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Oral Health Literacy among Caregivers in Bangalore City, India

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ABSTRACT

INTRODUCTION: Oral health literacy is found to be one of the determinant to individuals health, health behaviour and health outcomes. Individuals with lower literacy have poorer health knowledge, unhealthy behaviour, less use of health services, increased rate of hospital administration, increased health care costs and poor health outcomes.
AIM: To assess caregiver's oral health literacy of children aged 3-6 years in Bangalore city.
MATERIALS AND METHODS: A cross-sectional study was conducted on 635 child/caregiver dyads from a sample of children aged 3-6 years who were selected from anganwadis and preschools in Bangalore city. Demographic details were collected using structured questionnaire. Caregiver literacy was measured using the Rapid Estimate of Adult Literacy in Dentistry (REALD-30).
RESULTS: Among 635 child/caregiver dyads, caregiver's and children's mean ages were 33.45 years(SD = 3.36) and 5.28 years (SD =0.67), respectively. The mean literacy score was 14.25 (SD= 7.67). The results also indicated that there was an association between socio-demographic variables such as age, education, income, occupation, socioeconomic status and caregivers' oral health literacy.
CONCLUSION: Caregiver's oral health literacy is influenced by sociodemographic factors. Oral health literacy is potential determinant and as impact on oral health outcomes in young children.

KEYWORDS: Oral Health Literacy, Caregivers, Health Information, Oral Health

INTRODUCTION

In recent times, literacy has emerged as a prime item on the research syllabus in the field of medicine and public health.[1] Health literacy is increasingly described as a method, non-pharmacological in nature, for management and prevention of diseases and also currency for improving the quality of health and health care. Basic health knowledge is in need in order to have a healthy life.[2]

Health literacy is defined as the "degree to which individuals have the capacity to acquire, exercise, and perceive basic health information and services needed to frame significant health decisions". Health literacy is not only associated with the ability to write or read the English language, but is also affected by education, culture and the context of the situation. The ability to perceive health information and acquire services is vital for management of personal health; therefore, health literacy is acknowledged as a critical element of health.[3]

Health literacy, along with general literacy, is an essential health determinant.[4] Thus, the meaning of health literacy is much more than the mere capability of reading leaflets or brochures and arranging appointments. By enhancing people's access to health related knowledge and services, and their extent to utilize it efficiently, health literacy authorisation is of prime importance. Health literacy is reliant upon basic grades of literacy. Poor literacy can have direct influence on people's health by restricting their personal, social and cultural evolution, as well as impeding the blossoming of health literacy.[5]

Even people with sufficient literacy competence may find interpreting healthcare information a challenging task. They may not be able to comprehend basic terminology and the concepts of health and medical field.[6] The susceptibility to make medication errors is more in people with poor health literacy, and they have worse health status, poor quality of life, more rate of hospital admissions, and much more estimated healthcare expenses than people with adequate knowledge of health related facts. Health literacy expertise is critical for warranting people's capability to develop and upgrade their health status.[7]

Disparity and variation in oral health status and its related quality of life may result from countless hurdles extending from individual, familial, environmental, socio-economic, biological, psychological, cultural and political factors. Restricted access to oral health care utilities and services, complicated oral health care policies and systems, a lack of oral-health education material and poor oral heath literacy are also major

barriers to public health.[8]

The procedure of obtaining oral health education and information, appraising its fundamentals and applying preventive and treatment plans for caring oral health adequately and timely requires new skill inculcation known as oral health literacy (OHL).[9] Oral health literacy is an interactive equilibrium between cultural and social determinants, the health and education framework, language and oral health consequences predicting that it may be a new facet of oral health and should be appraised more diligently in research related to oral sciences.[10]

