



RESEARCH ARTICLE

A COMPARATIVE STUDY BETWEEN LITERACY IN MEDICINE AND DENTISTRY AND ITS
ASSOCIATION WITH LIFESTYLE FACTORS

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ABSTRACT

Background: Literacy is an undeniable necessity that enables individuals in any community to lead a socially productive life. Literacy in medicine and dentistry implies the ability of people to understand health information presented to them and make informed decisions regarding their health care.

Objectives: The aim of this study was to evaluate whether there is an association between literacy in medicine and literacy in dentistry and also whether the medical and dental literacy scores had an influence on lifestyle factors.

Methods: A single institutional cross-sectional survey was conducted in the months of October 2017 to November 2017 at SRM Dental College and Hospital, Ramapuram, Chennai. A total of 100 participants were included in the study. The questionnaire consisted of items to assess the dental literacy, medical literacy and lifestyle factors such as smoking status, alcohol consumption, and lifestyle factors including habit of playing sports, doing exercise and dietary habits. Bivariate analysis using Chi-square tests and Pearson's correlation were used to analyse the data. The results were analysed using SPSS software for windows, version 20.0 (SPSS Inc., Chicago, IL, USA).

Results: Pearson's correlation coefficient between dental literacy and medical literacy was found to be 0.268 which was found to be significant at $p < 0.05$. A weak positive correlation was elicited between medical literacy and dental literacy. Chi-square tests showed significant association between medical literacy and two lifestyle factors namely frequency of doing exercise and frequency of consuming poultry.

Conclusion: The present study concluded that there is a positive association between medical literacy and dental literacy. It also concluded that medical literacy has an effect on lifestyle factors although not all lifestyle factors were found to be significantly associated with medical literacy. Targeting public health education programmes to improve medical and dental literacy could improve the health of a community by enabling people to comprehend health information better, to inculcate healthy lifestyle practices and make informed decisions regarding health care.

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INTRODUCTION

It is common knowledge that literacy is an undeniable requisite for a good quality of life and by extension good health care and health status. Education provides an individual with more opportunities, in addition to imparting consciousness regarding lifestyle behaviors that are conducive to promoting and maintaining health. Health literacy in essence is the ability of an individual to read and comprehend health information that is presented to them, and then make use of that information to maneuver through the health care system and make choices of treatment or lifestyle changes that are appropriate and essential to sustain an acceptable and adequate level of health. Studies done on health literacy (Baker, 1997) have stated that poor health literacy is associated with poor health status and that the number of years of schooling completed had a relatively weaker relationship with health status in comparison to health literacy. The National Assessment of Adult Literacy (NAAL 2003) estimated that even in a developed country like the United States of America, the percentage of people who were proficient in health literacy were proportionately low (12%) in comparison to people who had intermediate (53%), basic (22%) and below basic (14%) levels of health literacy. Studies done by (Gomez and Sujatha, 2015) and (Rai, Shodan and Shetty, 2015) on oral health literacy in India have reported that majority of patients had moderate levels of oral health literacy. A study conducted by (Sharma, 2014) found a significant association between oral health literacy (OHL) and oral health related quality of life (OHR-QoL) among undergraduate students in Bengaluru city.

Likewise, the association between medical literacy and dental literacy was examined in a study conducted by (Sandhu, 2017) among adult undergraduates in Tricity, Chandigarh. The association was tested using (Rapid Estimate of Adult Literacy in Medicine) REALM-66 and (Rapid Estimate of Adult Literacy in Dentistry) REALD-30. It was found that the REALM and REALD scores had a constructive correlation with educational qualification. In addition to medical literacy and dental literacy rate predicting health or oral health outcomes, it has also been found that higher health literacy promotes healthy lifestyle behaviors. Studies conducted by (Reisi *et al.*, 2014) and (Reisi *et al.*, 2012) found a significant association between functional health literacy and health promoting behaviors among older individuals. In these studies, 79.6% of participants were found to have poor health literacy with a concomitant poor educational qualification and a lack of health promoting behaviors and lifestyle practices. Hence, this study was done to assess the correlation between medical literacy and dental literacy and the association between level of health literacy and oral health literacy with lifestyle behaviors.

