Awareness of Oral Hygiene among Government School Children in a Rural Area of Amritsar, Punjab – A Cross-sectional Study

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ABSTRACT

Introduction: The schools may serve as the best platform for the promotion of oral health care among teenagers. This study evaluates the knowledge and practices of students about oral hygiene as well as to evaluate the factors that determine these variables. Material and Methods: The present study was a cross-sectional study conducted among Government school students of class 8th, 9th, and 10th belonging to the rural area of Amritsar. Data on oral health knowledge and practice were collected by means of a self-administered close-ended questionnaire. Results: The total sample consisted of 45.1% male and 54.9% female students. The study revealed that 11.3% had good knowledge, 52.1% had average knowledge, and in 36.6% of students, the knowledge about oral health was poor. It was elicited that gender (P = 0.014), class (P = 0.027), and educational status of father (P = 0.016) were significantly associated with the knowledge of the students about oral health while age and educational status of mother had no association. There was a significant difference between both the genders in time spent for brushing (P = 0.030) and frequency of change of toothbrush (P = 0.032). Almost 88.8% of students had never visited a dentist in the past 6 months. Conclusion: The knowledge of rural children on oral health was average. Oral hygiene education programs should be conducted with reinforcement so that students can close the gap between knowledge and practice about oral health.

Key words: Knowledge, oral health, practice, rural, school children

INTRODUCTION

Oral hygiene refers to the practice of maintaining a clean oral cavity to prevent dental problems like dental cavities, bad breath, gingivitis, and periodontitis. Proper oral hygiene not only refers to good teeth and fresh breath but also is one of the best ways to maintain good overall health. Oral health is a fundamental part of the general health and well-being of an individual. Some researchers define it as “A standard of health of the oral and related tissues which enables an individual to eat, speak, and socialize without active disease, discomfort, or embarrassment and which contributes to general well-being.”

Oral hygiene among children is the most neglected chronic disease. It is reported that about 40% of preschool children present with the problem of dental caries by 5 years of age. The majority of such diseases are associated with lifestyle, which infers that a behavioral change will lead to the reduction of such diseases. Health promotion measures are required to bring these changes.

In India, majority, i.e., 70–72% of the population live in the rural areas of which more than 40% are children and majority of these children are more vulnerable to oral health problems due to various socioeconomic and demographic factors such as lack of awareness, poor transport facilities, and poor accessibility to quality dental care. Some of the other major contributing factors among children include mainly dietary habits nowadays such as high sugary and starchy foods, popular colas, and sugar filled fizzy drinks which contain a high number of cariogenic microorganisms such as Streptococcus mutans and Lactobacillus – that metabolize sugars to produce acid which, over time, demineralizes the tooth structure. Other causes which are found to be associated with an increased incidence of dental caries are fluoride content of drinking water, parental knowledge regarding daily oral hygiene practices, socioeconomic status of the family, and number of the children in the family.
The WHO recommends oral health promotion in schools for prevention and control of oral health problems among school children by improving their knowledge, attitude, and behavior toward oral health. This will inculcate healthy habits throughout their lifetime. School children can act as a catalyst in bringing about desirable changes in the family. It is the primary concern of oral health educators to impart positive oral health knowledge and behavior in society.[6]

Therefore, this study aimed to assess oral hygiene-related knowledge and practices of rural school students of district Amritsar, India.

**MATERIAL AND METHODS**

This was a cross-sectional study conducted in the rural field practice area (Mallunangal) of the Department of Community Medicine, SGRD Institute of Medical Sciences and Research, Amritsar. The research proposal was approved by the college ethical committee at the time of the commencement of the study.

All the students of the 8th–10th standard of Government High school, Mallunangal, were selected as study subjects. The rationale behind the study was explained to the school principal and permission was obtained before the conduction of the study. A pre-designed and pre-tested proforma to assess the knowledge and practices regarding oral hygiene was administered to the students. All the students who were present and were willing to participate in the study were enrolled after signing informed consent. Those unwilling to participate were excluded from the study.

This structured self-administered questionnaire was divided into three parts and contained a total of 21 close-ended questions. The first part consisted of demographic data. The second part had questions on knowledge and the third part comprised questions about oral hygiene practices. The questionnaire was distributed in their respective classrooms and, once answered, was collected and checked for the completeness and clarity of the information. Incompletely filled questionnaires were discarded. Scoring of knowledge questions (15 in number) was done by assigning score 1 to each correct answer and then using Likert scale[10] subjects were categorized as having:

- Poor knowledge – 0–5 score
- Average knowledge – 6–10 score
- Good knowledge – 11–15 score.

Statistical analysis of the obtained data was done using SPSS 20.0. A Chi-square test was applied to prove their statistical significance and $P < 0.05$ was considered to be significant.

