Journal of Applied Dental and Medical Sciences
NLM ID: 101671413 ISSN:2454-2288
Volume 4 Issue2 April-June 2018

Original Article

Prevalence Of Dental Caries Among School Children In Ghana

Abdullah Abugarnin[1]

[1] *Dental intern, Riyadh Elm University, Riyadh, Saudi Arabia*

ARTICLE INFO

Keywords:
Dental caries, Prevalence, School children

ABSTRACT

Aim: To investigate the prevalence of the prevalence of dental caries both in deciduous and permanent teeth among Ghanaian school children. **Methods:** A cross-sectional survey was conducted among a sample of 100 school children in Ghana. Convenience sampling method was used for ease in data collection purpose. WHO accepted indices for assessing caries was used. ADA type 3 examination was done. Data was analyzed using SPSS. The mean and standard deviation of scores were calculated. **Results:** The mean (±SD) age of the patients was 10.13 (±2.42) years. The overall prevalence of dental caries in primary and permanent teeth was 70% among the total number of children examined. The prevalence of dental caries in 6 to 10 years age group was 81% and in 11 to 15 age group was 89%. The mean ± sd dmft among 6-10-year-old and mean ± sd DMFT of 11-15 years was 3.46 ± 3.20 and mean ± sd DMFT was found to be 3.44 ± 2.76. **Conclusion**: The study concluded a high prevalence of dental caries and decayed component constituting the major part both in caries prevalence of primary and permanent teeth.

INTRODUCTION

Dental caries is a common chronic oral disease and prevalent among children having multifactorial etiology such as host factors, microorganisms, diet, and time. Dental caries is caused by plaque accumulation on the tooth surface 1. The prevalence of dental caries is associated with oral hygiene practice, sugar consumption, and implementation of the preventive oral health program 2. There is a high prevalence of dental caries worldwide 3. Around 60-90% of school children and most of the adults have been affected by dental caries 4.

Dental caries is commonly measured by DMFT index. DMFT values between 0.0 and 1.1 were very low; 1.2–2.6 were low; 2.7–4.4 were moderate, 4.5–6.5 were high, and values exceeding 6.6 were very high 5. There is a sparse information available on the dental caries experience of Ghanaian children. Very few studies on dental caries have been reported in Ghanaian school children 6-8. The aim of this pilot study was to assess the prevalence of dental caries both in deciduous and permanent teeth. This study will help in proper planning towards provision of more dental care.

Methods

A cross sectional study was conducted among school children in Ghana. Ethical clearance was obtained from Institutional Review Committee of Riyadh Elm University. Required permission was obtained from concerned school authorities. Prior consent was obtained from the parents of each children. Convenience sampling method was used for ease in data collection purpose. Clinical examination was conducted among 100 school children. Oral examination was carried out by a single trained examiner and for data entry trained assistant will be

* Corresponding author***: Abdullah Abugarnim, Dental intern, Riyadh Elm University, Riyadh, Saudi Arabia***

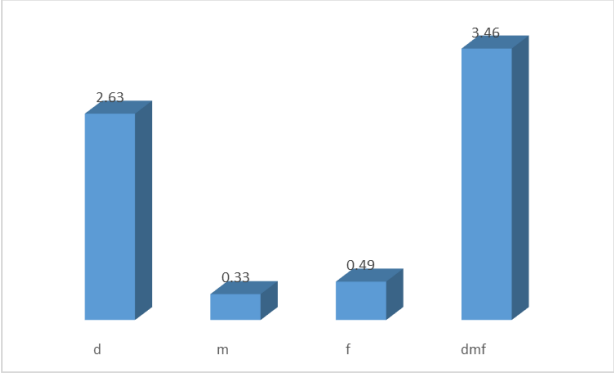

Figure 1. Distribution of mean decayed, missing, filled, and total dmf of 6-10 years children

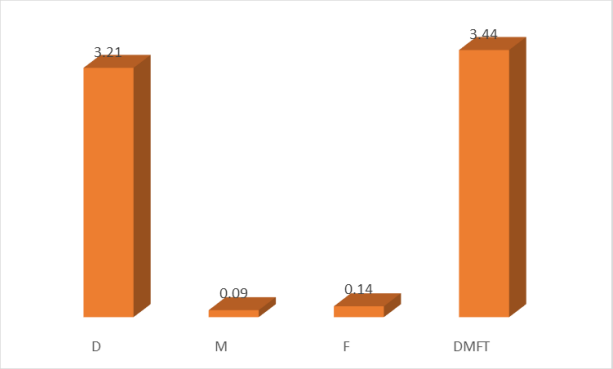

Figure 2. Distribution of mean Decayed, Missing, Filled, and total DMF of 11-15 years children

used. WHO accepted indices for assessing caries designed by Klein, Palmer, and Knutson 9 was used. ADA type 3 examination was done. Instruments used was mouth mirror and explorer. Data was analyzed using SPSS. The mean and standard deviation of scores were calculated.

RESULTS

This was a cross-sectional study to determine the prevalence of dental caries. A total of 100 patients were examined. Patients attending the clinic were approached to take part in the study and all patients approached accepted to be part of the study. The mean (±sd) age of the patients was 10.13 (±2.42) years, ranging between 6-15 years. The overall prevalence of dental caries in primary and permanent teeth was 70% among the total number of children examined. The prevalence of dental caries in 6 to 10 years age group was 81% and in 11 to 15 age group was 89%. The mean ± sd dmft among 6-10-year-old children was 3.46 ± 3.20 with a “d” component of 2.63 ± 2.93, “m” component of 0.33 ± 1.02, and “f” component of 0.49 ± 1.23. Among 11-15-year-olds, mean ± sd DMFT was found to be 3.44 ± 2.76 with a “D” component of 3.21 ± 2.66, “M” component of 0.09 ± 0.37, and “F” component of 0.14 ± 0.47.

