

## Original Research Article

# Oral health problems and treatment seeking behaviour of school going children and adolescents in Palampur area of Kangra district in Himachal Pradesh, India

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**Received:** 27 December 2022

**Revised:** 19 January 2023

**Accepted:** 04 February 2023

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## ABSTRACT

**Background:** Poor oral health is still a major burden for populations throughout the world, particularly in developing countries. However, it could not receive proper attention in our country. Present study was conducted mainly to investigate oral health behavior of school going children and adolescents.

**Methods:** Cross-sectional study was conducted during March 2022 to July 2022 among 268 students aged 6 to 19 years using stratified multistage random sampling technique in Palampur, Himachal Pradesh, India.

**Results:** Among all 268 respondents including 118 (44%) females and 150 (56%) males, 116 (43.2%) respondents were aware of oral health problems. There were 251 (93.6%) respondents not aware of good oral hygiene practices and 224 (83.6%) suffered oral problems during last one year. Only 168 (62.7%) out of 268 respondents consulted dentists. Whereas, 231 (86.2%) were scared of consulting during covid-19 lockdown. Among those who consulted, 87 (51.7%) didn't face any problem during dental checkup and satisfaction with consultation was reported by 146 (86.9%) respondents. High cost of treatment (41.7%) fear of absence from schools (40.0%) followed by misconception that treatment was not necessary (31.0%) came out to be the most common reasons on non-consultation.

**Conclusions:** Present study reported high prevalence of oral health problems and lack of awareness regarding good oral hygiene practices among respondents. Oral health education should be imparted among children and adolescents for adopting good hygiene practices and timely seeking dental health care.

**Keywords:** Children and adolescents, Dental attendance, Oral health behavior, Tooth brushing

## INTRODUCTION

Good oral health plays an important role in general health and well-being better comprising physical, social, mental health, and overall quality of life. Oral health care is usually neglected in preventive care as well as in treatment of dental problems. According to the World Health Organization (WHO), poor oral health adversely affects social and mental health of people. Oral health problems also reduce people's ability to smile, eat, and talk. Children's performance at school and their future

academic success are also influenced negatively by their poor oral health status.<sup>1</sup> Oral health is still a major burden for populations throughout the world, particularly in developing countries. Higher prevalence of oral disease is reported among children in developing countries compared to developed ones.<sup>2</sup> Devastating impact of poor oral hygiene and untreated oral disease on individual growth and development in children are reported in literature.<sup>3</sup> Around 26% children are globally affected by tooth decay and gum diseases.<sup>4</sup> Results of study concerning oral health behaviour and associated factors

among undergraduate university students in low, middle and high income countries indicated 52.2% prevalence of less than twice tooth brushing per day among university students in India. Results of that study also indicated that 67.2% of students reported to brush their teeth twice or more times a day, 28.8% about once a day and 4.0% never. Regarding dental check-up visit, 16.3% reported twice a year, 25.6% once a year, 33.9% rarely and 24.3% never.<sup>5</sup> Prevalence of untreated caries ranged from 38.9 to 99 percent in a systematic review.<sup>6</sup>

Awareness of oral health care was 68.3% among females as compared to 52.2% among males in a study conducted in Rajasthan wherein gender, age, mother's education were reported to be factors associated with treatment of oral health problems. Dental treatment neglect was found higher among children as compared to that in adolescents.<sup>7</sup> Also, treatment seeking behavior had been found to be associated with deprivation and poverty.<sup>8,9</sup> In a study concerning children's oral health behavior, and guardians' beliefs derived from Health Belief Model (HBM) among school going children in Japan, Children's tooth-brushing behavior was associated with guardians' self-efficacy in making their children brush twice daily.<sup>10</sup> The role of dental behaviour as intervening factors has been evaluated in several studies.<sup>11,12</sup> A number of other studies on oral health behavior are available in literature.<sup>13-16</sup>

Oral hygiene is totally related with the behavioural aspect of the person concerned. It would be useful to understand the factors related with oral health seeking behavior of students in a deprived inner area of Northern India. Therefore, present study was conducted to investigate their oral health behavior of school going children and adolescents, mainly in terms of tooth brushing and dental attendance.

## METHODS

Present cross-sectional study was conducted during March 2022 to July 2022 among male and female children and adolescent students in Sidhpur, Palampur of district Kangra, Himachal Pradesh, India. Children and adolescents students 6 to 19 years attending schools who gave assent/consent were included in the study. Parental consent was also taken wherever applicable. A stratified multistage random sampling technique was used with two strata comprising primary schools and of higher secondary schools. Within each stratum, schools are selected at random and within selected schools, students are selected with proportional allocation as study units in accordance with inclusion criteria.

