



## Original Article

## Relationship of Oral Health Literacy with Decision-making in Dental Treatment Planning among Urban Population of Lahore

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## ABSTRACT

In clinical settings, dentists frequently come across patients with variable oral health literacy, and they are not always able to tell which patients might comprehend with health-related explanations and instructions. **Objective:** To calculate oral health literacy level of patients reporting for dental treatment and correlation of the aforementioned with patients' decision-making capacity regarding dental treatment. **Methods:** A quantitative cross-sectional study was conducted with a pilot study on 60 patients in University Dental Hospital, University of Lahore through non-probability purposive sampling technique. Sample of 200 patients was collected over a period of five months (June 2022-October 2022). Data were analyzed using SPSS version 25. Study was divided into two phases; in Phase I, REALD-30 scale was used. Phase-II involved individuals scoring 11-30 points on REALD-30 scale and who had to complete a self-administered 5-point Likert scale questionnaire with eleven closed-ended items in order to determine their level of decision-making. **Results:** Study revealed that there was significant association between Oral Health Literacy Level with getting prior information concerning dental issue ( $p=0.032$ ), ability to appraise the decided treatment plan ( $p=0.033$ ) and opinion regarding follow up visits ( $p=0.026$ ). **Conclusions:** The results of the current study revealed a tenuous link between education, employment position, oral health literacy, and decision-making regarding dental treatment strategy. Effective patient-dentist communication generates strong link between the two leading to compliance of patients with treatment plan suggested by experts.

## INTRODUCTION

Health literacy is a common function of social and individual factor that is associated with an individual's potential to gain, learn and follow the medical instructions and decide treatment plan appropriately to manage their disease or maintain their health [1]. Health Literacy is a health promotion strategy that is one of the five key tracks identified at the 7<sup>th</sup> Global Conference on Health Promotion of the World Health Organization[2]. The American Dental Association (ADA) describes oral health literacy as the extent to which the individuals have the capability to obtain, process and cognize basic health information and services needed to make suitable oral health choices [3]. Theoretically, three categories of literacy are present: 1)

Functional literacy, which reflects the reading and writing talents of the patients, such as understanding a prescription or having control over the information on health risks services; 2) Communicative/ interactive literacy that values the most innovative cognitive skills along with social skills and addresses the aptitude to excerpt the information from media and apply new information to personal conditions, thus promoting change in specific circumstances; 3) Critical literacy, which is the capacity to critically analyze info and use it to workout greater control over life events[1, 4]. Individuals with low health literacy level are less likely to comprehend and follow treatment recommendations and lack the expertise

needed to make knowledgeable decisions about their personal health care [5, 6]. Other researchers propose that those with low literacy levels are incompetent to communicate well with health care providers and this gap in communication may be reason for worse oral health status [7, 8]. A society's oral health literacy level affects the general load of oral health ailments and adds to the existence of oral health disparities [9]. Dentists often come across the patients with limited oral health literacy skills in clinical setup and they are not always able to recognize those that may readily understand health related explanations and guidelines resulting in deprived oral health outcomes [10]. Thus, the aim of this study is to calculate oral health literacy level of patients reporting for dental treatment in private dental setup and to correlate the level of oral health literacy with patients' decision-making capacity regarding dental treatment.

### METHODS

A quantitative cross-sectional study was conducted over a period of 5 months (June 2022- October 2022) in University Dental Hospital, University of Lahore through non-probability purposive sampling technique. Following approval of institutional Ethical Review Board, a pilot study on 60 patients fulfilling the inclusion criteria was conducted. After determining the reliability of research questionnaire, a further sample of 140 patients was collected. Data were analyzed using SPSS version 25. The subjects needed to fit the following requirements in order to be qualified for this study: a) Indoor patients of age above 20 years; b) receptive to participation; c) without any clear evidence of cognitive impairment; d) without any issues with vision or hearing; e) and scoring 11-30 points on Rapid Estimate of Adult Literacy in Dentistry (REALD-30) scale. Exclusion criteria was outdoor patients below 20 years of age and those scoring 0-10 points on the scale of REALD-30. The study was divided into following two phases: Phase I: This phase involved evaluation of ability of study subjects to recognize and pronounce words contained within REALD-30 scale. Rapid Estimate of Adult Literacy in Dentistry (REALD-30) scale was used as a tool to assess the health literacy of dental patients, consisting of 30 items. It was established by Lee et al., with a Cronbach's alpha reliability of 0.87. This word recognition test consists of 30 dental-related words that are ordered in ascending order of difficulty based on average word length, number of syllables, and challenging sound combinations. It does not measure conception and comprehension of the items used. Each word must be read out by the study participant, and one point is awarded for each word that is pronounced properly. The cumulative score ranges from 0 (lowest literacy) to 30 (highest literacy) (Table 1) [11]. A trained interviewer distributed laminated copies of REALD-30 to

