effect size found in the study (Odds Ratio of 2.0 and 50% response in the unexposed group) based on dependent variable OHL. A sample of 535 individuals were invited. Thus, the non-response rate was 15.9%.

As inclusion criteria for the research, individuals should aged between 18 and 80 years old, self-reported ability to read and speak Brazilian Portuguese and absence of diagnosis of dementia and visual or hearing impairment.

Data were collected by a trained dentist (FMRB) in two FHU with dental teams. These units were selected because they were the places where the researcher worked as a dentist. The convenience sample was composed by volunteers who were looking for dental care in the FHU and were contact to participate in the research when waiting for dental or general consultation. Questionnaires were applied in the form of an interview.

OHL was the outcome variable of this study, and it was measured using the OHLA-B instrument, the version of the Oral Health Literacy Assessment – Spanish (OHLA-S) validated to Brazilian Portuguese[13]. OHLA-B is an instrument for measuring OHL through the pronunciation and comprehension of 15 words in the dental vocabulary. For the evaluation of the OHL score, the pronunciation and comprehension of the words were considered, adding a point for each item when both were correct. If one of the tests were incorrect, the score for this item would be 0. Considering the total of 15 items, the score could vary from 0 to 15 points. The higher the score, the higher the OHL levels.

OHLA-B scores were dichotomized by median of the sample into low (≤ 8 point) and high (>8 point). The independent variables were sociodemographic factors, self-care practices in health and self-perceived oral health.

The sociodemographic factors were dichotomized as follows: age (≤36 years old or >36 years old), sex (woman or man), self-declared skin color (white/yellow or brown/black), and education level (low: ≤8 years or high: >8 high years of study).

The variables related to self-care practices were dichotomized as: toothbrushing frequency (≤1 time a day or > 1 time a day), smoking (Yes or No), reason for the last visit to the dentist (Pain/Caries or Others) and the main source of health information search (TV, radio, books, others/internet/health professionals).

In addition, the variable self-perceived oral health was evaluated with a single question "How do you evaluate your oral health?" and was dichotomized as (excellent, very good and good or regular and poor).

All statistical tests were performed using the SAS 9.4 program (SAS Institute Inc., Cary, NC, USA. Release 9.4, 2010)[19]. Descriptive analyses of the data were performed, and the associations between each independent variable and the dependent variable OHL were analyzed were using regression analyses.

Logistic regressions were performed on OHL controlled by age and sex (Model 1) and age, sex and socioeconomic status (Model 2). The level of significance adopted was 5%.

Results

The sample consisted of 450 participants and all the questionnaires were filled completely.

Most participants were ≤36 years old, declared being white/yellow, having more than 8 years of study, good /very good/ excellent self-perceived oral health, brushing their teeth more than once a day, not smoking, going to the last dentist appointment due to pain/caries, and consulting a health professional as a main source of health information.

A total of 54.7% was classified as presenting low OHL taking into account the cut-off point used for the OLHA instrument. After adjusting for sex and age, OHL was associated with skin color (OR=0.57; 95%CI=0.37-085), educational level (OR=4.92; 95%CI=3.16-7.79), health information from health professionals (OR=2.40; 95%CI=1.42-4.16) and internet (OR=2.88; 95%CI=1.59-5.32), toothbrushing >1 time a day (OR=3.23; 95%CI=1.27-9.92) and smokers (OR=0.42; 95%CI=0.23-0.73). After adjusting for sex, age and income, OHL was associated with skin color (OR=0.63; 95%CI=0.41-096), educational level (OR=4.06; 95%CI=2.57-6.51) and smokers (OR=0.48; 95%CI=0.26-0.84) (Table 1)

Table 1. Adjusted analysis between OHL with sociodemographic factors and self-care practices in health, Piracicaba, SP, 2018.

Characteristic	Crude OR	95% CI	p-value	Adjusted OR*	95%CI	p-value	Adjusted OR‡	95% CI	p-value
Socioeconomic									
White / Yellow	1			1			1		
Brown / Black	0.86	0.38-0.86	0.007	0.57	0.37-0.85	0.006	0.63	0.41-0.96	0.032
Low educational level	1						1		
High educational level	4.50	2.98-6.88	<0.001	4.92	3.16-7.79	<0.001	4.06	2.57-6.51	<0.001
Self-perception of health									
Poor/regular self-perceived oral health	1			1			1		
Good/Very good/Excellent self-perceived oral health	0.81	0.54-1.22	0.314	0.82	0.54-1.23	0.349	0.75	0.49-1.14	0.174
Source of health information									
TV, radio, books, others	1						1		
Health professional	2.45	1.45-4.24	<0.001	2.40	1.42-4.16	0.001	2.18	1.27-3.83	
Internet	3.03	1.70-5.53	<0.001	2.88	1.59-5.32	<0.001	2.18	1.18-4.10	0.052