Power analysis was done to calculate optimum sample size for the proposed cross-sectional study by using the following formula with approximation for large population:

$$n = Z^2 1-\alpha/2 P(1-P)/d^2$$

where, P=anticipated population proportion, 1- $\alpha$ = confidence coefficient, d = absolute precision, and Z (.) is the value of standard normal variate.

Sample size was calculated on the basis of 44% prevalence of seeking dental treatment by adolescents and children available in literature, 90% confidence coefficient and 5% absolute precision, which came out to be 268.

An interview schedule, specifically designed for this survey was used to collect information. Data variables included socio demographic characteristics, knowledge and attitude regarding oral health problems and their treatment seeking behaviour. All ethical guidelines were followed to conduct interviews. ICMR Ethical Guidelines for Biomedical Research on Human Participants, 2017 were followed. Informed consent was taken and confidentiality of responses was ensured maintaining privacy of respondents.<sup>17</sup>

Routine statistical methods were used describing data using frequency distributions. Chi square test was used for testing the significance of associations of potential correlates of dental treatment neglect. Normal test of proportions was used for testing the significance of differences between two proportions. Data analysis was carried out by using the SPSS-26.0 software.

## RESULTS

Among all 268 respondents including 118 (44%) females and 150 (56%) males, majority from rural background were selected. Out of total 268 respondents, there were 202 (75.4%) vegetarian and 66(24.6%) non vegetarian respondents as presented in Table 1. Within vegetarians, 88 (43.6%) were in the age group of 6 to 9 years. Among non-vegetarians, 10-13 years age group contributed maximum, 31 (47.0%) respondents.

Table 2 presents oral health related problems and practices of respondents. Majority 39.5% faced difficulty in eating due to oral health problems, 23.5% did not have any difficulty in eating, 20.9% faced a little difficulty in eating and rest 16% faced a fair amount of difficulty in eating. Majority 44.8% had no difficulty in speaking due to oral health problems, 38% faced a lot of difficulty in speaking due to oral health problem, 11.1% had fair amount difficulty in speaking and rest 5.9% had little difficulty in speaking due to problem in teeth and mouth.

Among 268 respondents, 116 (43.2%) respondents were aware regarding oral health problems and majority of them reported source of awareness was doctors followed by family members. Awareness regarding dental caries was reported by 61 (22.7%) and 23 (8.5%) were aware regarding bleeding gums. Majority (93.6% of the respondents were not aware of good oral hygiene practices. Majority (73.0%) of respondents were of the opinion that it was not important to consult dentist

regularly. Among 268 respondents, 161 (60.1%) respondents reported consultation for dental problems during last three years. Majority of all those respondents, 127 (78.9%) respondents went for the checkup because

something was wrong, 18 (11.2%) respondents were called by dentist for routine examination or cleaning, and only 9 (5.6%) of those respondents went at their own for checkup.

**Table 1: Distribution of respondents by age and eating habits.**

Age in years	Eating habit		Non vegetarian		Total	
	Vegetarian Number	Total %	Number	%	Number	%
6-9	88	43.6	7	10.6	95	35.4
10-13	42	20.8	31	47.0	73	27.2
14-16	57	28.2	26	39.4	83	31.0
17-19	15	7.4	2	3.0	17	6.3
<b>Total</b>	202	100.0	66	100.0	268	100.0

**Table 2: Oral health related problems and practices of respondents.**

Practice	Number	Percentage
<b>Suffered any oral health related issue during last one year</b>		
Yes	224	83.6
No	44	16.7
<b>Difficulty in eating due to problem in teeth and mouth</b>		
Not at all	63	23.5
A little	56	20.9
A fair amount	43	16.0
A lot	106	39.6
<b>Difficulty in speaking due to problem in teeth and mouth</b>		
Not at all	120	44.8
A little	16	6.0
A fair amount	30	11.2
A lot	102	38.1
<b>Difficulty in cleaning teeth due to oral health problem</b>		
Not at all	115	42.9
A little	33	12.3
A fair amount	45	16.8
A lot	75	27.9
<b>Difficulty in sleeping due to problem in teeth and mouth</b>		
Not at all	125	46.6
A little	27	10.1
A fair amount	41	15.3
A lot	75	28.0
<b>Difficulty in smiling and laughing without being embarrassed</b>		
A lot	28	10.4
Not at all	209	78.0
A fair amount	20	7.5
A little	11	4.1
<b>Difficulty in doing school work</b>		
Not at all	110	41.0
A lot	81	30.2
A fair amount	68	25.4
A little	9	3.4
<b>Bleeding in gums</b>		
Yes	167	62.3
No	74	27.6
Never noticed	24	9.0
<b>Role of parents</b>		
Watch while brushing	39	14.6

Continued.

