



Research Article

ISSN: 2581-3218
IJDR 2019; 4(3): 104-107
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Oral hygiene status of primary school children

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Abstract

Background: The purpose of using tooth cleaning aids like chewing stick, toothbrush with locally made powder or fluoride containing toothpaste, is to attain good oral hygiene compatible with good oral health. **Aim:** To determine the oral hygiene status of public primary school children in a rural community in South-east Nigeria. **Methodology:** A cross sectional descriptive study of primary school children was done in a public primary school in Nkanu -West local Government Area of Enugu State. Ethical clearance for this study was sought and obtained, all participants who gave their assent were recruited. Socio-demographic data was obtained using interviewer-administered questionnaire. Oral hygiene status was determined using simplified oral hygiene index (OHI-S). After data collection, oral hygiene education and tooth brushing demonstrations were done. Data were analysed using Statistical Package for Social Sciences (SPSS) Version 20. P values < 0.05 were accepted as being statistically significant. **Results:** 57(46.3%) males, 66(53.7%) females were seen and examined, giving a male to female ratio of about 1:1.2. The age range of the participants was 8 to 14 years with a mean age of 10.2 ± 1.4 years. The mean OHI-S score was 1.5 ± 0.4. 78(63.4%) had fair oral hygiene, 43(35%) had good oral hygiene while 2(1.6%) had poor oral hygiene status. Majority of the school children brush their teeth once daily, using the horizontal scrub technique. **Conclusion:** In this study, most of the school children had fair oral hygiene status. Good oral hygiene status was seen more among 9-10 year old children, while fair oral hygiene status was seen more among 10-11 year children. The association between oral hygiene status with age or gender was not statistically significant.

Keywords: Children, Oral hygiene, Public, Primary school.

INTRODUCTION

The purpose of using tooth cleaning aids like chewing stick, toothbrush with locally made powder, herbal toothpaste or fluoride containing toothpaste, is to attain good oral hygiene^[1] compatible with good oral health. Oral hygiene maintenance through regular removal of dental plaque, food deposits and debris is relevant in the prevention of dental caries and periodontal disease^[2]. Oral hygiene measures have been practiced by different populations globally since many years ago. In rural areas, the brushing habits of some children are highly unsatisfactory^[3]. They commonly brush their teeth once daily. Some of the children do not brush their teeth at all for days, some brush their teeth occasionally, some may not have access to a toothbrush and use the traditional cleaning aids like datun, charcoal, salt, wood ash or locally made powders. The oral health of children is important towards their overall well-being^[4-6].

School remains an important setting offering an effective and relevant ways to reach over to children and through them, families and community members^[3]. Oral health promotion through schools is recommended by WHO for improving knowledge, attitude, and behaviour related to oral health among school children. School children can act as a mechanism in bringing about desirable changes in the family and they have an important role in primary prevention and health education among family members and their respective community^[7]. The use of chewing sticks among school children under proper instruction has been reported to be as effective as plastic/nylon toothbrushes for control of plaque and gingival bleeding^[8-9]. Previous studies reported that the traditional, unsupervised method of tooth cleaning had no significant effect on plaque control among either children or adults^[10-11]. Females are generally more motivated with regard to oral hygiene practices and thus brush their teeth more frequently than males^[9, 11].

Sukhabogi *et al.*, in 2014^[12] from a study conducted in India reported that 39.1% of school children had good oral hygiene status, 38.7% had fair oral hygiene status while 22.2% of the school children has poor oral hygiene status. Good oral hygiene status was seen more among private school children than government school children, while poor oral hygiene status was seen more among government school children. Akinyamoju *et al.*, in 2018 from a study conducted in South-west Nigeria^[13] reported that 57.7% of school

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children in rural communities had fair oral hygiene status, 34.8% had good oral hygiene status while 7.5% of the school children had poor oral hygiene status. There are various studies and reports of oral hygiene status among children in other parts of the country, Africa and the World. The aim of this study is to determine the oral hygiene status of public primary school children in a rural community in South-east Nigeria and compare findings with published reports from Nigeria and other countries of the World. It would also contribute to the existing data on oral hygiene status of children in Nigeria and the West African sub-region.

