DOI Number: 10.37506/v11/i1/2020/ijphrd/193886

Oral Health Literacy and its Relationship with Level of Education and Self-Efficacy among Patients Attending a Dental Rural Outreach Clinic in India

Shatakshi Srivastava[1], Shashidhar Acharya[2], Deepak Kumar Singhal[3], Abhishek Dutta[4], Kush Kalra[5], Nishu Singla[6]

[1]Lecturer, Dept. of Public Health Dentistry, MGM Dental College and Hospital, Navi Mumbai, Maharashtra, India, [2]Professor, [3]Associate Professor, Dept. of Public Health Dentistry, Manipal College of Dental Sciences, Manipal , Manipal Academy of Higher Education (MAHE), Karnataka,India, [4]Lecturer, Dept. of Oral and Maxillofacial Surgery, MGM Dental College and Hospital, Navi Mumbai, Maharashtra, India, [5]Senior Lecturer, Dept. of Public Health Dentistry, Santosh Dental College, Santosh University, Ghaziabad, U.P., [6]Associate Professor, Dept. of Public Health Dentistry, Manipal College of Dental Sciences, Manipal, Manipal Academy of Higher Education (MAHE), Karnataka, India

Abstract

Objective:To evaluate the relationship between Oral health literacy (OHL) with the level of education and self-efficacy among adults (age 18-77 years) patients attending a dental outreach clinic in Udupi Taluk. ***Basic research design:*** A cross-sectional study of adult patients attending a dental outreach clinic by convenience sampling. ***Method:*** Information was obtained about patient's sociodemographic factors along with the self-efficacy by using Dental Copings Belief's scale (DCBS) questionnaire and OHL was assessed by using a word recognition instrument Rapid Estimate of Adult Literacy in Dentistry (REALD-30).One way ANOVA and Pearson's χ^2 test were used for analysis. ***Participants:*** 200adult patients age range of 18- 77 years who wanted to seek dental care in a dental outreach clinic. ***Main outcome measures:*** Oral health literacy (OHL) and Self efficacy (DCBS) ***Results:*** In this study the OHL was significantly associated with the level of education of patients.Among the 200 subjects who claimed to be able to read and write English language andhad completed education till class 10^{th}; more than 50% of the subjects had Low (≤21)OHL scores.Only 12.5% of the total study population had High OHL (≥26) and were clearly able to understand simple dental terminology. Moderate levels of literacy was recorded in 75.6% in graduate and postgraduates indicating that even these people partially understood dental terms. There was no significant association between oral health literacy and self-efficacy.***Conclusion:***Our study suggests level of education to be a strong indicator of the OHL in the Indian Population. Further research to develop new instruments to measure the OHL, in a culturally diverse country like India, which has people of different mother tongues should be encouraged.

Keywords: *Oral health; health literacy; self- efficacy; community outreach.*

Introduction

The concept of Oral health literacy (OHL) has developed over several years and the existing literature is ever increasing in this field. Health literacy refers to the ability of individuals to obtain, understand and act upon health information and to make appropriate health decisions.[1-3] Oral health literacy (OHL) refers to the degree to which individuals have the capacity to obtain, process and understand basic oral health information and services needed to make appropriate health decisions.[4] This concept has not yet gained sufficient weightage in regular dental practice.

Corresponding Author:
Dr. Shatakshi Srivastava
Lecturer, Dept. Of Public Health Dentistry, Mahatma Gandhi Missions Dental College and Hospital, Kamothe, Navi Mumbai, Maharasthra, India-410209
Email id:drshatakshi.srivastava@gmail.com
Phone number: +91- 7045393005

Oral Health literacy is like a bridge between the dental care provider's instructions and the comprehension, thereby abiding of the patient to the same. This role of OHL makes it important for the dentist to ascertain the level of OHL of the patient before any procedure and then treat the patient according to the level of understanding of the patient. After identification of the level of OHL attention should be paid by the dentist to communicate with the public and remove literacy-related barriers to information, decision making, and healthful action. [5] A significant number of patients may have a low level of oral health literacy, which possibly interferes with their ability to process and understand oral health information. Providers should identify patients who are having difficulty understanding and using dental health information and address their needs. [6]

According to Paasche-Orlow and Wolf conceptual model of causal pathways between health literacy and health outcomes the effect of literacy on health outcomes is mediated by patient-level and extrinsic factors grouped as [1] access to and utilization of health care, [2] provider–patient interaction, and self-care.[7] Many factors are related to OHL but amongst the recent ones focus has been given to those that affect behavior because behavior is amenable to change. A successful dental practice is not only related to dental treatment provided, but also to the patient's attitude and behavior towards the treatment. [8] Individual health practices such as oral self-care are based on personal choices.[9] According to the model proposed by Lee et al., Personal characteristics such as self-efficacy mediate and/or modify the impact of literacy on oral health behaviors.[10]