Practice	Number	Percentage
Do not watch but advise	91	34.0
Never care	133	49.6
Mother watches	5	1.9
<b>Frequency of brushing teeth</b>		
Occasionally	123	45.9
Once daily	132	49.3
Twice daily	6	2.2
Thrice daily	4	1.5
No response	3	1.1
Total	268	100.0
<b>Frequency of changing tooth brush</b>		
0 to 3 months	4	1.5
4 to 7 months	6	2.2
7months to 1year	17	6.3
More than 1 year	204	76.1
When bristles flare	37	13.8
<b>Habit of rinsing mouth after eating</b>		
Most of the time	191	71.3
Occasionally	52	19.4
No	25	9.3
<b>After taking sugary snack what do you do</b>		
Brush teeth immediately	3	1.1
Rinse mouth with mouthwash	6	2.2
Rinse mouth with water	3	1.1
I do nothing	256	95.5
<b>Toothache during last 3 months</b>		
Yes	212	79.1
No	56	20.9
<b>Sensitivity in tooth during last 3 months</b>		
Yes	7	2.6
No	261	97.4
<b>Broken tooth during last 3 months</b>		
Yes	14	5.2
No	254	94.8
<b>Satisfaction with appearance of teeth</b>		
Very satisfied	16	6.0
Satisfied	212	79.1
Neither satisfied nor dissatisfied	17	6.3
Dissatisfied	23	8.6

Majority 115 (42.9%) had no problem in cleaning teeth due to oral health problems, 75 (27.9%) faced a lot of problem in cleaning teeth, 45 (16.8%) had problem in cleaning teeth a fair amount and rest 12.3% had little problem in cleaning teeth. Among all, 125 (46.6%) of the respondents had no difficulty in sleeping due to problem in teeth and mouth, 75 (27.9%) faced a lot of difficulty in cleaning teeth, 41 (15.3%) faced difficulty in sleeping a fair amount. Majority 209 (78.0%) had no difficulty in smiling and laughing without being embarrassed, 20 (7.4%) faced a fair amount difficulty in smiling and laughing and rest 11 (4.1%) faced a little difficulty in smiling and laughing. Majority 110 (41.0%) faced no problem in doing schoolwork, 81 (30.2%) faced a lot of difficulty in doing school work, 68 (25.4%) faced a fair

amount of difficulty in doing school work and rest 9 (3.4%) faced a little problem in doing school work. Among 268 respondents, 167 (62.3%) had bleeding gums, 74 (27.6%) had no bleeding gums and rest 24 (9.0%) never noticed. Majority 46.6% of the respondents think that there is no obstacle to use oral health service, 42.1% think it should be made service free, 7% think they have inconvenient working hours, 3.3% think that long waiting hours should be removed and rest, 0.3% thought that there was lack of confidentiality and judgmental of staff should be removed. Majority 133 (49.6%) of respondents' parents never cared about their oral hygiene of their children, 91 (34.0%) of parents didn't watch but advise only, 39 (14.6%) of parents watched while their children were brushing.