MATERIAL AND METHODS

A cross sectional descriptive study of primary school children was done in a public primary school in Nkanu -West local Government Area of Enugu State. The area is largely rural and its inhabitants are primarily farmers, small-scale business people and traders. Ethical clearance for this study was sought and obtained. Informed consent was obtained from the parents of the school children, approval was obtained from the head of the school and head of the parents-teachers association of the school. All participants who gave their assent were recruited for the study. Socio-demographic data was obtained using interviewer - administered questionnaire, oral hygiene examination was done by a single examiner and the students were examined while seated in an upright position using natural daylight. Oral hygiene status was determined using simplified oral hygiene index (OHI-S) and the index teeth were present in all the participants. Scoring was done using the OHI-S scoring method where oral hygiene is assessed as good (0.1 - 1.2),

fair (1.3 - 3.0) and poor (3.1 - 6.0). After data collection, oral hygiene education and tooth brushing demonstrations were done. Data were analysed using Statistical Package for Social Sciences (SPSS) Version 20. P values < 0.05 were accepted as being statistically significant. Frequency distribution, mean scores and standard deviation were calculated. Chi-square test was used to determine the association of oral hygiene status, age and gender. Mean comparison of index scores was carried out using independent-t test when two groups are compared and ANOVA when more than two groups were compared.

RESULTS

57(46.3%) males, 66(53.7%) females were seen and examined, giving a male to female ratio of about 1:1.2. The age range of the participants was 8 to 14 years with a mean age of 10.2 ± 1.4 years as shown in table 1. The total mean simplified oral hygiene index (OHI-S) score was 1.5 ± 0.4 , total mean debris index (DI) score was 1.1 ± 0.1 , total mean calculus index (CI) score was 0.4 ± 0.3 . The mean simplified oral hygiene index (OHI-S) score, mean debris index score and mean calculus index score were all higher in males than females as shown in table 2. 78(63.4%) had fair oral hygiene, 43(35%) had good oral hygiene while 2(1.6%) had poor oral hygiene status (figure 1). Good oral hygiene status was seen more in females than males while fair oral hygiene status was seen more in males than females as shown in figure 2. Good oral hygiene status was seen more among children in primary five class and fair oral hygiene status was seen more among children in primary six class as shown in figure 3. Majority of the school children brush their teeth once daily, using the horizontal scrub technique.

Table 1: Socio-Demographic Characteristics of Participants

| Variable | | Frequency | Percent |
|----------------------------|-----------|-----------|---------|
| Gender | Male | 57 | 46.3 |
| | Female | 66 | 53.7 |
| Age group | 8-9 | 43 | 34.9 |
| | 10-11 | 59 | 48.0 |
| | 12-14 | 21 | 17.1 |
| Level of primary education | Primary 4 | 45 | 36.6 |
| | Primary 5 | 41 | 33.3 |
| | Primary 6 | 37 | 30.1 |
| | Total | 123 | 100 |

Table 2: Mean Score of Participants According to Gender

| Variable | Male | Female | t-value | p-value |
|-------------------------------|----------------|----------------|---------|---------|
| Debris index | 1.07 ± 0.1 | 1.04 ± 0.1 | 1.56 | 0.12 |
| Calculus index | 0.52 ± 0.4 | 0.37 ± 0.3 | 2.74 | 0.007 |
| Simplified oral hygiene index | 1.60 ± 0.5 | 1.41 ± 0.3 | 2.57 | 0.11 |

Table 3: Mean Score of Participants According to Level of Primary Education

| Variable | Primary 4 | Primary 5 | Primary 6 | p-value |
|-------------------------------|----------------|----------------|----------------|---------|
| Debris index | 1.06 ± 0.1 | 1.08 ± 0.1 | 1.03 ± 0.1 | 0.26 |
| Calculus index | 0.44 ± 0.3 | 0.39 ± 0.3 | 0.50 ± 0.3 | 0.33 |
| Simplified oral hygiene index | 1.50 ± 0.4 | 1.50 ± 0.5 | 1.53 ± 0.3 | 0.81 |

