



Original Article

Development and Validation of Vocabulary Oral Health Literacy Scale

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Abstract

Purpose: Literacy is the ability of a person to read and write. Most of the adult population struggle to understand basic information regarding health and oral health due to lack of literacy. There are several tools to assess the oral health literacy of adult population. The main disadvantage with other scales were the pronunciation of the words as it varies in India. Hence a new one named Vocabulary Oral Health Literacy Scale was formulated to overcome this problem. The aim of this study was to develop and Validate Vocabulary Oral Health Literacy Scale with four different domains. **Materials and Methods:** A cross-sectional study was conducted among 104 subjects belonging to the age group of 16–60 years residing in Puducherry. Approval was obtained from Institutional ethical committee before the start of the study. A simple random sampling was used to select the study subjects. The data was collected using a well-structured proforma. The proforma consisted of two parts. The first part collected demographic data and the second part consisted of 10 common dental words for word recognition, 10 pictures for identification, 10 words with missing letters, and 5 lines for word comprehension. The data were entered in Microsoft excel spreadsheet and analysis was done using IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp. **Results:** A total of 104 subjects were included of which 41% were male and 58% were female with mean age of 20.95 ± 9.24 and 20.19 ± 5.39 , respectively. Reliability tests revealed Cronbach's alpha value of 0.723 and split half reliability value of 0.815. There was a positive correlation between all the four domains of VOHLS, Word recognition versus picture recognition (0.420); Word recognition versus filling the words (0.421); Word recognition versus comprehension (0.429); picture recognition versus filling the words (0.507); picture recognition versus comprehension (0.211); and comprehension versus filling the words (0.477). **Conclusion:** The Vocabulary Oral Health Literacy Scale showed a good reliability in the assessment of oral health literacy among the study population. There was a positive correlation between all the domains of the scale which shows good internal consistency in the scale. Hence, this scale can be used on a larger population to assess the oral health Literacy.

Keywords: Comprehension, Literacy, Dental health, Picture

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INTRODUCTION

Most of the adult population struggle to understand basic information regarding health. In the field of dentistry, literacy has gained little attention. The main objective is to establish the relationship between literacy and dental health outcomes.[1] As such, literacy means one's ability to read and write. ADA policy defines oral health literacy as the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate oral health decisions.[2]

However, it has been found that there is a low correlation between schooling and literacy. The most commonly used instruments to test health literacy are REALM and TOFHLA.[3] Most of the people with low literacy skills struggle to understand basic health information including consent forms, verbal instructions, and drug labels.[4] Research in medical settings consistently demonstrates the importance of literacy for patient adherence to medical instructions and increased positive health outcomes.[2]

The importance of literacy, however, has received little attention in dentistry beyond the readability testing of educational materials. An important step in investigating the relationship between literacy and dental health outcomes is to determine what literacy means and how it can be measured.[3] It would seem self evident that the highest grade level achieved would be correlated with reading ability. However, research shows a low correlation between years of schooling and literacy, with literacy being several grades below the attained educational level.[5]

Thus, educational attainment, although easy to assess, can be a poor proxy for literacy and does not accurately reflect an individual's ability to understand and use written information. At present, no methods are available for assessing dental health literacy nor is there a clear consensus on whether one is needed.[6] As a result, little has been reported on health literacy in dental settings. The limited research that has been done focuses mostly on assessing the reading level of dental educational materials and consent forms.[1] According to the results of this research, many dental reading materials are presented at a reading level beyond the 12th Grade and many use dental terms that are unfamiliar to patients.[7]

Conceivably, these reading materials do not convey the necessary health information to a significant segment of the general population, particularly dental patients with low literacy.[8] A key question is whether the concepts and instruments of health literacy developed for use in the medical care setting are applicable to dental care.[5] To explore this question, we developed an instrument to assess dental health literacy based on the design of REALD.[6] Dental health literacy is defined by the National Institute of Dental and Craniofacial Research Working Group on Functional Health Literacy 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." [3]

Our work is based on the premise that dental health literacy is important because it is positively correlated with dental health outcomes, such as dental health status and oral health-related quality of life and that these associations can be used to validate any new instrument that might be developed.[9] In addition, we believe that a dental health instrument is needed because the medical and dental care systems differ on a number of characteristics that are related to dental literacy.[10] People's amount and types of exposures to each health-care system differ throughout their lives, which will result in differences in medical and dental literacy.[1] The new instrument that we developed is named vocabulary oral health literacy scale that contains 30 test items. REALM is a word recognition test which is used to identify patients with low reading abilities.[11]

