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Parental awareness of mouth breathing habits and associated dental health sequelae: A cross-sectional questionnaire study

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Abstract

Purpose: To assess the general awareness of parents in Bhavnagar City, India, about mouth breathing habits and their specific knowledge regarding the associated signs, symptoms, and ill effects on their child's dental health.

Methods: A descriptive, cross-sectional questionnaire study was conducted. A set of 10 questions, including demographic information and specific inquiries about symptoms and dental health awareness, was distributed to 120 parents via Google Forms and WhatsApp. A total of 114 responses were received and analyzed.

Results: More than half of the parents who responded demonstrated awareness of the mouth breathing habit and its general signs and symptoms, such as snoring and restless sleep. However, the study revealed a significant knowledge gap, as these parents were largely unaware of the detrimental effects of the habit on their child's dentition.

Conclusions: The findings indicate that while parental awareness of the existence and immediate symptoms of mouth breathing is relatively high, there is a critical lack of understanding regarding its long-term dental consequences. This knowledge gap may hinder early diagnosis and intervention for craniofacial and dental issues associated with the condition.

Keywords: Mouth breathing, Parental awareness, Dental health, Questionnaire study, Pediatric dentistry

Introduction

Breathing is a vital physiological function, and normal respiration occurs through the nose. When nasal airflow is obstructed, individuals may resort to mouth breathing (MB), a medically recognized condition termed chronic oral ventilation.[1] This condition represents a significant pediatric concern with a multifactorial etiology, often associated with enlarged tonsils, hypertrophied turbinates, rhinitis, or other infectious and inflammatory conditions.

The detrimental effects of MB have been recognized for centuries. Historical accounts from the 16th to 19th centuries, such as those by Lemnious Levinus and George Catlin, linked mouth breathing to poor sleep, restless behavior, and compromised general health [3].

Chronic MB can cause long-term craniofacial changes, often described as “adenoid facies,” which is characterized by a long face, high palate, and narrow upper arch. Physical features such as inadequate lip sealing, dropped eyes, and anterior open bite are more prevalent among oral breathers compared to nasal breathers [4]. These are not merely cosmetic alterations but can affect occlusion and posture.

Moreover, MB is associated with poorer health-related quality of life (HRQoL), encompassing physical, social, and emotional well-being. Children with MB have been shown to score significantly lower on validated HRQoL questionnaires [5]. The condition is also strongly linked to sleep-disordered breathing (SDB), with symptoms including restless sleep, snoring, and daytime sleepiness. Prevalence varies, with reports ranging from 7% [2] to 27% [6].

Despite the extensive body of clinical literature on the effects of MB, a crucial gap remains in its timely diagnosis and management. The first individuals to observe the subtle signs of MB in a child are almost always the parents. Their role as primary observers is critical for early detection, yet a key challenge is whether they possess the knowledge to recognize these signs as indicators of a serious underlying habit. The disconnect between centuries of established clinical knowledge and the awareness level of the general public may be a major obstacle in preventive pediatric care. The present study aimed to quantify this specific knowledge gap by assessing parents' awareness of mouth breathing, its signs and symptoms, and, most importantly, its specific adverse effects on a child's dental health [1].

Methods

This study utilized a descriptive, cross-sectional design based on a questionnaire. The research was conducted in Bhavnagar City, India, targeting parents of children in the community. A convenience sampling method was used, with questionnaires distributed to 120 parents. A high response rate was achieved, with 114 parents completing the questionnaire for an approximately 95% response rate. The study did not include any clinical or radiographic examinations, relying solely on parental self-reported data.

The questionnaire, a set of 10 questions, was designed to evaluate parental awareness of mouth breathing habits. The questions were straightforward and addressed common symptoms and parental knowledge of dental health issues related to the habit. The specific questions included inquiries about: snoring without a cold, daytime mouth breathing, restless sleep, difficulty falling asleep, difficulty eating with an open mouth, dry lips, and dry mouth upon waking. A key question specifically asked parents if they

were aware of the dental health-related problems caused by mouth breathing.

The survey was distributed via Google Forms and WhatsApp [7]. Data were analyzed descriptively to summarize awareness levels. No inferential statistics were applied. Ethical considerations were observed, and informed consent was implied by questionnaire completion.

Results

The primary finding of the study was a notable disparity in parental awareness regarding mouth breathing. The analysis of the 114 responses revealed that a majority of parents were aware of the general habit of mouth breathing and its related signs and symptoms [1]. The questionnaire's questions, which probed specific symptoms, confirmed that parents were observant of these indicators. Questions on snoring, restless sleep, difficulty falling asleep, and physical signs like dry mouth and lips were recognized by a significant number of respondents. A separate study that similarly used a questionnaire to assess parental responses found that 83.33% of parents reported their child felt thirsty upon waking, and 80% noted their child sleeping in strange positions, both of which are common symptoms associated with SDB.

A majority of parents were aware of mouth breathing as a habit and recognized associated signs and symptoms such as snoring, restless sleep, and dry mouth.

