Introduction

For the general well-being of children oral health is an important integral component. A child’s oral health status are controlled by five health determinant domains viz genetic and biological factors, social environment, physical environment, medical and dental care system, and health behaviours. Among these, domain of health-influencing behaviours can be modified willingly to improve oral health status. Prevention of oral diseases among children can be achieved through behaviour change. A learned behaviour is established by the repetition of some behaviour from the early childhood itself. Any behaviour, appropriate or inappropriate, may be learned by observing models around him/her by a child. Like any other habits, oral health habits instilled at this tender age is expected to influence the individual afterwards in their life to a great extent. Among the multi-factorial determinants of health behaviours, family is a vital area and is comparatively unexplored.

Background and Aims: A child usually takes up the behavioural habits by observing the parents at home. The mapping of the current level of influence of parents’ practices over children is necessary for developing any preventive programs therefore the aim of the study was to determine the influence of familial oral health habits on the adolescent children belonging to rural background.

Method: The present cross-sectional questionnaire study was conducted on 236 rural participants (parents and their children) reporting to a private dental college in a rural set up in India. Questions on demographics, oral hygiene habits and oral health knowledge were asked. Chi-square test and unpaired ‘t’ test was used to determine the differences between parents and children. The cut-off point was set at (0.05). Results: A total of 95 parents considered themselves having good oral health, majority of their children (n = 74; 77.9%) matched their perception. Most of the parents (n = 124) and children (n = 108) reported to dentist only in case of any dental problem. Maximum participant, 85.6% parents and 81.4% children brushed their teeth once a day. Mean knowledge score were higher in children (11.06 ± 2.68) and difference was statistically significant (P < 0.05). Most children (74.6%) learned to brush from their mother followed by father (10.2%). Conclusion: Correct knowledge regarding good oral hygiene practices should be rendered to the parents so that they will successfully transfer these habits to their youngsters.

Keywords: Influence, parental attitude, parental knowledge, oral hygiene
The parents’ role is especially important in terms of oral health, as the oral health of the children are usually taken care by parents in the initial years of life. Certain factors can be the predictors for directly improving health habits of the individuals and indirectly of their children such as maternal education, occupation, age, attitude, and behaviour. A positive impact on oral health status have been noted in those children whose parents are in charge of their children’s tooth brushing and sugar ingestion. Skillfulness and precision of tooth brushing in parents can have an effect on the regularity and quality of oral hygiene practices in children. Studies have reported that negligence towards oral hygiene methods and periodic preventive dental visits by the parents having low education and belonging to low income families, results in poor oral health of their children. In view of the fact that parents are the principal societal force affecting child development, any preventive intervention measures focusing oral health beliefs and practices of the parents might be helpful in tackling the prevention and control of oral diseases. Development of early preventive programs for children belonging to high-risk families is the need of the hour. The mapping of the current level of influence of parents’ practices over children is the first step in developing such preventive programs. The aim of this study therefore was to determine the influence of familial oral health habits on adolescent children belonging to a rural background.

### Methods

The present cross-sectional questionnaire study was conducted after taking the ethical clearance from the Institutional Ethical Committee on 21/02/2019. All the patients reporting to a private dental college in a rural set up in India, during the period from March 2019 to August 2019 were considered for the study. The patients were explained about the purpose of the study and informed consent was obtained. Inclusion criteria was all those who have adolescent children (with-in the age group of 13-19 years) and belonging to rural locality. Parents and their children with systemic conditions were excluded. A total of 236 pair of parents and their children participated in the study.

The participants were asked to fill a questionnaire which was self-administered and closed ended. The questionnaire was first prepared in English and then translated to the local language, Hindi. The items for this questionnaire were prepared using source of theory, research, observation, and expert opinion. It consisted of questions on socio-demographic characteristics of the family, self-perceived oral health status, frequency of dental visit, oral hygiene habits like frequency, duration, and technique of tooth-brushing. All the items related to oral hygiene practices had options related to frequency. These items were framed by adopting from previous research. Further 17 multiple choice options questions related to oral health knowledge were asked. Score of 1 was given to correct answer and 0 to wrong answer. The score for oral health knowledge ranged from 0-17. The children were asked 2 additional questions related to whom they follow regarding oral hygiene habits. The questionnaire was filled in a closed comfortable room with table and chair, accompanied by one researcher to provide any assistance if required and time duration of 25-30 minutes was provided for filling and returning. A pilot study was conducted on the sample of 20 participants to check the reliability of questionnaire which was found to be 0.84 (Cronhbach’s alpha). The results obtained from the pilot study were not the part of the main study.