Whereas TOFHLA is a test which measures both word recognition and comprehension. To measure dental literacy, REALD 30, REALD 99 has been designed.[6] According to this research, it has been found that many dental terms are unfamiliar to patients.[12] Lack of understanding of oral health information and instructions along with failure to admit the same leads to lack of compliance to prescribed treatment, nonconformity to follow proper oral health regimen, and a less likely behavior in seeking preventive alternatives.[12]

A question has emerged as whether the concepts and instruments developed for medical care are applicable to dental care. To explore the answer for this question, we have developed an instrument to assess dental health literacy based on REALD.[7] This instrument comprises word recognition, comprehension, and picture identifying.[11] Dental literacy is positively correlated with dental health outcomes like dental health status and oral health quality of life. Since medical and dental care differs on number of characteristics, it is necessary to have a dental health instrument.[13]

There are several tools to assess the oral health literacy of adult population. However, only a few were able to effectively assess the literacy on a rapid manner.[8] One such effective scale was REALD. The main disadvantage with this was the pronunciation of the words as it varies in India.[5] Hence, a new one named Vocabulary Oral Health Literacy Scale was formulated to overcome this problem. The aim of this study was to develop and validate Vocabulary Oral Health Literacy Scale with four different domains.[12]

MATERIALS AND METHODS

A cross-sectional study was conducted among 104 subjects belonging to the age group of 16–60 years residing in Puducherry. Approval was obtained from Institutional ethical committee before the start of the study.[12] A simple random sampling was used to select the study subjects.

The data was collected using a well-structured proforma.[9] The proforma consisted of two parts. The first part collected demographic data and the second part consisted of 10 common dental words for word recognition, 10 pictures for identification, 10 words with missing letters, and 5 lines for comprehension. We followed a framework that included etiology, anatomy, prevention, and treatment categories to guide us in the selection of words for initial development.[4] The words were arranged in order of increasing difficulty.[11]

The subjects were assessed by a single trained and calibrated examiner.[2] In scoring, one point was assigned for each word pronounced correctly and summed to get the overall score.[4] The total score had a possible range of 0 (lowest literacy) to 40 (highest literacy). We also obtained information on demographic characteristics including educational attainment (number of years of school completed), marital status (1 = unmarried, 2 = married), gender (1 = male, 2 = female), and age (years).[12]

Those patients who knew English were included whereas those with speech or visual impairments were excluded.[5] To be eligible for participation in the study, subjects had to be: (a) English speaking; (b) at least 16 years of age but younger than 60 years; (c) without cognitive impairment; (d) without vision or hearing problems; and (e) without obvious signs of drug or alcohol intoxication.[12] Eligible individuals who agreed to participate were asked to complete an in-person verbally administered survey.[6]

RESULTS

A total of 104 subjects were included of which 41% were male and 58% were female with mean age of 20.95 ± 9.24 and 20.19 ± 5.39 , respectively. Reliability tests revealed Cronbach’s alpha value of 0.723 and split half reliability value of 0.815.[12] There was a positive correlation between all the four domains of VOHLS, Word recognition versus picture recognition (0.420); Word recognition versus filling the words (0.421); Word recognition versus comprehension (0.429); picture recognition versus filling the words (0.507); picture recognition versus comprehension (0.211); and comprehension versus filling the words (0.477) [Figures 1-6].[6]

