

Original Research Article

Assessment of the Comprehensibility of Oral Health Instructions Given By Health Service Providers to the Outpatients in a Public Hospital at Chennai

Dr. Dipayan Datta¹, Dr. S. G. Ramesh Kumar², Dr. M. B. Aswath Narayanan³,
Dr. A. Leena Selvamary², Dr. A. Sujatha²

¹Postgraduate, ²Assistant Professor, ³Professor and Head,
Department of Public Health Dentistry, Tamil Nadu Government Dental College and Hospital, Chennai

Corresponding Author: Dr. Dipayan Datta

ABSTRACT

Introduction: Health literacy is an outcome of health education. The recent trend of high demands of health information has led to an increase in health literacy problems. Dentists often encounter patients with very low oral health literacy resulting in poor health outcomes. Considering the importance of assessing oral health literacy, there is a need for a proper instrument. The objective of the present study is to assess the efficacy of oral hygiene instructions among outpatients in a public hospital at Chennai.

Materials and methods: The cross sectional study was done on randomly selected 100 patients from a public hospital in Chennai. At first they were given all the necessary instructions that are given to a general patient. Then they were given a multiple choice type questionnaire form containing 42 questions under oral hygiene practice, tobacco cessation, diet counselling, prescription & post-treatment instructions. Their performances were graded by the scale: “excellent, good, fair and poor”.

Results: None of them could correct all the questions. Only 4% of the participants scored excellent, 58% scored good, 32% scored fair and 6% scored poor. Participants from high socio-economic status group scored better than the other groups.

Discussion: The participants' comprehension on what they have been instructed is not good enough. To maintain good communication with the oral health care providers their oral health literacy must be improved.

Key words: Oral health literacy, questionnaire, comprehensibility, oral health behaviour

INTRODUCTION

Oral health is an integral part of overall health and wellbeing. Poor oral health and untreated oral conditions result in deleterious impact on quality of life. ^[1] Preventable and curable oral diseases are still remaining widespread, particularly among the underserved and underprivileged populations. ^[2]

Oral health is defined as a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth

defects such as cleft lip and palate, periodontal disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity. ^[3] This also has effects on the education and development of children and their families. ^[4,5]

The modern health care system compels the consumers to face challenging circumstances to seek healthcare and health information. As a result, the health consumers with low health literacy are not being able to get the benefits of available

information. Health literacy is increasingly described as the currency for improving the quality of health and health care. [6]

The term “health literacy” was first used by Simonds (1974). [7] He described how health information is shaped by the educational system, health care system, and mass communications. Health literacy is defined as “the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions”. [8] The American Medical Association (AMA) defines functional health literacy as “the ability to read and comprehend prescription bottles, appointment slips and the other essential health related materials required to successfully function as a patient”. [9] World Health Organization describes it as “Health Literacy represents the cognitive and social skills which determine the motivation and ability of individuals and communities to gain access to, understand, and use information in ways which promote and maintain good health.” [10]

In a broader sense, health literacy refers to skills that establish a person’s motivation and ability to access and utilise health related information to achieve and maintain good health. [11] Lower level of health literacy can result in poor health status, unhealthy behaviours, low usage of preventive healthcare services and high hospitalisation rates. [12] An increasing amount of evidence indicates that people having no proper health literacy skills to make fruitful health decisions in their daily lives are more vulnerable and have poorer health outcomes. [13-15]

Current researches in public health has given adequate importance to health literacy for patients’ knowledge and positive health behaviours and outcomes and in this perspective, health literacy has received growing attention in oral health. [16] The American Dental Association (ADA) 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”. [17]

In comparison to the notable volume of literature on health literacy, oral health literacy in is a relatively new area of research. Various studies showed that oral health literacy is associated not only with the adults’ oral health status [18,19] but also with their children’s oral health. [20] Many investigators proposed that oral health literacy can contribute to oral health disparities because those with low oral health literacy are more likely to be poor, not well educated, older and with limited English language skills. [21] Others suggest that the gap in communication with health care providers resulting from their lower literacy rate may account for their poor oral health status. [22,23]

In their clinical settings, dentists often encounter patients with limited oral health literacy skills. But it is not always possible to identify those individuals who may not be able to understand health explanations and instructions instantly resulting in poor oral health outcomes. There is much need for quick, easy-to use oral health literacy tools that will allow for a comfortable experience for both providers and patients in identifying those that may need special methods of communication in clinical settings. [24]

