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A Study on Nutritional Status and Dental Caries in Permanent Teeth among School Going Girl of Bengalee Population, India

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ABSTRACT

Variations in tooth eruption patterns are supposed to have multifactorial reasons and etiologic factors to explain variation in caries are unsatisfactory. Prevalence of caries is comparatively higher in the children of developing countries than that of the children of same age in developed countries. Indian studies on the dental caries mostly in children related to prevalence and treatment. However, nutritional effect on dental caries on Indian school going children is yet to be carried out in eastern India. This study investigated the prevalence of dental caries in permanent teeth and nutritional status among the 544 School going children (girls) of 6 - 19 years age group of Bengalee ethnicity of West Bengal, India. Caries was recorded based on DMFT index following basic guidelines for Oral Health Surveys guideline (WHO). Nutritional status was obtained using BMI and classification of nutritional status was achieved using the standards of WHO and CDC growth charts include an age- and sex-specific BMI reference for children aged 2 - 20 year. The overall prevalence of dental caries was 44.5% and mean DMFT was 0.45 ± 1.57. Nutritional status demonstrated, about 30% and 6.69% of schools going girls were underweight and overweight respectively. Occurrence of dental caries was found in all permanent teeth among the girls of underweight and normal according to their BMI-for age status. Furthermore, a significant association ($p < 0.05$) with occurrence of dental caries among the underweight girls has been found compared to that of the overweight and normal. This study indicates a close relationship between nutritional status and dental caries in this region.

KEYWORDS

Dental Caries; Permanent Teeth; Nutritional Status

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References

- [1] Alvarez, J. O. (1995). Nutrition, tooth development, and dental caries. *American Journal of Clinical Nutrition*, 61, 410S-416S.
- [2] Alvarez, J. O., Eguren, J. C, Caceda, J. & Navia, J. M. (1990). The effect of nutritional status on the age distribution of dental caries in the primary teeth. *Journal of Dental Research*, 69, 1564-1566. doi:10.1177/00220345900690090501
- [3] Banerjee, P., & Banerjee, A. R. (1992). Eruption of permanent teeth in Bengalee school children. In J. R. Lucaks (Ed.), *Culture ecology and dental anthropology*. *Journal of Human Ecology* (pp. 31-33). Delhi: Kamla Raj Enterprises.
- [4] Barrett, M. J., & Brown, T. (1966). Eruption of deciduous teeth in Australian Aborigines. *Australian Dental Journal*, 11, 43-50. doi:10.1111/j.1834-7819.1966.tb02150.x
- [5] Bergandi, L., Defabianis, P. Re. F., Preti, G., Aldieri, E., Garetto, S., Bosia, A., & Ghigo, D. (2007). Absence of soluble CD14 in saliva of young patients with dental caries. *European Journal of Oral*

