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Prevalence of Dental Caries Among Girl Students of Primary School in Buraydah City

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Research Article

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ABSTRACT

Background: The prevalence of dental caries is high across Saudi Arabia and varied by geographic location. There are very few studies done to assess the prevalence rate of dental caries in Buraydah city.

Aim: To determine the prevalence of dental caries among the girl students of primary school in Buraydah, Saudi Arabia.

Methods: Cross sectional study was done among the girl students of primary school in Buraydah City in the age group of 7-9 yrs. The subjects were from 3 randomly selected schools. Sample size was 401. Dentition status was assessed using dft Index for primary teeth and DMFT Index for permanent dentition.

Results: The collected data were analysed with IBM. SPSS statistics software 23.0 Version. For the multivariate analysis the Kruskal Walli's test was used. To find the significance in categorical data Chi-Square test was used. Among the 401 study subjects, caries prevalence was found to be 80.80% in primary teeth and 29% in permanent teeth.

Conclusion: The present study reported a high prevalence of dental caries in primary dentition than permanent dentition. This implies an urgent need for awareness initiative for preventive dental health behavior and attitudes, which is beneficial for the lifetime.

INTRODUCTION

Saudi Arabia is a large, multicultural country. Studies have reported caries prevalence is high in most regions and cities of Saudi Arabia [1]. The national prevalence of dental caries and its severity in children of Saudi Arabia was estimated to be approximately 80% for the primary dentition with a mean dmft of 5.0 and approximately 70% for children's permanent dentition with a mean DMFT score of 3.5 [1]. The current estimates indicate that the World Health Organization (WHO) 2000 goals are still unmet for Saudi Arabian children [1].

Prevalence of dental caries in Buraydah city in particular has been reported only 3 times. Wyne et al. reported the caries prevalence was 20.8% for children with primary dentition (mean age 4.0) and 19.7% for children with mixed dentition (mean age 9.7) in 2001 [2]. Dosari et al. reported the dental caries prevalence was 91.2% (mean dmft= 6.35) for 6–7 year olds and 87.9% (mean DMFT=4.53) for 12–13 year olds [3]. Salem et al. reported the highest percentage of dental caries in Buraydah city [4].

Dental caries is an infectious disease that can affect children, adults and old people. Dental caries if untreated leads to inflammation of dental pulp and loss of teeth. Almost 50% of tooth loss occurs due to dental caries and its complications [5].

Dental caries, though preventable, is the most prevalent oral condition which detrimentally affects different demographic groups and it can have public health impact on oral and systemic health.

In view of the very high caries prevalence in school children of Burayadh, it imperative that caries prevalence studies are regularly conducted to determine if there are any changes in the caries prevalence and to monitor the effectiveness of various caries prevention programs.

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In the light of the above mentioned facts, this cross sectional study has been designed to assess the prevalence rate of dental caries among girl students of primary school in Buraydah City.

METHODS

The present cross sectional study has been planned by Buraydah College of Pharmacy and Dentistry to assess the prevalence rate of dental caries among primary school children. Buraydah is the capital of Al-Qassim Region in north central Saudi Arabia in the heart of the Arabian Peninsula. It has a population of 614,093 according to 2010 census.

3 schools have been randomly selected from Buraydah city. All the children from the selected schools were examined. A total of 401 subjects formed the sample size in the age group of 7-9 years. Children under long-term medications which affects the oral health and who were physically and mentally challenged, and children who were not willing to participate were excluded from the study. Written informed consent was obtained from the parents of children. Data Collection was scheduled in the month of December 2016.

The clinical examination was carried out in the children's schools using disposable examination kits and natural light, while child sitting on a chair. Clinical examination included assessment of dental caries using decayed and filled teeth (dft) index by Gruebbel for primary dentition and decayed, missing, and filled teeth (DMFT) index by Klein, Palmer, Knutson for permanent dentition recorded on a structured format. Oral health education was given to the school children in the local language and for those who required treatment, were directed to get it done at Buraydah College of pharmacy and Dentistry.

