



Original Article

Oral Health Status of Children Age 6-12 Years in Rawalpindi, Islamabad Pakistan

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ABSTRACT

Dental caries seems to be a significant public health issue and a common non-communicable disease. And is more prevalent in age group 6-12 years. There has never been a national oral health survey conducted in Pakistan between age 6-12 years in recent years. The purpose of this study was to look into the dental health of children between the ages of 6 and 12. **Objectives:** To determine the oral health status of children age 6-12 years using Decayed, Missed, Filled tooth Index. **Methods:** A cross-sectional study was carried out which included 385 children age between 6-12 years, using a simple random sampling. Children were evaluated in schools, and data collected included details on caries and the condition of the gingiva. The WHO's methodology and standards were used for oral examination. **Results:** Mean DMFT index of children age 6-12 years came out to be 2.28 ± 0.97 . More than 2/3rd of children age between 6-12 years needs urgent dental care. **Conclusion:** The oral health status of children age between 6-12 years is unsatisfactory and higher DMFT index than expected. To effectively prevent and control burden of dental caries and promote gingival health, the oral health program must be implemented.

INTRODUCTION

WHO states that 4 important chronic diseases cardiovascular issues, cancer, chronic respiratory conditions, and diabetes are risk factors with oral disease [1]. Dental caries is the most prevalent chronic condition in children today, affecting 51% of pre-scholars in Pakistan as of 2012 data [2]. Children who have this non-communicable, non-infectious condition may experience extreme discomfort, face infections, slower physical growth, and difficulty learning. Children do not consume enough nutrition because of mouth pain. Schoolchildren

with a higher prevalence of caries skip more lessons than those with good oral health, which has an impact on their capacity to study [3]. Among children of various populations, gingivitis prevalence rates range from 35% to 100%, according to epidemiological research [4]. Given that it affects 60-90% of school-aged children and the vast majority of adults, dental caries is still a serious health issue (WHO 2004). The incidence of caries is significantly rising in developing nations due to changing food habits and lifestyles [5]. Preschoolers frequently develop early

childhood dental caries, which is also linked to their oral health-related behaviours, socioeconomic background, parental education, and dental knowledge [6]. According to WHO dental caries is the third most common oral diseases that is not communicable [7]. Dental caries, which are five times more common than asthma and seven times more common than hay fever in children, are determined to be the most common childhood ailment in Pakistan, where oral health trends have produced dismal results [8]. According to the most recent scenario analysis, published in 2004 in Pakistan, the total DMFT scores among permanent dentition of 12-year-olds in rural areas were found to be 1.59, increasing to 2.26 in 15-year-old children, 8.73 in 35 to 44-year-old adults, and 18.9 in people age 65 and over [9]. But no researches have been made after that in Pakistan to evaluate the oral health status of 6-12 years. Our study's goal was to determine the prevalence and severity of dental caries, gingivitis, and the treatment needs.

METHODS

This cross-sectional was conducted on children age between 6-12 years in Rawalpindi, Islamabad Pakistan. Government and private schools were identified, and a simple random sampling procedure was used to fill out the requisite sample. As there are no statistics, we used the WHO tool to calculate the sample size and used 50% prevalence. The total number of samples was 385. Before the study began, all participants were given complete study material, including the study's aims, objectives, and explanations. They were also required to sign an informed permission form. Inclusion criteria includes all participants of age between 6-12 years, all those who give informed consent and both primary and mixed dentition were included. Exclusion criteria include, mentally retarded students, hospitalized, injured students, unerupted tooth. The total number of decayed, missed from caries, and permanently lost teeth is known as the DMFT. The DMFT index values were distributed as follows: score 0 indicates that a person is healthy or has no caries; score 1 describes mild caries; score 2 describes moderate caries experience; score 3 indicates severe caries; and score 4 indicates very severe caries level of respondents. A modified questionnaire was used to gather the data, and skilled dentists interviewed the participants before recording and entering their responses in SPSS. Fresh dentists received training on how to document oral examination results. The patient was seated in a school chair while the oral examination was conducted with tactile stimulation and in natural light. SPSS version 26.0 for statistical analysis was employed. Descriptive analysis was performed, Percentage and mean values were determined. DMFT

values of 0.0-1.1 are extremely low, 1.2-2.6 are moderate, 2.7-4.4 are high, and >6.6 are extremely high.

RESULTS

A total of 385 children were examined. The gender ratio was equally distributed as male (53%) and female (47%). Gender distribution as seen in table 1.

Table 1: Gender distribution of respondents

| Variables | Percentage |
|-----------|------------|
| Male | Male |
| Female | Female |
| Total | Total |

Furthermore, as figure 1 explains as, 1st group of 6 years of age had 70 (18.1%) respondents, 2nd group of 7 years of age had 80 (20.7%) respondents. 3rd group was of 8 years of age had 75 (19.4%) participants, 4th group was of 9 years of age had 60 (15.5%), 10 years of age had 50 (12.9%) of respondent's 5th group of age 11 years had 30 (7.7%) and last 12 years had 25 (6.4%).

