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RESEARCH ARTICLE

ASSESSMENT OF ASSOCIATION BETWEEN BMI AND OHI-S OF SCHOOL CHILDREN AT TAKKELLAPADU VILLAGE, GUNTUR DISTRICT

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ABSTRACT

Back Ground: Oral hygiene plays an important role in the well being of an individual. Obesity is a growing health related problem worldwide. Oral hygiene could have a relation with weight of the participants. **Aim:** To correlate the prevalence of oral hygiene status and body mass index of school children (3-16years) of Takkellapadu village. **Material and Methods:** The study design was cross sectional which included 150 school children of age 3-16 years in which 94 boys and 56 girls. Information regarding height and weight of the study participants were recorded by using standardized measuring scale and weighing machine there after BMI was calculated. Data was analyzed by using SPSS Version 22. Oral hygiene status of the study subjects was assessed using oral hygiene index simplified. **Results:** Among the study participants 94(62.7%) were boys and 56(37.3%) were girls. Oral hygiene status was fair among 99(66%) of children. BMI was <18.5 among 119(79.3%) underweight children. Among boys and girls there was no significant difference in oral hygiene status. **Conclusion:** From the analysis, it was concluded that oral hygiene status had a significant effect on BMI. Age with oral hygiene status was significant with correlation value 0.04 levels.

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INTRODUCTION

India is following a trend of other developing countries that are steadily becoming more obese (Pinto, 2007; http://en.wikipedia.org/wiki/Obesity_in_India) Obesity status in children is measured by assessment of body mass index (BMI) corresponding to gender and age (Pinto, 2007) Excessive body weight in children is a major public health problem. According to National Family Health Survey (NFHS), obesity has reached epidemic proportions in India, affecting 5% of the country's population. Consumption of soft drinks and fast foods together with less activity and exercise contributed to the increasing number of overweight people worldwide (Sadeghi, 2007). High sugar intake, for example, sugar containing snacks and soft drinks, is reported to be more common among overweight and obese children/adolescents than those with normal weight.

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The aim of the study was to determine the association, if there is any, between BMI and OHI-S in school children.

MATERIALS AND METHODS

Oral hygiene of study subjects was determined using oral hygiene index-simplified (OHI-S) by Greene and Vermilion [(4)]. This index is based upon two parameters: Debris and Calculus and it has been validated. Debris and calculus scores were recorded by examining the buccal and lingual surfaces of fully erupted maxillary first molars and maxillary, mandibular right central incisors respectively and the lingual surfaces of fully erupted mandibular first molars and mandibular left central incisors. Debris index score of an individual is calculated on basis of total debris score/ no. of surfaces examined. OHI-S was calculated by adding debris index score and calculus index score. The standard way of recording the anthropometric assessment of BMI is done by using a 150 kg digital scale and 200 cm tape to measure height according to the World Health Organization (WHO) guidelines. The body weight was recorded by using a standard beam balance scale with participants wearing light dresses and barefoot.

Body height is recorded with subjects not wearing any shoes and head touching the ruler with line of sight aligned horizontally. The BMI is calculated by the formula: Weight (kg)/height (m^2).

The interpretation of BMI scores are
Underweight (<18.5),
Normal weight (18.5-24.99)
Overweight (>25)
Obese (>30) as per WHO.

The cross sectional study was conducted on 150 school children of age 3-16 years at Takkellapadu village, Guntur. The age group of the study population is 3 -16 years in which 94(62.7%) are boys and 56(37.3%) are girls.

Inclusion Criteria

- All the healthy School children.
- Children having normal physical activity.
- School children of age 3-16 years.
- Both genders were included.
- Children who have attended to school in the month of June 2019.

The ease of implementation and objectivity makes BMI a popular tool to measure obesity. But, this index is to be considered cautiously, as it can produce false-positive results for the fact that it cannot differentiate between lean body mass and fat mass. Exclusive criteria:1. Children suspected to have any illness. Children who were not physically active. Approval was taken from the school authority. The children were seated in a chair and examined visually with optimal illumination, No. 23 Explorer and disposable mouth mirror. BMI-for-age and OHI-S categories were analysed with Chi-square and t-tests using SPSS computer software 22 version.