### Statistical analysis

The data was first entered into the MS Excel (MS Office version 2007 developed by Microsoft, Redmond, WA. Descriptive statistics was done obtaining the mean, standard deviation and frequency of variables. Chi-square test was used to compare differences in frequency distribution of habits between parents and children. The unpaired ‘t’ test was used to determine the difference of mean knowledge score between parents and children. The cut-off point was set at (0.05). The statistical package used was SPSS v26.0 (IBM Corp., Armonk, NY).

### Result

A total of 95 parents considered they have good oral health; majority of their children (77.9%) matched their perception whereas 8.4% children assumed they have poor oral health. In the fair category also maximum pair (n = 67) of parents and children matched. However, among the parents who opined of having poor oral health the maximum number (n = 18) of their children measured themselves as having fair oral health [Table 1].

Equal number of parents-children pair reported to dentist at every 3 and 6 months (n = 6 and 8, respectively). Most of the parents (n = 124) and children (n = 108) reported to dentist only in case of any dental problem, and 66 parents and 69 children had never been to the dentist. Statistically no significance difference was found between parents and children (P > 0.05) [Figure 1].

Maximum participants, 85.6% parents and 81.4% children, brushed their teeth once daily. The most common method

![Figure 1: Comparison of frequency distribution of dental visits between parents and children by Chi-square test](image-url)
Kumar, et al.: Familial oral hygiene practices and rural youths

Table 1: Comparison of self perceived oral hygiene status between parents and children by chi-square test

| Self-perceived oral hygiene status | Total | Parents | Children | P |
|-----------------------------------|-------|---------|----------|---|
| Good                              | 95 (100%) | 74 (77.9%) | 13 (13.7%) | 8 (8.4%) | 0.001* |
| Fair                              | 99 (100%) | 27 (27.2%) | 67 (67.6%) | 5 (2.1%) |
| Poor                              | 42 (100%) | 9 (21.4%) | 18 (42.9%) | 15 (35.7%) |

Table 2: Comparison of oral hygiene practices between parents and children by chi-square test

| Oral hygiene practices | Parents | Children | P |
|------------------------|---------|----------|---|
| Frequency of tooth-brushing |         |          |   |
| Once daily             | 202     | 85.6     | 192 | 81.4 |
| Twice daily            | 29      | 12.3     | 38  | 16.1 |
| More than twice daily  | 5       | 2.1      | 4   | 1.7  |
| Not daily              | 0       | 0.0      | 2   | 0.8  |
| Horizontal             | 211     | 89.4     | 206 | 87.3 |
| Method of tooth brushing |        |          |   |
| Vertical               | 18      | 7.6      | 22  | 9.3  |
| Circular               | 7       | 3.0      | 8   | 3.4  |
| <1 minute              | 49      | 20.8     | 58  | 24.6 |
| Duration of brushing   |         |          |   |
| 1-2 minutes            | 156     | 66.1     | 164 | 69.5 |
| >2minutes              | 31      | 13.1     | 14  | 5.9  |
| Within 3 months        | 37      | 15.7     | 42  | 17.8 |
| Frequency of changing toothbrush |  |          |   |
| 3-6 months             | 143     | 60.6     | 158 | 66.9 |
| 6-12 months            | 38      | 16.1     | 32  | 13.6 |
| >1 year                | 18      | 7.6      | 4   | 1.7  |

Table 3: Comparison of mean knowledge scores about oral hygiene practices between parents and children

| Knowledge scores | Parents | Children | P |
|------------------|---------|----------|---|
| 9.82±3.43        | 11.06±2.68 | 0.036* |

for brushing the teeth was horizontal direction which was followed by 89.4% parents 87.3% children. More parents (n = 31) brushed for more than 2 minutes as compared to their children (n = 14). The frequency of changing the tooth brush among the children was less (n = 4) in more than a year category as compared to their parents (n = 18). All these difference were found to be statistically insignificant (P > 0.05). Mean knowledge scores in parents (9.82 ± 3.43) was lower than children (11.06 ± 2.68) which statistically significant (P < 0.05) [Table 2 and 3].