Continuation

Oral health behaviours									
Tooth brushing ≤ 1 time a day	1			1			1		
Tooth brushing >1 time a day	3.33	1.31-10.19	0.018	3.23	1.27-9.92	0.022	2.75	1.06-8.57	
Non-smoker	1			1			1		
Smoker	0.41	0.23-0.72	0.002	0.42	0.23-0.73	0.002	0.48	0.26-0.84	0.013
Reason for the last visit to the dentist									
Others	1			1			1		
Pain/Caries	1.30	0.89-1.91	0.175	1.27	0.86-1.87	0.224	1.04	0.70-1.57	0.830

*Adjusted for age and sex
‡Adjusted for age, sex and income

Discussion

This study showed that low levels of OHL among adult users of PHC were associated with sociodemographic factors, source of health information and smoking habits. Our results corroborate findings in the literature using other OHL instruments in other countries[20-26].

Brown and black individuals had a lower level of OHL, indicating the presence of ethnic inequity, corroborating other studies that verified this issue among non-whites[9,20-23], even considering a great variability in the studies design, in the composition of the samples, and in the instruments used. All of these studies suggest that patients that declared being brown or black may have greater difficulties in understanding health information, which shows the need to direct health improvement programs to these populations.

The association between low education and low OHL is well described in the literature[20,22-25]. Therefore, the longer the years of study, the better the processes of understanding health information, reverberating in better levels of health and oral health literacy[26,27]. Our results corroborate this association in the context of primary health care in Brazil, a fact that brings new information for the planning of health teams working at this level of care and reinforce the importance of public health policies to focus on socially disadvantaged people in order to promote their acess to health services and resolution capacity[28].

Among oral health behaviors, it was observed associations between smoking behaviour with low OHL, corroborating the fact that risky health choices can be associated with inadequate OHL. To our knowledge, very few studies have evaluated this variable as a predictor of OHL levels[23,29,30], although others studies found associations with general health literacy[31-33], a fact that should be investigated in future studies in larger populations. Considering that the use of cigarettes influences the activity of periodontal disease[34], it is assumed that low levels of OHL may be predictors of a worse periodontal condition, therefore, health professionals need to pay more attention in patients with low OHL levels.

In relation to the influence of source of information of health on OHL, it was observed that health professionals and internet presented considerable importance in the verified associations when model were adjusted for sex and age. However, they did not remain statistically significant with the outcome when adjusted for sex, age and income. Despite not remaining in the model 2 (p>0.05), the use of internet as the main source of health information presented a value very close to statistical significance (p=0.052). Some studies have shown that the internet and health professionals were the most sought-after sources of information on oral health[24]. These results suggest that individuals with high OHL are more proactive on the search for health information but these hypotheses should be tested in future studies.

The variable brushing teeth more than once a day remained associated with OHL levels in the model adjusted for age and sex, but lost its significance in the income-adjusted model. Studies have shown that those who have better levels of health literacy also have better brushing habits[12,35] This is probably a bidirectional relationship, as those who take better care of their oral health also seek more knowledge on the subject.

The above findings reinforce the influence of social determinants of health on OHL levels. Therefore, it highlights the importance of health professionals and services in providing accurate and easy-to-understand information to users in order to reduce health inequities.

Some of the limitations of this study include the use of an OHL instrument that has a limited capacity to assess wider aspects of OHL, as it assesses just functional, but not communicative and critical OHL[36-37]. In addition, the variables included in the analysis, the measurement methods of behaviors variables and the self-reporting nature of data related to oral health outcomes are limitations of this study that should be overcome in future studies. Lastly, the results found in the selected sample may not reflect the reality of all adults in the city.

In conclusion, functional OHL, measured through the OLHA-B scores, was associated with skin color, educational level and smoking habits after adjusted by age, sex and income. Because OHL is associated with better health outcomes, actions to increase their levels based on individuals' characteristics and their context should be considered by health professionals working on PHC with intersectorial partnerships.

Acknowledgments

Data availability

Datasets related to this article will be available upon request to the corresponding author.

Conflict of interest

None.

Author contribution

FMRB, FLM and KLC: Conception of the work, interpretation of data, drafting the work; critical review; GHS: Analysis and interpretation of data; MFSJ and AJOJ: Drafting the work. All authors approved the final version to be published. All authors approved the final submitted version.

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