Original Article

Oral Health Status and Oral Hygiene Practices Among Urban Slum Dwellers in Rawalpindi, Islamabad, Pakistan

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ABSTRACT

Poor oral hygiene is a major factor for oral diseases. Urban slums are recognized as a risk group population as the burden of oral diseases is highest among them. **Objectives:** To evaluate the oral health status of slums using Decayed, Missed, and Filled Tooth index. To evaluate the oral health status of slums using Community Periodontal Index for Treatment Need. **Methods:** A cross-sectional study was carried out on 385 urban slum people aged between 20 to 50 years. A convenient sampling method was adopted. Data were collected by structured questionnaire included information related to patient's knowledge, attitude, and behavior towards oral hygiene and interviewed by trained staff. Oral examinations were performed in line with WHO guidelines. After taking informed consent oral examinations were done by fresh graduate and DMFT and CPITN index were evaluated. **Results:** Study participants were assessed for attitude, knowledge and oral health behavior, 47% had Good Attitude, only 6% had Very Good Knowledge and <1% had Very Good oral health behavior. Mean DMFT and CPITN score among Slums came 8.91 ± 7.627 and 1.93 ± 0.971 respectively. More than a third of the slums population required emergency levels dental treatments. **Conclusions:** The residents of slums have poor oral hygiene and high prevalence of dental caries. Low socioeconomic status, and lack of primary dental care programs and session are main reasons for poor oral health.

INTRODUCTION

About 900 million people live in slums, but some informants confirmed that total slums population may exceed above 1.6 Billion which represents total ¼ of total urban population [1]. Pakistan population reported to be 40.1% living in slums according to world bank collection of development indicators collected from official recognized resources [2]. Approximately 11.9 million resides in slums underdeveloped areas. 86% are permanent settlers, 13% are temporary displaced and 1% belong to other nationalities [3]. Slums area in Islamabad includes Sihala, Tarnol, Rawal dam, Bani gala, Barakahu and Golra, and in Rawalpindi includes Nala Lai and near DhokSayedan. R. Harris, in International Encyclopedia of Human Geography,

2009 A slum is a residential area with substandard housing that is poorly serviced and/or overcrowded, and therefore unhealthy, unsafe, and socially undesirable [4]. The limitations to health placed on slum populations are uncommon given the combination of their urbanized lifestyle and limited access to healthcare, usually as a result of being relatively Poor Oral hygiene knowledge, behavior and practices at an early age is one of the essential component of individual's health state later in life as well. Periodontal disease is a public health problem and is strongly associated with systemic diseases [5]. Oral health problems are much prevalent in urban slum dwellers. Prevalence of gingivitis and plaque accumulation was

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remarkably high among slum dwellers [6]. According to the multivariate logistic regression analysis results, factors such as increasing age, being the only child, lack of regular annual dental check-up, and heavy dental calculus were significantly associated with higher prevalence of gingivitis [7]. The aim of present study was to assess the knowledge, attitudes and behavior about oral hygiene practices, and oral health status of urban slum dwellers in Rawalpindi, Islamabad, with an objective to find out oral health problems of slums dwellers and frequency of distribution of oral diseases, to plan a far reaching dental preventive program in future.

METHODS

This Analytical cross sectional survey was conducted in urban slums area of Rawalpindi, Islamabad region, Pakistan. The natural clusters of slums in Rawalpindi and Islamabad were identified and required sample was fulfilled by convenient sampling. Sample size determination was done with WHO calculator since no data was available we took prevalence as 50%. The Final sample size was 385. All participants of the study were given detailed study information, aims, objectives, and explanations and all were asked to sign informed consent before start of study. Inclusion Criteria includes participants residing in urban slums area for more than 2 years and who gave informed consent. Exclusion Criteria include participants who migrated newly to slums area and who are bed ridden due to severe illness. The study was reviewed by Ethical Committee of Armed Forces Postgraduate Medical Institute Rawalpindi, Pakistan and granted ethical clearance. Also permissions were taken from local slum authorities. For data collection tool a modified WHO questionnaire was used for measuring the oral health status and oral health behaviors of participants. The questionnaire consists of 10 variables. Two were related to attitude of participants towards oral health, tooth cleaning was a part of general body cleanliness or not, is it easy for you to clean your tooth before going to bed. Four were related to Knowledge, cause of gum diseases, 1st sign of gum disease, cause of tooth decay, and time for brushing. Last 4 variables were related to behavior, use of toothbrush and toothpaste during brushing, use of saunsapari, meetha pan, use of tobacco(smoking), last was related to dental visits every 6 months or not. Study participants were assessed for their attitude, knowledge and behavior towards oral health, variables were assessed as, 1 for correct answer, 0 for wrong. Points were awarded accordingly. Variables marks were added for individual group. CPITN or Community Periodontal Index for Treatment Needs assesses the presence or absence of gingival bleeding on probing, supra or subgingival calculus