DISCUSSION

In the present study, the overall prevalence of dental caries in primary and permanent teeth was 73.3% among the total number of children examined for the present study. Among the 6-9-year-old, the prevalence of caries was 77.8%, whereas among the 10-12-year-old, it was approximately 68%. This is higher when compared to caries prevalence in other countries like China (41%), South Africa (39.7%) and United States (41%) 10-11. This was similar to the studies conducted in India 12-13. This shows that factors like availability of dental services and awareness level could be the reason for the variation in level of disease in same age group.

The overall mean dmft was 3.46 in this study sample and DMFT was 3.44. The mean dmft decreased as the age increased and the decayed component was the major contributor to the dmft. A study in India found a higher mean DMFT of 7.61 14. However, previous studies reported a low caries prevalence among Ghanaian school children 6, 8, 15. Hence, further studies are required to ascertain the findings of the present study. The sample for the current study was selected only from one school. Hence, it cannot be

claimed that this study sample is representative of all school children in this age group.

CONCLUSION

The present study showed high prevalence of dental caries and decayed component constituting the major part both in caries prevalence of primary and permanent teeth. Oral health programs and oral hygiene practices should be promoted into the school curriculum. It is also recommend to conduct further studies in which factors associated with caries need to be studied.

REFERENCES

1. Mulu, W.; Demilie, T.; Yimer, M.; Meshesha, K.; Abera, B., Dental caries and associated factors among primary school children in Bahir Dar city: a cross-sectional study. BMC research notes 2014, 7 (1), 949.
2. Ponnudurai Arangannal, S. K. M.; Jayaprakash, J., Prevalence of dental caries among school children in Chennai, based on ICDAS II. Journal of clinical and diagnostic research: JCDR 2016, 10 (4), ZC09.
3. Karunakaran, R.; Somasundaram, S.; Gawthaman, M.; Vinodh, S.; Manikandan, S.; Gokulnathan, S., Prevalence of dental caries among school-going children in Namakkal district: A cross-sectional study. Journal of pharmacy & bioallied sciences 2014, 6 (Suppl 1), S160.
4. Petersen, P. E.; Bourgeois, D.; Ogawa, H.; Estupinan-Day, S.; Ndiaye, C., The global burden of oral diseases and risks to oral health. Bulletin of the World Health Organization 2005, 83 (9), 661-669.
5. Organization, W. H., Global Data on Dental Caries Prevalence (DMFT) in Children Aged 12 years. Global Oral Data Bank. Oral health country/area profile programme, Management of noncommunicable diseases. Geneva 2000.
6. Ndanu, T.; Aryeetey, R.; Sackeyfio, J.; Otoo, G.; Lartey, A., Oral Hygiene Practices and Caries Prevalence among 9-15 Years Old Ghanaian School Children. Journal of Nutrition and Health Sciences 2015, 2, 1-8.
7. Addo-Yobo, C.; Williams, S.; Curzon, M., Dental caries experience in Ghana among 12-year-old urban and rural schoolchildren. Caries research 1991, 25 (4), 311-314.
8. Bruce, I.; Addo, M. E.; Ndanu, T., Oral health status of peri‐urban schoolchildren in Accra, Ghana. International dental journal 2002, 52 (4), 278-282.

9. Klein, H.; Palmer, C. E.; Knutson, J. W., Studies on dental caries: I. Dental status and dental needs of elementary school children. Public Health Reports (1896-1970) 1938, 751-765.
10. Wong, M.; Lo, E.; Schwarz, E.; Zhang, H., Oral health status and oral health behaviors in Chinese children. Journal of Dental Research 2001, 80 (5), 1459-1465.
11. Control, C. f. D.; Prevention, Surveillance for dental caries, dental sealants, tooth retention, edentulism, and enamel fluorosis: United States, 1988-1994 and 1999-2002. Department of Health and Human Services, Centers for Disease Control and Prevention: 2005; Vol. 54.
12. Hiremath, A.; Murugaboopathy, V.; Ankola, A. V.; Hebbal, M.; Mohandoss, S.; Pastay, P., Prevalence of Dental Caries Among Primary School Children of India–A Cross-Sectional Study. Journal of clinical and diagnostic research: JCDR 2016, 10 (10), ZC47.
13. Saravanan, S.; Kalyani, V.; Vijayarani, M.; Jayakodi, P.; Felix, J.; Arunmozhi, P.; Krishnan, V.; Kumar, P. S., Caries prevalence and treatment needs of rural school children in Chidambaram Taluk, Tamil Nadu, South India. Indian Journal of Dental Research 2008, 19 (3), 186.
14. Ingle, N. A.; Dubey, H. V.; Kaur, N.; Gupta, R., Prevalence of dental caries among school children of Bharatpur city, India. Journal of International Society of Preventive & Community Dentistry 2014, 4 (1), 52.
15. Nornoo, D., The prevalence of dental caries in Ghanaian school children. Odonto-stomatologie tropicale= Tropical dental journal 1986, 9 (3), 153.