each participant and instructed them to read each word out loud. Participants were told to state "Blank" and go on to the next word if they were unable to read any word.

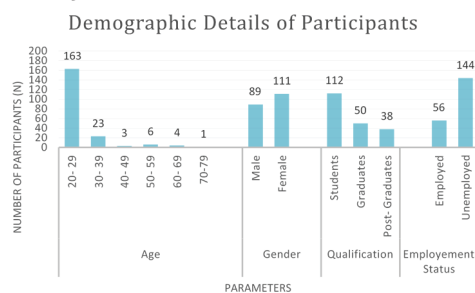
1. Sugar	11. Abscess	21. Periodontal
2. Smoking	12. Extraction	22. Sealant
3. Floss	13. Denture	23. Hypoplasia
4. Brush	14. Enamel	24. Halitosis
5. Pulp	15. Dentition	25. Analgesia
6. Fluoride	16. Plaque	26. Cellulitis
7. Braces	17. Gingiva	27. Fistula
8. Genetics	18. Malocclusion	28. Temporomandibular
9. Restoration	19. Incipient	29. Hyperemia
10. Bruxism	20. Caries	30. Apicoectomy

**Table 1:** Rapid Estimation of Adult Literacy in Dentistry (REALD) 30-word items

**Phase II:** Phase-II included study participants scoring 11-30 points on REALD-30 scale. A self-administered questionnaire was distributed among those who qualified on REALD-30 evaluation. Questionnaire consisted of two parts; first part included socio-demographic information of the participants; second part contained eleven closed ended items designed to estimate level of decision-making capacity of respondents. The study items were scored using 5-point Likert scale ranging from 0-5 in ascending order of options. Reliability parameters were set as needed value for Cronbach's alpha =0.70 while the expected value for Cronbach alpha =0.80. Reliability analysis of study questionnaire revealed Cronbach's alpha value of 0.7 which fulfilled the aforementioned parameter (Table 2).

### RESULTS

Over the period of 5 months (June 2022 to October 2022), data were collected for 2 months (July 2022 to August 2022) with an OPD of 5420 patients, out of which 2180 participants were carefully chosen for data collection. N=200(9.17%) study entrants fall under the inclusion criteria of the study with ages ranged between 20 and 79 years. With n=111(55.5%) female participants, bulk of the participants were college or university students who were unemployed (Figure 1).



**Figure 1:** Demographic details of respondents (n=200)

All of the study subjects (n=200) were eligible enough to recognize and read the REALD-30 words. According to dental treatment seekers, it was concluded that most of the participants (n=84,42%) strongly agreed that dental health information must be provided in their native language. Majority of the respondents (n=94,47%) admitted on the usage of information given by the dentist somewhat better pertaining to their dental problems. Respondents opted almost always in response to questions regarding instructions after dental management (n=86,43%), following advices regarding oral hygiene (n=77,38.5%) and the significance of prior information concerning dental issues (n=69,34.5%). Half of the entrants (n=100,50%) approved on their participation in decision making process that is crucial for their dental treatment outcome. Few study participants (n=58,29%) had an understanding to a greater extent of the significance of investigations advised by the dentist. Exceeding number of respondents (n=103,51.5%) were likely in a favor of preferring their prioritized dental treatment plan. More than half of the study entrants agreed that they will opt second expert opinion to help in their decision making regarding the dental treatment. Few of the respondents approved that they sometimes (n=69,34.5%) are able to appraise the decided treatment plan while several (n=63,31.5%) lean towards often doing that. A greater number of participants (n=93,46.5%) considered follow up visits with the dentist to be very important (Table 2).