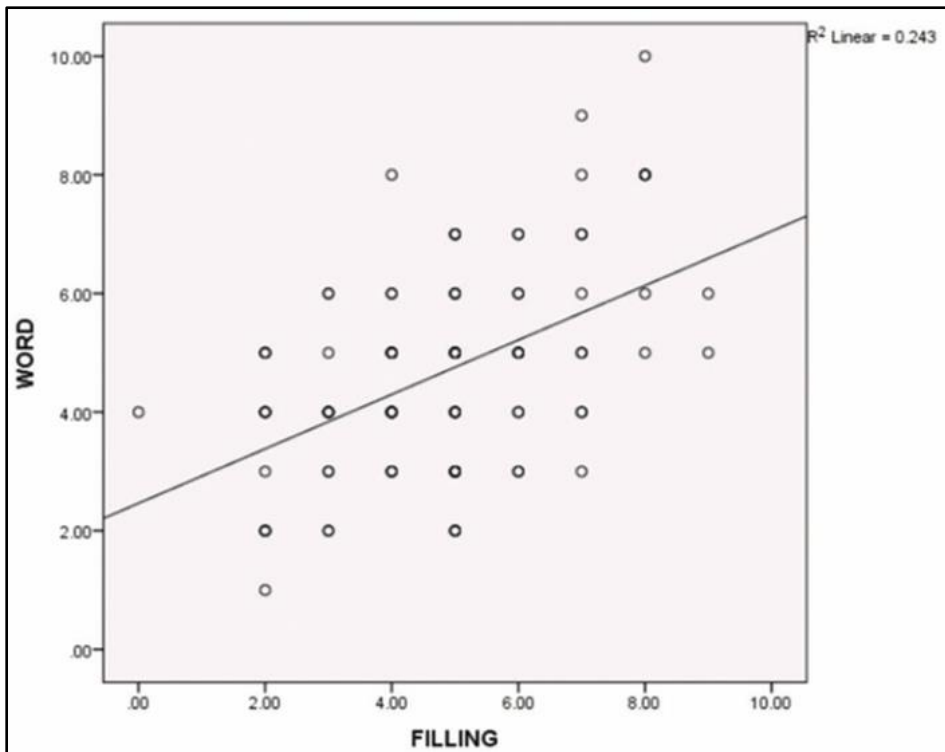


Figure 1 : Relationship between word and picture recognition

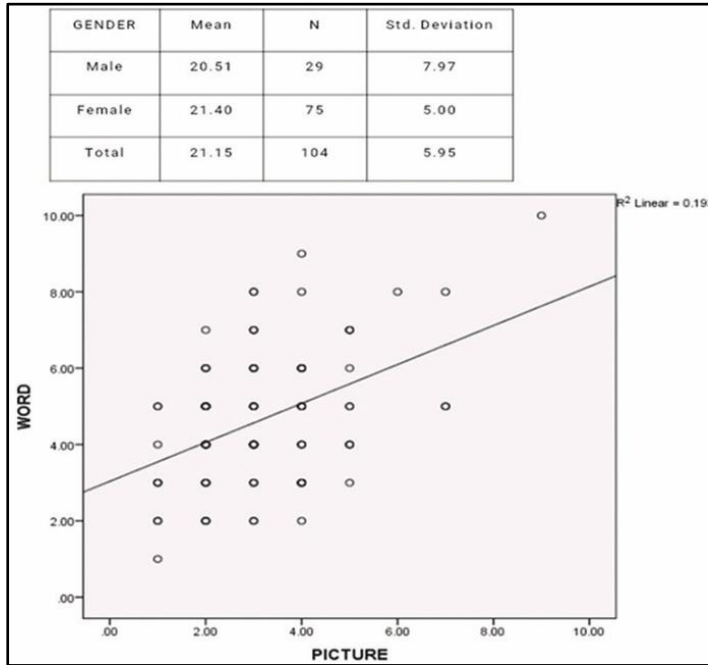


Figure 2 : Relationship between word recognition and filling the word

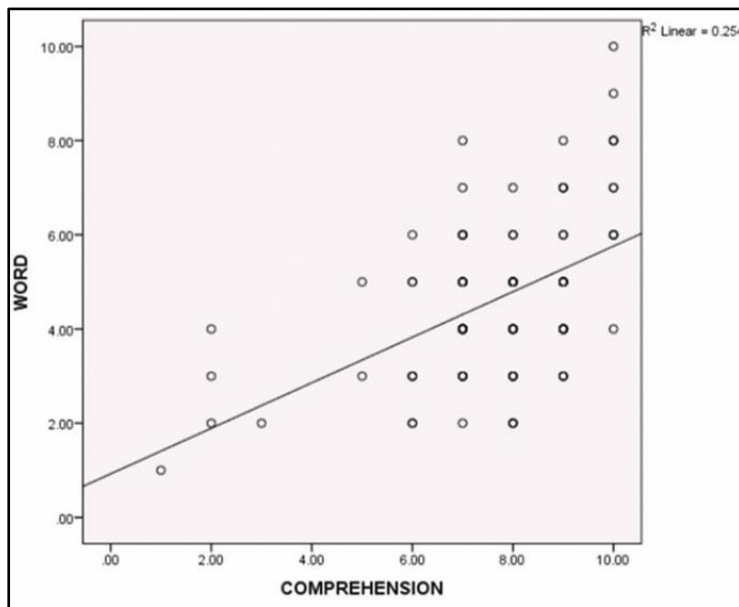


Figure 3 : Relationship between word recognition and comprehension

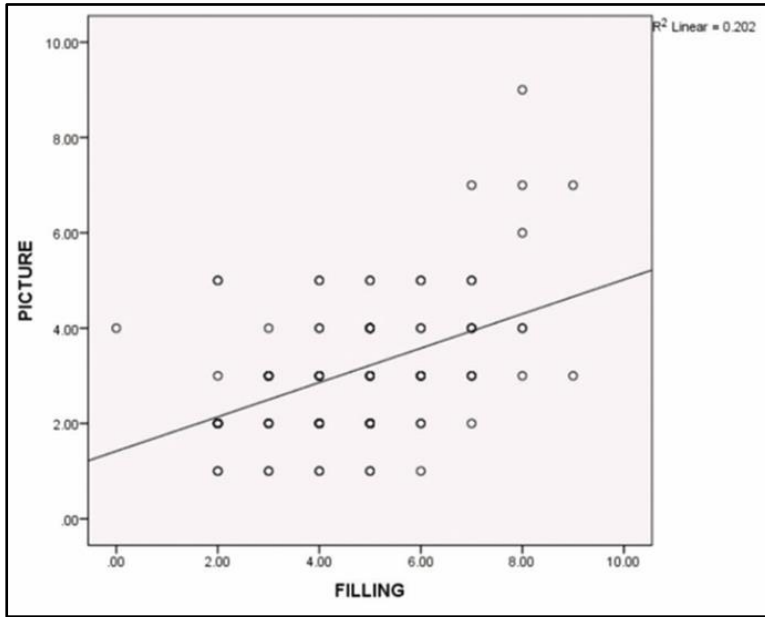


Figure 4 : Relationship between picture recognition and comprehension

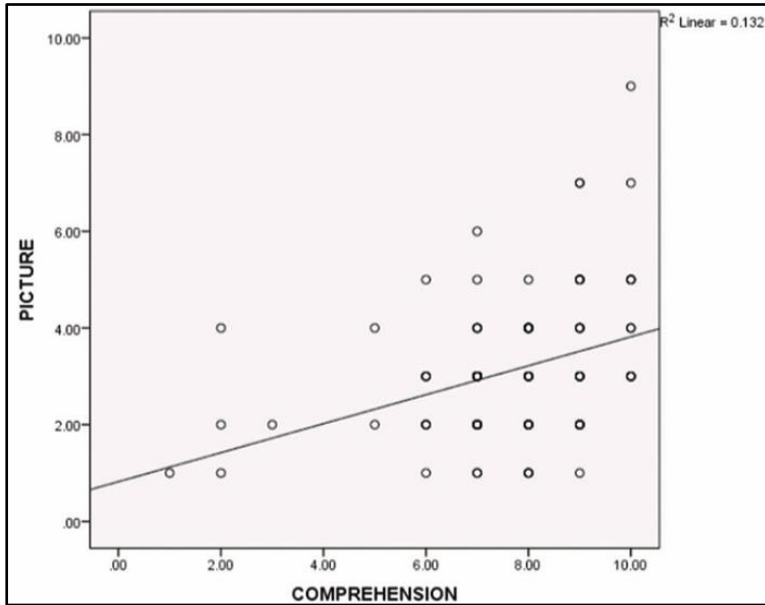


Figure 5 : Relationship between picture recognition and filling the words

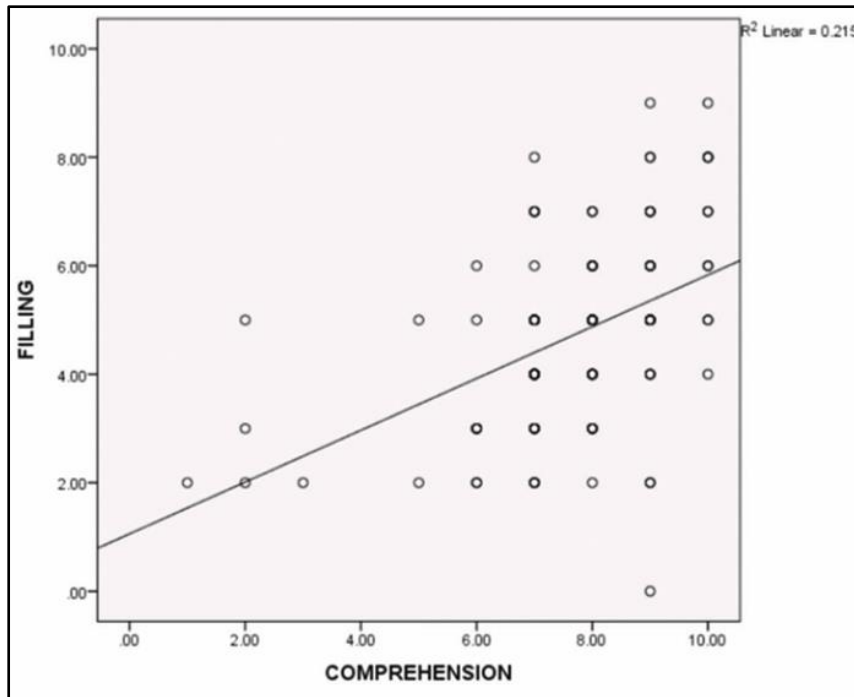


Figure 6 : Relationship between comprehension and filling the words

DISCUSSION

Few studies have examined the role of literacy on dental outcomes and none have measured dental health literacy.[6] Because considerable evidence has proven the link between medical health literacy and health outcomes and that improved health literacy can lead to a decrease in health disparities, more research on dental health literacy needs to be done.[4]

This investigation was the first step in filling a large gap in the literature by exploring dental health literacy assessment through the development and testing of a screening instrument based on word recognition.[8] Our findings indicated that REALD-30 had good internal reliability with a Cronbach's α of 0.723.[12] Dental health status was assessed with a single question and was self reported, which might have provided an inaccurate measure of the subject's clinical status.[2]

Although this single question is often used in health services research, its relationship to actual dental health status varies in studies of adults.[1] Future investigations should include assessments of clinical status of study