MATERIALS AND METHODS

A cross-sectional single institutional questionnaire study was conducted to assess, whether outpatients attending the dental office had an adequate health literacy rate in dentistry and medicine. In addition to assessment of health literacy in dentistry and medicine, the questionnaire contained additional items to assess smoking status, alcohol consumption, and lifestyle factors including habit of playing sports and doing exercise, dietary habits such as fruits and vegetable intake, meat consumption, consumption of cake, cookies, chocolate and soft drinks. The study was conducted for a period of two

months from October 2017 to November 2017 at SRM Dental College and Hospital, Ramapuram, Chennai. A structured self-administered questionnaire was distributed to study participants to assess literacy in dentistry, literacy in medicine and lifestyle factors. The questionnaire was pilot tested on a sample of 30 subjects and these questionnaires were excluded from the final analysis. A total of 120 participants agreed to participate in the study and signed informed consent forms. Out of these, only a 100 subjects had complete responses to all the questions and were included in the final analysis. Health literacy in dentistry was assessed using a questionnaire that had nine questions with choices presented in a five-point Likert scale based on the level of difficulty in comprehending and assimilating dental health instructions and carrying out dentists' instructions. The tenth question presented various dental terminologies in the local vernacular language Tamil. Scoring was based on the subjects understanding and ability to explain what the terminologies meant. The terminologies presented were; root canal treatment, scaling, tooth extraction, orthodontic braces, implants, bleaching, periapical abscess, tooth fracture, caries and oral cancer. The dental literacy scores had a possible range of 1-62. Literacy in medicine was assessed using seven medical terms presented in Tamil such as; obesity, cataract, anemia, jaundice, antibiotics, diabetes and dialysis. Scoring was based on subjects' understanding and ability to explain the medical terms that were presented. The medical literacy scores ranged between 0-7. Lifestyle factors assessed included habit of playing sports, type of sport and frequency of playing sports (>0 - < 2 hours/week, \geq 2 hours/week), frequency of doing exercise for 30 minutes or longer in the past month (almost everyday, few times a week, few times a month, not at all). Dietary factors assessed included frequency of intake of various food substances both healthy and unhealthy. The types of foodstuff assessed were fruit and vegetables, red meat, poultry, sea food, cake and cookies, chocolate, soft drinks. Deleterious habits assessed were smoking status and alcohol consumption. The smoking status was assessed under three categories as the type of tobacco product used, frequency of use/day and duration of smoking habit in months or years. The alcohol consumption status was assessed by the type of alcohol consumed, frequency of intake per day, week or month, amount of alcohol consumed and duration of habit of alcohol consumption in months or years. In addition to this, demographic characteristics such as name, age, gender, address and educational qualification were assessed through the questionnaire. All statistical analysis was carried out using SPSS software for windows, version 20.0 (SPSS Inc., Chicago, IL, USA).

RESULTS

In the present study, a total of 100 subjects were included in the final analysis out of which 63 were females, majority of the participants were in the age range of 21-30 years. The Pearson's correlation test was used to test the association between health literacy in dentistry and medical literacy. Pearson's correlation co-efficient between health literacy in dentistry and health literacy in medicine was found to be 0.268, the p-value was found to be 0.006 at an α -level of 0.05. A weak positive correlation was found between health literacy in dentistry and health literacy in medicine, implying that as the health literacy in dentistry increased or decreased the medical literacy changed in a similar fashion.

Table 1. Socio demographic characteristics of study population

Characteristics	n	Mean Medical Literacy	Mean Dental Literacy
Gender			
Male	63	3.7	38.8
Female	37	3.5	38.1
Educational Status			
Primary partial	9	3.2	29.2
Primary completed	6	3.3	30.5
Higher secondary partial	2	2.5	35.5
Higher secondary completed	15	2.5	35.1
Graduate	49	4	40.9
Post Graduate	9	5.1	43.8
Age in Years			
15-20	31	3.5	38.9
21-30	40	3.7	39.4
31-40	12	3.5	37.3
41-50	9	3.7	39.3
51-60	9	4	36.1
61 and above	2	4	27.5

Table 2. Alcohol consumption, smoking status of study population

	n	Mean Medical Literacy	Mean Dental Literacy
Alcohol consumption			
Drinkers	18	3.7	36.2
Non-drinkers	82	3.6	39
Smoking Status			
Smokers	10	3.7	38.5
Non-smokers	90	3.6	38.5

Table 3. Lifestyle habits including habit of playing sports and doing exercise

	n	Mean Medical Literacy	Mean Dental Literacy
Sports			
Present	38	3.6	40.8
Absent	62	3.7	37
Exercise Frequency			
Never	29	3.4	37.1
Few times/month	12	3.5	35
Few times/week	36	4	39.1
Everyday	23	5.1	41.3