In health care system, different methods are existing to assess the health literacy and oral health literacy among the patients like: Test of Functional Health Literacy in Adults (TOHFLA), [25] Test of Functional Health Literacy in Dentistry (TOHFLiD), [26] Oral Health Literacy Instrument (OHLI), [27] REALD-30, [28] REALD-99 (Rapid Estimate of Adult Literacy in Dentistry) [29] etc. But none of these are able to determine comprehension. It is not assured if the person knows the actual meaning of the particular word or rather is simply able to pronounce it without having the proper knowledge of the word. But it is important to find out the limited oral health literacy among the patients and to improve it so that the level of

communication between the oral health service providers and the patient can be enhanced both in clinical settings and community level.

Considering the importance of assessing oral health literacy, there is a need for an instrument to assess it. As the present available word recognition instruments lack the ability to assess functional health literacy, hence this study has been conducted with a new instrument for the assessment of the comprehensibility of oral health instructions given by health service providers to the outpatients in a public hospital at Chennai.

MATERIALS AND METHODS

Study population and Sampling: The target population for the present study comprised of the outpatients attending Tamil Nadu Government Dental College and Hospital for different kinds of treatments. A total of 100 individuals were selected through simple random sampling.

Inclusion and exclusion criteria: The inclusion criteria were healthy adult patient and ability to read and understand Tamil and/or English language. The exclusion criteria were physically and mentally challenged patients and inability to read and understand Tamil and/or English language.

Procedure: At the very first, demographic data were collected for the subject. Then one calibrated health care provider gave instructions on oral hygiene, tobacco cessation, diet, prescription and post-treatment advices to one patient. After that, they were given a multiple choice type questionnaire.

Questionnaire: The questionnaire was prepared in both English and Tamil languages. At first, the questions were framed in English. Then it was translated to Tamil by a bilingual Dental professional. With the help of an expert panel of 3 bilingual Dental professionals the translation was checked and corrected.

The questionnaire was containing 42 questions including 13 on oral hygiene, 4 on tobacco cessation, 12 on diet, 4 on

prescription and 9 on post-treatment advices. The oral hygiene part contained questions on time, duration frequency and method of tooth brushing, recommended amount of toothpaste to be used, dental flossing, mouth rinsing, recommended time for toothbrush use, type of toothbrush and toothpaste etc. The tobacco cessation part contained questions on harmful effects of tobacco, need for quitting tobacco use, alternative methods and follow up visits. The diet part contained questions on harmful effects of sugar and in between meals, effects of fruits and fibrous diet on teeth, effect of fluoridated water, balanced diet etc. The prescription part contained questions on the language and abbreviations used in a general prescription. Lastly, the post-treatment instruction advices part contained questions on post-extraction instructions, post-restoration instructions, post-scaling instruction etc.

The subjects were instructed that few questions have more than one option correct and hence to mark carefully. Each correct answer carries 1 mark. For those questions where more than one option is correct 1 mark was given for each correct choice. But for those questions where only one option is correct, no mark was given if the subject marks more than one option.

Questions on oral hygiene contain 17 marks, questions on tobacco cessation contain 20, questions on diet contain 16, questions on prescription contain 8 and questions on post-treatment advices contain 11 marks. Thus maximum score is 72 and minimum score is 0.

The score was graded by the following scale: Excellent (more than 50), Good (35-50), Fair (18-34), Poor (0-17). Statistical analysis was done with the help of SPSS v.20 software.

RESULTS

None of the participants were able to answer all the questions. Among 100 subjects, 71 were males and 29 were females. Out of 100 individuals, 4 scored

Excellent, 58 scored Good, 32 scored Fair and 6 scored Poor (Figure 1).