participants and its association to dental literacy. REALD-30 contained only 30 words.[9] The words in REALD-30 are presented in singular fashion and not in any context of a sentence or paragraph and are not meant to determine comprehension.[10] We do not know if the instrument would perform better if additional words were included. So a well-structured proforma consisting of two parts, the first part collected demographic data and the second part consisted of 10 common dental words for word recognition, 10 pictures for identification, 10 words with missing letters, and 5 lines for comprehension.[11]

A word recognition test can provide a quick and easy assessment in patient care settings, while a reading comprehension test can serve many research and intervention purposes.[3] The results of our exploratory factor analysis indicated a clear dominant first factor and a presence of a second.[11] The meanings of these two factors could be explained in several ways, particularly in light of the definition of dental health literacy stated earlier as the “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.”[7] Perhaps, the first factor measures one’s capacity or ability to read and the second the set of skills unique to dentistry resulting from exposure to oral health information.[11]

An alternative interpretation of the factor analysis results is that the first factor represents prevention literacy (sealant, braces, enamel, and fluoride) and the second treatment or disease literacy (analgesia, periodontal, hyperemia, cellulitis, fistula, and malocclusion).[1] Although further work is necessary to determine the meaning of the two factors, results do indicate that dental health literacy is not just a unidimensional concept.[3] It is unlikely that one instrument such as REALD-30 can adequately serve all the needs for a dental health literacy assessment instrument in dentistry.[6] A word recognition test can provide a quick and easy assessment in patient care settings, while a reading comprehension test can serve many research and intervention purposes.[1]

CONCLUSION