RESULTS

The cross sectional study conducted showed that study population consists of 150 children out of which 62.7% boys and 37.3%girls. Candidates having fair oral hygiene were 66%, good oral hygiene were 32% and poor were 2%.

DISCUSSION

The main objective of this study to evaluate the association between OHI-S and BMI. Oral hygiene is a basic factor for oral health. No significant relation between oral hygiene and BMI was reported according to the study of Prahlad Gupta (Nidhi Gupta) *et al*, which was similar to the current study in which in all categories of BMI majority subjects were having fair oral hygiene status. The overall oral hygiene status among study population was recorded as fair in 65% and good in 31% and only 4% of the study population showed poor oral hygiene status. There was significant difference between oral hygiene status of males and females (P = 0.037) in the study done by Prahalad *et al*. which was found dissimilar to our present study, in that there was no significant difference among gender was identified. The study done by Sogi and Bhaskar showed lower mean scores of OHI-S and its components in females was due to the probable reason for grooming habits of girls (Sogi, 2001). In the present study oral hygiene among 3-9 years old children was better when compared to 10-16 years old children, this might be more parental care in the younger children when compared to older children.

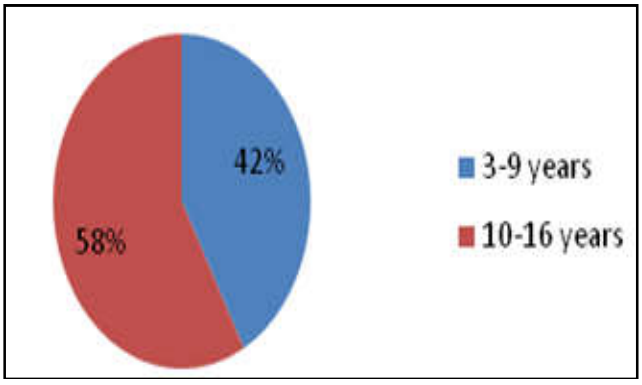

Fig. 1. Showing distribution of subjects according to Age

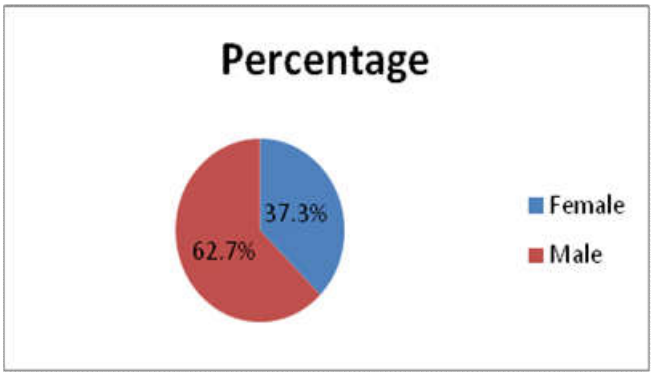

Fig. 2. Showing distribution of study participants according to Gender

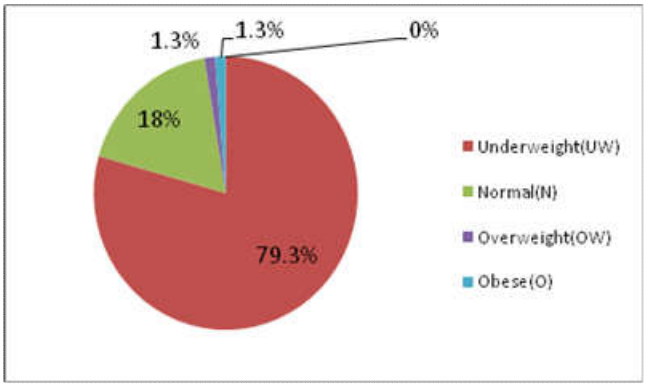

Fig 3. Showing distribution of subjects according to BMI categories

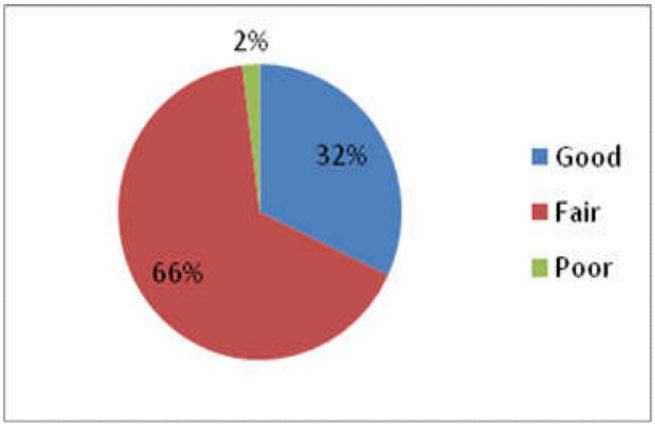

Fig 4. Showing distribution of subjects according to OHI-S categories

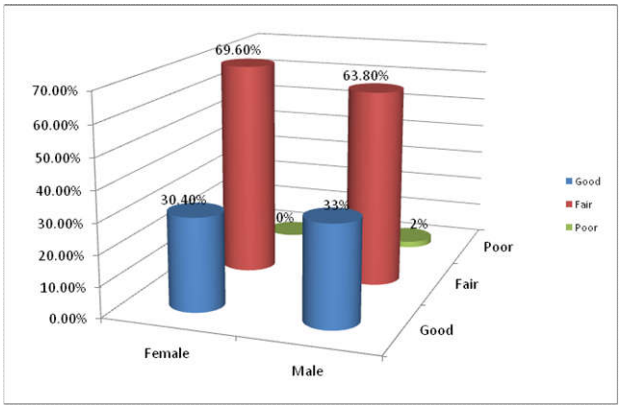

Fig 5. Showing association Gender and OHI-S

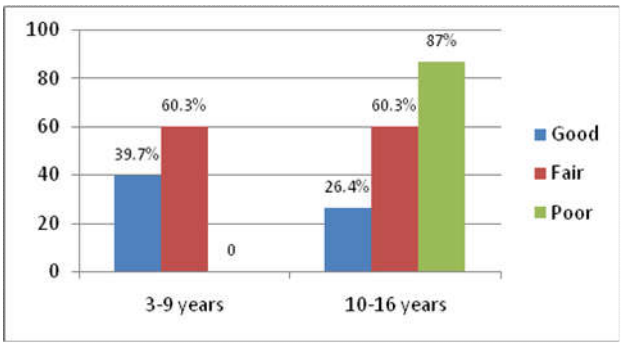

Fig 6. Showing relation Age and OHI-S

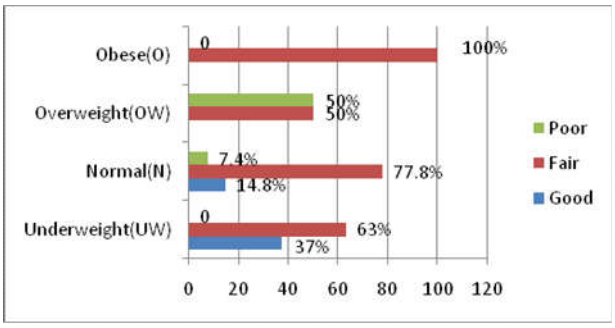

Fig 7. Showing Association between OHI-S and BMI

This was similar to the study done by Pakpour AH et.al, Willerhausen *et al* and Mathus-Vliegen EMH et.al. (Pakpour, 2011; Willerhausen, 2007; Mathus-Vliegen, 2007). Fair oral hygiene was found in obese children which was dissimilar to the study done by Kulvinder Kochar Kaur *et al* in their study it was found as poor oral hygiene (Kulvinder Kochar Kaur, 2018).

