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ASSESSMENT OF ORAL HEALTH STATUS , SELF-PERCEIVED DENTAL NEEDS AND BARRIERS TO UTILIZATION OF ORAL HEALTH SERVICES AMONG SLUM DWELLERS OF AMBALA-A DESCRIPTIVE STUDY.

Dental Science

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ABSTRACT

Objective: To assess oral health status along with perceived dental health needs and barriers to utilization of health services among slum dwellers in Ambala district.

Materials and Method: A total of 780 slum dwellers were included in this house to house cross sectional study. Demographic details & other data were obtained by direct interview and all the subjects were evaluated for dentition status, periodontal status & Loss of attachment (LOA). The data so collected was analyzed using SPSS software.

Results : The difference between CPI-modified &LOA scores among various age categories was statistically significant.87.8%(683) reported the need of one or the other treatment,59.3%(463) had never visited dental practitioner lack of awareness (30.4%) being the most common reason.

Conclusion: The findings suggested a high burden of dental health needs and lack of utilization of health services. Given their numerous health problems and limited utilization of health services compared to their counterparts undermines the principle of equity in healthcare.

KEYWORDS

Oral Health Status, Slum, Perceived Needs, Barriers.

Introduction :

According to Sawhney (2013)[19], in recent times, India has been witnessing a rapid economic growth that has led to an increased urbanization rising from 27.81% in 2001 Census to 31.16% reported in Census of India (Office of Registrar General & Census Commissioner India,2011) [16]. Urban cities and towns being beacons of job opportunities, economic growth and higher standards of living favour this large scale migration.Urbanisation can be a positive determinant of health in appropriate circumstances according to Office of Registrar General & Census Commissioner India (2013)[17] although rapid unplanned urbanization creates social stratification manifested by slums and informal settlements (Ajlouni,2014)[1]. These are characterized by lack of durable housing, insufficient living area, lack of access to clean water, inadequate sanitation and accommodating large number of informal residents with generally insecure tenure (Office of Registrar General & Census Commissioner India (2013)[17] that are recognised social determinants of health are often termed as causes of causes (Ajlouni,2014)[1]. Due to the dramatic rise of slums after India's independence in 1947, its population has tripled (Madhiwala , 2007)[14].It is evident that these urban poor have the worst of both worlds—they adopt an urbanized lifestyle, which places them at a higher risk for non-communicable diseases, and they have poor access to healthcare, which is partly related to their poor purchasing ability (Rooban , Joshua, Rao & Ranganathan,2012)[18].Since, oral health is inseparable from general health profound differences can be expected in magnitude of oral diseases, utilisation of health services and subjective needs between this social strata and others. The aim of the present study was to assess the oral health status of slum dwellers in Ambala with attention to their self-perceived needs and barriers to utilisation of health services.

Materials & Method:

The present house to house cross sectional study was conducted for a period of eight months (Jan-Sept 2015) after obtaining ethical clearance from institutional ethical committee (Project no.424 dated 23.04.2014).The study was conducted conforming to World Medical Association (2013)[21] International Ethical principles for medical research involving human subjects and are reported following STROBE Guidelines,2007 (vonElm et al.,2007)[20].A pilot study was conducted, prior to main study, on 30 subjects to check the feasibility of the study and to validate format and were not included in final analysis. Principal investigator was calibrated a priori to ensure uniform interpretation, understanding and applicability of codes and criteria. Subjects resident of that particular slum, present at home, aged 18 years & above were eligible to be included into study and a written informed consent was obtained from all participants. Those who could not read and/or write contents of consent form were expressed to them by assistant and were included in the study after their affirmation. Otherwise were excluded from study sample.The Sample size estimation was done using Open Epi version 3(Dean,Sullivan &Soe,2013)[4] at 95% confidence interval and assuming contingencies such as recording error final sample was increased by 5% making the sample 780.The List of notified slum areas of Ambala city/cantonment obtained from the Office of Additional Deputy Commissioner, Ambala constituted the sampling frame. In order to permit scientifically grounded estimates to be made from study, probability sampling techniques were adopted for the selection of sampling units. A two stage sampling strategy was employed for selection of sample. At first stage, using simple random sampling technique a slum was selected from sampling frame , each of these slums were considered as primary sampling unit (PSU). From each PSU, 10% of total population was included in study. After selection of slum, houses were selected by systematic random sampling technique (Stage Two).The first house was elected at starting from the east corner of the selected slum and afterwards houses was selected at regular intervals systematically. After the selection of eligible households, all the adults present at the time of visit were included in the study. In case of non-compliance, empty or vacant house, next house was selected. To ensure uniform representation from both the gender, the visits were scheduled late in the afternoon (1:00 pm- 6 :00 pm). The data was recorded on a validated self-structured format by a trained recorder. Demographic details along with medical history and history of deleterious habits was obtained from participants. An attempt was made to address the perceived dental needs and utilization of health care resources by direct interview. Type III dental examination (Dunning,1986)[3] and oral health assessment was done according to World Health Organization Basic Oral Health Surveys, 2013[22]. Dental caries experience was assessed using dentition status[22], afterwards Decayed Missing and Filled Teeth (DMFT) scores were deduced from it and periodontal status was assessed using Community Periodontal Index (CPI) modified[22] & Loss of attachment (LOA)[22].The intra examiner reliability was assessed using Kappa Statistics[22] k=0.80, k=0.79 & k=0.77 for dentition status, CPI –modfied & LOA respectively . In addition to selection of the study subjects, screening of population of those particular slums was also carried out, followed by providing preventive as well curative oral health services by the team in mobile dental unit. These subjects were not included in the study sample. Subjects in need of further treatment

