

## Original Article

# Oral health awareness and education among parents of pre-school children: A play-group Survey

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## Abstract

**Aim:** This cross-sectional study aimed to determine parental awareness of dietary habits and oral health concerns of their preschool-aged children. This study examines parent involvement in their pre-schoolers' oral health and eating habits through focused teaching.

**Materials and Methods:** N=50 parents of preschool-aged children in the Karad region who were enrolled in kindergartens between the ages of three and five participated in a cross-sectional survey. A 20-point questionnaire was self-administered to gather data on demographic and educational factors, feeding practices knowledge, risk behaviours and oral hygiene habits of parents and children, oral health prevention, and the role of parents in preventing dental cavities.

**Results:** The overall findings revealed limited parental awareness and inadequate oral hygiene practices among preschool children in the Karad locality. Among the 50 preschool children included in the study, majority of the parents demonstrated limited awareness regarding the impact of dietary habits, importance of brushing duration, dietary modifications, and routine oral care on their children's oral health. There was a small but statistically significant negative association between brushing time and the frequency of fast food ( $r = -0.31, p = 0.03$ ). These findings highlight the critical need for targeted educational interventions to bridge the knowledge gap and promote better oral health practices among caregivers.

**Conclusion:** According to this poll survey, there is a notable lack of parental involvement and awareness regarding the dental health of preschool-aged children. A detailed instructional poster was created based on the gaps found and given to every parent.

**Keywords:** Child nutrition, Parental awareness, Oral health in children, Sugar consumption, Dietary habits

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## 1. Introduction

The first step in educating parents about oral health is raising their awareness. Preschool is a crucial time when lifetime habits start to take form, particularly between the ages of three and five. Nonetheless, in many rural and semi-urban areas, like Karad, a lack of organized oral health education and low parental knowledge greatly contribute to children's bad eating habits and poor oral hygiene habits.

The widespread belief that children's milk teeth would naturally exfoliate and that professional dental care is unnecessary typically results in a number of dental issues, including malocclusions, dental caries, and periodontal issues. This study highlights the critical necessity for early

parental education in improving oral health outcomes among pre-schoolers by combining a structured questionnaire with a useful poster outlining nutrition and hygiene dos and don'ts.<sup>1</sup>

There is a significant knowledge gap among caregivers in many rural and semi-urban locations, including Karad, due to inadequate access to preventative interventions and oral health education. Because of this, many children in these regions have poor eating and oral hygiene practices, which can result in early dental issues like cavities, gum disease, and pain. These issues can even affect the children's speech, nutrition, and self-esteem.

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It has been established that ECC is a serious oral cavity health problem that interferes with young children's natural growth and development. It is frequently brought on by excessive sugar intake, poor brushing habits, and irregular dental checkups. It is a serious public health concern, and prevalence rates differ between industrialized and developing nations.<sup>2</sup>

The most crucial role in preserving oral health in the early years of a child's life is played by parents and other caregivers. Since children spend the majority of their time with their parents or other primary caregivers, particularly women, a lack of parental awareness is a significant predictor of poor oral hygiene in children.<sup>3</sup>

In addition to the utilization of dental care services by their preschool-aged children, parents are crucial in establishing and sustaining their children's oral hygiene practices (good eating habits, oral hygiene practices). As a result, we intended to focus the current study on these behaviours.

Given that primary teeth are thought to be the natural space maintainers, keeping them in the arch until they are exfoliated is essential for the proper growth and development of dental and skeletal systems. As a result, parents have the greatest impact on a young child's capacity to maintain dental health.

It is crucial that parents possess sufficient knowledge and awareness about the different situations that impact and preserve their child's dental health, as well as appropriate eating habits and behaviours. This study intends to close the awareness gap and advance preventative dental healthcare in early children by focusing directly on the parental population.<sup>4</sup>

## 2. Material and Methods

### 2.1. Study design and setting

This cross-sectional, survey-based study was conducted in the Karad region. Parents of preschool-aged children (3 to 5 years old) who were not restricted to any particular school but were instead chosen from the broader population.