and periodontal pockets by using a 0.5 mm ball tip WHO probe. CPITN may be used as a general indicator of bleeding and pocket depth [5]. CPITN index were marked (0 for Healthy, 1 for Bleeding Gums, 2 for Calculus, and 3 for Pocketing). DMFT is the sum of the number of Decayed, missing due to caries, and Filled Teeth in the permanent teeth. DMFT index, values were distributed as, Score 0 means Healthy or no caries, Score 1 explain mild caries and DMFT values 1 to 7, Score 2 moderate caries experience and DMFT value 8 to 14, Score 3 severe caries and DMFT value 15 to 21 and Score 4 very severe caries level of respondents and DMFT value 22 to 28. For data collection procedure a modified questionnaire was translated to Urdu and trained dentists interviewed the participants and their responses were reported and again translated to English for SPSS. For oral examination fresh dentist were trained to record findings on oral examination. WHO probe community Periodontal Index probe and Instruments were used for periodontal status that were double sterilized before and after procedure, oral examination was done under daylight and visual tactile sensation and patient was seated on usual household chair. A pilot study was conducted earlier on 30 participants to check validity and reliability of questionnaire. Kappa statistics was used and found to be 0.85. For statistical analysis SPSS version 22.0 was used descriptive analysis was done, Mean and Percentage were calculated.

RESULTS

All the 385 participants successfully completed the questionnaires. Out of which 49.9% were Male and 50.1% were female. Gender distribution can be seen in Table 1.

Sr No	Variable	Percentage
1	Male	49.9%
2	Female	50.1%
3	Total	100%

Table 1: Gender distribution of respondents

Furthermore, as Figure 1 explains, 1st group of 20-30 years of age had 131(34%) respondents, 2nd group of 31-40 years of age had 116(30.2%) respondents. 3rd group was of 41-50 years of age had 138(35.8%) participants.
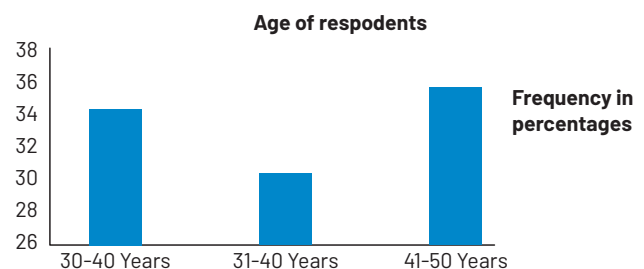

Figure 1: Age distribution of respondents

Out of total 170 individuals (44.2%) never attend school, 114

(29.6%) received primary education only (till class 5), 47 (12.2%) and 29 (7.5%) participants with education till grade 8 and 10 respectively. 22 individuals (5.7%) did Intermediate and 3 (0.8) held Bachelor's degree or above. In relation to occupational status of respondents, only 2 (0.50%) were students, rest all, 126 (32.7) were laborers, 120 (31.1%) were house helpers, 78 (20.2%) were Class 4 workers and 59 (15.5%) reported no current occupation. For attitude 2 variables were assessed and cumulative score 0 indicated Poor Attitude, score 1 Satisfactory Attitude, score 2 Good Attitude. 32 (8.3%) had Poor Attitude, 172 (44.7%) had Satisfactory Attitude and 181 (47%) had Good Attitude. Similar pattern was adopted for knowledge and oral health behavior with 4 variables each score 0 indicated Very Poor, score 1 Poor, score 2 Satisfactory, score 3 Good, and score 4 Very Good. 103 (26.8%) had Very Poor Knowledge, 117 (30.4%) had Poor Knowledge, 98 (25.5%) had Satisfactory Knowledge, 44 (11.4%) had Good Knowledge and 23 (6%) had Very Good Knowledge. Similarly, for oral health behavior, 151 (39.2%) had Very Poor Behavior, 134 (34.8%) had Poor Behavior, 81 (21%) had Satisfactory Behavior, 18 (4.7%) had Good Behavior and 1 (0.3%) had Very Good Behavior. CPITN and DMFT index was used for evaluation of oral health status. Table 2 explains results as, 38 (9.9%) were Healthy, 82 (21.3%) had Bleeding Gums, 135 (35.1%) had Calculus, 130 (33.8%) had Pocketing.

Sr No	Code	CPITN index	Frequency	Percentage
1	0	Healthy	38	9.9%
2	1	Bleeding Gums	82	21.3%
3	2	Calculus	135	35.1%
4	3	Pocketing	130	33.8%
5		Total	385	100%

Table 2: CPITN Index for respondents

Table 3 explain results as 49 (12.7%) were healthy, 127 (33%) had score 1, 98 (25.5%) had score 2, 86 (22.3%) had score 3 and 25 (6.5%) respondents score 4.

