

## Gender differences in oral health perceptions and practices among school going children

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### Abstract

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### Keywords:

Oral health, Self-perception,  
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Oral health is an important feature of an individual's overall health and general well-being. Poor oral health has several adverse effects including inadequate food intake, cardiovascular diseases and respiratory infections. The study was conducted to underline the marked gender based differentials in response to the general oral health status and oral hygiene practices. A total of 100 respondents comprising of 50 boys and 50 girls were selected for the study. The findings reveal that majority (39%) of the respondents were in the age group of 12-13years, studying in 7-8<sup>th</sup> standard (36%), higher percent (60%) having one sibling, first ordinal position (53%) with 81% residing in the urban areas. Gender differences were found to be statistically significant with respect to self-perception of teeth ( $\chi^2=16.11^*$ ), gums ( $\chi^2=20.11^*$ ), experience of pain in the mouth ( $\chi^2=11.13^*$ ), dental caries ( $\chi^2=16.93^*$ ) and bad breath ( $\chi^2=8.34^*$ ). In view of the findings of the study, it can be concluded that oral health awareness programs should be promoted at the school level, since most of the dental problems can be prevented by behavioral changes.

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### 1. Introduction

Oral health is an important aspect of an individual's overall health and well-being. The World Health Organization defines oral health as "a state of being free from chronic mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psycho-social wellbeing."<sup>1</sup>

Several studies have established that childhood oral health is a predominant indicator of oral health status in adulthood.<sup>2-4</sup> Adopting good oral health practices early in life, paves a path for the establishment and continuance of these practices later in life. Oral health impacts different facets of life and the quality of life. Dental issues in

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children are associated with a lowered oral health-related quality of life - OHRQoL.<sup>5-9</sup> Moreover, poor oral health in children leads to poor performance in academics and absenteeism.<sup>10</sup>

Gender differences exist in perceptions and behaviors regarding oral health.<sup>11-14</sup> To address these differences in attitudes, behaviors and practices with respect to the maintenance of good oral health status, oral health education should be promoted at the school level.

## **2. Materials and methods**

For the present cross-sectional study, random purposive sampling was used for the selection of subjects. 100 school-going children, aged 10-15 years, were chosen for the study. A survey was done to collect information related to oral health status. A detailed questionnaire was administered to the participants. The questionnaire included questions to extract information related to demographic characteristics and oral hygiene behaviours of the study population.

The questionnaire included general information of respondent such as name, age, gender, class studying, number of siblings, ordinal position, place of residence and religion.

The oral health and hygiene related information of the study population was collected through questions related to experience of oral health problems, self-perceptions, use of tongue cleaner, frequency and duration of cleaning teeth.

Inclusion criteria:

- Children between the age of 10-15 years.
- Both males and females.
- Children with tooth decay and gum disease.

Exclusion Criteria:

- Subjects not falling in the age range of the study i.e. <10 or >15 years.
- Children with the presence of oral deformities such as cleft palate.

## **3. Statistical Analysis**

The  $\chi^2$  test has been employed in order to measure the association between boys and girls and tested further for significance at 5% level.

#### 4. Results and discussion

Demographic information in research studies is necessary as the data determines whether the individual participants in a study are a representative sample of target population for generalization purposes.<sup>15</sup>

**Table 1 - Demographic Details**

N=100

Demographic Characteristics	Category	Respondents	
		N	%
Age group (years)	10-11	23	23.0
	12-13	39	39.0
	14-15	38	38.0
Class studying	5-6th Std	29	29.0
	7-8th Std	36	36.0
	9-10th Std	35	35.0
Number of siblings	None	9	9.0
	One	60	60.0
	Two	31	31.0
Ordinal position	First	53	53.0
	Second	38	38.0
	Third	9	9.0
Place of Residence	Rural	7	7.0
	Urban	81	81.0
	Semi-urban	12	12.0
Religion	Hindu	88	88.0
	Muslim	5	5.0
	Christian	7	7.0
Total		100	100

Table 1 depicts the socio-demographic profile of the respondents. About 39% of the respondents were 12-13 year olds, while 38% were 14-15 year olds and the remaining 23% were 10-11 year olds. Respondents studying in 7-8<sup>th</sup>, 9-10<sup>th</sup> and 5-6<sup>th</sup> standards accounted for 36%, 35% and 29% of the total population, respectively. More than half of the respondents (60%) were found to have one sibling. About 53% respondents were first in ordinal position. Evidently, 80% of the respondents reside in the urban areas. Predominantly, 88% of the respondents belong to the Hindu religion.

