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Association of Sociodemographic Factors with Oral Health Literacy in Patients Presenting to Dental Teaching Hospital

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ABSTRACT

Background: Oral health literacy is associated with improved oral health outcomes and can aid in formulation of health education materials catered to population's comprehension level. **Objective:** The study aims to evaluate oral health literacy among dental patients and its association with sociodemographic factors. **Study Design:** Cross-sectional study. **Settings:** Dental teaching hospital of University of Lahore, Lahore Pakistan. **Duration:** June to September 2019. **Methods:** The study employing an Urdu-translated HeLD-14 questionnaire to assess oral health literacy. Data was collected from patients presenting to the outpatient department of a dental teaching hospital in Lahore. The questionnaire measured seven domains of oral health literacy on a five-point Likert scale along with demographic variables. The association of demographic variables with items of the domain was assessed through Chi-squared and Kruskal-Wallis statistical tests. **Results:** 250 patients had a mean HeLD score of 41.24 ± 12.36. About 52.8% of participants could read dental information without effort. Only 34.8% could ask for support with a dental appointment and 34.6% could look for a second opinion without difficulty. Approximately 39.6% could pay for a dental visit and 37.9% could attend to their dental health needs without difficulty. Significant associations for age, gender, education, and occupation were obtained for different items in domains of access, understanding, utilization, communication, and economic barriers. **Conclusion:** Participants reported moderate oral health literacy. Notably, females showed better comprehension of dental information and higher education was associated with better utilization of dental services and decision-making capabilities. These findings highlight the need for tailored oral health literacy interventions to enhance oral health related quality of life.

Keywords: *Oral health, Literacy, Demography, Dental care, Hospital.*

INTRODUCTION

Maintaining good dental health is crucial to one's general health and well-being. Oral diseases not only result in dental pain, discomfort, and tooth loss, but they also significantly impact a person's general health, dietary habits, and social interactions.[1] To promote good oral health practices in the population, their knowledge and aptitude relating to oral health and associated materials must be gauged.

This gave rise to the concept of oral health literacy (OHL). It is "the degree to which individuals possess the capacity to obtain, process, and understand the basic oral and craniofacial information and services necessary to make appropriate oral health decisions".[2] It encompasses comprehending written information, demonstrating effective communication of health issues, understanding the health care system, and maintaining good health.[2] Adequate oral health literacy is essential for the adoption of healthy behaviors. Brushing twice daily, changing toothbrushes once every three months, and visiting a

dentist at least once a year are important for maintaining oral health. However, those who cannot fully grasp the information will not be able to adopt healthy practices even in the presence of adequate facilities. Consequently, dental public health practitioners have tried to educate communities about the importance of oral health and the existence of a bidirectional link with physical health. Nonetheless, the translation of oral health promotion into dental practice is yet to be seen.[3]

Literature has shown that individuals who have adequate oral health literacy are likely to utilize dental care services, depict better oral health behaviors, and display good communication with practitioners.[3,4] Conversely, findings from several studies have described the association of low oral health literacy with unfavorable oral health outcomes such as periodontal disease, caries, irregular dental visits, and low participation in preventive activities.[5-7] Therefore, oral health literacy must be gauged in our population, as according to national estimates, about 60 million people in the country are illiterate.[8] Hence, it can be deduced that their oral health literacy will also be insufficient. Moreover, other demographic variables like age, gender, occupation, and geographical location (urban or rural) have been known to influence oral health literacy. Research has shown that aging individuals, males, non-professionals, and those residing in rural areas had lower oral health literacy.[6,9,10] Devising oral health education material that caters to populations from different backgrounds can help promote oral health.