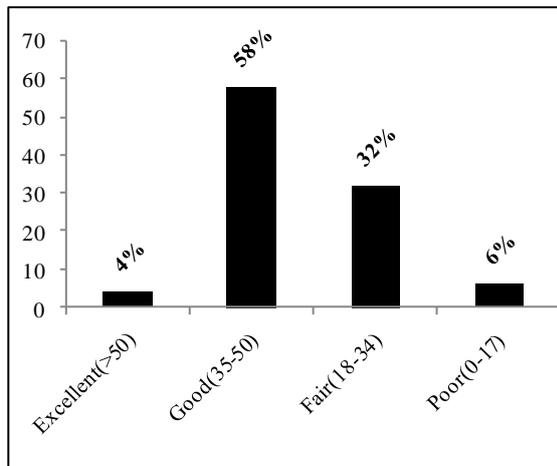


Figure 1: Overall scores of the participants

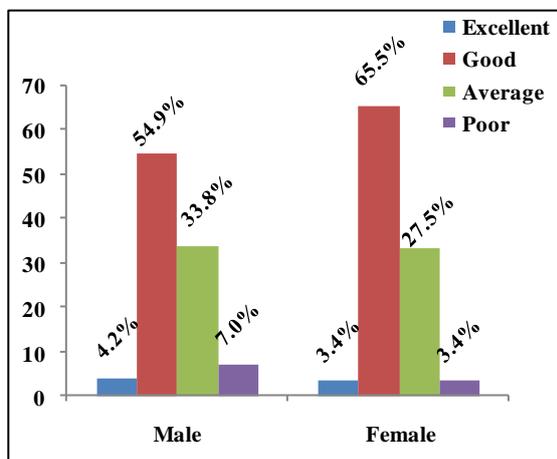


Figure 2: Score distribution among males and females

Among 71 males, 3 scored Excellent (4.2%), 39 scored Good (54.9%), 24 scored Fair (33.8%) and 5 scored Poor (7.0%). And among 29 females, 1 scored Excellent (3.4%), 19 scored Good (65.5%), 8 scored Fair (33.3%) and 1 scored Poor (3.4%) (Figure 2).

Scores were also analysed according to the socio-economic status using Kuppaswamy socio-economic status scale of the subjects. Persons of all the socio-economic status groups were present among the participants. Among them, 28 belonged to Upper (I) group, 22 to Upper middle (II), 24 to Lower middle (III), 14 to Upper lower (IV) and 12 to Lower (V) group. Their scores are described in Table 1 and Figure 3.

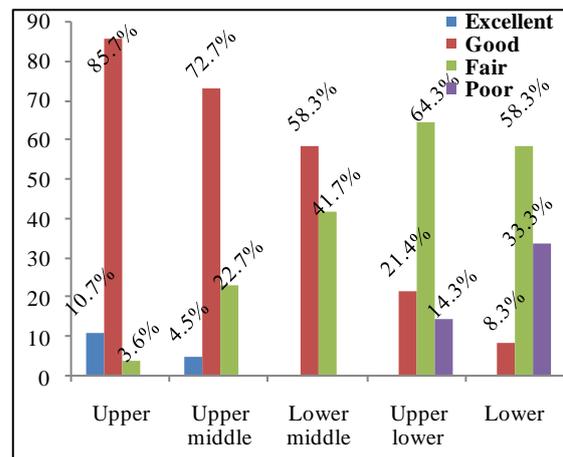


Figure 3: Score distribution among different socio-economic status groups

Table 1: Score distribution among different socio-economic status groups

Scores	Socio-economic Status Groups				
	Upper	Upper-middle	Lower-middle	Upper-lower	Lower
Excellent	3(10.7%)	1(4.5%)	0	0	0
Good	24(85.7%)	16(72.7%)	14(58.3%)	3(21.4%)	1(8.3%)
Fair	1(3.6%)	5(22.7%)	10(41.7%)	9(64.3%)	7(58.3%)
Poor	0	0	0	2(14.3%)	4(33.3%)

The results have also been described according to the age groups of the participants in the study. They were divided into 4 age groups: 15-25 years, 26-35 years, 36-45 years and 46-55 years (Table 2).

Table 2: Age wise score distribution with mean score and SD (p<0.05)

Age	Number of participants	Grades				Mean score ± SD
		Excellent	Good	Fair	Poor	
15-25 years	14	3	5	6		36.14 ± 12.06
26-35 years	38	1	26	11		37.23 ± 8.98
36-45 years	28		17	8	3	34.21 ± 11.67
46-55 years	20		10	7	3	31.25 ± 11.42

DISCUSSION

The results show that, in spite of explaining everything, none of the subjects were able to understand and reproduce the instructions completely. That means, either the way the health care providers gave instructions was not efficient enough to be understood completely or, the knowledge on oral health among those subjects was not up to the mark, or both.