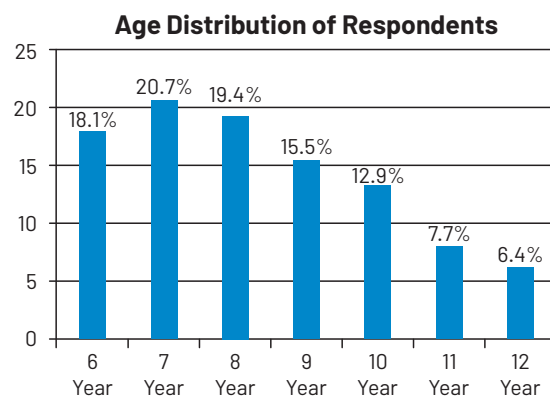


Figure 1: Age distribution of respondents

Table 2 explains as 120 (31.1%) had code 1 and were healthy, 220 (57.1%) had code 2, 40 (10.3%) had code 3, only 5 (1.2%) had code 4 and none of them had code 5. Prevalence of dental caries among age 6-12 years was found to be 68.9%. which was more than as found in research performed in Karachi where prevalence came out to be 51%. DMFT of the students were assessed and results as follow.

Table 2: DMFT index of Respondents

| Code | DMFT index score | Frequency (%) |
|------|------------------|---------------|
| 1 | Healthy | 120(31.1) |
| 2 | 1 to 7 | 220(57.1) |
| 3 | 8 to 14 | 40(10.3) |
| 4 | 15 to 21 | 5(1.2) |

Table 3 explains the Mean and Standard Deviation values of 6-12 years of children in Rawalpindi, Islamabad and came out to be 2.28±0.907. More than 2/3rd of children age between 6-12 years needs urgent dental care.

Table 3: DMFT index of the Participants

| Index | Frequency | Mean ± SD |
|------------|-----------|--------------|
| DMFT index | 385 | 2.28 ± 0.907 |

DISCUSSION

The total no of children examined were 385 ages between 6 to 12 years. Our study's findings showed that 68.9% of children aged 6 to 12 had dental caries, which is around 2/3rd of the population. Our results were not in accordance with the objectives set by the WHO and the Federation of Dentistry International, which called for 50% of children between the ages of 5 and 6 to be caries-free and a global average of no more than 3 DMFT by the age of 12, as more than 68% were carious but we were able to maintain DMFT less than 3 [10]. The high consumption of sugary products at this age contributes to the high burden of caries index, because 90% of the children had no knowledge about relation between caries and sweet products. A study conducted in Ethiopia also demonstrated that kids who consumed a lot of sweets had a high risk of caries [11]. Our results were in accordance to a study carried out in India where prevalence of dental caries in age between 6-12 years was found as 71.8% [12]. Our results were not in accordance to a study carried out in China to evaluate oral health status of 12 years age children where prevalence of caries index was found to be 83.7% this was due to high sugar consumption and no or less brushing habits [13]. Our research was also in accordance to a study by Jipa and Amariei carried out in Danube Delta Biosphere Reserve where overall mean DMFT was found to be 2.01 [14]. Dental care and dental health education are shown to be in the highest demand among age 6-12 years. The reason could be because these children lack access to oral healthcare, their lifestyles have changed, making it easier for them to consume sugar-rich foods and fizzy drinks, which has led to an increase in unmet treatment needs. It could also be because these children have poor oral hygiene habits and inadequate dental knowledge and supervision [15]. Our results were not in accordance to a study carried out in Malaysia where 83.7% brush their teeth twice a day with fluoride toothpaste but in our case less than 0.1 had same routine of brushing [16]. While kids spend the majority of their time outside, being able to eat correctly is crucial for providing energy for daily activities. In this study, the most prevalent oral health issues mentioned included toothaches, dental caries food impactions in cracked teeth, erupting permanent teeth, cavities and sleep disturbances. These disorders impeded the kids from correctly chewing their food, which in turn reduced their quality of life. Our results were not in accordance to a study carried out on 6-12 years of age Yunnan province of China where 61% had bleeding gums but in our case, we had only 10% with bleeding gums this is because of high caries rate in that area. our results of prevalence of dental caries in 1st molar 27% were in accordance to their as 25.2% [17]. Our results were not in accordance with a study carried out in

Madrid Spain where prevalence of dental caries was found to be 37.6% this might be due to small sample size in their research [18]. Our results were in contrary to a similar study by Bassa *et al.*, was carried out in Ethiopia where prevalence of dental caries was found to be 15.6% this might be due to regular milk consumption, less sweet food consumption, good parental education, and satisfactory tooth brushing behavior [19]. Our results were in accordance to a study carried out in Jordan where prevalence of dental caries in 6-12 years of age group was found to be 76.4% [20].

CONCLUSIONS

The oral health status of children age between 6-12 years in Rawalpindi, Islamabad was unsatisfactory and higher DMFT index than expected. Dental caries was a significant dental public health issue in Pakistan. To effectively prevent and control burden of dental caries and promote gingival health, the oral health program must be implemented. Future programs must focus on younger age groups of children to encourage good oral hygiene habits, lower caries, and enhance quality of life. Comprehensive prevention initiatives regarding increasing awareness of oral, and dental health should be implemented.

Authors Contribution

Conceptualization: MFH

Methodology: JK, DYS, FD, MN, FH, RY

Formal analysis: AP, SAR, NB

Writing-review and editing: MFH

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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