were referred to the institution. Infection control and sterilisation measures were strictly followed throughout study and biomedical waste generated during the course of the study was handled according to Biomedical waste (Management and Handling) Rules (Ministry of Forest and Environment, Government of India,1998)[15].

Statistical Analysis: The data so collected was entered on Microsoft Excel sheet 10 and analyzed using SPSS 17.Percentages were used to express demographic characteristics. DMFT & Modified CPI scores were expressed in terms of mean and standard deviation. Students's t test and ANOVA were used for statistical comparisons with statistical significance set at $p \leq 0.05$.

Results: A total of 780 subjects with the age range of 18 to 86 with mean age 45.4±3.9 years were included in the final analysis. Among 780 subjects, 54.1% (422) were females and 45.9% (358) were males. Over all literacy rate was 50.6% (Table1) and 62.7% were employed. Although majority of the subjects belonged to lower middle (48.8%) and poor(19.2%) and a small proportion of overall sample belonged to higher strata (3.8%) of socio economic status (Table 1). Overall prevalence of deleterious habits was 36.3% (283) with disproportionate distribution among males (61.2%) & Females (15.2 %) and 7.8 % (61) had two or more than two deleterious habits. In the present study, 87.6 % (683) of the subjects reported the need of one or the dental treatment however 59.4% (463) had never visited a dental health practitioner when reasons for not utilizing dental services were explored, a total of eight different reasons for underutilization of dental health services were reported , most frequent being lack of awareness (30.4%) (Table 2).The mean caries experience of the sample was 7.49±3.60 with highest in the age group 65 years & above. The difference between mean modified CPI Scores was statistically significant for the presence condition and the presence of pocket condition i.e. 4-5 mm pocket depth among the various age categories. Similarly the difference was statistically significant for various LOA Scores among the age categories (Table 3). The difference of modified CPI scores was statistically significant for all the habits except for smoking.(Table 4).

Table 1: Showing Distribution of Subjects according to Level of Education* & Socioeconomic

Level of Education	(n)	%
Primary	154	38.99
Middle	64	16.20
Matriculation/Secondary	89	22.53
High Secondary/Intermediate Pre- university Senior Secondary	55	13.92
Non- technical Diploma or Certificate not equal to degree	7	1.77
Technical Diploma or Certificate not equal to degree	2	.51
Graduate or above	24	6.07
N	395	100
Socioeconomic Status	Frequency (n)	Percentage (%)
I	29	3.8
II	64	8.3
III	154	19.9
IV	377	48.8
V	149	19.2
Total	773	100

*As per census of 2011, Government of India.
Note : Note- 49.4% (385) Subjects were Illiterate.
**BG Prasad Classification of Socio-economic Status (May 2014)
Note: Seven subjects didn't report their socio-economic status.