The collected data were analysed with IBM.SPSS statistics software 23.0 Version. To describe the data, descriptive statistics frequency analysis, percentage analysis was used for categorical variables and the mean and standard deviation (S.D) were used for continuous variables. For the multivariate analysis the Kruskal Walli's test was used. To find the significance in categorical data Chi-Square test was used. In both the above statistical tools the probability value 0.05 is considered as significant level.

RESULTS

The study sample consisted of 401 subjects of which 123(30.7%) subjects were 7 years, 151(37.7%) were between 8 years and 127(31.7%) were 9 years of age **(Table 1)**. The overall prevalence of dental caries in the present study was found to be 80.80% in primary teeth and 29% in permanent teeth **(Tables 2 and 3) (Figures 1 and 2)**. By using Kruskal Walli''s test the comparison between ages with the total teeth having dental caries in primary teeth show no statistical significance with P=0.568 >0.05 **(Table 4)**. By using Chi-Square test the comparison between ages with the total number of teeth having dental caries in permanent teeth, Cross tabulation shows highly statistical significance with P=0.0005 <0.01 **(Table 5)**.

Table 1. Distribution of study subjects.

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
7 yrs	123	30.7	30.7	30.7
8 yrs	151	37.7	37.7	68.3
9 yrs	127	31.7	31.7	100.0
Total	401	100	100	

Table 2. Prevalence of dental caries in primary teeth.

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
0	77	19.2	19.2	19.2
1	31	7.7	7.7	26.9
2	46	11.5	11.5	38.4
3	36	9	9	47.4
4	49	12.2	12.2	59.6
5	31	7.7	7.7	67.3
6	46	11.5	11.5	78.8
7	29	7.2	7.2	86
8	27	6.7	6.7	92.8
9	10	2.5	2.5	95.3
10	9	2.2	2.2	97.5
11	4	1	1	98.5
12	6	1.5	1.5	100
Total	401	100	100	

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Table 3. Prevalence of dental caries in permanent teeth.

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
0	284	70.8	70.8	70.8
1	41	10.2	10.2	81
2	58	14.5	14.5	95.5
3	11	2.7	2.7	98.3
4	7	1.7	1.7	100
Total	401	100	100	

Table 4. Test statistics[a,b].

Total No. of teeth having dental caries in primary teeth	
Chi-Square	1.132
Df	2
Asymp. Sig.	0.568
a. Kruskal Wallis Test b. Grouping Variable: AGE	

Table 5. Chi-square tests.

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50.065[a]	8	0
Likelihood Ratio	51.457	8	0
Linear-by-Linear Association	36.119	1	0
N of Valid Cases	401		
a. 6 cells (40.0%) have expected count less than 5. The minimum expected count is 2.15			

DISCUSSION

Untreated dental caries in children frequently leads to significant pain, interference with eating and lost school time [6,7]. Dental caries is a common oral disease occurring during childhood. Despite the fact that caries is preventable, the disease continues to be a major public health problem [8]. The World Health Organization (WHO) has declared dental caries, as chronic non communicable diseases that require worldwide attention for prevention and treatment [9].

This previous systematic review clearly shows that dental caries is a serious dental public health problem among Saudi Arabian children, particularly the very young ones. The prevalence of dental caries is high across Saudi Arabia and varied by geographic location [1].

Only 3 studies have been reported so far assessing the prevalence rate of dental caries in Buraydah City of Saudi Arabia. In the first study, Wyne et al. reported that the overall caries prevalence was approximately 20% for children with a mean age of 12.7 [2]. Al Dosari et al. reported that dental caries among 12–14-year old school children in Qassim area was about 81% and only 19% of the examined children were caries-free [3]. Third study of the dental health among 12-14 years old school in Qassim area showed to be higher than the recommended international rates. They reported that 19.3% only are caries free, with mean of 3.92. Their study also reported the highest percentage of caries was found in Onizah and Buriydah [4].

Very few dental caries prevalence studies of Buraydah school children have been reported in past. Therefore, this present cross-sectional study was conducted to determine the prevalence of dental caries in school going children of Buraydah.