Self-efficacy-Perceived self-efficacy is concerned with people's beliefs in their capabilities to produce given attainments.[11] Perceived self-efficacy is a judgment of capability to execute given types of performances and outcome expectations are judgments about the outcomes that are likely to flow from such performances. Perceived efficacy has a pivotal role because it affects behavior and its impact on other determinants such as goals and aspirations; outcome and expectations. Self-efficacy appraisals reflect the level of difficulty individuals believe they can surmount. [11]

The aim of the present study was to evaluate the relationship between Oral health literacy (OHL) by using Rapid Estimate of Adult Literacy in Dentistry (READ-30)with the level of education and self-efficacy by using a questionnaire on Dental Coping Beliefs Scale (DCBS) among adult (age 18-77 years) patients attending a dental outreach clinic in Udupi Taluk.

Objectives-

1) To evaluate the Oral health literacy in adults visiting a dental outreach clinic in India by using word recognition instrument- Rapid Estimate of Adult Literacy in Dentistry (REALD-30).

2) To evaluate the Self-efficacy using Dental Coping Beliefs Scale (DCBS) questionnaire in the same subjects.

3) To evaluate the relationship between OHL with level of education.

4) To evaluate the relationship between OHL and self-efficacy.

Method-

Sample and data collection- A convenience sample of participants (N=200) was recruited from patients presenting for an initial consultation to a dental rural clinic in Udupi. Written informed consent was obtained for all study participants. Study Design-A Cross-sectional questionnaire study. Inclusion Criteria were-subjects who claimed to be able to read English words, subjects more than 18 years of age but younger than 80 years, subjects who had completed education till a minimum of 10th class, subjects without cognitive impairment, subjects without vision or hearing problems and subjects without obvious signs of drug/alcohol intoxication. Exclusion Criteria: were subjects who are not able to read English words, subjects less than 18 years of age and more than 80 years, subjects who have completed education less than 10th class, subjects not willing to participate in the study, subjects with psychiatric disorders and subjects with other severe systemic illness. Ethical clearance was obtained from the Kasturba Hospital Ethics Committee, Manipal before commencement of the study(IEC 277/2014). Informed consent was obtained from all patients prior to the start of the study. The Oral Health Literacy Assessment was done using REALD-30 which is a word recognition instrument which has 30 dental related words arranged in order of increasing difficulty. [12] The words were read aloud by the subject to the interviewer. The participants were asked not to phonetically deduce the words, but rather to skip a word if they did not know it. One point is given to each word pronounced correctly (zero point if incorrectly). The READ-30 score was categorized as

Low (≤21), Moderate (22 to 25) or High (≥26).[13]

In addition to the above, each patient completed a questionnaire regarding Self-efficacy. This questionnaire was a part of Dental Coping Beliefs scale (DCBS). [14] The participants were asked to mark only one response to each question. Total Self- efficacy was calculated by adding each of the responses. It had 9 questions and the responses were recorded on a Likert scale.The responses were-(1) Strongly agree, (2) Agree, (3) Neither, (4) Disagree and (5) Strongly disagree. Additionally, socio-demographic data was included in the questionnaire -Age, gender, education, occupation, monthly income.

Data Analysis-Statistical analysis was performed using SPSS (version 16.0).One way ANOVA was used to assess the relation between READL-30(categorized-low, moderate, high)and self-efficacy (continuous variable). Pearson's $\chi 2$ test was used to assess association between education and READL-30. The level of significance was set at 0.05.

Results

The study population consisted of 200 English speaking adults who visited the dental outpatient clinic. Questionnaire was administered to 200 adults and the response rate was 100.0%.The mean age of the respondents 38.33 years who were in the age range of 18 to 77 years. Among the respondents 41% were males and 59% were females. An individual's completion of the entire questionnaire was ensured by checking for it during the oral health examination. The respondents were asked to complete the incomplete forms. The demographic characteristics of the participants are presented in Table 1. The distribution of READL-30 is presented in Table 2 of which 12.5% people have high OHL, 30.5% have moderate OHL and 57.0% have low OHL. Self-efficacy in results have been presented in Table 3. The self-efficacy range is 9-29 with a median of 18.0.The co-relation between READL and Self efficacy was analyzed by One way ANOVA and presented in Table 4.There was no significant association between OHL and self-efficacy.Pearson's χ^2 test was used to test for association between Education and READL has been presented in Table 5. The OHL was significantly associated with the level of education of patients. 6.0% of the participants completed high school education, 33.0%Intermediate/PUC, 58.5% Graduate/Post graduate and 2.5% Profession/ Honors.

