

Comparative Evaluation of Knowledge, Attitude, and Behavior toward Oral Health among Private, Public, and Rural Schoolchildren in Pune

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ABSTRACT

Aim: To compare the oral health knowledge, attitude, and behavior and oral health status of younger schoolchildren of private, public, and rural schools in Pune.

Material and methods: The study was conducted among the schoolchildren aged 9 and 11 years from three different categories of schools: Private schools, public schools, and the rural schools from Pune city and its vicinity. A total of 723 participants completed a structured, self-administered, close-ended questionnaire to assess oral health knowledge, attitude, and behavior and further underwent oral examination. The decayed filled index (DFT) and oral hygiene index simplified (OHI-S) were used for recording the oral health status. Findings from the questionnaire and intraoral examination were compared.

Results: Private schoolchildren had significantly more positive knowledge, attitude, and practice compared with public and rural schoolchildren. No difference in scores of knowledge, attitude, and practice was observed between children of public school and rural school. Private schoolchildren had significantly lower DFT scores compared with public school and rural schoolchildren. No difference was seen in OHI-S scores.

Conclusion: This study validates the findings of previous research revealing significant difference in knowledge, attitude, and behavior toward oral health of private, public, and rural schoolchildren.

Keywords: Attitude, Behavior, Dental caries, Knowledge, Oral health status.

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INTRODUCTION

Oral health is an integral part of the general health. It can also be considered as the diagnostic mirror for general health. The oral cavity is an important portal for the entry of pathogenic microorganisms in the human body.¹ Given the extent of the problem, oral diseases are major public health problems. Though there has been considerable improvement in the oral health of children in the last few decades, dental caries still remains as the most common disease of the teeth among children all over the globe.² In India, the prevalence of dental caries among children ranges from 33.7 to 90%.³ It has been reported that individuals with inadequate knowledge of oral health are twice as likely to have dental caries compared with their counterparts.⁴ Large differences exist in oral health status between urban and rural populations in developing countries. Differences also exist in health status between urban rich and urban poor.⁵

In India, many studies⁶⁻⁸ have been centered on the prevalence of dental caries and oral hygiene status, while little has been done to investigate knowledge, attitude, and behavior in relation to oral health of the rural, urban, and the semiurban population. Thus, this study aimed to compare oral health knowledge, attitude, and behavior and oral health status of young schoolchildren of private, public, and rural schools.

MATERIALS AND METHODS

The study was conducted among schoolchildren aged 9 and 11 years. The schools were selected from Pune city and its vicinity. Three different categories of schools were selected: Private schools, public schools, and the rural schools. Private schools were those which were situated in Pune city and run by a private organization. Public schools were those which were situated in Pune city, but run by the Municipal Corporation. Rural schools were those which were situated in rural areas in and around Pune and run by the government agencies.

Two schools each from private, public, and rural schools from Pune were selected with all the children studying in classes IV and VI. Considering the prevalence of dental caries of 58% in 12-year-olds from previous data, the sample size derived was 400. About 12 schools

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from each category in various geographical locations in Pune were approached for permission to conduct the study. Simple random sampling by lottery method was followed for the final selection of the school in the study. Two schools from each category that fulfilled the inclusion criteria out of 12 were finally selected, and cluster sampling was followed in those schools i.e. all the children studying in classes IV and VI were included in the study.

Survey Instrument

A structured, self-administered, close-ended, pilot-tested 14- and 21-item questionnaire was custom designed and developed to evaluate the knowledge, attitude, and practices of the study sample of children in standards IV and VI, which was made available in English and the local language (Marathi).

In the first part of the questionnaire, questions were designed to elicit the knowledge of the participants about dental caries and oral hygiene. A score of +1 was given to each correct answer and 0 for wrong answers or do not know. The correct answer was decided by the consensus of experts. Thus, the total score ranged from 0 to 5 and 0 to 7 for standards IV and VI respectively.