The study sample consisted of 401 subjects of which 123 (30.7%) subjects were 7 years, 151 (37.7%) were between 8 years and 127(31.7%) were 9 years of age **(Table 1)**. The overall prevalence of dental caries in the present study was found to be 80.80% in primary teeth and 29% in permanent teeth **(Tables 2 and 3), (Figures 1 and 2)**. The reports of our study are similar to the National population based caries prevalence studies which reported caries prevalence of Saudi Arabia to be 74-90% [10]. These findings are different from the reports of Wyne et al. where the prevalence of dental caries in primary teeth was only 20.8% [2]. This difference could be due to difference in the sample size. However, the results of our study are similar to the reports of Al Dosari et al. who also reported the caries prevalence to be 87.9% [3].

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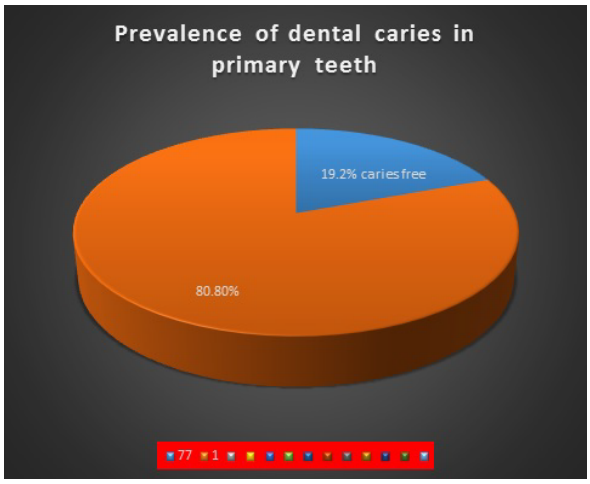

Figure 1. Prevalence of dental caries in primary teeth.

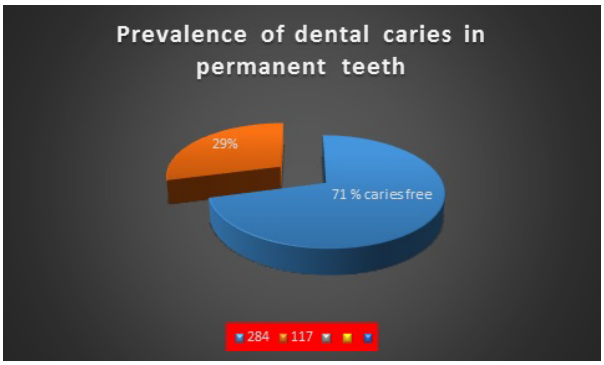

Figure 2. Prevalence of dental caries in permanent teeth.

The research results also emphasized that caries prevalence of children in Saudi Arabia as a general and especially in Qassim area remains a challenge and indicates that the WHO goals are still unmet for children in Saudi Arabia. The fact that prevalence of caries in primary teeth are very high indicates the negligent attitude of parents towards maintenance of so called "temporary teeth", since they are bound to exfoliate. Adequate dental health education and motivation should be planned for parents regarding the importance of primary teeth.

Based on the findings of the present study, preventive educational programs (oral hygiene practices and dietary advice) should be reinforced for the parents (especially mothers) of the preschool children. Pit and fissure sealants need to be placed as early as possible especially on the caries susceptible teeth. Topical fluoride application and fluoride supplements (where indicated) should be prescribed to children with high caries risk.

CONCLUSION

The present study reported a high prevalence of dental caries in primary dentition than permanent dentition. Even though literature reveals dental caries has been declining in adult population globally, the caries prevalence in young children has not shown a significant decline. This implies an urgent need for awareness initiative for preventive dental health behavior and attitudes, which is beneficial for the lifetime. This can be achieved by educating the parents about dental health through school dental health program. Parents should be made aware of brushing methods, usage of pit and fissure sealants and the importance of preventive measures for the children.

Conflict of Interest

The authors have no conflict of interest to declare.

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