Most children (74.6%) learned to brush from their mother followed by father (10.2%) followed by siblings (9.7%). Similarly, it was found that maximum children (62.7%) followed their mother for changing their tooth brush [Table 4].

Discussion

Oral health can be maintained by oral health behaviours. Efforts made in the direction of creating favourable behaviours of oral health can improve the general health of children. Oral health habits in childhood are often largely embraced with parents. Children are well-surrounded by grown-ups and included into the family until they are in the adult age group, particularly in countries like India. Thus present study was conducted to assess the influence of family in developing oral hygiene practices in children.

Our results showed that maximum pair of parent and children had the same perception regarding their oral health status. This might be due to the fact that familial interplay plays a significant role in shaping the thought process of young developing mind. However certain children did not match their parents concerning their self-perceived oral health status. Societal appeal prejudices could be the reasons for these differences of perceptions. Frequently discrete individual characteristics in the children are formed at young ages.

Present study showed that majority of the parents and children visited to dentist only when they had a problem. This was in accord to the previous study conducted in Istanbul.

Similarity was found in terms of various oral hygiene practices of children with their parents. The resemblance of the behaviour between parents and their children were also reported by Ozbek CD et al. and Astrom and Jakobsen. The dental health behaviour of the parents is a model followed by their children and directly affects the child’s oral hygiene behaviour until adolescence. The foundation of this model depends upon the strength and extent of communication between the child and the parents.
Oral health awareness was found to be present more in children as compared to their parents. This could be due the fact that they learn about oral health in their schools. The interesting fact to note is that in spite of having more knowledge they followed the practices similar to their parents emphasising the role a family play in such habits.

It was found that maximum children were taught about tooth-brushing by mothers. The findings were in line with the results of another Indian\cite{17} and Iranian study.\cite{18} Mother is believed to be the main caregiver in numerous cultures and the majority of the factors that affect habits of oral hygiene in child functioning at the family level are driven by mothers predominantly.\cite{19} The next most-followed person by the children was their father, though it was very less compared to the mothers. A negative effect on the child’s hygiene practices has been observed when it is not maintained and reinforced by both parents.\cite{17,19} It was reported that even siblings and grand-parents were followed in the oral hygiene practices in our study. Other family members and older siblings through modelling can influence hygiene routines in the younger children.\cite{20} Fathers’ involvement in their child’s brushing habits makes the child acquire continuous messages regarding oral hygiene. This helps to achieve the child’s cooperation and may reduce child resistance.

Most of the participants in our study stated that they brushed teeth once daily. This was in contrast to the findings of Ozbek CD et al.,\cite{21} who reported maximum parents and children practiced tooth-brushing 2 times a day. The effective removal of bacterial plaque is not accomplished by brushing teeth only once.\cite{22} The consequences of inappropriate brushing technique should be made aware to parents to shun further oral problems. The parents with the broad knowledge and positive approach toward oral health will educate the importance of brushing twice daily to their children.\cite{23}

**Limitations**

This study is limited by its cross-sectional nature. The study is carried out on limited population and hence results cannot be generalized. The constraints of the questionnaire have to be kept in mind as respondents may not be 100% truthful with their answers. The inclusion of primary preventive measures like proper tooth brushing will help to lessen the oral disease burden. It curbs the disease at the initial level, and therefore mitigates the fiscal setback faced by the family on treating later stage of the diseases and has a long-term effect on academic performance by avoiding the missing school hours of child.

**Conclusion**

There are many factors that play a role during the transition of adolescence to adulthood. If the right factors are intervened by proper understanding of this conversion process, good outcomes can be attained. Rendering correct knowledge concerning good oral hygiene practices to the parents will help them in successfully conveying these habits to their youngsters.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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