**Table 3: Oral health treatment seeking behavior of respondents.**

Behavior	N	%
<b>Suffered any oral health related issue during last one year</b>		
Yes	224	83.6
No	44	16.7
<b>Have you approached any clinic or camp for oral health issues</b>		
Yes	168	62.7
No	100	37.3
<b>Have you attended dental clinic during last one year</b>		
Yes	108	40.3
No	160	59.7
<b>If yes, purpose of visit (n=108)</b>		
For check up	14	13.0
Only when I have trouble with teeth	94	87.0
<b>Anxious while having dental check up</b>		
Slightly anxious	2	1.9
Very anxious	106	98.1
Total	108	100.0
<b>Anxious while waiting for consultation</b>		
Not anxious	5	4.6
Slightly anxious	21	19.4
Very anxious	82	75.9
<b>Anxious during tooth drilling</b>		
Slightly anxious	2	1.9
Very anxious	106	98.1
<b>Anxious during cleaning</b>		
Not anxious	3	2.8
Slightly anxious	4	3.7
Very anxious	101	93.5
<b>Anxious during injecting</b>		
Slightly anxious	1	0.9
Very anxious	107	99.1
<b>Problems faced in oral health consultation (n=168)</b>		
None	87	51.7
High cost of treatment	70	41.7
Difficulty in attending schools	30	17.9
Long distance	20	11.9
Clinical hours	6	3.4
Waiting time	9	5.4
Distance	7	4.2
Lack of confidentiality	1	0.6
Others	1	0.6
<b>Satisfaction levels (n=168)</b>		
Not satisfied	3	1.8
Little satisfied	15	8.9
Very much satisfied	146	86.9
Highly satisfied	4	2.4
Total	168	100.0
<b>Reasons of no consultation (n=100)</b>		
Fear of absence from schools	40	40.0
do not think necessary	31	31.0
High cost of treatment	27	26.9
Long distance	9	9.0
Parents have no time	8	8.0
Afraid of consultation	3	3.0

Continued.

Behavior	N	%
Others	25	25.0
<b>Attending dental clinic during COVID-19 lockdown</b>		
Scared of getting infected	231	86.2
Did not felt the need to visit dentist	22	8.2
Attended	15	5.6
<b>Obstacles should be removed to use oral health service</b>		
Yes	7	2.6
No	261	97.4

Majority 132 (49.3%) of the respondents reported brushing their teeth once daily, 123 (45.9%) brushed their teeth occasionally. Majority 204 (76.1%) of respondents changed tooth brush after 1 year while 37 (13.8%) changed it when the bristles flare. Majority 191 (71.3%) faced difficulty in rinsing mouth most of the time, 52 (19.4%) rinse mouth occasionally, 25 (9.3%) do not rinse mouth after eating. Majority 55.6% respondents use soft tooth brush and 42.1% of the respondents use hard tooth brush. Majority 55% reported not using mouthwash, 42.5% never heard of mouthwash and rest 1.5% use mouthwash once daily. Among 268 participants, 60% eat junk food occasionally, 31.7% eat junk twice in a week, and 5.9% eat junk once in a week and rest 1.8% reported eating junk daily. Majority 79.8% have coke or other soft drinks once a day, 14.1% took it two times a day, 3.3% never had coke or other soft drinks, 1.4% took it four times a day and rest 1.1% took it three times a day. Majority 52% never had fruit juice or smoothies, 30.6% had fruit juice or smoothies once a day, 13% had fruit juice or smoothies two times a day, 1.1% drink it three times a day and rest 2.9% drink it four or more times a day.

Majority 212 (79.1%) of respondents had toothache during last 3 months, and rest 20.9% had no toothache during last 3 months. Only 7 (2.6%) had sensitivity during last 3 months and majority 261 (97.4%) of the respondents had no sensitivity. Majority 212 (79.1%) of respondents were satisfied with the appearance of teeth, 23 (8.6%) were dissatisfied with the appearance of teeth, 17 (6.3%) were neither satisfied nor dissatisfied and rest 16 (6.0%) were very satisfied with the appearance of their teeth.

Majority 224 (83.6%) of surveyed respondents had suffered oral problem and 108 (40.3%) suffered dental problems during last one year. Only 168 (62.7%) out of 268 respondents and 168 (75.0%) out of 224 respondents having reported oral health problems consulted dentists. Majority 71 (42.1%) of those, who consulted had visited government clinics/hospitals. Among 108 respondents who suffered from dental problems, 61 (56.5%) respondents were of the opinion that it was not necessary to consult for their problems and 45 had not consulted for the problems resulting in prevalence of dental treatment neglect to be 41.7% in the present study.

Out of 108 respondents having dental problem for past twelve months, 14 (13.0%) visited dental clinic for routine checkup, 94 (87.0%) visited dental clinic only if they had trouble with teeth. Out of 108 respondents having dental problem past twelve months 2 (1.9%) feel slightly anxious while having dental checkup, 106 (98.1%) felt very anxious for the same. Out of 108 respondents, 5 (4.6%) did not feel anxious while sitting in waiting room for dental check-up, 21 (19.4%) felt slightly anxious and 82 (75.9%) felt very anxious while sitting in waiting room of dental clinic. Out of 108 respondents, 2 (1.9%) felt slightly anxious if they were about to have tooth drilled, 106 (98.1%) felt very anxious for the same. Among 108 respondents, 3 (2.8%) did not feel anxious if they were about to have tooth cleaning, 4 (3.7%) felt slightly anxious and 101 (93.5%) felt very anxious if they were about to have tooth drilled. Among 108 respondents, 107 (99.1%) felt very anxious when they were about to have injection in gum.