Table 2: Showing Frequency of dental Problems and perceived barriers as reported by subjects

Self-reported dental problems	(n)	%
Decayed teeth	267	20.4
Tooth pain	252	19.2
Sensitivity in teeth	215	16.4
Bleeding gums	146	11.1
Cleaning of teeth	119	9.1
Bad breath	106	8.1
Mobility of teeth	98	7.5
Replacement of missing teeth	89	6.8
Malaligned teeth	12	0.9
Others	6	0.4
Total	1310	100.0%
Dental visit	**Subjects (n)**	**%**
Never visited	463	59.4
<6 months	67	8.6
6-12 months	66	8.5
>12 months	184	23.6
Total	**780**	**100**
Self-reported reasons(barriers)	**n**	**%**
1. Lack of awareness	192	30.4
2. Costly treatment	175	27.7
3. Time constraint	114	18.1
4. Dental anxiety	64	10.1
5. Never felt the need	40	6.4
6. Shortage of leave	27	4.3
7. Long waiting hours	14	2.2
8. Job priority	5	0.8

Table 3: Showing Caries experience and Periodontal status (CPI modified & LOA) of the sample

Caries Experience DMFT (Decayed,Filled &Missing Teeth)							
Age Groups (in years)	18-24	25-34	35-44	45-54	55-64	64 & above	P value
DT (Decayed teeth)	2.67±1.02	4.77±1.80	5.89±2.21	6.95±2.40	5.38±1.45	4.93±1.45	0.000*
MT (Missing teeth)	0.16±0.03	0.54±0.08	1.10±0.2	2.43±1.23	3.46±2.36	10.75±4.04	
FT (Filled teeth)	0.13±0.02	0.20±0.18	0.17±0.10	0.08±0.01	0.05±0.01	0.00±0.00	
DMFT	2.95±0.95	5.51±1.76	7.16±3.62	9.46±3.79	8.89±2.76	15.68±9.05	
CPI Modified							
Gingival Bleeding	3.55±4.37	5.87±5.14	8.68±5.49	8.69±5.32	7.49±5.65	5.24±5.84	0.000*
Pocket 4 to 5 mm	0.23±1.28	0.50±1.36	1.82±3.38	2.33±3.09	1.91±3.07	1.35±2.91	0.000*
Loss of Attachment							
Score 0 (0-3 mm)	100% (96)	80.23% (161)	66.5%(122)	48.5%(62)	34.2% (39)	32.3%(19)	0.000*
Score 1 (4-5 mm)	0	15.92% (32)	30.1%(55)	42.7%(54)	47.3% (54)	39.9%(23)	
Score 2 (6-8 mm)	0	3.85 %(8)	3.4%(6)	8.8%(11)	18.5% (21)	28.8%(17)	

**Difference was statistically significant at 95% Confidence Interval as revealed by analysis of Variance (ANOVA)

Table 4: Showing mean modified CPI scores in relation to deleterious habits

Deleterious habit		Mean modified CPI score (bleeding)	p value
Smoking	Yes	7.39±6.00	0.17
	No	6.75±5.44	
Tobacco chewing	Yes	8.72±5.23	0.001*
	No	6.64±5.58	

Alcohol	Yes	9.41±6.86	0.001*
	No	6.60±5.34	
		Mean modified CPI score (pocket)	
Smoaking	Yes	2.22±3.52	0.02*
	No	1.09±2.41	
Tobacco chewing	Yes	2.22±3.22	0.003*
	No	1.22±2.64	
Alcohol	Yes	2.50±3.95	0.006*
	N0	1.21±2.53	

***Difference was statistically significant as revealed by t test.**

Discussion:

Few studies have searched for the reasons beyond the obvious ones related to the living conditions of those in abject poverty and such explanations are inadequate to explain the differences in health between different socio -economic groups (Hobdell et al., 2003)[7]. An increasing pace of urbanization and the absence of affordable housing has resulted in growth of slums in urban India (Office of Registrar General & Census Commissioner India,2011)[16].Among the total of 780 subjects, 54.1% (422) were females and 45.9% (358) were males that could be attributed to the fact that visits were scheduled in the late hours of the day to get the equal representation from both the genders as we noticed in some earlier visits males being the bread earner of the family, were acquired in jobs during day time. Maximum number of subjects 25.8%(201) belonged to 25-34 years age group. Three hundred eighty -five (49.35%) of the subjects were illiterate that is lower than the state literacy rate (Department of Economic and Statistical Analysis of Haryana ,2015)[5].Among those who are literate, majority of them have education level of less than matriculation. Among the total sample 44.9% of the subjects are unemployed and out of those employed, majority of them are unskilled laborers involved in elementary occupations. Majority of the subjects belonged to 48.8% (377) subjects belonged to lower middle class status because most of the slum dwellers are involved in the tedious jobs rarely any one is engaged in permanent jobs. Males (61.2%) totally outnumbered females 15.2% in the study in relation to the presence of deleterious habits that may be attributed to the social disapproval of women who smoke as reported by Hitchman & Fonga,2011[8]. Among those having deleterious habits, 44.52% and 33.57% were using smoked and smokeless forms of tobacco respectively that is comparable with findings reported by Kasat & Joshi,2012 [12]. Only 28.26% reported a habit of alcohol consumption , this may be due to social stigma attached to use of alcohol that may have led to under-reporting of the habit.