Several instruments are available to evaluate oral health literacy; the most notable among them are the Test for Functional Health Literacy in Dentistry (ToFHLiD) and Rapid Estimate of Adult Literacy in Dentistry (REALD).[11] However, these tools mostly focus on evaluating reading comprehension and word recognition skills.[11] This generated a need to create a tool that countered these problems, was more culturally sensitive and was based on conceptual testing. Thus, Health Literacy in Dentistry (HeLD) was formulated, originally consisting of 29 items until a short form of 14 items was derived.[12] HeLD measures the ability of an individual to pursue oral-health-related information, make economic decisions pertaining to oral health, understand dental information, and have knowledge about the utilization of that information to make appropriate oral-health-related decisions.[12]

Considering our country's sociodemographic factors and cultural peculiarities, such a tool must be employed to estimate oral health literacy. It will represent not just the reading abilities of the population but also the ability to perform tasks related to oral health, which can improve oral health outcomes. Also, appraising the association of sociodemographic factors can help better understand the reasons for low or high oral health literacy. This tool has not been used in the said population to estimate oral health literacy. Therefore, the study aims to the study aims to assess oral health literacy among dental patients and its association with sociodemographic factors.

METHODS

It was a cross-sectional survey, and participants were selected through systematic random sampling, where every third patient was invited to participate in the study. Data was obtained from patients presenting to the outpatient department (OPD) of dental teaching hospital of University of Lahore, Lahore from June to September 2019. Ethical approval (UCD/ERCA/10/01bx) for the study was obtained from the institution's ethical review board (ERB) of the University College of Dentistry, The University of Lahore. The total sample size was calculated to be 244 using an online calculator by Raosoft, with a 95% confidence level, a 5% margin of error, and an estimated response distribution of 80%.[13] The sample size calculation was based on the patients presenting to OPD in the past 6 months (n = 21,406). The inclusion criteria entailed consenting adults who were adults and could read. Participants were informed about the aim of the study and the possible pros and cons associated with being a part of it. Informed consent was obtained, and confidentiality was maintained by excluding items that inquired about personal identification information. The questionnaire consisted of demographic questions, and oral health literacy was evaluated using HeLD-14.

HeLD-14 has seven domains: receptivity, communication, utilization, economic barriers, support, communication, understanding, and access.[12] Each domain has two items on a five-point Likert scale, scoring from 0 to 4 based on difficulties faced in performing oral health-related tasks, where low scores indicate poor oral health literacy and high scores indicate higher oral health literacy.[12] Considering the English literacy in our population, an Urdu-translated version was used. For this purpose, an expert committee was constituted with specialists who oversaw the translation process. The forward translation of the questionnaire was done by one bilingual researcher, and a bilingual translator carried out the transliteration. The discrepancy that arose about a few dental words was then discussed and rectified by both translators. Two bilingual researchers who had not seen the original tool back-translated the questionnaire into English. It was piloted among 35 patients to ascertain face validity. No problems were reported concerning the questions' language or clarity; consequently, the reliability analysis showed a Cronbach alpha value of 0.93.

Data was entered and analyzed through SPSS version 24. Frequencies and percentages signify categorical data,

whereas mean and standard deviation represent continuous variables. The total HeLD score was indicated by the sum of all coded items in the domain, with a minimum possible score of 0 and a maximum of 56, indicating higher oral health literacy.

Chi-squared and Kruskal-Wallis tests were carried out to find associations of categorical and continuous variables with items of HeLD where a p-value of less than or equal to 0.05 indicated statistical significance.

RESULTS

Overall, 255 responses were received, of which 5 were discarded because of missing information. Therefore, a total of 250 responses were included in the analysis. Table 1 presents summarized information on the demographic descriptions of participants. The majority of the respondents in the sample population were females (53.2%), were unemployed (33.2%), and resided in urban locations (48%). Moreover, most of the respondents were educated, *i.e.*, had a graduate degree (35.65%).

The Total HeLD score of our sample population was estimated to be 41.24 ± 12.36. Item responses of different domains have been summarized in Table 2. In receptivity, over 37% of the participants could direct efforts toward maintaining their dental health effortlessly, whereas more than 38% could take the time to do so. Approximately 50% of the participants reported being able to understand dental information, and over 51% could read dental brochures without difficulty understanding. Regarding an economic barrier, 55.2% of participants reported difficulty (very, little, and some) in paying dentist's fees and 52.8% in case of medication.

