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Research Article

**GINGIVAL HEALTH AND ORAL HYGIENE STATUS OF  
PRESCHOOL CHILDREN ATTENDING AYUB TEACHING  
HOSPITAL, ABBOTTABAD**Dr. Sara Hanif<sup>1</sup>, Dr. Mashal Sohail,<sup>2</sup> Dr. Safia Shahid<sup>3</sup><sup>1</sup>Ayub Medical College, Abbottabad, <sup>2</sup>Islamic International Dental College, <sup>3</sup>Rawal Institute of Health Sciences, Islamabad.

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**Abstract:**

**Aim:** The aim of the study was to determine the state of oral hygiene and gum health as well as to establish the relationship between oral hygiene and gingivitis in preschool children.

**Methods:** This study was held in the Dental section of Ayub Teaching hospital, Abbottabad for one-year duration from August 2019 to August 2020. In total, 60 preschool children, 36 men and 24 girls, with a mean age of 4.4 (SD 1.0) years, were examined.

**Results:** About every tenth child (11.7%) had poor oral hygiene. There was no significant ( $p > .05$ )  $t$  difference between male and female children in terms of oral hygiene. About two-thirds (61.7%) of the children had gingivitis. There was no significant difference ( $p > 0.05$ ) in the gingival condition of male and female children.

**Conclusion:** There was a significant ( $p < 0.05$ ) association between poor oral hygiene and gingivitis. It was found that a significant number of children had poor oral hygiene and most of them had gingivitis. There is a link between poor oral hygiene and gingivitis.

**Keywords:** oral hygiene, gingivitis, preschool children, gum health.

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## INTRODUCTION:

Good oral hygiene is an important factor in maintaining optimal oral health. Several studies have found an association between poor oral hygiene and the occurrence of tooth decay in preschool children. Similarly, in preschool children, an association has been reported between poor oral hygiene and gingivitis<sup>1-2</sup>. There are many studies on oral hygiene and gum health in children with special care needs. However, similar information is lacking in healthy young children. Information on oral hygiene and gum health in Pakistani preschoolers is lacking. AlBanyan et al. (2010) in their study of 5-12-year-old Pakistani children reported high gingivitis and poor oral hygiene<sup>3-4</sup>. There are no reports of any relationship between oral hygiene and gingivitis in Pakistani preschoolers. Information on oral hygiene and gingival health in the population is important to assist in planning preventive services as well as in determining treatment needs. The purpose of this study was twofold. First, to determine the oral hygiene and gum health of preschool children attending the Dentistry department. Second, to determine the correlation between oral hygiene and gingivitis in Pakistani preschoolers.

## SUBJECTS AND METHOD:

A sample of preschool children attending the Dental section of Ayub Teaching hospital, Abbottabad for one-year duration from August 2019 to August 2020 tested for oral hygiene and gingivitis. Two examiners examined the children in the dentist's chair using a mirror and an explorer. The reliability of the end-investigator and the inter-examiner was determined by the Kapp method. The data was recorded on a form specially designed for the study. The following indicators were used in the study sample to evaluate oral hygiene and gingivitis.

**Gum index:** This study used the modified gingival index described by Nanda (1990) °. The index is suitable for short-term research. It adopts a clear severity classification and is based on appearance to the naked eye. The severity of inflammation is numerically graded from 1 to 4 according to increasing intensity. Only the anterior sections of the upper and lower labia were recorded. These have been shown to be important indicators of the entire mouth gingival experience.

**Normal:** Light pink in color, strong, no bleeding under heavy pressure on the finger. Pointed, slightly rounded outline.

**Mild gingivitis:** slight color change and slight loss of outline.

**Moderate gingivitis:** swelling, glazing and redness. Tendency to bleed with light pressure. The warts or edges become dull or rounded unlike normal tissue.

**Deep:** severe inflammation with swelling and redness, and spontaneous bleeding. Slight degeneration.

**Very Severe:** Grade heavier than deep, including ulceration and peeling

## Oral Hygiene Index:

The oral hygiene index described by James et al. (1960) was used. The index covers three categories of tooth cleanliness.

**Good:** the teeth are clean. There is no trace of leftover food or material alb.

**Weak:** The teeth are very dirty. There are significant remains of food that have been around for a long time, alba material.

**Average:** this class belongs to the previous two. There is evidence of the remains, but not to the extent considered weak.

The data was then entered into a computer using the FOXPRO software and analyzed using the Statistical Program for Social Sciences (SPSS). Different frequencies were generated. The Pearson Chi-square test was used to determine the gender differences with regard to oral hygiene and gingivitis, and any significant relationship between oral hygiene and gingivitis. The maximum gingivitis score assigned to each child was used for gingival status categorization and statistical analyzes.