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- [6] Bjarnason, S., Care, R., Berzina, S., Brinkmane, A., Rence, I., Mackevica, I., Paeglite, I., & Senakola, E. (1995). Caries experience in Latvian nursery school children. *Community Dentistry and Oral Epidemiology*, 23, 138-141. doi:10.1111/j.1600-0528.1995.tb00217.x
- [7] Chiu, S. H., Dimarco, M. A., & Prokop, J. L. (2012). Childhood obesity and dental caries in homeless children. *Journal of Pediatric Health Care*, Epub ahead of print.
- [8] Cleaton-Jones, P., Fatti, P., & B?necker, M., (2006) Dental caries trends in 5to 6-year-old and 11to 13-year-old children in three UNICEF designated regions—Sub Saharan Africa, Middle East and North Africa, Latin America and Caribbean. *International Dental Journal*, 56, 294-300.
- [9] David, J., Wang, N. J., Astr?m, A. N., & Kuriakose, S. (2005). Dental caries and associated factors in 12-year-old schoolchildren in Thiruvananthapuram, Kerala, India. *International Journal of Paediatric Dentistry*, 15, 420-428. doi:10.1111/j.1365-263X.2005.00665.x
- [10] Demirjian, A., Buschang, P. H., Tanguay, R., & Patterson, D. K. (1985). Interrelationships among measures of somatic, skeletal, dental, and sexual maturity. *American Journal of Orthodontics and Dentofacial Orthopedics*, 88, 433-438.
- [11] Delgado-Angulo, E. K., & Bernabé, E. (2006). Influence of host-related risk indicators on dental caries in permanent dentition. *Acta Odontol Latinoam*, 19, 85-92.
- [12] Garn, S. M., Lewis A. B., & Polacheck, D. L. (1960). Interrelations in Dental Development. I. Interrelationships within the Dentition. *Journal of Dental Research*, 39, 1049-1055. doi:10.1177/00220345600390050901
- [13] Granath, L., Cleaton-Jones, P., Fatti, P., & Grossman, E. (1991). Correlations between caries prevalence and potential etiologic factors in large samples of 4-5-yr-old children. *Community Dentistry and Oral Epidemiology*, 19, 257-260. doi:10.1111/j.1600-0528.1991.tb00162.x
- [14] Ghosh, J. R., & Bandyopadhyay, A. R. (2006). Income, birth order, siblings and anthropometry. *Human Biology*, 78, 733-741. doi:10.1353/hub.2007.0012
- [15] Ghosh, J. R., & Bandyopadhyay, A. R. (2009). Prevalence of thinness and overweight among urban adolescents of West Bengal, India. *Journal of Tropical Pediatrics*, 55, 340-341. doi:10.1093/tropej/fmp002
- [16] Holm, A. K. (1990). Caries in the preschool child—International trends. *Journal of Dentistry*, 18, 291-295. doi:10.1016/0300-5712(90)90125-X
- [17] Jalili, V. P., Sidhu, S. S., & Kharbanda, O. P. (1993). Status of dental caries and treatment needs in tribal children of Mandu (Central India). *Journal of Pierre Fauchard Academy*, 7, 7-15.
- [18] Johansson, I., Saellstr?m, A. K., Rajan, B. P., & Parameswaran, A. (1992). Salivary flow and dental caries in Indian children suffering from chronic malnutrition. *Caries Research*, 26, 38-43. doi:10.1159/000261425
- [19] Honne, T., Pentapati, K., Kumar, N., & Acharya, S. (2011). Relationship between obesity/overweight status, sugar consumption and dental caries among adolescents in South India. *International Journal of Dental Hygiene*. doi:10.1111/j.1601-5037.2011.00534.x
- [20] Kaul, S., Saini, S., & Saxena, B. (1975). Emergence of permanent teeth in school children in Chandigarh, India. *Archives of Oral Biology*, 20, 587-593. doi:10.1016/0003-9969(75)90079-5
- [21] Kaul, S. S., & Pathak, R. K. (1983). Estimation of calendar age from the emergence times of permanent teeth in Punjabi children in Chandigarh, India. *Annals of Human Biology*, 15, 307-309.
- [22] Kerosuo, H., & Honkala, E. (1991). Caries experience in the primary dentition among groups of Tanzanian and Finnish 3 7 years old children. *Community Dentistry and Oral Epidemiology*, 19, 272-276. doi:10.1111/j.1600-0528.1991.tb00166.x
- [23] Klingberg, G., Lingstr?m, P., Oskarsdóttir, S., Friman, V., Bohman, E., & Carlén, A. (2007). Caries-related saliva properties in individuals with 22q11 deletion syndrome. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology and Endodontology*, 103, 497-504. doi:10.1016/j.tripleo.2006.09.018
- [24] Kuczmarski, R. J., Ogden C. L., Grummer-Strawn, L. M., Flegal, K. M., Guo, S. S., Wei, R., Mei, Z., Curtin, L. R., Roche, A. F., & Johnson, C. L. (2000). CDC growth charts: United States. *Advanced Data*, 8, 1-27.