Questions	Responses n (%)				
Do you agree that dental health information must be given in a language you understand?	Strongly Disagree 30(15%)	Disagree 1(0.5%)	Undecided 2(1%)	Agree 83 (41.5%)	Strongly Agree 84 (42%)
How much do you agree that your participation in decision making process is crucial for your dental treatment outcome?	11(5.5%)	5(2.5%)	33(16.5%)	100 (50%)	51 (25.5%)
Do you agree that second expert opinion about your dental health will help you in decision making regarding your treatment?	5(2.5%)	18(9%)	13(6.5%)	111 (55.5%)	53 (26.5%)
Are you able to use information given by the dentist pertaining to your dental problem?	Much worse 3(1.5%)	Somewhat worse 7(3.5%)	About the same 19(9.5%)	Some what better 94 (47%)	Much Better 77(38.5%)
Are you able to follow instructions following dental treatment?	Never 5(2.5%)	Seldom 5(2.5%)	Sometimes 46(23%)	Often 58 (29%)	Almost Always 86(43%)

Are you able to follow advice regarding dental health given by the dentist to maintain dental condition?	7(3.5%)	8(4%)	61(30.5%)	47 (23.5%)	77 (38.5%)
Do you think that getting prior information regarding your dental issue will exert any significant impact on your treatment?	8(4%)	18(9%)	44(22%)	61 (30.5%)	69 (34.5%)
Are you able to appraise the decided treatment plan?	0(0%)	16(8%)	69(34.5%)	63 (31.5%)	52(26%)
Are you able to understand the significance of investigations advised by the dentist according to your dental plan?	Not at all 5(2.5%)	Very little 33(16.5%)	Somewhat 47(23.5%)	Often 57 (28.5%)	To a greater extent 58(29%)
Do you think that your treatment preferences must be prioritized in your dental treatment plan?	Extremely Unlikely 0(0%)	Unlikely 7(3.5%)	Neutral 49(24.5%)	Likely 103 (51.5%)	Extremely Likely 41(20.5%)
How important do you consider follow up visits with your dentists?	Not Important 1(0.5%)	Slightly Important 12(6%)	Moderately important 23(11.5%)	Important 71 (35.5%)	Very important 93(46.5%)

**Table 2:** Frequency & Percentage distribution of participant's responses for study items

Table 3 shows discriminant validity and association of study items with REALD-30 in regards to decision making capacity of the individuals. Remarkable statistical association ( $p=0.032$ ), ( $p=0.033$ ) and ( $p=0.026$ ) was seen between REALD-30 score with items number 5, 10 and 11 respectively. It was observed that majority of the participants (n=25,39.06%) with low literacy level (REALD-30 score 11-20) almost always believe that getting prior information exerts significant impact on their treatment, contrary to most participants (n=51,37.50%) with high literacy level (REALD-30 score 21-30) often believing in this concept. In regards to appraisal concerning decided treatment plan, most study entrants (n=29,45.31%) scoring 11-20 on REALD-30 sometimes consider this concept while those (n=50,36.76%) scoring 21-30 often regards the decided treatment plan. Concerning the follow up visits to their dentists, most participants (n=33,51.56% and n=60,44.12%) of both categories (REALD-30 score 11-20 and 21-30) consider it very important.

