

## **Original Article**

# **Health literacy in periodontal patients**

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### **Abstract**

**Introduction:** health literacy is a fundamental part of the health promotion. The aim of this study was to evaluate periodontal health literacy among patients.

**Materials and Methods:** 296 patients attending periodontal clinic who were above 16 years old participated in this study. Gathering data was based on screening questions on a 5-point Likert scale. After completion questionnaire, data was analyzed by Mann-Whitney and Kruskal-Wallis test. Based on the scores of questions, patients were classified as weak, medium and good health literacy.

**Results:** This study showed significant difference in health literacy between age and education groups (P value = 0.015, P value = 0.003), while there was no significant difference between male and female (P value = 0.54). It was also revealed that patients who had been exposed to oral health education had higher health literacy levels (P value < 0.0001, P value = 0.001).

**Conclusion:** The results of this study showed patients less than 20 years and over 50 years old had poorer health literacy in relation of periodontal health, also, patients with higher educational level have higher health literacy.

**Keywords:** Health Literacy; Periodontal Disease; Evaluation Studies as Topic; Patients

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## Introduction

“Health literacy” is the ability to perform basic reading and numerical tasks necessary for navigating through the health care environment and acting on health care information <sup>[1, 2]</sup>. Health literacy is a dynamic state of an individual during a health care encounter <sup>[3]</sup>.

According to the National Institute of Dental and Craniofacial Research (NIDCR/HHS) Working Group on Functional Health Literacy oral health literacy defined as “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 <sup>[4]</sup>.

In the past decades importance of health literacy in medicine and public health has been shown and much is known about health literacy in medical context, but our findings about oral health literacy and its relations to clinical conditions, patients’ subjective assessments, and oral health literacy’s perceived impacts on daily life in the community is little <sup>[1,5]</sup>.

Patients with low educational attainment, immigrants, older patients and racial and ethnic minorities have poor health literacy. Also, patients with chronic medical conditions such as diabetes, asthma, AIDS have poor health literacy <sup>[6]</sup>. Even after adjustment for baseline socioeconomic status, health status, and health behaviors, People with inadequate health literacy have 29% to 52% higher hospitalization rates <sup>[7]</sup>. In most cases,

individuals with low health literacy skills have poorer health knowledge and health status, unhealthy behaviors, less utilization of preventive services, higher rate of hospitalizations, increased health care costs, and finally poorer health outcomes than those with higher literacy levels <sup>[1]</sup>. In cross sectional studies the relation of low health literacy and worse health has been proved <sup>[7]</sup>. Studying the relationship between literacy and knowledge is particularly suited to dentistry because the maintenance of oral health relies on regular self-care behaviors that are influenced by oral health knowledge <sup>[9]</sup>.

Periodontal disease is a chronic inflammatory disease which involved supporting structure of tooth <sup>[10]</sup>. Periodontal disease finally leads to tooth loss, if left untreated. Thus, prevention and early intervention of disease is important. Another important point in periodontal treatment is oral hygiene education <sup>[11]</sup>. Successful management of periodontal treatment also, depends on the capacity of patient's oral self-care in addition to professional care. Treatment of periodontitis causes changes in patient attitude and behavior<sup>[12, 13]</sup>.

Health education which is addressed in previous studies related to elevation of patients’ knowledge and didn’t mention the issue of health literacy which is related to practical action in health and due to the importance of health literacy in improvement of health condition and chronic nature of periodontal disease.

The aim of this study was to evaluate periodontal health literacy among patients in order to have a useful guide in designing oral health care interventions.

## Materials and Methods

In this cross sectional descriptive study 296 patients with the age of more than 16 years participated. Patients were categorized into 5 groups and 4 groups respectively based on their age (under 20 years, 20-29 years, 30-39 years, 40- 49 years and more than 50 years) and their education (illiterate, high school, diploma, bachelor of science and higher). The data was gathered by 16 health literacy screening questions on a 5-point Likert scale (Appendix 1).

Some of questions were related to oral hygiene instructions, others were about periodontal health, how to use medicines, association of periodontal disease and systemic

disease and the last two questions were about health education which the first one was (P1: have you ever been taught how to manage your oral health?) and the second one was (P2: have you ever read a text about how to manage your oral health?). After obtaining informed consent, patients completed questionnaire. (For low literacy patients an interview was done). Then data analyzed by Mann-Whitney and Kruskal-Wallis test. For determination of health literacy the scores of all question was summed in which the range of score was from 14 to 70 for each person. Scores 14-24 considered weak health literacy, 24-47 medium health literacy and 47-70 good health literacy.

## Results

Our analysis showed the significant differences between health literacy in different age groups which the best one was in 20-40 years. (Table 1)

**Table 1.** Evaluation of health literacy based on age

Age group	number	Mean	Median	Standard deviation
Under 20 years	34	37.5	37	6.81
20-29 years	143	40.5	40	8.71
30-39 years	66	41.6	41	8.14
40-49 years	25	36.1	35	10.46
Over 50 years	16	36.7	37.5	6.44
total	284	39.8	39.5	8.58

Kruskal-wallis test (Pvalue=0.015)

These results were followed by Mann-Whitney test in order to show the main difference within age groups. The results showed the main difference was between age groups of: under 20 years and 20-29 years

(Pvalue=0.045), under 20 years and 30-39 years (Pvalue=0.025), 20-29 years and 40-49 years (Pvalue=0.028), 30-39 years and 40-49 years (Pvalue=0.014) and between the group of 30-39 years and over 50 years (Pvalue=0.04).