Table 1-Distribution of study participants according to socio-demographic characteristics

Variables		**Participants (%) N=200**
Gender	Male	82 (41%)
	Female	118(59%)
Age (years)	Mean	38.33
	Range	18-77
Socioeconomic status	Middle	159(79.5%)
	Low	41(20.5%)

Table 2- Distribution of READL-30

	Frequency	**Percentage**
High	25	12.5%
Moderate	61	30.5%
Low	114	57.0%
Total	200	100.0%

Table 3- Distribution of Self efficacy

	Median	Range	Standard Deviation
Total Self efficacy	18.00	9-29	3.73

Table 4- One way ANOVA- Co-relation between

READLD and Self efficacy

		N	Mean Self-efficacy	Standard deviation	Sig.
READLD	High	25	18.520	4.204	0.983
	Moderate	61	18.442	3.909	
	Low	114	18.377	3.548	
Total		200	18.415	3.727	

Table 5- Association between Education and READLD

High Moderate			READLD			Total	Signi-ficance
			Low				
Education	High school	Count	0	0	12	12	0.001*
		%	0%	0%	10.5%	6.0%	
	Intermediate/ PUC	Count	6	14	46	66	
		%	24.0%	23.0%	40.4%	33.0%	
	Graduate/ Post graduate	Count	17	46	54	117	
		%	68.0%	75.4%	47.4%	58.5%	
	Profession/ Honors	Count	2	1	2	5	
		%	8.0%	1.6%	1.8%	2.5%	
Total %		Count	25	61	114	200	
			100%	100%	100%	100%	

Pearson's X^2 is taken as 0.001* as significant

Discussion

The aim of this study was to evaluate the oral health literacy (OHL) and its relationship with self-efficacy among adult patients attending a dental outreach clinic. To the best of our knowledge this is the second study done in India to assess the OHL using READL-30 as the assessment tool and the first study done to look closely into the association between OHL and self-efficacy in an adult Indian population in an outreach dental clinic. In this study the OHL was significantly associated with the level of education of patients which is similar to the findings of another study on Health Literacy. [15]

The dental copings beliefs scale was used to assess self-efficacy. DCBS helps the oral health professional in understanding a patients' belief either in internal or external controls and also the ability to which patient perceives himself/herself to be able to perform given tasks. [14] In the present study, there was no significant association between oral health literacy and self-efficacy. The self-efficacy has been assessed using a self-reported questionnaire, thus this finding could be attributed to the social desirability bias.

Among the 200 study English speaking subjects who had completed education at least till 10th class, who participated in the study OHL scores were very low in more than 50% of the subjects (57%-low OHL). These subjects scored less than 21 which mean these patients are likely to struggle to understand simple dental terminology which is used by the dentists while communicating to the

patients. Only 12.5% of the total study population had High OHL (≥26).This means only a little more than 10% of the whole of the study population is actually clearly able to understand the dental terms used by the dentists. Only moderate levels of literacy was recorded in 75.6% in graduate and postgraduates indicating that even these people understand only some of the dental terms and not all. The findings in the present study indicate that even in an Indian population with a basic level of education who are able to read and write in English have low levels of Oral health literacy. Similar findings are reported by M D'Cruz et al.,2014. [16]

Demands for reading, writing, and numeracy skills are intensified due to health-care systems' complexities, advancements in scientific discoveries, and new technologies. In this study there was no significant association between Oral health literacy and caries status and periodontal status. This could be attributed to the fact that the oral health literacy was taken by a word recognition instrument the REALD-30 which has several limitations.

This instrument is only a word recognition instrument and does not take into account whether the individual comprehends the dental words. Also, pronunciation of words vary in the Indian population due to a difference in dialect. It is possible that incorrect pronunciation may not necessarily mean that meaning of the word is also not known, more so among individuals with lower levels of education.[17] Therefore, the evaluation of oral health literacy via a word recognition instrument like REALD may be misleading. Due to these reasons, an association of oral health literacy with DMFT or CPI is difficult to assess.

Newer tools for assessing oral health literacy should be developed which test comprehension along with simple word recognition. Then the level of health literacy can be measured accurately and associated with oral health outcomes like caries status and periodontal status.