Research items	Options	REALD-30 score		p-value
		11-20	21-30	
		n (%) (Total =64)	n (%) (Total= 136)	
Dental health information in understandable language	Strongly disagree	4(6.25%)	26(19.12%)	0.109
	Disagree	0(0.00%)	1(0.74%)	
	Undecided	0(0.00%)	2(1.47%)	
	Agree	31(48.44%)	52(38.24%)	
	Strongly agree	29(45.31%)	55(40.44%)	
Ability to use information given by dentist pertaining to dental problem	Much worse	2(3.13%)	1(0.74%)	0.649
	Somewhat worse	2(3.13%)	5(3.68%)	
	About the same	7(10.94%)	12(8.82%)	
	Somewhat better	27(42.19%)	67(49.26%)	
	Much better	26(40.63%)	51(37.50%)	
Ability to follow instructions following dental treatment	Never	2(3.13%)	3(2.21%)	0.856
	Seldom	1(1.56%)	4(2.94%)	
	Sometimes	15(23.44%)	31(22.79%)	
	Often	16(25.00%)	42(30.88%)	
	Almost always	30(46.88%)	56(41.18%)	
Ability to follow advice regarding dental health given by dentist to maintain dental condition	Never	3(4.69%)	4(2.94%)	0.970
	Seldom	3(4.69%)	5(3.68%)	
	Sometimes	19(29.69%)	42(30.88%)	
	Often	15(23.44%)	32(23.53%)	
	Almost always	24(37.50%)	53(38.97%)	
Impact of prior information regarding dental issue on treatment	Never	4(6.25%)	4(2.94%)	0.032*
	Seldom	7(10.94%)	11(8.09%)	
	Sometimes	18(28.13%)	26(19.12%)	
	Often	10(15.63%)	51(37.50%)	
	Almost always	25(39.06%)	44(32.35%)	
Agreement on participation in decision making process considering it crucial for dental treatment outcome	Strongly disagree	3(4.69%)	8(5.88%)	0.489
	Disagree	1(1.56%)	4(2.94%)	
	Undecided	9(14.06%)	24(17.65%)	
	Agree	38(59.38%)	62(45.59%)	
	Strongly agree	13(20.31%)	38(27.94%)	
Understanding significance of investigations advised by dentist according to treatment plan	Not at all	1(1.56%)	4(2.94%)	0.343
	Very little	15(23.44%)	18(13.24%)	
	Somewhat	13(20.31%)	34(25.00%)	
	Often	15(23.44%)	42(30.88%)	
	To a greater extent	20(31.25%)	38(27.94%)	
Opinion regarding prioritization of patient's treatment preferences in dental treatment plan	Extremely unlikely	0(0.00%)	0(0.00%)	0.406
	Unlikely	2(3.13%)	5(3.68%)	
	Neutral	11(17.19%)	38(27.94%)	
	Likely	37(57.81%)	66(48.53%)	
	Extremely likely	14(21.88%)	27(19.85%)	
Agreement about impact of second expert opinion about dental health on decision making regarding treatment	Strongly agree	2(3.13%)	3(2.21%)	0.117
	Disagree	3(4.69%)	15(11.03%)	
	Undecided	3(4.69%)	10(7.35%)	
	Agree	32(50.00%)	79(58.09%)	
	Strongly agree	24(37.50%)	29(21.32%)	
Ability to appraise the decided treatment plan	Never	0(0.00%)	0(0.00%)	0.033*
	Seldom	3(4.69%)	13(9.56%)	
	Sometimes	29(45.31%)	40(29.41%)	
	Often	13(20.31%)	50(36.76%)	
	Almost always	19(29.69%)	33(24.26%)	

Opinion regarding importance of follow up visits with dentist	Slightly important	4(6.25%)	8(5.88%)	0.026*
	Moderately important	1(1.56%)	22(16.18%)	
	Important	25(39.06%)	46(33.82%)	
	Very important	33(51.56%)	60(44.12%)	

\*Significance at P≤0.05 level.

**Table 3:** Statistical association of research items with REALD-30

## DISCUSSION

Oral health education is introduced as the process of providing oral health information to the extent that this doctrine can be applied regularly. The importance of health literacy in conveying health imbalance has been achieving increased recognition and refining dental health. There are some studies which have inspected the role of literacy on dental treatment outcomes but only a few have discussed about the treatment planning procedure [12]. This research involves the projection of oral health literacy and the part it plays in deciding treatment plans for dental treatment. The first step of strategizing calculation of Oral Health Literacy involved the recognition and pronunciation of words included in REALD-30 [11]. Despite of different variables, all of the study respondents were literate enough to deliver the words correctly. The following phase was based on determination of how various factors relate to the participants' capacity to make decisions about their dental care. Most of the study entrants (n=84,42%) strongly agreed that their dental health information must be provided in their own language or in a language that they might understand as they will be able to comprehend the given information somewhat better (n=94,47%) to make appropriate decision regarding treatment plan. Similar findings were observed in a study conducted by Levin in 2006 showing 69%(n=36) of the patients were disgruntled with communication between themselves and their doctors due to language barrier [13]. Few numbers of participants almost always follow instructions regarding dental treatment (n=86,43%) and advices to maintain dental health (n=77,38.5%). On contrary, 56.8%(n=154) patients agreed on following home care instructions by dentist in a study conducted by Lahti et al., as they had a good communication with their dental practitioner [14]. Participants almost always (n=69,34.5%) prioritize getting information before initiating treatment and mostly (n=100,50%) agreed that their participation in decision making process is crucially important. This coincides with a study conducted by Reissmann et al., where patients rated their preferred role in decision making more active and involved that turned out to be statistically significant (P<0.05) for 11 out of 14 treatment decisions [15]. In a study led by Bin Mubayrik et al., revealed that most of the participants showed willingness towards chair side dental screening (p=0.005) and agreed on investigations should