Although current literature unveils that oral health literacy is co-related with the grades of education, ethnicity, utilization of dental services, oral health education, and oral care practices, but data and statistics about the impression of oral health literacy on oral health outcomes and quality of life are meagre.[8] There are numerous factors which directly influence the low health literacy levels in the community such as difficulty in navigating the health care system; increased risk of hospital admissions and emergency care utilization[11]; inconsiderable use of preventive strategies (fluoride dentifrices, screening of paediatric patients)[12]; difficulty in understanding and completion of documents and consent formalities; inability to read instructions for prescribed medications[13]; use of more priced services; medications abuse and misuse; misunderstanding of self-care instructions and practice of inappropriate and inadequate preventive health care.[14-16] Other factors that can be added to this list are depressive disorders due to misunderstanding of one's disease conditions; increased utilization of specialty care; increased need for health care professionals; and poor response in health care research and surveys.[17]

Poor health literacy is regarded as a risk factor of poor oral health status in an individual, sub-standard heath outcomes at community level and health discrepancies and disparities. The overall major outcome is the high cost as the patients with relatively lower health literacy level are more prone to use more health care resources than those with favourable literacy competencies.[18] Therefore, the aim of this study was to assess oral health literacy levels in caregiver's of children aged 3-6 years in Bangalore city.

MATERIALS AND METHODS

This cross-sectional study was conducted to assess oral health literacy levels in caregiver's of children aged 3-6 years in Bangalore city. The approval of this study was obtained from the Institutional Review Board of The Oxford Dental College and Hospital, Bangalore. Eligibility criteria included Caregivers of children aged between 3-6 years studying in anganwadis and preschools in Bangalore city, Caregivers who had received formal education of up to 12th standard in English medium. Caregivers with cognitive impairment, vision or hearing disorders were excluded from the study.

A multi-stage cluster random sampling method was used to collect the data. After written consent for study participants was obtained, eligible caregivers were asked to complete verbally administered surveys by trained interviewer in personal presence. To assess the education, income, occupation and socio-economic status of the caregiver, modified Kuppuswamy's scale was used.[19]

Caregiver's oral health literacy was evaluated by using the Rapid Estimate of Adult Literacy in Dentistry (REALD-30).[20] This previously validated tool includes 30 words from the dentistry context that are arranged in order of increasing difficulty. This instrument is used to assess reading ability in the health context and does not allow assessment of the entire broad context of "health literacy," which can include health-related knowledge, behaviours, and ability to process information from other media such as oral literacy. With the REALD- 30, the words are read aloud by the caregiver to the interviewers. As REALD-30 is a word-recognition test, participants were asked to skip, rather than trying to pronounce the words when they did not know about the used word. For scoring the REALD-30, 1 point is allocated for each word that is pronounced correctly, and then the points are totalled to get an overall score. The total score has a probable range varying from 0 (lowest literacy) to 30 (highest literacy). The Cronbach's α for REALD-30 was assessed to be 0.87. No practical norms have been established till date to denote a score for "adequate" OHL. As in a previous investigatory research, an arbitrary cut off of <13 was considered to indicate "low" OHL and >13 to indicate high oral health literacy.[21]

Statistical Analysis: In the present study, descriptive statistical analysis was carried out and the results on continuous measurements were presented as Mean and standard deviation (SD) and outcomes on categorical measurements were presented in Number (%). A Significance level of 5% was used for assessment

Analysis of variance (ANOVA) was used to find the level of significance of study parameters between three or more group of patients and Student t test (two tailed, independent) was used to find the significance of study variables on continuous scale between two groups (Inter group analysis) on metric parameters.

RESULTS

A total of 635 female caregivers from Anganwadi centres and private preschool participated in the study. Table 1 summarizes the socio-demographic characteristics of the study participants. The age of the subjects ranged between 27-36 years with mean age of 33.45±3.36 years. Educational qualification distribution showed 224 (35.2%) of caregivers had intermediate education, 316 (49.8%) caregivers reported of having Graduate or post graduate education and majority 95 (15%) had professional education. The majority of the participants 279 (43.9%) belonged to upper middle class.

Table 2 shows the distribution of caregivers based on their ability to read REALD-30 words.The mean REALD score was 14.25±7.67 with range of 3-25.