Figure 2 shows that males are dominating in Excellent, Fair and Poor scores where females have secured more number of Good scores. According to Figure 3, the individuals from upper and upper-middle socio-economic status groups are likely to comprehend and reproduce the instruction better than the lower-middle, upper-lower and lower socio-economic status groups. Table 2 shows that even after distributing the results according to the age, there is no distinctly large score difference among the four age groups which can establish any strong correlation between age and level of comprehension.

In dentistry, the most commonly used comprehension based methods of assessing oral health literacy include the Test of Functional Health Literacy in Adults (TOHFLA), [25] the Test of Functional Health Literacy in Dentistry (TOHFLiD) [26] which contains passages regarding – set of instructions about fluoride varnish, consent form for dental treatment, Medicaid rights and responsibilities, instructions for toothpaste, paediatric dental appointment and prescription labels for fluoride drops and fluoride drops or the Oral Health Literacy Instrument (OHLI) [27] which contains passages on dental caries, periodontal diseases, prescriptions associated with dental treatment, post-extraction instructions and dental appointments. These instruments are comprehension and numeracy tests which measure several aspects of health literacy, but take between 20-30 minutes to administer and are not suitable for use in a fast paced clinical care setting. [28] Another method called REALD-30 consists of 30

dental words taken from the American Dental Association Glossary of Common Dental Terminology and patient education materials. [28] REALD-99 was developed by the same authors by adding 69 more words to the previous one and made the list longer, from 30 to 99. The words are arranged in the order of difficulty, based on the fair word length, number of syllables, and difficult sound combinations. [29] Apart from these, some other oral health literacy measurement tools are: Rapid Estimate of Adult Literacy in Medicine and Dentistry (REALM-D), [30] Two Stage-Rapid Estimate of Adult Literacy in Dentistry (TS-REALD), [31] Comprehensive Measure of Oral Health Knowledge (CMOHK), [32] Hong Kong Oral Health Literacy Assessment Task for Paediatric dentistry (HKOHLAT-P) [33] etc.

Hom (2012) [34] suggested that higher levels of oral health knowledge are significantly associated with higher levels of oral health literacy. Similar kind of results were found in the study by Jones (2007) [35] suggesting that lower oral health literacy is associated with lower oral health knowledge. According to Vann (2010) [36] and Miller (2010), [37] caregivers' lower oral health literacy can cause poor oral health status and poor oral health knowledge of their children. Masayuki (2012) [38] found association between lower oral health literacy and poor oral health behaviour. Divaris (2012) [39] focused on Oral Health Related Quality of Life and said it to be better with higher oral health literacy than those with lower oral health literacy. According to Holtzman (2014) [40] and Shin (2014), [41] lower oral health literacy renders dental anxiety resulting in hindrance in the utilization of oral health services and failed dental appointments. These research works signify oral health literacy as an essential element to achieve better oral health outcomes and reduced oral health disparities. [42]

In spite of all these studies that have given much importance in oral health literacy, none of them used such an

instrument that can measure the comprehensibility of the individuals. The words or passages in different tests are presented in a singular fashion and cannot determine how much the person has understood. But the level of the patients' oral health literacy must be detected to promote health education as well as health care utilization according to their need. In order to appropriately design any intervention programs at the community level the health literacy level of the target population has to be properly assessed and improved.

The present study has focused on the comprehensibility of the subjects for all the given instructions. The questions were prepared in such a way that the correct answer will show how much the persons have understood the instructions.

However, there are some barriers in conducting this kind of study like, lack of interest to listen, lack of motivation to follow, difficulties in understanding the way the doctor speaks, very limited knowledge in oral health etc.

CONCLUSION

Majority of the subjects who participated in the study were not able to completely understand and reproduce the instructions. Efficacy of giving oral health instructions may vary from doctor to doctor, but still, there should be some generalized methods that will help the patient to understand and follow all the advices completely. Future researches in these aspects are necessary.