- [25] Kuczmariski, R. J., Ogden, C. L., Guo, S. S., Grummer-Strawn, L. M., Flegal, K. M., Mei, Z., Wei, R., Curtin, L. R., Roche, A. F., & Johnson, C. L. (2002). CDC Growth Charts for the United States: Methods and development. *Vital and Health Statistics*, 11, 1-190.
- [26] Lenander-Lumikari, M., & Loimaranta, V. (2000). Saliva and dental caries. *Advances in Dental Research*, 14, 40-47. doi:10.1177/08959374000140010601
- [27] Leroy, R., Bogaerts, K., Lesaffre, E., & Declerck, D., (2005). Multivariate survival analysis for the identification of factors associated with cavity formation in permanent first molars. *European Journal of Oral Sciences*, 113, 145-152. doi:10.1111/j.1600-0722.2005.00199.x
- [28] Li, Y., & Wang, W. (2002). Predicting caries in permanent teeth from caries in primary teeth: An eight-year cohort study. *Journal of Dental Research*, 81, 561-566. doi:10.1177/154405910208100812
- [29] Lohman, T. G., Roche, A. F., & Martorel, R. (1988). *Anthropometric standardization reference manual*. Chicago: Human Kinetics Books.
- [30] Ludwig, T. G., Kean, M. R., & Pearce, E. I. F. (1964). The dental condition of a rural Maori population. *New Zealand Dental Journal*, 60, 106-114.
- [31] Mahejabeen, R., Sudha, P., Kulkarni, S. S., & Anegundi, R. (2006). Dental caries prevalence among preschool children of Hubli: Dharwad city. *Journal of Indian Society of Pedodontics and Preventive Dentistry*, 24, 19-22. doi:10.4103/0970-4388.22829
- [32] Malina, R. M., Bouchard, C., & Bar-Or, O. (2004). *Growth, maturation, and physical activity* (2nd ed.). Chicago: Human Kinetic Books.
- [33] Mandal, K. P., Tewari, A. B., Chawla, H. S., & Gauba, K. D. (2001). Prevalence and severity of dental caries and treatment needs among population in the Eastern states of India. *Journal of Indian Society of Pedodontics and Preventive Dentistry*, 19, 85-91.
- [34] Mascarenhas, A. K. (1999). Determinants of caries prevalence and severity in higher SES Indian children. *Community Dental Health*, 16, 107-113.
- [35] Mukherjee, D. K. (1973). Deciduous dental eruption in low income group Bengali hindu children. *Journal of Tropical Pediatrics & Environmental Child Health*, 19, 207-210.
- [36] Narksawat, K., Tonmukayakul, U., & Boonthum, A. (2009). Association between nutritional status and dental caries in permanent dentition among primary schoolchildren aged 12-14 years, Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health*, 40, 338-344.
- [37] O' Sullivan, D., & Tinanoff, N. (1996). The association of early dental caries patterns with caries incidence in preschool children. *Journal of Public Health Dentistry*, 56, 81-83. doi:10.1111/j.1752-7325.1996.tb02401.x
- [38] Prendergast, M. J., Williams, S. A., & Curzon, M. E. (1989). An assessment of dental caries prevalence among Gujurati, Pakistani and white Caucasian five-year-old children resident in Dewsbury, West Yorkshire. *Community Dent Health*, 6, 223-232.
- [39] Psoter, W. J., Reid, B. C., & Katz, R. V. (2005). Malnutrition and dental caries: A review of the literature. *Caries Research*, 39, 441-447. doi:10.1159/000088178
- [40] Raadal, M., Elhasan, F. E., & Ramusson, P. (1993). Prevalence of caries in groups of children aged 4-5 and 7-8 years in Kartoum, Sudan. *International Journal of Paediatric Dentistry*, 3, 9-15. doi:10.1111/j.1365-263X.1993.tb00041.x
- [41] Rahmatulla, M., & Wyne, A. H. (1993). Relationship between caries, water fluoride level and socioeconomic class in 15-year-old Indian school children. *Indian Journal of Dental Research*, 4, 17-20.
- [42] Rami-Reddy, V., Vijayalakshmi, P. B., & Chandrasekhar-Reddy, B. K., (1986). Deciduous Tooth emergence and physique of Velama children of Southeastern Andhra Pradesh, India. *Acta Odontol Pediatr*, 7, 1-5.
- [43] Rao, S. P., & Bharambe, M. S. (1993). Dental caries and periodontal diseases among urban, rural and tribal school children. *Indian Pediatrics*, 30, 759-764.
- [44] Reid, D. J., & Dean, M. C. (2005). Variation in modern human enamel formation times. *Journal of Human Evolution*, 50, 329-346. doi:10.1016/j.jhevol.2005.09.003

- [45] Robinow, M. (1973). The eruption of the deciduous teeth (factors involved in timing). *Journal of Tropical Pediatrics & Environmental Child Health*, 19, 200-205.
- [46] Russell, A. L., Leatherwood, E. C., Van Hien, Le., & Van Reen, R. (1965). Dental caries and nutrition in South Vietnam. *Journal of Dental Research*, 44, 102-111. doi:10.1177/00220345650440010301
- [47] Shah, N. (2003). Gender issues and oral health in elderly Indians. *International Dental Journal*, 6, 475-484. doi: 10.1002/j.1875-595X.2003.tb00890.x
- [48] Shah, N., & Sundaram, K. R. (2004). Impact of socio-demographic variables, oral hygiene practices, oral habits and diet on dental caries experience of Indian elderly: A community-based study. *Gerodontology*, 2, 143-150.
- [49] Touger-Decker, R., & Mobley, C. C. J. (2007). Position of the American dietetic association: Oral health and nutrition. *Journal of the American Dietetic Association*, 81, 418-428.
- [50] Uehara, A., Sugawara, S., Watanabe, K., Echigo, S., Sato, M., Yamaguchi, T., & Takada, H. (2003). Constitutive expression of a bacterial pattern recognition receptor, CD14, in human salivary glands and secretion as a soluble form in saliva. *Clinical and Diagnostic Laboratory Immunology*, 10, 286-292.
- [51] Ulijaszek, S. A., & Lourie, J. A. (1994). Intraand inter-observer error in anthropometric measurement. *Anthropometry: The individual and the population*. Cambridge: Cambridge University Press.
- [52] Venkaiah, K., Damayanti, K., Nayak, M. U., & Vijayaraghavan, K. (2002). Diet and nutritional status of rural adolescents in India. *European Journal of Clinical Nutrition*, 56, 1119-1125. doi:10.1038/sj.ejcn.1601457
- [53] World Health Organization (1985). *Measuring nutritional status*. Geneva: World Health Organization.
- [54] World Health Organization (1995). *Physical status: The use and interpretation of anthropometry*. Report of a WHO expert committee. Geneva: WHO.
- [55] World Health Organization (1997). *Oral health survey basic methods (4th ed.)*. Geneva: WHO.
- [56] Yassin, I., & Low, T. (1975). Caries prevalence in different racial groups of schoolchildren in West Malaysia. *Community Dentistry and Oral Epidemiology*, 3, 179-183.