### 2.2. Sample selection

Fifty parents of preschool-aged children took part in the study overall. Convenience sampling was used to choose participants from Karad's local population. Parents with children between the ages of three and five who were willing to engage and had access to mobile phones for digital communication met the inclusion criteria. Parents of children with specific healthcare needs or systemic conditions that impact oral health were excluded.

### 2.3. Data collection tool

To evaluate different aspects of parental awareness and practices, a structured questionnaire with 20 closed-ended

questions was created. Participants received the questionnaire digitally through mobile phones using easily navigable and accessible forms. The questionnaire had sections on the following topics:

1. Dietary habits of children (such as sugar intake and frequency of fast food)
2. Practices related to oral hygiene (such as brushing frequency, brushing duration, and gargling/rinsing behaviors).
3. Parental participation in everyday dental care

## 3. Result

A Spearman correlation analysis was used in this study to evaluate the relationship between children's eating patterns and oral hygiene practices, with a special emphasis on sugar and fast-food consumption. (Table 1)

**Table 1:** Correlation between oral hygiene habits and dietary factors

Comparison	Correlation coefficient (r)	p-value
Brushing frequency vs sugar intake	0.16	0.27
Brushing frequency vs fast food frequency	0.13	0.36
Brushing duration vs fast food frequency	-0.31	0.03
Gargling habit vs sugar intake	0.01	0.92
Gargling habit vs fast food frequency	0.19	0.17
Rinsing after medications vs sugar intake	0.17	0.22
Rinsing after medications vs fast food frequency	0.05	0.72

There was a small but statistically significant negative association between brushing time and the frequency of fast food ( $r = -0.31$ ,  $p = 0.03$ ). According to this research, kids who ate fastfood more often also tended to wash their teeth less regularly. In particular, brushing frequency had a weak positive link with consumption of fast food ( $r = 0.13$ ,  $p = 0.36$ ), and sugar intake ( $r = 0.16$ ,  $p = 0.27$ ). (Table 2)

**Table 2:** Frequency of sugary items consumption (excluding milk)

Frequency category	Frequency (No. of responses)	Percentage (%)
Never / no	7	14.9%
Rarely / occasionally	6	12.8%
Once a day	12	25.5%
2 times a day	10	21.3%
2-3 times a day	7	14.9%
4 times a day	1	2.1%
Little (unspecified)	2	4.3%

The results of the study showed that children obviously preferred processed, sugary snacks like chocolates, chips, and biscuits. These snacks were chosen more frequently than healthier alternatives, indicating a pronounced preference for flavour above nutritional content. (**Table 2**) The study found that eating these snacks regularly significantly raises the risk of dental caries and other oral health problems. (**Supplementary 1**)

Even though the correlation is weak, it does point to a potentially significant behavioural trend: rising fast food intake may be associated with worse oral hygiene habits, perhaps as a result of children with unhealthy eating habits taking a more hurried or negligent approach to dental care. These results indicate a lack of parental involvement in controlling their children's oral hygiene practices and point to the necessity of useful awareness campaigns.

Additionally, there were no discernible associations between dietary components and other oral hygiene practices, such as gargling after meals or washing your mouth after taking medicine. There was no significant correlation between gargling habits and either sugar intake ( $r = 0.01, p = 0.92$ ) or fast-food frequency ( $r = 0.19, p = 0.17$ ). (**Table 1**) Similarly, there was no significant correlation between rinsing after medications and either sugar intake ( $r = 0.17, p = 0.22$ ) or fast-food consumption ( $r = 0.05, p = 0.72$ ). (**Table 1**) These results imply that habits or parental guidance may have a greater influence on these specific hygiene behaviors than the child's food preferences.

