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ORIGINAL ARTICLE

Prevalence of dental caries among 3 to 11 years old children in Lahore

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ABSTRACT

Aim: To determine frequency of dental caries in mal-occluded teeth among children 3-11 years of age and compare dental caries in children with mal-occluded teeth

Methodology: This cross sectional analytical study using purposive sampling technique was carried out at Dental hospital of Institute of dentistry, CMH Lahore Medical College, Lahore for 09 months After permission from institute of dentistry, CMH Lahore medical college and informed consent form participants or their parents/ guardian, they were included as male and female children aged 3-11 years that attended dental hospital of Institute of dentistry, CMH Lahore Medical College for dental treatment and had mal-occluded teeth. Children with mental, physical disabilities and whose parents/ guardian refused to take part were excluded. Dental caries in mal-occluded teeth of children was examined to report the frequency of dental caries. SPSS version 23 was used for analysis data.

Results: Among the total of 330 patients included in the study, dental caries was observed in 260 (78.8%) of patients.

Conclusion(s): Significant associations of dental caries were observed in terms of gender and age, monthly income, interventional urgency, and occupation and education status. Higher frequency of dental caries was observed in the upper middle and lower middle class groups.

Keywords: Dental caries, Mal-occlusion, Pre-school children, Dental treatment

INTRODUCTION

Dental caries is a bacterial disease that causes the inorganic matrix's demineralization and the destruction of the organic matrix[1]. Dental caries is one of the most common diseases in the world[2]. The dental caries infection occurs due to the presence of oral microbes in the oral Cavity that is also said to be implicated in oral diseases such as periodontal diseases.[3] The prevalence of dental caries is high in developed countries and developing countries affecting 2.3 billion people with permanent dentition and 563 million children with primary dentition[4]. This is mostly due to increase in industrialization in developed countries and a lack of oral hygiene awareness in the developing world. Major studies conducted on malocclusion have also stated that the prevalence of malocclusion is between 20-80% due to the various ethnic background, age groups, and registration[5,6].

Both dental caries and malocclusion can affect an individual's quality of life, causing diet changes, aesthetic issues, alteration in phonetics, and loss of proper mastication[7]. This issue is much more severe in children who have the primary dentition or in those children having both the permanent and primary dentition. Caries affecting the teeth in children can lead to pain if not treated early and may require restorative procedures to preserve the tooth.

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The tooth may also be extracted if it is no longer viable to preserve. However, it is worth mentioning that this treatment is not the treatment of the diseases, but of the consequences these diseases have caused in the world. This loss of the tooth can then cause issues in the permanent tooth's eruption and cause excessive movement and crowding[8,9] of the pre-existing teeth. This may then lead to Malocclusion, which then requires orthodontic treatment so that proper occlusion can be established once again.

There have been various risk factors associated with both Malocclusion and dental caries. One of the most common risk factors associated with dental caries is the use of excessive sugar in solid or liquid form.[10] Sugar also being taken in liquid form through bottles by children during the night[11] has also led to rampant dental caries. This form of intake creates a high acidic environment intra-orally, which causes fermentable bacteria to demineralize the tooth and eventually cause cavitation.

The prevalence of dental caries and malocclusion in children has a high association between the country's social-economic status and the family structure of the child[12], as lack of proper oral health education and awareness leads to the development of these diseases within children. There is a wide range of studies on Malocclusion in children[13] and dental caries and the effect that they may have on the quality of life of the children; however, there is limited literature on these subjects and how they are affecting children in Pakistan.

So, the study aimed to assess the frequency of dental caries in malocclude teeth in children aged between 3-11 years.

METHODOLOGY

This descriptive cross sectional study was conducted at Dental hospital of Institute of dentistry, CMH Lahore Medical College, Lahore after approval of Ethical Committee. Data of this study was collected from 330 patients using purposive sampling technique.

Inclusion/exclusion criteria: Male and female children aged 3-years to 11-years with mal-occluded teeth attending the dental hospital of Institute of dentistry, CMH Lahore Medical College for dental treatment. Children with mental and physical disabilities.

Data collection and analysis procedure: After the approval of study from Institutional Review Board, permission was taken from Institute of dentistry, CMH Lahore medical college for data collection. Sample selection was based on inclusion criteria that was, both male and female children aged 3-years and 11-years with mal-occluded teeth attending the dental hospital of Institute of dentistry, CMH Lahore Medical College for dental treatment, as well as children whose parents gave consent for their child's dental examination whereas exclusion criteria was, children with mental and physical disabilities and children below 3years and above 11 years of age. Dental caries in mal-occluded teeth of children was examined and recorded through DMFT Index. A socio-demographic questionnaire was developed using Modified Kuppuswamy Scale (MKSS) and a modified questionnaire of World Health Organization's (WHO) Oral Health Assessment Form for children[29] was used to collect information to determine other factors associated with dental caries in children with mal-occluded teeth. SPSS version 23 used to analyze the data. Frequency and percentages were used to present categorical data. P-value less or equal to 0.05 was considered as significant.