Table 4. Dietary habits of study population

	n	Mean Medical Literacy	Mean Dental Literacy
Fruits and Vegetables intake			
< 1 time/day	38	3.1	34.4
≥1 time to <2 times/day	34	3.8	40.7
≥ 2 times/day	28	4	41.4
Red Meat			
<4-6 times/week	23	3.5	38.7
≥ 4-6 times/week to <1 time/day	16	3.3	42.3
≥1 time/day	61	3.8	37.4
Poultry			
<4-6 times/week	27	5	38.3
≥ 4-6 times/week to <1 time/day	10	3.4	43.1
≥1time/day	63	3.1	37.8
Sea Food			
<2-3 times/month	34	3.6	36.2
≥2-3 times/month to <1 time/week	7	3.8	40
≥1 time/week	59	3.3	38.9
Cake and Cookies			
< 1 time/week	60	3.8	38.7
≥1 to <2-3 times/week	17	3.3	36.9
≥2-3 times/week	23	3.5	39.5
Chocolates			
< 1 time/week	69	3.7	38.1
≥1 to <2-3 times/week	13	3.8	36.2
≥2-3 times/week	18	3.2	41.3
Soft Drinks			
<2-3 times/month	65	3.6	37.2
≥2-3 times/month to 4-6 times/week	17	3.8	39.2
≥4-6 times/week	18	3.5	37

Table 5. Chi-square analysis of lifestyle factors and medical literacy

n (100)	Degree of freedom	Chi-value	p-value
Frequency of doing exercise	60	80.88	0.03*
Poultry consumption	12	22.385	0.03*

*indicates results are significant at $p < 0.05$

Bivariate analysis using Chi-square tests were done to determine associations between dental literacy and lifestyle factors. The results were non-significant at $p < 0.05$, there was no association between lifestyle factors and dental literacy. Chi-square tests were also done to determine any association between medical literacy and lifestyle factors. The results were significant only for two lifestyle factors namely frequency of doing exercise and frequency of intake of poultry.

DISCUSSION

In the current study, it was found that dental literacy and medical literacy were positively correlated. Subjects with a higher dental literacy were found to have correspondingly higher levels of medical literacy. This is accordance with the study conducted by (Sandhu, 2017) where a positive association was found between literacy in medicine and literacy in dentistry. This is naturally implied as subjects having a higher capability to assimilate and understand medical information would inevitably be more comfortable understanding any dental information provided to them. Hence, it is reasonable to assume that dental and medical literacy go hand in hand and literacy skills in one area would enhance literacy in the other as well. The present study found no positive association between literacy and age or gender. This is in accordance with the study done by (Ramandeep, 2014) where no association was found between oral health literacy and gender or age. The study results are also in accordance with studies done by (Reshmi, 2014) which showed no association between gender, age and oral health literacy. This could be because majority of study participants, in the current study were in the age range of 15-40 years, with an under representation of subjects aged above 61 years who have been found to have lower health literacy rates in a study conducted by (Reisi *et al.*, 2014) and as a result are more vulnerable to effects of poorer health care decisions made.

The present study found a positive association between educational status and literacy in dentistry and medicine. As the level of educational attainment by study participants increased so did their levels of literacy in dentistry and literacy in medicine. This is in accordance with a study conducted by (Ramandeep, 2014) which found a positive association between educational status and oral health literacy. It stands to reason that people who attain a higher educational qualification have the ability to understand health information provided to them with relative ease in comparison to subjects who have attained comparatively less educational qualification. The present study did not find any association between dental literacy and concomitant lifestyle factors that were analyzed in the study, whereas there was an association between medical literacy and frequency of exercise as well consumption of poultry. This is in accordance with a study conducted by (von Wagner C, 2007) who found that there were higher odds of practicing healthy lifestyle behaviors as the health literacy increased. A study done by (Schillinger *et al.*, 2002) on diabetes patients also found that patients with a higher health literacy had a tighter glycemic control in comparison to diabetics who had lower

health literacy scores. This can be explained based on the fact that consciousness about health promoting lifestyle behaviors in participants with a higher health literacy enables them to adopt these behaviors in daily life. This is in turn reflected as better health and health related outcomes among people with high health literacy. There were some limitations in the present study that affects the extrapolation of the study results to general populace. One of the prominent limitations of the current study is that it was conducted solely on subjects attending the dental outpatients' clinic and therefore is not representative of the general population. Another limitation is the relatively small sample size with a greater representation of younger subjects in comparison to older age groups. These are areas that have to be given consideration in future by research scholars in order to throw light on the complex interactions between health literacy and lifestyle factors.

Conclusion

The present study found that among outpatients attending a dental institute, the dental literacy levels and medical literacy levels had a positive relationship in that an increase in literacy in one area also reflected in the other. It was also found that dental literacy had no significant association with any of the lifestyle factors assessed whereas medical literacy was associated with frequency of doing exercise and consumption of poultry. The present study provides an insight into interrelationship between medical literacy, dental literacy and lifestyle factors. Further research in this area with an added examination of health related and oral health related outcomes can shed light on whether targeted interventions aimed at improving health literacy in a community would enable individuals to make better choices both in terms of health promoting lifestyle choices and treatment of particular ailments.

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Conflict of Interest: There are no conflicts of interest.

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