Overall, the study's findings imply that, although dietary habits do not seem to have a substantial impact on the majority of oral hygiene practices, there is a weak but significant correlation between eating more fast food and brushing for shorter periods of time. This knowledge could be helpful in creating focused oral health education programs that stress not only dietary advice but also the significance of good brushing techniques and other associated oral hygiene practices, particularly for kids who eat fast food more frequently.<sup>5,6</sup>

### 3.1. Summary of correlation analysis

#### 3.1.1. Brushing frequency vs dietary habits

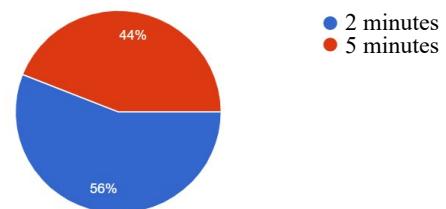
There's no meaningful relationship between how often children brush their teeth and their sugar intake ( $r = 0.16, p = 0.27$ ) or fast-food frequency ( $r = 0.13, p = 0.36$ ).

#### 3.1.2. Brushing duration vs. fast food frequency

Children who consume fast food more often tend to brush their teeth for a shorter duration ( $r = -0.31, p = 0.03$ ). Although the correlation is weak, it is statistically significant, suggesting a possible behavioural link (e.g., less overall attention to oral care among frequent fast-food consumers). (**Figure 1**)

How many minutes do your child brushes his/her teeth?

50 responses



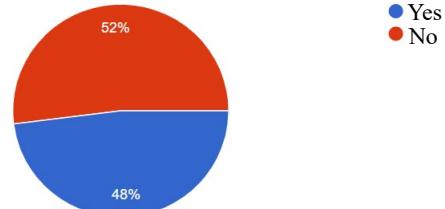
**Figure 1:** Pie chart depicting percentage of pre-school children within brushing duration category

#### 3.1.3. Rinsing habits vs food intake

Rinsing after taking medicine is not a prevalent practice and is not affected by other dietary practices (rinsing after medications vs sugar intake:  $r = 0.17, p = 0.22$ ; rinsing after medications vs fast food frequency:  $r = 0.05, p = 0.7$ ). In particular, when medications (such syrups) contain sugar, parents may need to be better educated on the value of washing to protect their children's teeth. (**Figure 2**)

Does your child rinse his/her mouth after taking medications?

50 responses



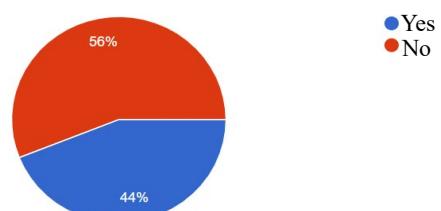
**Figure 2:** Pie chart depicting percentage of pre-school children rinsing after taking medications

#### 4. Gargling habits vs dietary factors

The hygiene habits (Gargling) show no significant correlation with dietary behaviours, indicating they may be independent routines not influenced by what children eat (gargling vs Sugar Intake:  $r = 0.01, p = 0.92$ ; gargling vs Fast Food Frequency:  $r = 0.19, p = 0.17$ ). (**Figure 3**)

Does your child have a habit of gargling after meals?

50 responses



**Figure 3:** Pie chart depicting percentage of pre-school children rinsing after every meal

## 5. Discussion

In places like Karad, which are semi-urban and rural and may have limited access to dental specialists, preventive treatment is even more important. The significance of prompt teaching and parental involvement in developing regulated hygiene practices and healthy eating habits at a young age is highlighted by this study. Parents' dental health practices have a direct effect on their children. The lifestyle and dental health practices of the entire family should therefore get particular consideration.<sup>7</sup>

Mothers were uncertain about when to schedule the first dental examination, even though they understood the need of starting teeth cleaning at a young age. According to the study's findings, the majority of the mothers who were recruited had a reasonable level of understanding of the negative effects that an unhealthy diet might have on kids. (**Supplementary 2**)

This component of the questionnaire received excellent responses, most of the mothers demonstrating good understanding of diet and dietary behaviors, including questions concerning feeding habits, snacking habits, and sugar and caries. Comparable outcomes were reported by Lin HC<sup>8</sup> Suresh BS.<sup>7</sup>

The informative poster was a helpful intervention, especially for mothers, as it provided easy-to-follow, visual instructions and beneficial advice that could be used at home. Important components of the suggested hygiene habits for preschool-aged children, like when to begin brushing their children's teeth, were unknown to moms.<sup>9</sup>

**Awareness (45.8%–19.1%)** The majority of parents understand how vital a balanced diet, fresh, home-cooked food, fruits, and vegetables are to their child's development. **Unawareness (12.8%–4.3%)** Some parents are not aware of the value of frequent healthy snacks, setting aside certain times for meals, avoiding processed or prepackaged foods, or the necessity of certain nutrients such as vitamins A, C, B, and D.