Table 3 shows the mean oral health literacy according to different variables (age, education, occupation, income and socioeconomic status).Using ANOVA the mean difference in the mean literacy score about caregiver's education, occupation, income and SES were found to be significantly associated. Further using Tukey's post hoc test it was found that caregivers who had professional education had significantly higher mean literacy 24.2±1.22 when compared intermediate and graduate or post graduate education group. Similarly caregivers who were professionals had significantly higher mean literacy score of 22.83±2.58 when compared to unemployed, unskilled, semi-skilled and skilled group). It was also found that caregivers who had income of >Rs30, 375 had significantly higher mean literacy score of 22.08±2.83compared to other income groups. Also, Caregivers who fall into Upper class of SES had significantly higher mean literacy score compared to upper and lower middle groups.

Characteristic	n	%
Caregivers Gender		
Female	635	100
Caregivers Age (years)		
27 -36	544	85.7
37-45	91	14.3
Caregivers Education Intermediate	224	35.2
Graduate or post graduate	316	49.8
Professional	95	15.0
Caregivers Occupation		
Unemployed	23	3.6
Unskilled	29	4.6
Semi skilled	59	9.2
Skilled	142	22.4
Clerical, shop owner , farmer	181	28.5
Professional	201	31.7
Socio economic status		
Lower	0	0.0
Upper lower	0	0.0
Lower middle	137	21.6
upper middle	279	43.9
Upper	219	34.5
Total monthly family Income(Rs)		
<1,520	0	0.0
1,521-4,555	0	0.0
4,556-7,593	45	7.0
7,594-11,361	70	11.0
11,362-15,187	24	3.8
15,188-30,374	302	47.6
>30,375	194	30.6

Table 1. Sociodemographic characteristics of the participants

DISCUSSION

Health Literacy is known moderator between socio-economic factors, health behaviour and oral health outcomes in differing communities, describing multi-variable generalisation of the derivatives in oral health and outcomes. In the present study, majority (85.7%) female caregivers of belonged to age group of 27-36 years with mean age of 33.45±3.36 years which was similar to results reported in research work conducted by Lee et al.[20], Schroth et al.[22] Susan Bridges et al.[23] S Parthasarathy et al.[24] and Arthi Veerasamy et al.[25]

Although meagre research has been conducted to inspect oral health literacy (OHL) levels, adequate rationalization exists for pursuing research in this horizon. In the present study, the mean OHL of the

REALD-30 words	Ability to read			
	Yes		No	
	n	%	n	%
Sugar	635	100	0	0
Smoking	635	100	0	0
Floss	635	100	0	0
Brush	632	99.5	3	0.5
Pulp	354	55.7	281	44.3
Fluoride	308	48.5	327	51.5
Braces	481	75.7	154	24.3
Genetics	421	66.3	214	33.7
Restoration	313	49.3	322	50.7
Bruxism	219	34.5	416	65.5
Abscess	425	66.9	210	33.1
Extraction	364	57.3	271	42.7
Denture	405	63.8	230	36.2
Enamel	133	20.9	502	79.1
Dentition	384	60.5	251	39.5
Plaque	0	0	0	0
Gingiva	27	4.3	608	95.7
Malocclusion	214	33.7	421	66.3
Incipient	312	49.1	323	50.9
Caries	298	46.9	337	53.1
Periodontal	199	31.3	436	68.7
Sealant	311	49.0	324	51
Hypoplasia	161	25.4	474	74.6
Halitosis	154	24.3	481	75.7
Analgesia	269	42.4	366	57.6
Cellulitis	361	56.9	274	43.1
Fistula	375	59.1	260	40.9
Temporomandibular	26	4.1	609	95.9
Hyperemia	0	0	0	0
Apicoectomy	0	0	0	0
Mean literacy score	14.25±7.67			

Table 2. Distribution of caregivers based on their ability to read REALD-30 words

caregivers was 14.25 (SD=7.67). Although no cut-off points have yet been acclaimed for the REALD-30 to indicate what score would denote inadequate OHL, this approximation is lower than what has been previously concluded in other investigatory studies using the same instrument. Using REALD- 30, Jones and colleagues26 inspected the OHL literacy levels among patients visiting a private dental office and reported a mean 23.9 (SD=1.3). Lee and colleagues20 explored OHL levels amongst the patients in an outpatient medical facility using the same instrument, reporting a mean score of 19.8 (SD=6.4), Miller and colleagues27 reported a mean score of 20.7 (SD=5.5) among a sample seeking dental care in a university setting. Recently Susan Bridges et al23 and S Parthasarathy et al24 reported a mean score of 23 (SD=3.9).