be executed in the dental setup ( $p=0.011$ ) [16]. The results of aforementioned are similar to this study where a considerable number of study entrants ( $n=58,29\%$ ) understood that the investigations advised by the dentist are significant to a greater extent as these strategies can assist in early diagnosis and prevention of diseases. The majority of participants ( $n=103,51\%$ ) agreed that patients' preferred treatment modalities should be given top priority in their dental treatment plan because this will promote effective patient-clinician communication and enable patients to comprehend the medical information and treatment recommendations that are given to them by their dentist [17]. Second expert opinion is important for accurate determination of the problem and for planning the right concept of treatment. More than half of the partakers ( $n=111,55.5\%$ ) agreed that second expert opinion is helpful for planning of the best treatment options. This is parallel to a study conducted by Lehnhardt *et al.*, where second opinion led to correct primary diagnosis in most patients ( $n=440,73.1\%$ ) [18]. Majority of the study entrants ( $n=69,34.5\%$ ) agreed that they sometimes critically appraise the decided treatment plan which is similar to study led by Tabassum *et al.*, where 45% of patients were strongly skeptical about their proposed dental treatment plan showing that complete knowledge, good communication and understanding can lead to enhanced patients trust for their clinician [19]. Mainstream of participants ( $n=93,46.5\%$ ) considered the follow up visits very important as a part of their treatment. This was parallel to a study by Brody *et al.*, where active patients ( $n=55,47\%$ ) reported less discomfort, greater improvement of symptoms and more improvement in their general medical condition [20].

## CONCLUSIONS

The present study concluded that there is no significant association of age and gender with oral health literacy and decision making for dental treatment plans with a slight impact of education and employment status. Patient-dentist communication improves the rate of success in devised treatments. Communication is very important in health care, as a strong link has been observed between good communication and adherence to the treatments and suggestions recommended by the expert. Oral Health Literacy is an important aspect of community Oral Health Practices. Discernment of exclusive dental terminologies must be made through community based dental programs. Conducive patient-dentist will aid in good collaboration between the two and improved compliance to dental treatment plans and their outcome. Furthermore, inclusion of more dental psychometric tools is required to observe Oral-health behavior of patients and their appropriate

modification.

## Conflicts of Interest

The authors declare no conflict of interest.