Majority 87 (51.7%) of those who consulted did not face any problem while getting dental checkup. Whereas, 70 (41.7%) reported high cost of treatment, and 20 (11.9%) faced difficulty due to long distances of dental clinics from their homes as presented in Table 3. Majority 146 (86.9%) respondents who consulted are very much satisfied of consulting dentist, 15 (8.9%) were little satisfied, and only 4 (2.3%) are highly satisfied and 3(1.8%) are not satisfied. Fear of absence from schools (40.0%) followed by misconception that treatment was not necessary (31.0%) came out to be the most common reasons on non-consultation.

Majority 231 (86.2%) were scared of getting infected during COVID-19 lockdown so they skip their dental visit, 22 (8.2%) did not felt the need to visit dentist and rest 15 (5.6%) visited the dental clinic.

## DISCUSSION

The present study was conducted in Palampur town of Himachal Pradesh, India to investigate oral health behavior of school going children and adolescents. Total 268 children and adolescents including 44% females and 56% males, majority (94.2%) from rural background were included in the study. The result from the study identified important knowledge gaps, poor attitude and oral health care seeking behaviour among the children and

adolescents. Majority (93.6) of the respondents were not aware of good oral hygiene practices. Majority (73.0%) of respondents were of the opinion that it was not important to consult dentist regularly. Majority (79.1%) of respondents were satisfied with the appearance of teeth. Majority (86.2%) were scared of getting infected during covid19 lockdown so they skip their dental visit.

In our study, 43.2% respondents were aware regarding oral health problems and majority of them reported source of awareness was doctors followed by family members. Awareness of oral health care in our study was less with no gender differential as compared to 68.3% among females and 52.2% among males in a study conducted in Rajasthan.<sup>7</sup> In another study, males were at higher risks of poor health behaviors in terms of frequency of brushing teeth and less dental visits unlike our study.<sup>5</sup> In our study, 49.3% of respondents reported brushing their teeth once daily, 123 (45.9%) brushed their teeth occasionally. Whereas, 52.2% prevalence of less than twice tooth brushing per day among university students was reported in India in an earlier study.<sup>5</sup>

Our study reported 83.6% prevalence of oral health problem among surveyed respondents and only 75.0% of those respondents having reported oral health problems consulted dentists.

High prevalence of oral disease was also reported among children in developing countries.<sup>2</sup>

Majority 42.1% of those, who consulted had visited government clinics/hospitals in our study. It may indicate that treatment of oral health problems costs high. It is supported by the fact that 41.7% respondents in our study reported high cost of oral treatment. In spite of high cost involved, 86.9% respondents who consulted were very much satisfied of consulting dentist in the present study. Fear of absence from schools (40.0%) followed by misconception that treatment was not necessary (31.0%) came out to be the most common reasons on non-consultation. According to findings of earlier studies, socio-demographic characteristics were found significantly associated with dental treatment behaviour.<sup>7-10</sup> However, present study could not explore correlates of oral health problems. That may be subject matter of future studies.

## CONCLUSION

Present study reported lack of awareness regarding good oral hygiene practices and high prevalence of oral health problems among children and adolescents in a deprived inner area irrespective of their socio-demographic characteristics. Perceived lack of importance of consulting dentists regarding preventive check-ups and perceived high degree of satisfaction with the appearance of teeth resulted in low prevalence of consultation for oral health problems. In spite of high cost of oral health treatment, high level of satisfaction was found among

respondents. Oral health problem of school going children and adolescents should be addressed properly to prevent adverse impacts on their overall health related quality of life. Oral health education should be imparted among children and adolescents for adopting hygiene practices and timely seeking dental health care. They should be encouraged to adopt good oral hygiene practices and preventing delay seeking the dental treatment.

## ACKNOWLEDGEMENTS

Authors acknowledge assistance provided by Centre of Public Health (CPH), Panjab University, and Chandigarh, India and to all staff at Centre for Public Health (CPH) for providing necessary inputs and support for conducting present research. We are also thankful to all participants for their respective contributions.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Ashima, Kumar D, Prashar S. Oral health problems and treatment seeking behaviour of school going children and adolescents in Palampur area of Kangra district in Himachal Pradesh, India. *Int J Community Med Public Health* 2023;10:1124-31.