There are numerous potential explanatory facts behind these reported differences. First, unlike the present study, the three aforementioned ones relied upon

Variables	No. of caregivers	REAL D score	
		Mean ±SD	P value
CG-Age in years			
• 27-36	544 (85.7)	15.21±7.66	<0.001**
• 37-45	91 (14.3)	8.55±4.69	
CG-Education			
• Intermediate or post high school diploma	224 (35.2)	5.23±1.43[a]	<0.001**
• Graduate or post graduate	316 (49.8)	17.65±4.11[a]	
• Professional or honors	95 (15)	24.24±1.22[a]	
CG-Occupation			
• Unemployed	23 (3.6)	6.09±2.04[a]	<0.001**
• Unskilled	29 (4.6)	6.83±1.81[b]	
• Semi skilled	59 (9.2)	6.39±3.47[c]	
• Skilled	142 (22.4)	6.73±3.47[d]	
• Clerical, shop owner , farmer	181(28.5)	15.43±4.44[a,b,c,d]	
• Profession	201(31.7)	22.83±2.58[a,b,c,d]	
CG-Income			
• <1520	0	-	<0.001**
• 1521-4555	0	-	
• 4556-7593	45 (7)	5.07±1.54[a]	
• 7594-11361	70 (11)	5.93±3.35[b]	
• 11362-15187	24 (3.8)	5.92±2.06[c]	
• 15188-30374	302 (47.6)	13.18±6.37[a,b,c]	
• >30375	194 (30.6)	22.08±2.83[a,b,c]	
SES			
• Lower	0	-	<0.001**
• Lower upper lower	0	-	
• Lower middle	137 (21.6)	6.04±2.70[a]	
• Middle upper middle	279 (43.9)	11.85±5.81[a]	
• Upper	219 (34.5)	22.40±2.47[a]	

Table 3. Distribution of caregivers according age, education, occupation, income, SES with mean REALD -30 score

patient data obtained from dental and medical clinics. It is possible that these patients were higher users of health care, and being able to navigate the health system and access care had higher OHL. These patients may be different from those who have not sought medical/dental care previously and thus may be more informed about oral health. Second, in the present study, the study sample was taken from a heterogeneous population of all categories of SES from preschools and anganwadis who were eligible after meeting the criteria.

In the present study, bivariate analysis of the oral health literacy score with socio demographic variables indicated that gender, income, education and occupation were strongest determinants of oral health literacy. Caregivers with professional education and who were in professional occupation had higher mean

oral health literacy scores when compared to their counterparts. Categories among income groups suggested that caregivers with income greater than Rs 30,375/- had high oral health literacy compared to others. These results were similar to studies conducted by Lee et al20 Miller et al.[27] and Arthi Veerasamy et al.[25] Evidence shows that lower SES population tend to have lower literacy scores. This may be due to fact that people with lower education level receive health information from radio or television rather than print media or the internet. Caregivers with lower SES group are less likely to access health care related services for their children due to inadequate awareness about diseases.

The identification of caregivers with low oral health literacy would be of great help in intimating health care professionals regarding the possibility of these families having difficulty with printed form of media and educational materials. The caregivers who obtain a poor score in a health literacy test may also have issues with communication gap between them and oral healthcare education providers. There is a need to identify common obstacles followed by formulation and inculcation of extra-special attempts to develop culturally sensitive, user-friendly and uncomplicated educational multimedia demonstrating health instructions, involving healthcare professions, health-educators and promoters for removing the communication gap between them and people with low dental health literacy rates, thus improvising the communication potential of healthcare providers.[28]

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