Mothers are especially admired by children as role models. The amount of knowledge about mothers' understanding of newborn oral hygiene is significantly expanded by this study. To the best of our knowledge, very few studies involving mothers and children in this age range have been carried out in India. Mothers' awareness of relevant risk and protective factors that may affect infants' oral health is a particular focus of the questionnaires, as is the influence of sociodemographic factors on mothers' awareness.<sup>10</sup>

Dietary knowledge is mostly influenced by the dietary tradition of a specific area, which is also clear from the results that knowledge about the diet and dietary practice does not depend upon with mother's educational qualification or the demographic inhabitation. In addition to this, as the main source of information were the elders in the family, the dietary tradition was inherited.

Improving a child's oral health begins with simple but powerful changes in daily diet, snacking habits and oral habits. In attempt to stop the development of caries in young children, a lot of research have concentrated on the attitudes and behaviors of parents regarding their children's oral health such as Watanabe M et al,<sup>11</sup> Laitala ML et al.<sup>12</sup>

Parents can drastically lower their child's risk of cavities by providing healthier substitutes for processed and sugary foods. According to the study's findings, many parents are still unaware of how important it is to provide their children with a wider variety of nutrient-dense food options on a regular basis. This knowledge gap highlights how parents need to be more educated and more aware of nutrition in order to help their children develop healthier eating habits. (**Supplementary 2**)<sup>13</sup>

Fresh fruits like apples, pears, and berries are excellent choices because they are naturally sweet but low in harmful sugars, while crunchy vegetables like carrots, cucumbers, and celery not only provide essential nutrients but also help with the natural cleaning of teeth during chewing. Calcium-rich snacks, such as cheese cubes and unsweetened yogurt, aid in the development and strengthening of baby teeth. Nut-butter-topped rice cakes, banana-topped whole-grain pancakes, and avocado or lean meat sandwiches are examples of whole-grain foods that give you energy and fiber without causing dental decay. Maintaining proper hydration is still essential; the main beverage should be simple water, which promotes saliva flow maintenance and oral hygiene. While occasional sweet pleasures are unavoidable, healthier substitutes like homemade smoothies, frozen fruit pieces, diluted fresh fruit juices, and modest servings of dark chocolate (above 70% cocoa) can minimize harm while satisfying cravings. Sweetened milk is good for hydration and calcium. Additionally, parents are urged to minimize their children's intake of sticky dry fruits and to make sure they brush afterward.<sup>14</sup>

Several kids reported eating wholesome breakfasts, which suggests that people are generally aware of the need of eating well. But even with this knowledge, dental caries is still quite common, indicating that there may be more factors at play than breakfast choices. (**Supplementary 3**)

## 6. Conclusion

This study reveals a notable lack of parental understanding, particularly among mothers, on the nutritional and oral hygiene requirements of preschool-aged children in Karad's rural area. The results unequivocally show a lack of awareness and practices for early childhood oral care, even though many parents have a moderate educational background. Poor oral hygiene among children in this age group is caused by unhealthy food choices, inadequate supervision while brushing, and a lack of knowledge about preventive techniques. An illustrated educational poster proved to be a valuable intervention in bridging some of these gaps. Which helped parents to understand the do's and don'ts of oral hygiene and diet which in turn made easy for parents to teach

their children. One effective strategy for filling up some of these gaps was an instructional poster with illustrations. It facilitated parent's understanding of the proper diet and dental hygiene practices, making it easier for them to teach their kids.<sup>15</sup> Reducing the burden of early childhood caries and fostering long-term dental wellness can be achieved in large part by incorporating preventative oral health messages into early childcare settings and enhancing caregiver engagement.

## Patient Consent

Written informed consent was obtained from the patient for patients for Data Sharing.

## Source of Funding

None.

## Conflict of Interest

None.

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