An individual's perceived dental health status can be associated with gender, age, unhealthy lifestyles, poor school performance and socio-economic status.<sup>16</sup>

**Table 2 – Self Perception of Tooth Health**

Perception towards tooth health	Respondents						' $\chi^2$ ' Test
	Boys		Girls		Total		
	N	%	N	%	N	%	
Excellent	20	40.0	12	24.0	32	32.0	<b>16.11*</b>
Very good	10	20.0	12	24.0	22	22.0	
Good	5	10.0	15	30.0	20	20.0	
Average	9	18.0	4	8.0	13	13.0	
Poor	0	0.0	5	10.0	5	5.0	
Very poor	6	12.0	2	4.0	8	8.0	
Total	50	100.0	50	100.0	100	100.0	

\* Significant at 5% level

The above table indicates the respondents' self-perception of their tooth health. It has been found that there existed a significant difference at 5% level in perceptions among boys and girls. ( $p < 0.05$ ). Higher percent (40%) of boys perceived their tooth health to be excellent against a smaller proportion of girls (24%).

An inverse observation occurred with respect to tooth perception as good. About 30% girls perceived their tooth health to be good, as compared to only 10% boys. The results of the present study coincide with a study conducted on adolescents in Skaraborg County<sup>17</sup>, where girls perceived their own oral health to be good to a higher degree than boys. It was also observed that about 12% boys considered their tooth health to be very poor as compared to only 4% girls.

Table 3 depicts the respondents' self-perception of their gum health. A much higher percent of boys (40%) perceived their gum health to be excellent as compared to girls (18%). It was also noticed that a higher percent of girls regarded their gum health to be very good and good (24% and 36%) as compared to boys (6% and 14%), respectively. On the other hand, 14% of boys considered their gum health to be very poor as compared to only 4% girls. The above findings assert that the response on health of gums between boys and girls were statistically significant at 5% level ( $p < 0.05$ ).

**Table 3–Self Perception of Gum Health**

Perception towards gum health	Respondents						' $\chi^2$ ' Test
	Boys		Girls		Total		
	N	%	N	%	N	%	

Excellent	20	40.0	9	18.0	29	29.0	<b>20.11*</b>
Very good	3	6.0	12	24.0	15	30.0	
Good	7	14.0	18	36.0	25	25.0	
Average	11	22.0	5	10.0	16	16.0	
Poor	2	4.0	4	8.0	6	6.0	
Very poor	7	14.0	2	4.0	9	9.0	
Total	50	100.0	50	100.0	100	100.0	

\* Significant at 5% level

Dental caries is still a major oral health problem in most industrialized countries, affecting 60-90% of school children.<sup>18</sup> Both toothache and cavities in teeth are signs of tooth decay.<sup>19</sup> Several clinical trials have proved that tooth brushing along with tongue scraping significantly reduces bad breath or halitosis.<sup>20-22</sup> Practicing good oral hygiene including tooth brushing and gentle tongue cleaning is sufficient to eliminate the problem of bad breath.<sup>23-25</sup>

**Table 4 - Frequency of Oral Health Problems.**

No.	Problems		Response (%)				' $\chi^2$ ' Test
			Very often	Often	Occasionally	Never	
1	Painful ache in the mouth	Boys	8	0	34	58	<b>11.13*</b>
		Girls	10	10	28	52	
2	Dental caries	Boys	28	0	10	62	<b>16.93*</b>
		Girls	8	2	20	70	
3	Ulcers in the mouth	Boys	10	2	24	64	2.27 <sup>NS</sup>
		Girls	6	2	32	60	
4	Painful gums	Boys	16	2	14	68	4.03 <sup>NS</sup>
		Girls	14	0	22	64	
5	Bleeding gums	Boys	20	0	30	50	3.03 <sup>NS</sup>
		Girls	18	2	36	44	
6	Bad breath	Boys	6	2	30	62	<b>8.34*</b>
		Girls	0	0	32	68	
7	Difficulty chewing hard substances	Boys	28	2	6	64	1.36 <sup>NS</sup>
		Girls	30	2	10	58	

\* Significant at 5% level NS: Non-significant

Table 4 reveals the response of the study population to the frequency of oral health related issues in the past 12 months. About 10% girls and 8% boys experienced painful ache in the mouth very often. Dental caries was very often experienced by 28% boys as compared to a smaller proportion of 8% girls. Only 6% boys experienced bad breath.