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## REFERENCES

- [1] Nutbeam D. Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International*. 2000 Sep; 15(3): 259-67. doi:10.1093/heapro/15.3.259.
- [2] Petersen PE and Kwan S. The 7th WHO Global Conference on Health Promotion-towards integration of oral health (Nairobi, Kenya 2009). *Community Dental Health*. 2010 Jun; 27(Suppl 1): 129-36. doi:10.1922/CDH\_2643Petersen08.
- [3] Robinson LA, Crabtree MA, Allen NW, Baber G, Boseman JJ, Briskie DM, *et al.* Health Literacy in Dentistry Action Plan 2010-2015. Chicago, IL: American Dental Association. 2009; 27(1): 33-9. doi: [10.1186/1472-6831-14-135](https://doi.org/10.1186/1472-6831-14-135).
- [4] Batista MJ, Lawrence HP, Sousa MD. Oral health literacy and oral health outcomes in an adult population in Brazil. *BMC Public Health*. 2018 Dec; 18(1): 1-9. doi:10.1186/s12889-017-4443-0.
- [5] Baker DW, Parker RM, Williams MV, Pitkin K, Parikh NS, Coates W, *et al.* The health care experience of patients with low literacy. *Archives of Family Medicine*. 1996 Jun; 5(6): 329. doi: 10.1001/archfam.5.6.329.
- [6] Martin LR, Williams SL, Haskard KB, DiMatteo MR. The challenge of patient adherence. *Therapeutics and clinical risk management*. 2005 Sep; 1(3): 189-199.
- [7] Schiavo JH. Oral health literacy in the dental office: the unrecognized patient risk factor. *Journal of Dental Hygiene*. 2011 Sep; 85(4): 248-55.
- [8] Cohen LA, Bonito AJ, Eicheldinger C, Manski RJ, Edwards RR, Khanna N. Health literacy impact on patient-provider interactions involving the treatment of dental problems. *Journal of Dental Education*. 2011 Sep; 75(9): 1218-24. doi: 10.1002/j.0022-0337.2011.75.9.tb05165.x.
- [9] Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. *Bulletin of the world health organization*. 2005 Sep; 83: 661-9. doi: 10.1590/S0042-96862005000900011.
- [10] Khan K, Ruby B, Goldblatt RS, Schensul JJ, Reisine S. A pilot study to assess oral health literacy by comparing a word recognition and comprehension

- tool. BMC oral health. 2014 Dec; 14(1): 1-1. doi: 10.1186/1472-6831-14-135.
- [11] Lee JY, Rozier RG, Lee SY, Bender D, Ruiz RE. Development of a word recognition instrument to test health literacy in dentistry: the REALD-30—a brief communication. Journal of Public Health Dentistry. 2007 Mar; 67(2): 94-8. doi: 10.1111/j.1752-7325.2007.00021.x.
- [12] National Institute of Dental, Craniofacial Research (US). Oral health in America: a report of the Surgeon General. US Public Health Service, Department of Health and Human Services; 2000. Available at: <https://www.nidcr.nih.gov/sites/default/files/2017-10/hck1ocv.%40www.surgeon.fullrpt.pdf>.
- [13] Levin ME. Language as a barrier to care for Xhosa-speaking patients at a South African pediatric teaching hospital. South African Medical Journal. 2006 Oct; 96(10): 1076-9.
- [14] Lahti S, Tuutti H, Hausen H, Kääriäinen R. Comparison of ideal and actual behavior of patients and dentists during dental treatment. Community Dentistry and Oral Epidemiology. 1995 Dec; 23(6): 374-8. doi: 10.1111/j.1600-0528.1995.tb00266.x.
- [15] Reissmann DR, Bellows JC, Kasper J. Patient preferred and perceived control in dental care decision making. JDR Clinical & Translational Research. 2019 Apr; 4(2): 151-9. doi:10.1177/2380084418811321.
- [16] Bin Mubayrik A, Al Dosary S, Alshawaf R, Alduweesh R, Alfurayh S, Alojaymi T, *et al.* Public Attitudes Toward Chairside Screening for Medical Conditions in Dental Settings. Patient Prefer Adherence. 2021 Feb; 15: 187-195. doi: 10.2147/PPA.S297882.
- [17] Barrett SE and Puryear JS. Health literacy: improving quality of care in primary care settings. Journal of Health Care for the Poor and Underserved. 2006 Nov; 17(4): 690-7. doi:10.1353/hpu.2006.0117.
- [18] Lehnhardt M, Daigeler A, Hauser J, Puls A, Soimaru C, Kuhnen C, *et al.* The value of expert second opinion in diagnosis of soft tissue sarcomas. Journal of Surgical Oncology. 2008 Jan; 97(1): 40-3. doi: 10.1002/jso.20897.
- [19] Tabassum N, Ahmed S, Alshammari Y, Barri G, Alnafea M, Subhi M, *et al.* Patient's attitude towards dental treatment: treatment plan versus patient willingness. International Journal of Dentistry Research. 2017 Oct; 2(3): 73-5. doi: 10.31254/dentistry.2017.2304.
- [20] Brody DS, Miller SM, Lerman CE, Smith DG, Caputo GC. Patient perception of involvement in medical care. Journal of General Internal Medicine. 1989 Nov; 4(6): 506-11. doi: 10.1007/BF02599549.