Evaluation of health literacy based on gender showed there weren't statistically significant differences between male and female. (Table 2)

**Table 2.** Comparison of health literacy based on gender

Age	Number	Mean	Median	Standard Deviation
Male	102	38.8	39	7.99
Female	190	40.4	40	8.70
total	292	39.8	40	8.54

Mann-Whitney test (Pvalue=0.54)

The result of this study about education showed that patients with high education had higher degree of health literacy which this relation was statistically significant. (Table3)

**Table 3.** Evaluation of health literacy based on education

Education	Number	Mean	Median	Standard Deviation
High school	95	38.2	38	8.68
diploma	125	39.5	38	8.48
Bachelor of science	71	42.4	42	8.37
Total	291	39.8	40	8.65

Kruskal- Wallis Test (P value=0.003)

The results of study showed that patients which were taught how to manage their oral health have higher statistically significant differences of health literacy. Also, the patients which have read a text about how to manage their oral health have higher statistically significant differences of health literacy. (Table 4, 5)

**Table 4.** The relationship between the score of health literacy and P1&2 question

Answer to P1 question	number	mean	median	Standard deviation
yes	120	42.8	42	8.47
No	176	37.7	37	8.08
total	296	39.7	40	8.60

P value<0.0001

**Table 5.** Relation of health literacy with P2 question:

Answer to P2 question	number	mean	median	Standard deviation
Yes	174	40.9	41	8.40
No	121	38.06	37	8.66
total	295	39.7	40	8.62

P value=0.0001

## Discussion

Health literacy is development of people in applying instructions related to being healthy. In fact this literacy is an applied literacy which is formed in community; physician, dentists and oral hygienists which try to improve the roll of it in community. People development is the key element which is necessary for understanding health information and the routes of obtaining these information. considering the importance of health literacy in periodontal disease in which treatment and maintenance have direct relation to patients cooperation and knowledge on oral health, this study evaluate periodontal health literacy of patients.

There are several approach to evaluate health literacy, in this study we use questionnaire based on 5-point Likert scale. This approach has been used by Chew et al in 2004<sup>[14]</sup>. Our population in the present study in comparison with the number of patients in National Assessment of Adult Literacy (NAAL) study were more less; but should be advocated that NAAL study was carried out in a national level not in regional level<sup>[15]</sup>. There was statistically significant differences between age groups and health literacy which the best health literacy level was in 20-29 years patients; while the least score was observed in age group under 20 years and over 50 years. According to these data we can conclude that patients who have higher age, have low health literacy in comparison to others, also patients less than 20 years due to lower age have lower information. The result of NAAL study in

2006 showed there is more possibility of weakness in patients more than 65 years in America. Baker et al in 2007<sup>[7]</sup> reported 88% of patients over 65 years don't have adequate health literacy to understand drug instructions. It is necessary to consider more likely dementia in older adults; by continuing demographic changes in increasing older adults, the community has more problems in health literacy. We should consider this theory that there was less availability to educational material of older adults in their own learning age. Also, reception and transition of information depend on condition, educational level, age and culture of patient as well as the manner of information expression; so these factors can be the reason for lower health literacy in older adults.

Study of Baker et al showed with increasing age apart from level of education health literacy decreased. Based on the reduction of practical skills in older adults, this finding could be attributed to reduction of health literacy in capabilities of older adults.

General literacy which means ability to read, write and perform numerical tasks is the base of health literacy. In the present study the best level of health literacy were in the age of 20-39 years. It could be attributed to increasing the number of people with higher education in this age group. However, there weren't statistically significant differences between diploma and bachelor of science. Considering these data we can conclude that attending in university courses and interaction with other disciplines through exchange of information

has a positive role in health literacy. Also, social environment can be involved in elevation of health literacy of persons in this age group.

NAAL studies in 2003 <sup>[15]</sup> showed 44% of American adults have prose literacy in medium level; this means that these people only can have simple inference and read information from text which are not too complicated and put them in use. For example from each 10 American people only 1 person can be proficient in written information related to health while on the other hand from each 3 American adults one person has information in the level of basic or under this level which means that they have problems in understanding and using health information. The present study also, showed people which have lower general literacy have less health literacy.

There were no statistically significant differences in health literacy between male and female in the present study. However several studies showed female have more care than male <sup>[15]</sup>; for instance female periodontal disease respected more in maintenance sessions. We can conclude that male and female have the same information and knowledge but indeed have low attention due to greater business.

In this study relation between health literacy and oral hygiene education was evaluated; the results of study showed that patients which were taught how to manage their oral health have higher statistically significant differences of health literacy. It is obvious that the first

step in health literacy is education and durability of it in people. WHO current strategy is based on the same principle in which by providing better education and transition of information to people, improving practical capacities of people in relation to health and thus preventing from incidence and improvement of disease which resulted to reduction of high cost of health care. It is considerable to note that the wasted cost in a study in 2007 due to low health literacy was about 106-238 billion \$ or in other words 7-17% of the whole health service cost was wasted <sup>[16]</sup>.

The results of study showed that people which have read a text about how to manage their oral health have higher statistically significant differences of health literacy. A simple educational leaflet about gingivitis is an appropriate tool which each person can get information needs through them.

## **Conclusion**

According to the results patients' health literacy were in medium level in which patients less than 20 years and over 50 years old had poorer health literacy in relation of periodontal health, also, there was moderate correlation between health literacy and education.

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