Sr No	Code	DMFT index score	Frequency	Percentage
1	1	Healthy	49	12.7%
2	2	1 to 7	127	33%
3	3	8 to 14	98	25.5%
4	4	15 to 21	86	22.3%
5	5	22 to 28	25	6.5%
6		Total	385	100%

Table 3: DMFT index of respondents

Table 4 demonstrates that, mean value for DMFT and CPITN index is 8.91 + 7.63 and 1.93 + 0.97 respectively. More than a third of the slums population required emergency levels of dental treatments.

Sr No	Index	Frequency	Mean ± SD
1	DMFT index	385	8.91 + 7.63
2	CPITN Index	385	1.93 + 0.97

Table 4: Mean and standard deviation values for DMFT and CPITN indices

DISCUSSION

This cross sectional study was conducted on 385 urban slums dwellers of Rawalpindi/ Islamabad to evaluate oral health status and oral hygiene practices among slums. Chawla et al., studied that in the urban sum population, out of total study subjects, the majority of the population 54.2% never attended school. These findings were not in accordance with figures obtained as Pakistan literacy rate is 62.3% [8]. Lack of education and schooling might be the major factor for lack of dental knowledge and poor oral health behavior, followed by poor oral health. Inamdar et al., study was conducted in 2018 in Islamabad region to evaluate the knowledge and attitude for respondents but they were unable to measure the oral health status so no clear data was available for this region [9]. Our findings regarding knowledge and oral health behavior of slums were similar to research as Assessment of Oral Health and Hygiene awareness among Adolescents of Slum areas–A study in Visakhapatnam city AP where lack of oral health awareness and knowledge was found [10]. Shireen et al., findings were similar to a study carried out to evaluate dentition status and treatment need in urban dwellers in Indore city, central India where caries prevalence was 76.2% [11]. Australian institute of Health and Welfare explains DMFT score of 0 to 1.1 is considered very low, 2.8 to 4.4 moderate and 6.6+ very high [12]. 12.7% of slums population had healthy oral status and 6.5% had DMFT score 22 to 28. Mean DMFT score among slums was 8.91 that is highest. According to the American Dental Association (ADA), just 52.3 percent of adults reported that they had visited their dentist every six months for the past few years [13]. Our data was not in accordance American Dental Association as only 0.1% visit dentist every 6 months, and total of 14.6% had visited dentist during emergency. Severe periodontal diseases were estimated to affect around 14% of the global adult population, representing more than one billion cases worldwide [14]. The CPITN index of slums population explains 9.9% had healthy peridontium, 35.1% had calculus and 33.8% had pocketing. Our results were according to a study carried out to measure the prevalence of gingivitis, plaque accumulation and decayed, missed and filled teeth among slum population in Bangladesh, where high percentage of moderate and abundant plaque accumulation was observed between age 30-60 years [15]. The high CPITN score is due to some factors as 3.5% did brushing twice after breakfast and before going to bed 64.9% brush only in morning and 31.6% never brush or use other methods like miswak or manjan. Krishnan et al., found that out of total population 46.2% were smokers, tobacco might be the cause of poor oral health status as our analysis was

according to a research title as Tobacco [16]. Yadav et al., found that use and oral Health Status among Adolescents in an Urban Slum, Gurugram where the relationship between dental caries and tobacco utilization was observed to be factually significant (p<0.0001)[17]. Osuh et al., worked on prevalence and determinants of oral health conditions and treatment needs among slum and non-slum urban residents [1]. They explained the prevalence of oral diseases (slum vs non-slum sites): dental caries (27% vs 23%), gingival bleeding (75% vs 53%) and periodontal pocket (23% vs 16%), the results here proved that slums had significant no of untreated decayed tooth among slums population. They concluded the study that prevalence was much higher in slums. Thirty-five percent and 27% of residents in the slum and non-slum sites respectively required the "prompt and urgent" levels of treatment need [18-20]. Our results were related to a research carried out in Nigeria title as Dental caries and oral health: an ignored health barrier to learning in Nigerian slums: a cross sectional survey where dental caries, which was mainly untreated was prevalent in the urban slum [7]. These studies and results clearly shows that there was no preventive program in place to stop the progression of oral diseases.

CONCLUSIONS

The study population was from slums but they had Good attitude towards cleaning tooth and oral hygiene. But their knowledge about brushing technique and cause of oral diseases was not satisfactory. Similarly, their behavior regarding use of toothbrush and toothpaste, dentist visit and dental treatment was deficient. And present study here revealed the high prevalence of oral disease among residents of urban slums.

Conflicts of Interest

The authors declare no conflict of interest

Source of Funding

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