RESULTS

Gender was taken as demographic variable. In the current study, among the total of 330 patients, 160(48.5%) were males while 170 (51.5%) females. The prevalence of dental caries was found in majority of the patients with malocclude teeth who visited Dental hospital of Institute of dentistry, CMH, Lahore Medical College, Lahore for their dental treatment. Out of 330 patients with malocclude teeth, 260(78.8%) patients were diagnosed with dental caries whereas only 70(21.2%) patients were not diagnosed with dental caries.

Table 1: Frequency of dental caries among study participants

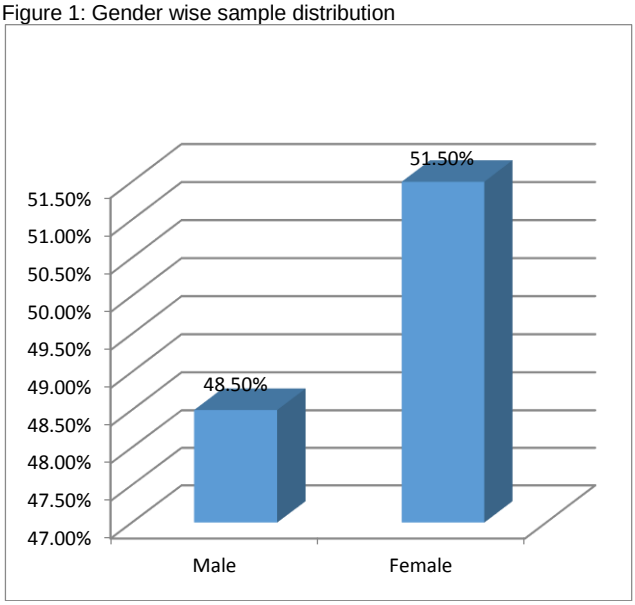
Dental Caries	Frequency	%age
Yes	260	78.8
No	70	21.2

While exploring the need of treatment among the patients who diagnosed with dental caries, it was found that majority of the patients were in immediate need of treatment 124(37.6%) followed by the patients who had preventive treatment need 94(28.5%). Patients who were in the prompt need of treatment were 58(17.6%) whereas only 54(16.4%) patients were not in the need of treatment.

Table 2: Frequency of interventional urgency among study participants (n=330)

Intervention Urgency	Frequency	%age
No treatment needed	54	16.4
Preventive treatment needed	94	28.5
Prompt treatment needed	58	17.6
Immediate treatment needed	124	37.%

Figure 1: Gender wise sample distribution



DISCUSSION

Dental caries are regarded as the most widespread in the developing and under-developed world. The resulting discomfort and loss of tooth affects the quality of life such as the physical appearance, nutritional intake, which results in negative impact on growth and development. Studies have confirmed that poor oral health decreases active days of the children attending schools[14].

Dental caries is reported to be highly prevalent in children, becoming a concern of public health world over. It leads to harmful consequences on the child's quality of life through infliction of pre-mature loss of tooth, pain, malnutrition, which leads to overall negative impact on growth of the child. A child with poor oral health / dental caries is predicted to be 12 times more likely to have restricted days of activity in comparison to a child whose oral health status is satisfactory / without any sign of dental caries. Prevalence of dental caries in children residing in developed countries is found to be significantly lower than those residing in developing countries. A research in India showed prevalence of dental caries to very between 51 to 54% among pre-school children[15]. Likewise a Pakistani study by Sufia et al in Lahore reported prevalence of dental caries around 40% amongst children aged between 3-5 years.[16] On the contrary, another local Pakistan research by Amynah et al recorded prevalence of dental caries among pre-schoolers living in Clifton Karachi at about 29%[17]. The results of current study reported the prevalence

of dental caries among pre-school and school going children between the ages 3-11 was reported at 78.8 %. Higher prevalence of dental caries indicates lack of proper oral hygiene, awareness, socio-economic barriers and urge to attain proper oral treatment, being substantial contributors in leading to such frequencies.

CONCLUSION

In conclusion, higher prevalence of dental caries was found among the patients of age ranging from 3 years to 11 years who have visited Dental hospital of Institute of dentistry, CMH Lahore Medical College, Lahore for their dental treatment.

Conflict of interest: Nil

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