Table 1: Demographic information of the participants

Variables		Frequency n (%)
Age		36.44 ±13.605
Gender	Male	116 (46.4%)
	Female	134 (53.6%)
Education	None	33 (13.2%)
	Primary School	43 (17.2%)
	Secondary School	85 (34.0%)
	University Graduate	89 (35.6%)
Occupation	Low wage workers	27 (10.8%)
	Professionals	56 (22.4%)
	House wives	53 (21.2%)
	Unemployed	83 (33.2%)
	Business owner	31 (12.4%)
Location	Urban	120 (48.0%)
	Peri-urban	85 (34.0%)
	Rural	45 (18.0%)

Table 2: Responses about oral health literacy (HeLD-14)

Domain	Items	Unable to do	With very difficulty	With little difficulty	With some difficulty	Without difficulty
Receptivity	Pay attention to dental health	14 (5.6%)	21 (8.4%)	32 (12.8%)	89 (35.6%)	94 (37.6%)
	Take time out for dental health	6 (2.4%)	24 (9.6%)	44 (17.6%)	80 (32%)	96 (38.4%)
Understanding	Read written dental information	19 (7.6%)	16 (6.4%)	31 (12.4%)	52 (20.8%)	132 (52.8%)
	Read dental brochure	19 (7.6%)	15 (6%)	34 (13.6%)	54 (21.6%)	128 (51.2%)
Economic barrier	Pay to see dentist	13 (5.2%)	30 (12%)	42 (16.4%)	67 (26.8%)	99 (39.6%)
	Pay for dental medication	12 (4.8%)	22 (8.8%)	40 (16%)	70 (28%)	106 (42.4%)
Utilisation	Carry out dental instructions	8 (3.2%)	20 (8%)	38 (15.2%)	80 (32%)	104 (41.6%)
	Use dentist's advice	5 (2%)	21 (8.4%)	40 (16%)	66 (26.4%)	118 (47.2%)
Support	Take support to a dental appointment	19 (7.6%)	11 (4.4%)	46 (18.4%)	75 (30%)	99 (39.6%)
	Ask for support to dental appointment	24 (9.6%)	19 (7.6%)	38 (15.2%)	82 (32.8%)	87 (34.8%)
Communication	Able to look for a second opinion	20 (8%)	21 (8.4%)	38 (15.2%)	80 (32%)	91 (36.4%)
	Able to use information to make decisions about dental health	6 (2.4%)	15 (6%)	43 (17.2%)	59 (23.6%)	127 (50.8%)
Access	How to get dental appointment	18 (7.2%)	16 (6.4%)	39 (15.6%)	71 (28.4%)	106 (42.4%)
	What to do to get dental appointment	17 (6.8%)	20 (8%)	39 (15.6%)	65 (26%)	109 (43.6%)

About 50.8% of the participants reported facing varying degrees of difficulty in utilizing the dentist's advice and implementing (55.2%) the required instructions. In the communication domain, only 36.4% could seek a second opinion without difficulty. However, the majority (50.8%) could perform tasks concerning decision-making about dental health based on information provided by the dentist. Considering the domain of access, about 50.4% of the participants reported experiencing some form of difficulty in getting a dental appointment. Likewise, most of them (49.6%) also reported similar experiences associated with actions required to get a dental appointment. The association between other demographic variables and HeLD-14 items has been displayed in Table 3.

Table 3: Association of HeLD-14 items with demographic variables

Demographic Variable	HeLD Domain	HeLD Item	*P*-value
Gender	Understanding	Read dental brochure	<0.01
		Read written dental information	0.048
Education status	Utilization	Carry out dental instructions	0.02
		Use dentist's advice	0.03
	Communication	Able to use information to make decisions about dental health	0.04
	Access	How to get a dental appointment	0.03
		What to do to get a dental appointment	0.01
Occupation	Understanding	Read dental brochure	0.04
	Economic barriers	Pay for dental medication	0.01
	Access	How to get a dental appointment	0.02

The location of the participants did not yield any significant difference in their responses in different domains. Statistically significant differences were observed between gender and domain of understanding. Similarly, domains of utilization and access were significantly different among participants of different education statuses. Moreover, participants with different occupations depicted different responses in items of understanding, economic barrier, and access domains.

Other than that, age was found to be significantly associated with differences in the level of difficulty in performing tasks in the domain of understanding ($p = <0.01$) and economic barriers ($p < 0.05$). Further, similar results were obtained across different levels of difficulty in taking support to a dental appointment ($p = 0.02$) in the domain of support and getting a dental appointment ($p = 0.03$) in the domain of access.

