



## Awareness And Knowledge Of Dental Professionals About Oral Manifestations Of Atopic Dermatitis In Pediatric Dental Patients

<sup>1</sup>Dr. Aditi Agarwal, <sup>2</sup>Dr. Dinesh Rao, <sup>3</sup>Dr. Sunil Panwar, <sup>4</sup>Dr. Krittika Samaddar, <sup>5</sup>Dr. Remi Ravi, <sup>6</sup>Dr. Bhagyashree Bhatt

<sup>1</sup>Post-Graduate Student, <sup>2</sup>Professor and Head, <sup>3</sup>Professor, <sup>4,5</sup>Senior Lecturer, <sup>6</sup>Former Postgraduate student, Department of Paediatric and Preventive Dentistry, Pacific Dental College and Hospital, Airport Road, Debari, Udaipur – 313024

**\*Corresponding Author:**

**Dr. Aditi Agarwal**

Post-Graduate Student,

Department of Paediatric and Preventive Dentistry, Pacific Dental College and Hospital, Airport road, Debari, Udaipur, Rajasthan. – 31302

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### Abstract

**Background:** Atopic dermatitis (AD) is a chronic inflammatory skin condition more prevalent in children than in adults. Children with atopic dermatitis are at an increased risk of developing tooth decay.

**Aim:** The aim of this study is to assess the awareness and knowledge among dental professionals of Udaipur city, Rajasthan, India regarding the oral manifestations of atopic dermatitis and its relationship with clinical oral profile in pediatric dental patients

**Methods:** An observational study was performed through a questionnaire where multiple choice electronic survey was sent to 220 dental postgraduate students and practicing dentists of Udaipur city, Rajasthan, India.

**Statistical analysis:** The data obtained was subjected to descriptive analysis using Chi square test.

**Results:** A response rate of 68.6% was achieved. Among the respondents 60.9% were unaware about the correlation between atopic dermatitis and dental symptoms. Only 7.3% dentists screen their patients for AD whereas others did not as they never felt the necessity to do so because of lack of awareness.

**Conclusion:** Awareness and essential knowledge amongst dental professionals about the oral manifestations of atopic dermatitis in pediatric patients is scant, there remains a need for awareness programmes and fill the knowledge gap about the same which will help to improvise the treatment facilities for betterment of these children.

**Keywords:** Atopic dermatitis, pediatric patients, questionnaire, oral manifestations

### Introduction

Atopic dermatitis (AD) is a common skin disorder in children that is well known among pediatricians. It is a chronic, highly pruritic, inflammatory skin disease that causes significant morbidity in children of all ages <sup>[1,2]</sup>. It is the most frequent diagnosis made in pediatric dermatology clinics and the most common skin condition in children younger than 11 years of age. 60% of cases of AD begin in the first year of

life, and 90% begin in the first five years of life. The frequency of atopic dermatitis has increased from 3% to 10% over the past three decades and appears to be even higher in heavily populated urban areas <sup>[3]</sup>.

Atopic dermatitis is characterized by symptoms like dry scaly skin, itching, rough bumps on the face, upper arms, thighs and thickened skin, keratosis pilaris, diffuse scaling of the scalp, and generalized

darkening of the skin<sup>[4]</sup>. Involvement of the cheeks and perioral areas in young infants is a fairly common sign caused by saliva drooling and smearing of liquid foods on these areas<sup>[5]</sup>.

Since 1987, studies have shown links between atopic dermatitis and potential oral manifestations or changes, including an increase in class I occlusion,<sup>6</sup> a decrease in overbite, susceptibility to cariogenic activity, periodontal diseases, the reactivation of the Herpes Simplex Virus type 1<sup>[7]</sup> and the worsening of AD in patients with odontogenic focal infections.<sup>8</sup>

The research by Igawa *et al.*,<sup>[9]</sup> and Perugia *et al.*,<sup>[10]</sup> reveals an important factor that contributes to the hypothesis that patients with AD have a higher frequency of carious lesions. AD promotes epidermal barrier dysfunction, which reduces the skin's ability to protect against allergens and increases microbial colonization. Thus, the AD patients would be more susceptible to the onset of dental caries, which is one of the most common infectious diseases, especially in childhood<sup>[11]</sup>. Atopic cheilitis is another minor criterion established by Hanifin and Hajka<sup>1</sup> for the diagnosis of atopic dermatitis.

Overall prevalence of AD in India is 4.4%, as opposed to the global total of 14.2%<sup>[12]</sup>. AD is seen to be more prevalent in northern India than in the south, perhaps because of dietary and climate factors. Improvement in socioeconomic status and improvements in access to health care may explain the increasing prevalence of AD in India in accordance with the "hygiene hypothesis," which states that the decline of infections is related to the increase in incidence of autoimmune and allergic diseases<sup>[13]</sup>. Though atopic dermatitis has been well researched and studied in developed countries, it has only recently been described and studied in developing countries, like India. With pediatricians, dermatologists and the dental professionals showing a growing interest in AD in India, it is critical to define its clinical features, its oral manifestations and treatment aspects unique to this region.

The oral health of children with AD is still a little explored topic in the scientific literature, and different studies have used hugely different methodologies. Similarly, there appears to be a lacuna of knowledge among dental professionals regarding oral manifestations and clinical relationship of AD in pediatric patients. Thus, the current

questionnaire study is the first so far to assess the awareness and knowledge among dental professionals regarding the oral manifestation of atopic dermatitis and its relationship with the clinical oral profile in pediatric dental patients.