Conclusion

Demands for reading, writing, and numeracy skills are intensified due to health-care systems' complexities, advancements in scientific discoveries, and new technologies. [18] Poor health literacy has been described as a "silent epidemic" which needs to be taken care of by professionals and policy makers in order to improve quality of health care delivery, reduce costs and disparities. [18] The ''roots of health literacy problems have grown as health practitioners and health care system providers expect patients to assume more responsibility for self-care at a time when the health system is increasingly fragmented, complex, specialized, and technologically sophisticated". [19] Thus dentists should identify patients who are having difficulty understanding and using dental health information and address their needs.

Considering the importance of measuring oral health literacy and the numerous instruments available for the same, it becomes imperative to determine the applicability of the particular instrument to be used in the population under consideration.[15] Thus, for further research in the field of oral health literacy in a culturally diverse country like India with people of different mother tongues, other instruments which measure oral health literacy rapidly and also test comprehension of the participants should be developed.

There is no known conflict of interest for this study. There was no funding obtained for this study.

References

1. HHS (U.S. Department of Health and Human Services). 2000. *Healthy People 2010: Understanding and Improving Health.* Washington, DC: U.S. Department of Health and Human Services
2. Ratzan SC, Parker RM. Introduction. Selden CR, Zorn M, Ratzan SC, Parker RM, Editors. In: *National Library of Medicine Current Bibliographies in Medicine: Health Literacy*. Vol. NLM Pub. No. CBM 2000-1. Bethesda, MD: National Institutes of Health, U.S. Department of Health and Human Services.
3. Ratzan SC. Health literacy communication for the public good: Health Promotion International, Oxford University Press 2001:16 (2), p207-213.
4. National Institute of Dental and Craniofacial Research. The invisible barrier: literacy and its relationship with oral health. A report of a workgroup sponsored by the NIDCR, USPHS, DHHS. J Public Health Dent. 2005; 65: 174-82.
5. Rima E. Rudd. Oral health literacy: correcting the mismatch. Journal of Public Health Dentistry 2012; 72: S31–S33.
6. M Jones, J Y. Lee, R. G Rozier. Oral health literacy among adult patients seeking dental care. JADA

2007; 138 (9): 1199-1208.

7. Paasche-Orlow MK, Wolf MS. The causal pathways linking health literacy to health outcomes.Am J Health Behav. 2007 Sep-Oct;31 Suppl 1:S19-26.
8. Schou L. The relevance of behavioural sciences in dental practice.Int Dent J. 2000;Suppl Creating A Successful:324-32.
9. Hollister MC, Anema MG. Health behavior models and oral health: a review.J Dent Hyg. 2004 Summer;78(3):6.
10. J Y. Lee, K Divaris, A. D Baker, et al. The Relationship of Oral Health Literacy and Self-Efficacy with Oral Health Status and Dental Neglect. Am J of Public Health.2012 May 102(5): 923-929.
11. Bandura A. Guide for constructing Self-efficacy scales, Self-Efficacy Beliefs of Adolescents: Information Age Publishing 2006, p307–337.
12. J Y Lee, R. G Rozier, S Y D Lee, et al . Development of a Word Recognition Instrument to Test Health Literacy in Dentistry: The REALD-30 -A Brief Communication. J Public Health Dent 2007; 67 (2):94-98.
13. Meggan M.H., Caleb L. Corwin, et al. The impact of oral health literacy on periodontal health status. J Public Health Dent 2014; 74: 80-87.
14. Wolfe GR, Stewart JM et al. Use of Dental Coping Beliefs Scale to measure cognitive changes following oral hygiene interventions. Community Dentistry and Oral Epidemiology 1996; 24: 37-41
15. Rathnakar U.P, A Kamath, M Urval, et al . Applicability of the rapid estimate of adult health literacy in medicine – short form among patients attending a university hospital in southern India. International J. of Healthcare and Biomedical Research 2014; 3(1): 196-205
16. A M D'Cruz and M R Aradhya. Health literacy among Indian adults seeking dental care experiences. J Public Health Dent 2014; 74: 195–201.
17. J Y Lee, R G Rozier, S Y D Lee, et al. Development of a Word Recognition Instrument to Test Health Literacy in Dentistry: The REALD-30 -A Brief Communication. J Public Health Dent. 2007 ;67 (2):94-98.
18. Bohlman LN, Panzer A, Hamlin B, et al. Health literacy: a prescription to end confusion. Washington: National Academies Press 2004, p1-25.
19. Parker RM. Health literacy: a challenge for American patients and their health care providers. Health Promot International. 2000; 15(4): 277–83.