DISCUSSION

Oral health literacy (OHL) is crucial in reducing oral health inequalities and can lead to better oral health outcomes.[14] Therefore, measuring its prevalence in dental patients is of utmost importance. Thus, our study aimed to evaluate OHL among dental patients, considering differences among sociodemographic variables.

Overall, participants in our sample exhibited moderate oral health literacy. This can be attributed to the educated participants in our sample population. It is quite possible that if the study were conducted in a rural setting, the results would be different. Nonetheless, these results are similar to another study conducted in Iran, but results from India paint a different picture, with studies reporting inadequate oral health literacy.[15-17]

In the present study, more than half of the participants reported difficulty in paying attention and giving time to maintain their dental health. A similar result was reported in another study where participants experienced difficulty paying attention to their oral health.[18] Taking care of dental health needs and directing time exclusively to oral health requires motivation and, most importantly, time availability.[19] As the majority of the participants in the study were working (66.8%), either in a professional or non-professional capacity, such results can be expected. This highlights the need to focus on oral health promotion activities communicating the benefits of maintaining oral hygiene. Moreover, oral health maintenance mostly depends on brushing twice a day for 2 minutes, which does not take much time and results in better oral health outcomes.

In the present study, 86.8% of individuals were literate, which could be reflected in the responses for the domain of understanding, as more than 50% of participants reported no difficulty in reading written dental information or dental brochures. A study by Tam *et al.* also reported that participants faced minimum difficulty in understanding health material.[20] Such findings add to the literature and strengthen the evidence that education has a direct impact on processing information that is beneficial for physical and oral health.[21, 22]

A low-income country like Pakistan is faced with numerous challenges, the foremost of which is poverty.[23] With an increasing cost of living in the country, it is becoming challenging for people to manage their health-related costs. Consequently, more than half of the participants in the study found it difficult to pay for the dentist and medications. As only 34.8% of participants in our study were professionals or business owners, the results obtained are on par with the demographic variables. The outcomes are similar to an Australian study in which 50% of the participants said that their inability to visit a dentist was due to the high cost of dental care..[18] It is evident that in any population, making oral health care affordable should be a priority and measures should be taken to integrate it into primary healthcare to improve quality of life.

Our findings also suggest that more than 50% of individuals found it difficult to carry out dental instructions and to use the dentist's advice to maintain their oral health. According to Lee *et al*., forming culturally sensitive scientific information can help mitigate communication issues between practitioners and patients.[24] It will enable individuals to comprehend the health promotion message easily, therefore leading to improved oral health.

Getting a dental appointment may seem like an uncomplicated task, but it can perplex those with inadequate health literacy. Research has revealed an association between poor oral health literacy and missed dental appointments.[25] About half of the study participants expressed difficulty performing tasks associated with dental appointments. Contrary to our results, research by King *et al*. reported that participants did not experience much challenge in tasks in the access domain.[18] In today's day and age, technology is being used to ease the process for both patients and healthcare practices. Devising materials to enhance patients' digital literacy can impact the seamless running of practice and the patients' experience.

Age, occupation, and education status had significant associations with items in different domains, as discussed in Table 3. The most notable among them is the domain of access, which has significant associations with the aforementioned demographic factors. Moreover, the domain of understanding showed significant differences among genders. Formulating gender-specific strategies to improve comprehension can help reduce disparity and contribute toward improving oral health outcomes.

CONCLUSION

This study reveals significant oral health literacy disparities in dental patients of Lahore, with sociodemographic factors having a profound effect. These findings highlight the need for oral health education initiatives and policy interventions to enhance oral health literacy, targeting economically deprived populations.

LIMITATIONS

Study is done in single Centre with limited sample size.

SUGGESTIONS / RECOMMENDATIONS

Further longitudinal studies are recommended to assess the effectiveness of gender exclusive methods in improving the knowledge of patients to understand oral health-related materials. This can be possible through oral health campaigns and community outreach programs to educate patients about oral health. Moreover, integrating oral health in primary care can benefit the patients who are reluctant to visit dentists owing to lack of awareness.

CONFLICT OF INTEREST / DISCLOSURE

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