The second part of the questionnaire (attitude) required the respondents to make a decision on the level of agreement with a statement based on a 4-point Likert scale (very important, slightly important, slightly unimportant, and totally unimportant). Each participant had to choose one answer to one statement. Each answered statement was measured by giving the highest score of 3 to "very important" responses which showed positive views, 2 to "slightly important," 1 to "slightly unimportant," and 0 to "totally unimportant." The total attitude score, therefore, ranged from 0 to 15 and 0 to 21 for standards IV and VI respectively.

For the behavior section, each answered statement was measured by giving the highest score of 3 and lowest score of 0 for the most appropriate behavior and wrong behavior respectively. Scores of 2 and 1 ranged for appropriate behavior alternatives in descending order. The total attitude score, therefore, ranged from 0 to 12 and 0 to 21 for standards IV and VI respectively.

The survey instrument (questionnaire) was pretested for reliability and the Cronbach's alpha values for knowledge, attitude, and behavior were 0.71, 0.85, and 0.69. The pilot study was conducted on a random sample of 20 children each from standards IV and VI. Retesting of the questionnaire was done after a week, with care taken not to have the retest interval either too short or too long.⁹ The pilot study participants filled the questionnaire again followed by an oral examination. Their responses were then correlated with the previous ones by intraclass correlation coefficients. The mean values obtained were 0.90,

0.92, and 0.96 for knowledge, attitude, and behaviors respectively.

Clinical Examination

A single examiner completed the clinical examination. Kappa statistics values of 0.93 showed excellent inter-examiner reliability for clinical examination. The examiner was calibrated and necessary ethical approval was obtained from the Institutional Ethics Committee.

Oral examination was done to record the dental caries status (WHO¹⁰) from which the dental caries experience (DFT) and oral hygiene status using OHI-S by Greene and Vermilion¹¹ were recorded. Examination was carried out in a room under good illumination. The American Dental Association type III clinical examination was carried out using mouth mirror, community periodontal index probe, and explorer. Any questionnaire with incomplete data was excluded from the final analysis.

Statistical Analysis

All the statistical analyses were performed using Statistical Package for the Social Sciences software version 16. Descriptive statistics was employed to assess mean, standard deviation (SD), and frequencies. One-way analysis of variance (ANOVA) was used to compare the study variables among the children of the three school groups. The p-value ≤ 0.05 was fixed for statistical significance.

RESULTS

Totally, 723 children with the mean age of 10.5 years participated in the study. Among them, 72.3% were boys and 27.7% were girls. Mean DMFT and OHI-S score recorded was 1.46 and 2.92 respectively. About 48% children were from private schools, 29% from public schools, and 23% were from rural school (Table 1).

Table 1: Demographic details and characteristics of study participants

| | <i>n</i> | <i>Mean</i> | <i>SD</i> |
|-------------|----------|-------------------|-----------|
| Age | 723 | 10.50 | 1.106 |
| Knowledge | 723 | 2.51 | 1.780 |
| Attitude | 723 | 8.78 | 4.280 |
| Practice | 723 | 9.57 | 5.004 |
| DFT | 723 | 1.46 | 0.940 |
| OHI-S | 723 | 2.92 | 1.13 |
| | <i>n</i> | <i>Percentage</i> | |
| 723 schools | Private | 347 | 48.0 |
| | Public | 208 | 28.8 |
| | Rural | 168 | 23.2 |
| Standard | IV | 368 | 50.9 |
| | VI | 355 | 49.1 |
| Gender | Male | 523 | 72.3 |
| | Female | 200 | 27.7 |

Table 2: Comparison of study variables among children of three schools

| <i>Variables</i> | <i>School</i> | <i>n</i> | <i>Mean</i> | <i>SD</i> | <i>F-value</i> | <i>p-value</i> |
|------------------|---------------|----------|-------------|-----------|----------------|----------------|
| Knowledge | Private | 347 | 2.81 | 1.766 | 10.159 | 0.001 |
| | Public | 208 | 2.15 | 1.814 | | |
| | Rural | 168 | 2.33 | 1.669 | | |
| Attitude | Private | 347 | 9.43 | 4.205 | 8.957 | 0.001 |
| | Public | 208 | 7.89 | 4.224 | | |
| | Rural | 168 | 8.52 | 4.303 | | |
| Practice | Private | 347 | 10.45 | 4.561 | 12.365 | 0.001 |
| | Public | 208 | 8.34 | 5.262 | | |
| | Rural | 168 | 9.27 | 5.217 | | |
| DMFT | Private | 347 | 1.34 | 0.994 | 5.824 | 0.003 |
| | Public | 208 | 1.57 | 0.865 | | |
| | Rural | 168 | 1.58 | 0.885 | | |
| Total | | 723 | 1.46 | 0.940 | | |