The Vocabulary Oral Health Literacy Scale showed a good reliability in the assessment of oral health literacy among the study population. There was a positive correlation between all the domains of the scale which shows good internal consistency in the scale. Hence, this scale can be used on a larger population to assess the oral health literacy.[6] Health literacy is a nonpharmacological method of managing and preventing diseases. There are three distinct levels in oral health literacy, i.e., functional, interactive, and critical.[4] Health literacy is important for all adults, who must be able to read articles and magazines about oral and general health prevention, interpret instructions on prescription bottles and over-the-counter medications, manage the health-care needs of their children and aging parents and interpret insurance and Medicare rules, regulations and benefits.[4] There are several factors which impact on low health literacy level in the community.

Poor health literacy is considered as a contributor of poor oral health status in an individual, poor health outcome in a community, and health inequalities.[14] The dental profession is indeed changing the tide and now recognizes that several solutions can be implemented to ensure effective communication becomes a national organizational priority to improve oral healthcare.[13] Oral health literacy is an interplay between culture and society, the health system, education system, language and oral health outcomes indicating that it may be a new determinant of oral health and should be considered more intensively in oral health research.[4] There are several factors which impact on low health literacy level in the community.[14] To enhance the likelihood of positive oral care outcomes, dentistry should develop a greater knowledge of how to interact with patients who have low oral health literacy and are at risk.[4]

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Nil.

Conflicts of interest

There are no conflicts of interest.

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