Limitations: In the current study, common possible confounders, important to be taken into consideration in studies of oral health and obesity like socioeconomic, lifestyle factors which are associated with body weight (Steiham, 2000) and oral health (Lahmann, 2013) were not taken.

Conclusion

A need exists for addressing obesity, oral health and nutrition, jointly in health promotion strategies, to improve well-being of children and also to empower good life-style factors.[13] Obesity and oral health are correlated as both share some common risk factors like dietary, genetic, socioeconomic, and lifestyle issues (Halder, 2018).

Dietary modifications should be done in order to improve the oral hygiene status of the children. From this study, it was concluded that fair oral hygiene was observed in children. A need for addressing obesity, oral health and nutrition, jointly in health promotion strategies, to improve well being of children and also to empower good health life style factors.

REFERENCES

Greene JC, Vermillion JR. The simplified oral hygiene index. Journal of the American Dental Association. 1964;68:7–13. (PubMed) (Google Scholar)

Halder S, Kaul R., Angrish P., Saha S, Bhattacharya B., Mitra M. 2018. Association between Obesity and Oral Health Status in Schoolchildren: A Survey in Five Districts of West Bengal, India. *Int J Clin Pediatr Dent*., 11(3):233-237.

Kulvinder Kochar Kaur. *et al*. 2018. ''Correlation of poor oral hygiene with obesity-A Mini Review.'' EC Dental Science 17.8 1304-1308.

Lahmann PH. *et al*. 2013. ''Synergism between obesity and poor oral health associated with Longterm weight gain, current body fatness and central adiposity in Swedish women.'' *International Journal of obesity and related Metabolic Disorders,* 24.6; 318-331.

Mathus-Vliegen EMH., Nikkel D., Brand HS. 2007. Oral aspects of obesity. Int Dent J. 57:249–. (PubMed) (Google Scholar)

Nithya Anand *et al*., 2014. Effect of obesity and lifestyle on oral health of pre adolescent children. *J Clin Diagn Res*., Feb; 8(2): 196–198.

Obesity in India, 2010, http://en.wikipedia. org/wiki/ Obesity_in_India.

Pakpour AH., Hidarnia A., Hajizadeh E., Kumar S., Harrison AP. 2011. The status of dental caries and related factors in a sample of Iranian adolescents. *Med Oral Patol Oral Cir Bucal.*, 16:e822–7. (PubMed) (Google Scholar)

Pinto A., Kim S., Wadenya R., Rosenberg H. 2007. Is there an association between weight and dental caries among pediatric patients in an urban dental school? A correlation study. *Journal of Dental Education*. 71(11):1435–1440. (PubMed) (Google Scholar)

Prevalence of Dental Caries in relation to Body Mass Index, Daily Sugar Intake, and Oral Hygiene Status in 12-Year-Old School Children in Mathura City: A Pilot Study Prahlad Gupta, 1 Nidhi Gupta, 2 and Harkanwal Preet Singh

Sadeghi M., Alizadeh F. 2007. Association between dental caries and body mass index-for-age among 6-11-year-old children in Isfahan in 2007. *Journal of Dental Research, Dental Clinics, Dental Prospects.,* 1(3):119–124. (PMC free article) (PubMed) (Google Scholar)

Sogi G, Bhaskar DJ. 2001. Dental caries and oral hygiene status of 13-14 year old school children of Davangere. Journal of the Indian Society of Pedodontics and Preventive Dentistry. 19(3):113–117. (PubMed) (Google Scholar)

Steiham A. and Watt RG. 2000. ''The common risk factor approach; a rational basis for promoting health.'' Community Dentistry and Oral Epidemiology 28.6 ;399-406.

Willerhausen B., Blettner M., Kasaj A., Hohenfellner K. 2007. Association between body mass index and dental health in 1,290 children of elementary schools in a German city. Clin Oral Invest. 11:195–200. (PubMed) (Google Scholar)

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