One-way ANOVA test

The ANOVA test revealed a statistically significant difference in the scores of knowledge, attitude, and practice toward oral hygiene among the children of three schools. Statistically significant difference was observed in DFT scores when compared in the children of three schools. No difference was seen in OHI-S scores (Table 2).

Private schoolchildren had significantly more positive knowledge, attitude, and practice compared with public school and rural schoolchildren. No difference in scores of knowledge, attitude, and practice was observed between children of public school and rural school (Table 3). Private children had significantly lower DFT scores compared with public school and rural schoolchildren. However, no significant difference in DFT scores was observed between public school and rural schoolchildren (Table 3).

DISCUSSION

This study aimed to compare the knowledge, attitude, and behavior of children of private school, public school, and rural school in Pune. The study showed that knowledge, attitude, and behavior toward oral health of private schoolchildren were better than those of public school and rural schoolchildren (Tables 2 and 3). Also, private schoolchildren had significantly low DFT scores compared with children of other schools.

Similar results were observed in previous studies.¹²⁻¹⁵ Studies revealed that private schoolchildren engage in good oral hygiene practices and utilize more dental care compared with public and rural schoolchildren.^{16,17}

Oral health is influenced by several social, economic, and environmental factors, which play a vital role in shaping positive oral health behavior.¹⁸ Several researches have revealed that oral health of private schoolchildren is better than public school and rural school because of

Table 3: Pairwise comparison of study variables among children of three schools

| <i>Variables</i> | <i>School</i> | | <i>Mean difference</i> | <i>p-value</i> |
|------------------|---------------|---------|------------------------|----------------|
| Knowledge | Private | Public | 0.656 | 0.001 |
| | | Rural | 0.476 | 0.011 |
| | Public | Private | −0.656 | 0.001 |
| | | Rural | −0.179 | 0.587 |
| Attitude | Private | Public | 0.535 | 0.001 |
| | | Rural | 0.912 | 0.058 |
| | Public | Private | −10.535 | 0.001 |
| | | Rural | −0.624 | 0.331 |
| Practice | Private | Public | 20.113 | 0.001 |
| | | Rural | 10.182 | 0.029 |
| | Public | Private | −20.113 | 0.001 |
| | | Rural | −0.931 | 0.163 |
| DMFT | Private | Public | −0.232 | 0.013 |
| | | Rural | −0.243 | 0.016 |
| | Public | Private | 0.232 | 0.013 |
| | | Rural | −0.011 | 0.993 |

Tukey's *post hoc* comparison

following reasons: private schoolchildren belong to higher socioeconomic status; have more affordability; parent's attitude; dental awareness, and better social support.^{15,19}

Similar to this study, another research showed a statistically significant difference in decayed, missing, and filled teeth (DMFT) scores between the private and government school children.¹⁶ The prevalence of dental caries among 12-year-old children from private schools and government schools was 32.8 and 70.3% respectively. Poor oral health of public and rural schoolchildren was attributed to lack of awareness, lack of affordability, or underutilization of dental care facilities by the children in government schools. The results of our study were consistent with the findings of this study and others.^{20,21}

Schools are the important platforms for shaping and inculcating positive oral health behavior among the children at a tender age. Behavior learned at a younger age lasts long and directly influence one's oral health. Promoting oral health of children is the shared responsibility of health administrators and school teachers and also requires administrator and parental commitment. Strategies like World Health Organization oral health promoting schools, training teachers about oral health promotion, and engaging parents in shaping children's behavior could bring down such differences in oral health of children in private, public, and rural schools.

CONCLUSION

This study validates the finding of previous research, revealing significant difference in knowledge, attitude, and behavior toward oral health of private, public, and rural schoolchildren.

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