On the other hand, the responses of boys and girls on experience of painful ache ( $\chi^2=11.13^*$ ), dental caries ( $\chi^2=16.93^*$ ) and bad breath ( $\chi^2=8.34^*$ ) were found statistically significant. Further, with respect to other aspects the result established non-significant ( $p>0.05$ ). Children with poor oral health are 12 times more likely to have restricted-activity days.<sup>26</sup>

Oral health problems can be prevented by adopting good oral hygiene practices on an everyday basis. The toothbrush and toothpaste use is the most effective way of cleaning the teeth and maintaining the oral hygiene. Oral hygiene habits continue to be heavily associated with the occurrence of oral health problems, especially dental caries.<sup>27</sup> A study conducted by Gibson and Williams (1999), emphasized that regular brushing of teeth twice a day, with a fluoride toothpaste has greater impact on caries in young children.<sup>28</sup> However, in the present study, it was found that less than half (35%) of the respondents brush their teeth twice a day. More number of boys (21%) reported twice a day tooth brushing than the girls (14%).

**Table 5 – Oral Hygiene Practices**

N=100

Oral hygiene practice	Response	Respondents						' $\chi^2$ ' Test
		Boys ( n =50)		Girls (n=50)		Total (n=100)		
		N	%	N	%	N	%	
Frequency of brushing teeth	Once	29	58.0	36	72.0	65	65.0	2.15 <sup>NS</sup>
	Twice	21	42.0	14	28.0	35	35.0	
Duration of brushing teeth	< 1 minute	2	4.0	2	4.0	4	4.0	8.71*
	1-2 minutes	7	14.0	20	40.0	27	27.0	
	> 3 minutes	41	82.0	28	56.0	69	69.0	
Material used to remove food debris	Tooth brush	8	16.0	1	2.0	9	9.0	5.98*
	Tooth pick	42	84.0	49	98.0	92	92.0	
Usage of a tongue cleaner	Yes	28	56.0	27	54.0	55	55.0	0.04 <sup>NS</sup>
	No	22	44.0	23	46.0	45	45.0	
	Sometimes	7	14.0	6	12.0	13	13.0	

\* Significant at 5% level      NS: Non-significant

Oral health care professionals suggest that individuals should spend at least 2 minutes brushing their teeth with an effective technique at least twice a day.<sup>29</sup> In the present study, a larger proportion of the respondents (69%), reported brushing for more than 3 minutes. Only 4% of each, boys and girls reported brushing for less than a minute.

Interdental cleaning is considered as a good oral hygiene behavior for promoting health.<sup>30</sup> However, toothpicks are inappropriate to use to remove food between teeth

and gums.<sup>31</sup> With respect to this aspect, a slightly higher percent of girls (49%) used toothpick to remove food debris when compared to boys (42%). Although recommended, a minimal response was observed towards usage of toothbrush for debris removal which accounted for about 8% boys and 1% girls.

Oral hygiene aids such as tongue cleaners help in maintaining the health of the oral cavity.<sup>32</sup> It was observed that less than half of the respondents; only 28% boys and 27% girls used tongue cleaner. A crossover study conducted by Matsui *et al*, in 2014 concluded that tongue cleaning reduced the amount of bacteria in tongue coating, thus reducing bad breath.<sup>33</sup>

The response of boys and girls towards duration of brushing teeth and usage of materials to remove food debris has findings of statistical significance at 5% level ( $p < 0.05$ ). As established by numerous studies, oral health education is necessary to improve the oral health status.<sup>34-37</sup>

## CONCLUSION

The present study indicates that gender differences exist in all aspects of oral health. Majority of the students do not follow twice a day tooth brushing which is recommended. A larger proportion of the study population has lower than ideal oral hygiene habits. Therefore, it is highly recommended that intensive oral health education awareness initiatives and programs should be carried out at the school level to bridge the gap of attitudes regarding oral health between boys and girls. Intervention programs are necessary to inculcate good oral hygiene behaviors amongst both genders. Education programs should emphasize on preventive oral hygiene practices.

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