Decayed, Missing, Filled teeth scores have shown a linear increase with increase in age and the mean DMFT score of the sample was found to be 7.49±3.60 which is higher than reported by Airen et al.,2014[2]. Mean decayed component, of the DMFT, was significantly higher than filling and missing component that indicates lack of utilization of dental health services. Both decayed and missing components showed increasing trend, and filling components decreased as the age progressed (Kamath & Kamath,2012)[13]. The high prevalence of caries in the slum population may be attributed to low awareness, improper oral hygiene practices and lack of dental care utilization due various barriers as unfolded in our study lack of awareness (30.4%),costly treatment (27.7%) and time constraint (18.1%) being three most commonly reported. Among those having deleterious habits, higher scores were found in smokers followed by alcohol consumers and tobacco chewers that is similar to an earlier study by Ghosh,Shahnawaz,Bose,Chakrabart & Rama,2014[6]. The mean modified CPI scores for the bleeding as well as pocket component were 6.89±5.58 and 1.35±2.73 respectively. Interestingly, high prevalence of gingivitis was reported by Jain, Bhaskar ,Agali & Gupta,2013[11]. The study concluded that there is increase in mean modified CPI score along with the increasing age up to 54 years of age after that there is decrease in mean modified CPI score for bleeding and presence of pocket this may be attributed to the fact that as the age is increasing the number of missing teeth as also increasing (Hanan et al,2014)[9]. Among those having deleterious habits, higher scores of gingival bleeding were found in those who were consuming alcohol , than those who were using smokeless form of tobacco and than who smoked. Previous studies have reported that smokers and alcohol abusers tend to have more negative lifestyle in general. It means that the association of deleterious habits is not only linked to poor oral hygiene but also to poor general life style as stated by Jacob, 2010[10].Attempts should be made to improve the quality of life of the population through research, education, provision of services, and through the promotion of healthy policies.

LOA scores similar to other oral findings in the study increases with increase in age which is similar to the general trend for LOA. In the present study,87.6% (683) of the subjects reported need for dental treatment and a total of 1310 chief complaints were reported in the study that gives a bird's eye view of the unmet needs of the population. When local health care delivery system was explored, it was found that despite of availability of dental services in public domain (Primary health centres-16 & Community health centers -2) as well as private domain provided by more than 100 registered dental practitioners that charge fee for service & two non – governmental organizations that provide treatment at subsidized rates, majority of the subjects (59.4%) had never visited a dental surgeon and those who have had a dental visit (40.6%),have availed only immediate care services. When reasons for underutilization were delved into, various roadblocks were reported with lack of awareness (30.4%) and costly treatment (27.7%) being common ones. Other barriers to oral health care include illiteracy, financial constraints, cultural perceptions, inequitable distribution of dental manpower and inaccessibility to services as seen in most parts of our country. The underlying mechanisms include differing health behaviors, medical decision-making, quality and access to care, and cumulative effects of discrimination (Airen et al.,2014)[2]. Systematic differences in the dental practices attended were evident, as a function of the person's race and income, differences that are associated with social disparities in oral health.

Slum dwellers are a distinct population, who do not have adequate access to health facilities due to their weak financial capacity. Although a superficial identification of the various barriers was done but this study was not revealing enough to single out the underlying determinants for inverse relationship between dental health needs and utilization of health services. This could be an important limitation of this study. This study opens new vistas for long term prospective population based research accurate characterization of the determinants of oral diseases in slums. The study concluded that majority of people suffered from oral morbidities in form of dental caries and bleeding gums, they constitute a substantial amount of oral burden in the study area as well. Addressing these issues in form of awareness generation along with identification ad uprooting of barriers is of utmost importance to ensure optimum utilization of the health services for effective health outcomes.

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