**RESULTS**

Following observations were made:

Of the total 93 students of class 8th, 9th, and 10th, only 71 participated in the study. Eighteen students were not present in the school on the day of interview and proformas of four students were incompletely filled so were not included in the study. Of the total 71 students, 45.1% were males and 54.9% were females.

Table 1 depicts the sociodemographic profile of the students. Most of the students, i.e. 78.9% belonged to the age group of 12–15 years and the rest belonged to the age group of 16–18 years. Female students predominated. About 29.6%, 33.8%, and 36.6% of students belonged to class 8th, 9th, and 10th, respectively. Regarding the educational status of the parents, 50.7% of fathers were illiterate while 49.3 % mothers had studied until below matric level.

Perusal of Table 2 reveals that age and educational status of mother had no effect on the knowledge of the students, whereas gender ($P = 0.014$), class ($P = 0.027$), and educational status of father ($P = 0.016$) were significantly associated with the knowledge of the students about oral health.

Table 3 shows the oral health practices of the participants, with a comparison between the genders. Among the participants, majority, i.e., 90.1% of the participants brushed their teeth once a day while only 5.7% cleaned their teeth after every meal. Out of the total, 43.7% spent 1 minute in brushing their teeth, this comprised 61.3% female students and 38.7% of male students. This practice was significantly associated with gender ($P = 0.030$). About 62% of students
changed their toothbrushes once in 6 months and there was a significant difference \( P = 0.032 \) between both the genders. Almost 88.8% of students had never visited a dentist in the past 6 months.

**DISCUSSION**

The present study was conducted to assess the knowledge and practices on oral hygiene among the students of 8th, 9th,
and 10th class. Analysis of the demographic characteristics [Table 1] showed that majority (78.9%) were in the age group 12–15 years and 54.9% of the participants were females. A similar demographic profile was observed in studies done in rural areas by Ashok and Krishnaprasad in Tamil Nadu, Humagain in Nepal, and IM Masanja and Mumghamba in Tanzania.  

Data pertaining to the knowledge about oral hygiene among the study population are summarized in Table 2. The present study revealed that 11.3% students had good knowledge, 52.1% had average knowledge, and in rest 36.6%, the knowledge about oral health was poor. Similar findings were seen in the study by Al-Darwish in Qatar. Another study in Ethiopia also showed that 40% of the participants had poor knowledge toward oral hygiene. This might be due to the lack of an organized and systematic oral health education program in rural schools and in the community at large. In this study, the oral health knowledge levels were influenced by sociodemographic factors, notably gender (P = 0.014), class (P = 0.027), and educational status of father (P = 0.016). The results were in line with the study conducted by Al-Darwish in Qatar. A similar significant gender difference in knowledge score was observed in a study by Priya et al. in Chennai. The present study showed that there is a significant difference in knowledge between the Class 8th and Class 10th students (P = 0.027). A significant association of children’s knowledge with parent education was also seen in a study done by Mishra et al.  

Appropriate knowledge about the frequency of tooth brushing on a daily basis is likely to enhance dental care among these children. In the present study [Table 3], 90.1%, 4.2%, and 5.7% students brushed their teeth once a day, twice a day, and after every meal, respectively. These findings were in concordance with findings of Reddy et al. in Mysore, where majority of the students (90%) cleaned their teeth once daily. Another study by Gualie and Tayachew in Ethiopia and by Tomar et al. in Madhya Pradesh also highlighted the same. About 32.4% patients brushed their teeth for a duration of 2 minutes; a similar practice was observed in studies by Kumar and Joshi and Lian et al. There was a significant difference between the genders (P = 0.030), with a larger proportion of females (78.3%) spending 2 minutes in cleaning their teeth as compared to males (21.7%). Girls were found to brush their teeth more frequently and spent longer time during tooth brushing as compared to boys. This was supported by the studies conducted by Lian et al., Al-Ansari et al., Gordon and Roberts, Al-Sadhan, and Honkala et al. Regarding the frequency of changing the toothbrush, 62% of the students changed their brush every 6 months. This practice was similar to that observed in the study by Reddy et al. in Mysore. Majority of the respondents (88.8%) had never visited a dentist in the past 6 months. Similar findings were seen in study in a rural school in Tamil Nadu. There was no significant difference of the frequency of dental visit by gender (P > 0.05). About 11.2% of the respondents (37.5% male; 62.7% female) had their last visit to the dentist during the past 6 months. Lian et al. in their study showed similar results.  

CONCLUSION  

The overall knowledge about oral health among the surveyed children was average to low. Oral hygienic practices regarding the frequency of brushing, time spent for brushing, frequency of changing the brush, and visit to a dentist were poor. There is a need to increase oral health knowledge through well planned and comprehensive educational programs in rural schools. However, the efficacy of such education will be limited if health programs do not directly impinge on attitudes and practices and take into account factors such as education, social, and economic status of the target population.

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