RECOMMENDATIONS:

Following modalities can be utilized to improve the oral health literacy in the general population:

1. Apart from verbal instructions, pamphlets can be given containing pictures and text with local language.
2. As one to one counselling takes longer time, posters can be used in clinics
3. Audio-visual aids can be used in community level

REFERENCES

1. Eleanor J Parker, Lisa M Jamieson, Associations between Indigenous Australian oral health literacy and self-reported oral health outcomes, BMC Oral Health. 2010;10:3
2. National Institute of Health (NIH): The invisible barrier: Literacy and its relationship with oral health, A report of a workgroup sponsored by the national institute of dental and craniofacial research, National Institutes of Health. J Public Health Dent. 2000;65:174-182
3. World Health Organization [Internet]. Oral Health. Fact sheet No 318. Available from: <http://www.who.int/mediacentre/factsheets/fs318/en/>.
4. Kwan SY, Petersen PE, Pine CM, Borutta A. Health-promoting schools: an opportunity for oral health promotion. Bulletin of the World Health Organization. 2005;83: 677-685
5. Lateefat S, Musa OI, Kamaldeen AS, Muhammad AS, Saka OI. Determinants of Oral Hygiene Status among Junior Secondary School Students in Ilorin West Local Government Area of Nigeria. IOSR J Pharm Biol Sci. 2012;1:44-48
6. Sudhir Hongal, Nilesh Arjun Torwane, Pankaj Goel, Byalakere R. Chandrashekar, Manish Jain, Eshani Saxena, Assessing the oral health literacy: A review, International Journal of Medicine and Public Health. 2013;3(4)
7. Simonds SK: Health education as social policy. Health Education Monograph. 1974;2:1-25.
8. Davis RM. Healthy People 2010: National health objectives for the United States. BMJ. 1998;317:1513-7.
9. Safer RS, Keenan J. Health Literacy: The Gap between Physicians and Patients. Am Fam Physician. 2005;72: 463-8.
10. World Health Organization. Health promotion glossary. WHO, Geneva. 1998
11. Virginia Dickson-Swift, Amanda Kenny, Jane Farmer, Mark Gussy, Sarah Larkins, Measuring oral health literacy: a scoping review of existing

- tools, Dickson-Swift et al. BMC Oral Health. 2014;14:148,
12. Baker D, Gazmararian J, Williams M, Scott T, Parker R, Green D, Ren J, Peel J: Functional health literacy and the risk of hospital admission among medicare managed care enrollees. Am J Public Health. 2002;92:1278–1283.
 13. Berkman ND, Sheridan SL, Donahue KE, Halpern DJ, Crotty K: Low health literacy and health outcomes: an updated systematic review. Ann Intern Med 2011, 155:97–107.
 14. Kanj M, Mitic W: Health Literacy and Health Promotion. Geneva: World Health Organization; 2009.
 15. Kickbusch IS: Health literacy: addressing the health and education divide. Health Promot Int. 2001;16:289–297
 16. Jessica Lee, Brian Stucky, Gary Rozier, Shoou-Yih Lee, Leslie P. Zeldin, Oral Health Literacy Assessment: development of an oral health literacy instrument for Spanish speaker, J Public Health Dent. 2013;73(1):1–8
 17. Robinson LA, Crabtree MA, Allen NW, Baber G, Boseman JJ, Briskie DM, Ciebien GJ, Davis GS, Davis J, Flaherty KT, Gill EA, Holwager DR, Homicz AJ, Lang MS, Lingle SD, Miller DJ, Oneacre LP, Stanislav LE, Stasch JJ, Whitman SA, Smith MK, Starsiak MA, Young J: Health Literacy in Dentistry Action Plan 2010-2015. Chicago, IL: American Dental Association; 2009
 18. Rudd RE, Horowitz AM: Health and literacy: supporting the oral health research agenda. J Public Health Dent. 2005;65(3):131–132
 19. Guo Y, Logan HL, Dodd VJ, Muller KE, Marks JG, Riley JL 3rd: Health literacy: a pathway to better oral health. Am J Public Health. 2014;104(7):e85–e91.
 20. Bridges SM, Parthasarathy DS, Wong HM, Yiu CK, Au TK, McGrath CP: The relationship between caregiver functional oral health literacy and child oral health status. Patient Educ Couns. 2014;94(3):411–416.
 21. Horowitz AM, Kleinman DV: Oral health literacy: a pathway to reducing oral health disparities in Maryland. J Public Health Dent. 2012;72(Suppl 1):S26–S30
 22. Schiavo JH: Oral health literacy in the dental office: the unrecognized patient risk factor. J Dent Hyg. 2011;85(4):248–255
 23. 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. J Dent Educ. 2011;75(9):1218–1224
 24. Girona M, Der-Martirosian C, Messadi D, Holtzman J and Atchison K: A brief 20-item dental/medical health literacy screen (REALMD-20). J Public Health Dent. 2013; 73(1):50–55.
 25. Parker RM, Baker DW, Williams MV, Nurss JR: The test of functional health literacy in adults: a new instrument for measuring patients' literacy skills. J Gen Intern Med. 1995; 10(10):537–541
 26. Gong DA, Lee JY, Rozier RG, Pahel BT, Richman JA, Vann WF Jr: Development and testing of the Test of Functional Health Literacy in Dentistry (TOFHLiD). J Public Health Dent. 2007;67(2):105–112
 27. Sabbahi DA, Lawrence HP, Limeback H, Rootman I: Development and evaluation of an oral health literacy instrument for adults. Community Dent Oral Epidemiol. 2009; 37(5):451–462
 28. 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. J Public Health Dent. 2007;67(2):94–98
 29. Richman JA, Lee JY, Rozier RG, Gong DA, Pahel BT, Vann WF Jr: Evaluation of a word recognition instrument to test health literacy in dentistry: the REALD-99. J Public Health Dent. 2007; 67(2): 99–104.
 30. Atchison KA, Girona MW, Messadi D, Der-Martirosian C. Screening for oral health literacy in an urban dental clinic. J Public Health Dent. 2010;70:269–275
 31. Stucky BD, Lee JY, Lee SY, Rozier RG. Development of the two-stage rapid estimate of adult literacy in dentistry. Community Dent Oral Epidemiol. 2011;39(5):474–480