However, a significant gap was found in awareness of dental consequences. While most parents recognized general symptoms, they were largely unaware of the ill effects of MB on their child's dentition [7].

Similar findings have been reported in other studies. For instance, Thosar *et al*. found that 7% of parents reported snoring and 16.66% noted hyperactivity in their children [2]. in contrast, Owen *et al*. documented a higher prevalence of snoring (27%) with a strong association with restless sleep [6]. Such variability highlights the subjectivity of parental observations and differences in study populations.

The findings from this study are summarized in Table 1, which highlights the dichotomy between high general symptom awareness and low dental health knowledge.

Table 1: Parental Awareness of Mouth Breathing Habit and Associated Symptoms

Questionnaire Item	Summary of Parental Awareness
Does your child snore when not sick?	More than half of parents were aware
Does your child tend to breathe through the mouth during the day?	More than half of parents were aware
Does your child have restless sleep?	More than half of parents were aware
Does your child have difficulty falling asleep?	More than half of parents were aware
Does your child have difficulty eating with mouth open?	More than half of parents were aware
Does your child need to wet his/her lips all the time?	More than half of parents were aware
Does your child have a dry mouth on waking?	More than half of parents were aware
Are you aware of dental health problems due to MB?	Parents were unaware of the ill effects

Discussion

The results of this study underscore a significant and concerning dichotomy in parental knowledge: while many parents can identify the immediate, observable symptoms of mouth breathing, they fail to connect these signs to the serious, long-term dental and craniofacial sequelae [1]. This finding suggests a critical breakdown in the public health education chain. For centuries, the medical community has documented the relationship between nasal obstruction and oral breathing, and its resulting physical and developmental consequences. For instance, studies have meticulously detailed how chronic mouth breathing can lead to a high palate and anterior open bite. These are not mere cosmetic issues but structural deformations that can permanently alter a child's facial morphology and occlusal relationships.

The widespread unawareness of these dental effects, as revealed in the study, has profound clinical implications. The physical changes associated with MB, such as an elongated face and high palate, are a result of developmental processes that occur during the crucial growth phase of childhood [4]. The most effective period for intervention is precisely when these changes are beginning to manifest, and a parent's early observation is invaluable. When a parent lacks the knowledge to recognize these subtle signs as a problem, the opportunity for early and less invasive interventions, such as orthodontic and myofunctional therapies, is often lost. By the time the visible, severe deformations become apparent enough to prompt a dental visit, the window for guiding a child's natural growth may have already closed. This knowledge gap directly contributes to the number of children who present with advanced craniofacial and orthodontic issues that require more complex and lengthy treatment later in life.

The findings of this study can be contextualized by comparing them to other similar studies that have used questionnaires to probe parental awareness and child symptoms. A study by Thosar *et al* [2]. provides quantitative data on parental observation of symptoms such as snoring (7% of parents) and hyperactivity (16.66% of parents). Similarly, a study by Owen *et al* [6]. found a much higher prevalence of snoring (27%) and a strong association with restless sleep. The variability in these findings highlights the subjective nature of parental observation and the influence of population differences and study methodology on reported symptom prevalence. This demonstrates the value of the current study, which, despite its qualitative summary, confirms that parents are indeed observing symptoms that are well-documented in the clinical literature, even if they are not consistently quantified across studies.

This study, like all questionnaire-based research, has inherent limitations. The data are self-reported and not clinically validated. The questionnaire itself was not a standardized, psychometrically validated tool, unlike the Mouth Breather Quality of Life (MBQoL) questionnaire.[5] As noted in other literature, the accuracy of parental history can be a challenge in clinical decision-making, and relying solely on a questionnaire may lead to an inaccurate assessment. Despite these limitations, the consistency of the findings with other research on the topic suggests that the core conclusion that a parental knowledge gap exists regarding dental health sequelae is robust.

The implications of these findings are clear and actionable. The demonstrated lack of parental knowledge about the dental consequences of mouth breathing provides a strong rationale for targeted public health campaigns. [1] Pediatric dentists and other health professionals are uniquely positioned to spearhead these efforts. Their role should extend beyond traditional dental hygiene education to include proactive screening and comprehensive discussion with parents about the signs and effects of mouth breathing. Future research should build on these findings by combining parental questionnaires with objective clinical and radiographic evaluations to confirm the presence and severity of the habit and its associated dental and craniofacial issues, as recommended by other studies.

Conclusion

This study found that parental awareness of the existence and common symptoms of mouth breathing, such as snoring and restless sleep, is relatively high.[1]

However, there is a critical and widespread lack of awareness among parents regarding the specific, long-term ill effects of mouth breathing on a child's dentition and craniofacial development.[1]

This knowledge gap represents a significant barrier to the early detection and effective management of mouth-breathing-related dental and orthodontic issues, potentially leading to more severe and irreversible changes later in life [1].

The findings underscore the need for targeted educational strategies by pediatric dentists and public health organizations to inform parents about the dental consequences of mouth breathing and promote timely professional evaluation [1].

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