## RESULTS:

The reliability of the intra-investigator was 0.91 and 0.89, respectively, for the two examiners. The inter-examiner reliability was 0.86 using the Kappa method. In total, 60 preschool children, 36 men and 24 women, with a mean age of 4.4 (SD 1.0) years, were examined. About one in ten (11.7%) children had poor hygiene, and about half (48.3%) had adequate oral hygiene. More than one third (40.0%) had good oral hygiene. There were no significant ( $p > 0.05$ ) differences in the oral hygiene status of male and female children (Table 1).

TABLE 1: ORAL HYGIENE IN RELATION TO GENDER.

Gender	Oral Hygiene			Total (%)
	Good (%)	Fair (%)	Poor (%)	
Male	16 (44.4)	15 (41.7)	5 (13.9)	36 (100)
Female	8 (33.3)	14 (58.3)	2 (8.3)	24 (100)
Total	24 (40.0)	29 (48.3)	7 (11.7)	60 (100)

More than a third (38.3%) of the children had no gingivitis, 45% had mild gingivitis, and 16.6% had moderate to profound gingivitis. There was no significant ( $p > 0.05$ ) difference in the gingival condition of male and female children (Table 2).

TABLE 2: GINGIVITIS IN RELATION TO GENDER.

Gender	Gingivitis				Total(%)
	Normal(%)	Mild(%)	Moderate (%)	Profound(%)	
Male	13 (36.1)	19 (52.8)	2 (5.6)	2(5.6)	36(100)
Female	10 (41.7)	8 (33.3)	6 (25.0)	0 (0.0)	24 (100)
Total	23 (38.3)	27 (45.0)	8(13.3)	2(3.3)	60(100)

There was a significant ( $p < 0.05$ ) relationship between oral hygiene and gingivitis (Table 3).

TABLE 3: ORAL HYGIENE AND GINGIVITIS

Oral Hygiene	Gingivitis				Total(%)
	Normal(%)	Mild(%)	Moderate (%)	Profound(%)	
Good	17 (70.8)	7 (29.2)	0 (0.0)	0 (0.0)	24(100)
Fair	6 (20.7)	18 (62.1)	5 (17.2)	0 (0.0)	29 (100)
Poor	0 (0.0)	2 (28.6)	3 (42.9)	2 (28.6)	7 (100)
Total	23 (38.3)	27 (45.0)	8 (13.3)	2 (3.3)	60 (100)

None of the children with good oral hygiene had moderate to severe gingivitis, and all children with poor oral hygiene had some degree of gingivitis. The number of cases was less than five in some cells in all three tables (Tables 1-3). Therefore, we combined the fair and bad oral hygiene categories and the moderate and deep gingivitis categories to check the validity of the results. The Chi-square test was rerun on the combined data, but no change in statistical significance was observed.

### DISCUSSION:

There has been a general lack of information on oral hygiene and gum health in preschool children and the available information is largely anecdotal. Therefore, this study provided useful data on this. A significant number of children had poor or adequate oral hygiene. Similar results were obtained by AlBanyan *et al.* (2000) in a study of children of Riyadh National Guard employees<sup>7-8</sup>. However, the results regarding the unsatisfactory level of oral hygiene in preschool children are not unexpected. A study by Wyne and Khan (1995) 13 described a very late initiation of

tooth brushing / cleaning in 4-6-year-old Riyadh children<sup>9-10</sup>. Considering that poor oral hygiene has already been recognized as one of the major etiological factors of caries in children, there is an urgent need to improve oral hygiene in preschool children. This situation justifies increased efforts through oral hygiene instructions and advice to children and their parents. About one in five children had moderate to severe gingivitis. Al-Banyan *et al.* (2000) also reported similar results in their research. High levels of gingivitis raise anxiety about the gums and periodontium in these children. It is encouraging, however, that gingivitis in young children is largely reversible and has no irreversible effect on the periodontium of primary teeth. However, if gingivitis and poor oral hygiene habits persist after eruption of permanent teeth, these children can develop serious gum and periodontal problems<sup>11</sup>. There has been a strong association between poor oral hygiene and gingivitis. This is in line with a previous study that also found a link between poor oral hygiene and gingivitis. The strong association between poor oral hygiene and gingivitis also explains the high

percentage of children in this study with moderate to severe gingivitis<sup>12-13</sup>. The results of the study indicate the need to improve the hygiene of the oral cavity and gums of these children. Preschool age is addictive. At this stage, good habits should be developed with the support of parents and guardians. Parents should receive all support and practical information on how to maintain good oral hygiene<sup>14-15</sup>. The results of this study should be viewed in the light of its limitations. The test sample consisted of children attending the clinic, and some of these children probably had dental problems due to poor oral hygiene and / or gingivitis. The above factor may overestimate oral hygiene and gum problems in these children. Second, a larger sample would produce more reliable results. Nevertheless, the study provided the basic data for future comparisons and would help in planning preventive measures in these children.

### CONCLUSIONS:

- A significant number of children had poor oral hygiene.
- About one in five children had moderate to severe gingivitis.
- There was a significant ( $p < 0.05$ ) relationship between poor oral hygiene and gingivitis

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