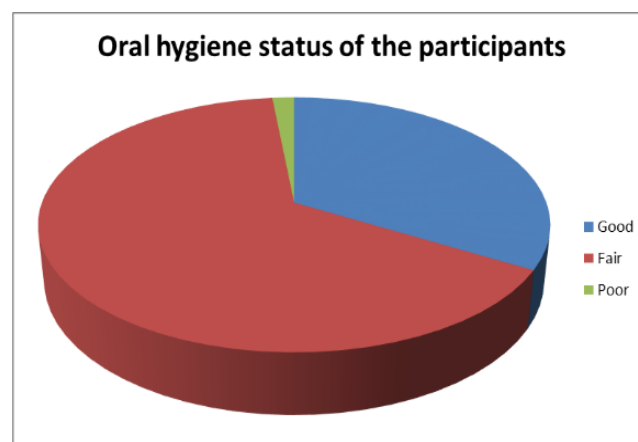
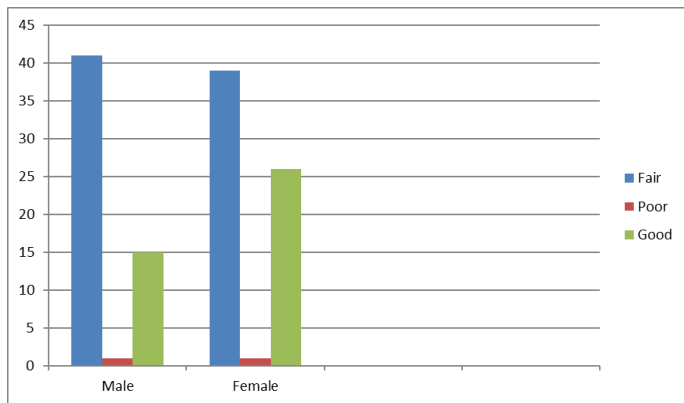


Figure 1: Oral hygiene status of the participants



p-value = 0.308

Figure 2: Distribution of oral hygiene status of the participants according to gender

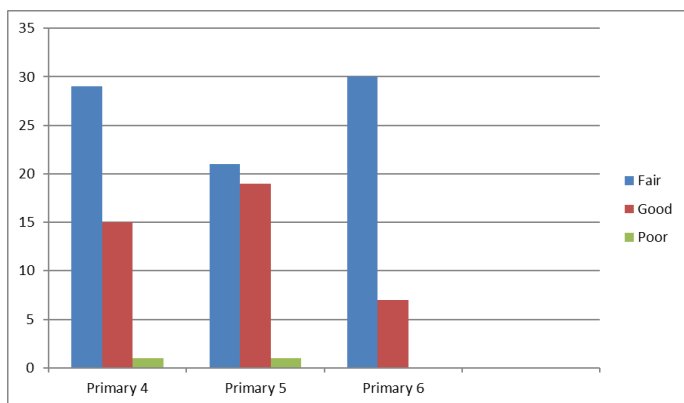


Figure 3: Oral hygiene status of the participants according to level of primary education

DISCUSSION

Dental caries and periodontal diseases can be caused by poor oral hygiene practices [6, 14-15]. It can be effectively prevented by plaque, debris and calculus removal, which serves as a standard to evaluate oral hygiene. Personal and professional plaque/debris removal, and professional calculus removal (oral prophylaxis) have been extensively accepted for prevention of gum diseases [16]. Globally, poor oral hygiene occurring due to increasing plaque and calculus deposits with increasing age have been reported among children and adolescents [17]. The most common method to remove dental plaque involves using a toothbrush [18] with fluoride containing toothpaste. Oral health education and promotion is considered as a priority for school-children since they are at risk for dental diseases predominantly dental caries and gingival diseases. The state of oral cleanliness is very important in the promotion of oral health, general health and quality of life [6]. In this study, some of the school children brush their teeth using toothbrush with locally made powder and they use the horizontal scrub technique. 35% of the school children had good oral hygiene status and was almost similar to previous study of 34.8 % [13] in South-west Nigeria, close to previous study of 39.1% in India [12], and 42.8% in an hospital based study in India [19].

Mean scores of debris index and oral hygiene Index-simplified was higher among males compared to females, and was contrary to previous report of higher debris index and oral hygiene index-simplified score in females than males [17], and similar to previous study of higher index scores in males than females [20]. 63% of the school children had fair oral hygiene status, this was in agreement with previous study of 63.6% [21] and close to previous study in Kuwait of 67% [22]. Females had better oral hygiene status than males in this study, which was similarly reported in previous studies [13, 19, 22-23]. The oral hygiene status of the school children in this study was close to that of rural children reported in previous studies in Nigeria [13, 24] and amongst children in India [21] and

Kuwait [22]. Oral hygiene should be educated and practiced at an early age as it is one of the determinants of the health state later in one's life [6]. Hygienic oral health practices are necessary from a young age to ensure positive long term dental health and good oral hygiene.

CONCLUSION

In this study, most of the school children had fair oral hygiene status. Good oral hygiene status was seen more among 9-10 year old children, while fair oral hygiene status was seen more among 10-11 year children. The association between oral hygiene status with age or gender was not statistically significant.

Financial support and sponsorship: None

Conflicts of interest: There are no conflicts of interest

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