32. Macek MD, Haynes D, Wells W, Bauer-Leffler S, Cotton PA, Parker RM., et al. "Measuring conceptual health knowledge in the context of oral health literacy: preliminary results". *J Public Health Dent.* 2010;70(3): 197-204
33. Wong HM, Bridges SM, Yiu CKY, McGrath CPJ, Au TK, Parthasarathy DS. Development and validation of Hong Kong oral health literacy assessment task. *Int J Paediatr Dent.* 2013;23(5):366–375
34. Hom JM, Lee JY, Divaris K, Baker AD, Vann WF Jr. Oral health literacy and knowledge among patients who are pregnant for the first time. *J Am Dent Assoc.* 2012;143(9):972–980
35. Jones M, Lee JY, Rozier RG. Oral health literacy among adult patients seeking dental care. *J Am Dent Assoc.* 2007;138(9):1199–1208
36. Vann WF Jr, Lee JY, Baker D, Divaris K: Oral health literacy among female caregivers: impact on oral health outcomes in early childhood. *J Dent Res.* 2010;89(12):1395–1400
37. Miller E, Lee JY, DeWalt DA, Vann WF Jr: Impact of caregiver literacy on children's oral health outcomes. *Pediatrics.* 2010;126(1):107–114
38. Masayuki Ueno, Susumu Takeuchi, Akiko Oshiro, Yoko Kawaguchi: Relationship between oral health literacy and oral health behaviors and clinical status in Japanese adults. *Journal of Dental Sciences.* 2012;8(2): 170-176
39. Divaris K, Lee JY, Baker AD, Vann WF Jr: Caregivers' oral health literacy and their young children's oral health-related quality-of-life. *Acta Odontol Scand.* 2012;70(5):390–397
40. Holtzman JS., Atchison KA, Gironda MW, Radbod R, Gornbein J: The association between oral health literacy and failed appointments in adults attending a university-based general dental clinic. *Community Dent Oral Epidemiol.* 2014;42(3):263-270
41. Shin WK., Braun TM, Inglehart MR: Parents' dental anxiety and oral health literacy: effects on parents' and children's oral health-related experiences. *J Public Health Dent.* 2014;74(3): 195-201
42. Navdeep Kaur, Daniel Kandelman, Laura Nimmon, Louise Potvin: Oral Health Literacy: Findings of a Scoping Review. *EC Dental Science.* 2015;2(3): 293-306

How to cite this article: Datta D, Kumar SGR, Narayanan MBA et al. Assessment of the comprehensibility of oral health instructions given by health service providers to the outpatients in a public hospital at Chennai. *Int J Health Sci Res.* 2017; 7(9):100-107.