## Materials and methods

A cross-sectional descriptive study was conducted among 220 dental professionals, which included postgraduate students of different specialities of dental colleges and practicing dentists of Udaipur city of Rajasthan state, India as they are more likely to have experience in the field of dentistry. They were assessed for awareness and knowledge about oral manifestations of atopic dermatitis in pediatric dental patients. A validated self-administered questionnaire was developed through Google Forms. The questionnaire was administered to the dental professionals through WhatsApp. A web link was sent to dental professionals after explaining the purpose of the study. When users clicked the link, they were taken to an online survey with 19 multiple-choice questions. One reminder was sent to the participants who failed to respond to the questionnaire. The online survey took an average of five to ten minutes to complete.

In the first part of questionnaire, demographic details were requested like the name, gender, designation whether a practising dentist or a post graduate student and questions related to AD like its symptoms, common age of presentation, etiology and methods of diagnosis. Another part included questions about how often dentists encounter children with AD, oral manifestations of AD among children and their correlation, the ability to identify the disease and if screening is carried out for AD in their patients, further referral to and from the dermatologist, and treatment of dental problems aiding in the improvement of cutaneous symptoms of atopic dermatitis.

The collected data was entered into Microsoft Excel. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS version 23.0). Chi-square test was performed, and  $P \leq 0.05$  was considered statistically significant.

## Results

The questionnaire was sent to 220 dental professionals of Udaipur city, with 151 responding

the same (response rate 68.6%). The sociodemographic and professional characteristics of the participants in the study have been given in Table 1.

The fact that AD is an inflammatory skin condition was known by 96.7% of the participants. 84.8% of the participants were aware that AD commonly affects humans during childhood. Nearly two-thirds of the respondents never came across a patient with AD during their clinical dental practice. Over 50% responded that it was uncommon to screen any dental patients for AD and over 40% were unaware of its necessity given in Table 2. ( $P = 0.003$ )

As depicted in Figure 1, out of the total participants, 70.2% believed that a pediatric dentist can diagnose AD while performing routine dental checkups on patients, as majority of them are aware of the symptoms. ( $P = 0.027$ )

According to the responses of the participants, 60.9% of them were ignorant about the correlation between AD and dental symptoms, and 59.6% had no knowledge about its oral manifestations. (Table 2) 38.4% were unaware of the oral symptoms of AD, while the rest were aware of a few. (Figure 2)

58% of the participants were aware of the four main pathophysiologic reasons behind the association between AD and dental diseases. (Figure 3)

25.8% of the dental professionals were found to be unaware about the management of pediatric AD, whereas the majority knew about one of the management options for AD in children. (Figure 4) Majority of participants agreed that dental treatment for pediatric patients with AD could improve their cutaneous symptoms. ( $P = 0.009$ ) (Figure 5).

**Table 1: Sociodemographic and professional characteristics of the participants**

Variable	(n) = 151	%
<b>Gender</b>		
Female	92	60.9%
Male	59	39.1%
<b>Designation</b>		
Postgraduate students	92	60.9%
Dental Practitioners	59	39.1%

**Table 2: Responses of the participants**

Variable	(n)	%
<b>What is Atopic Dermatitis?</b>		
Inflammatory condition of skin	146	96.7%
Infectious disorder	3	2%
Respiratory disorder	0	0%
Not aware	2	1.3%
<b>Do you know the common age of presentation of Atopic dermatitis?</b>		
Childhood	128	84.8%
Adulthood	21	13.9%
Old age	2	1.3%

**Have you come across patients having atopic dermatitis in dental practice?**

Yes	40	26.5%
No	111	73.5%

**How often do you screen dental patients for atopic dermatitis (AD)?**

Commonly	11	7.3%
Not commonly	78	51.7%
Did not screen – unaware about the necessity to screen	42	41.1%

**How often do you get atopic dermatitis child referred from a dermatologist?**

Commonly	33	21.9%
Not commonly	118	78.1%

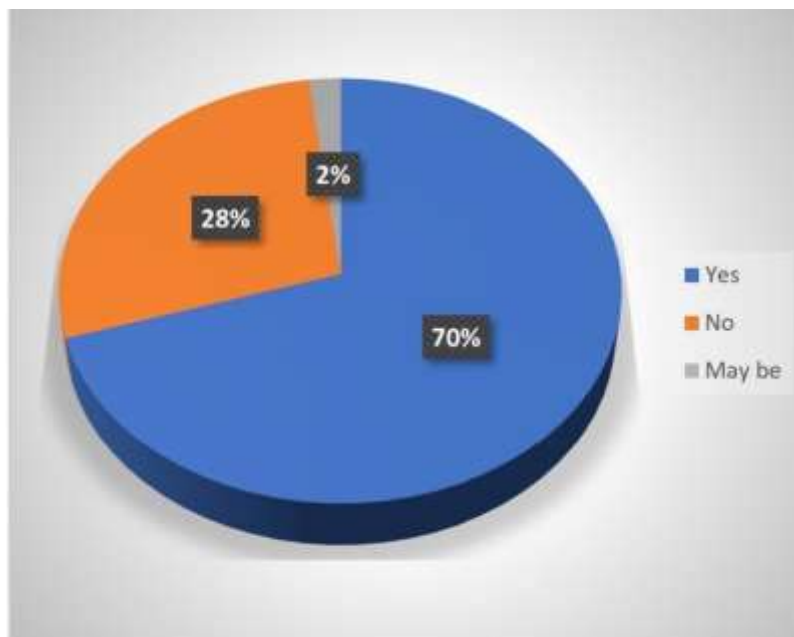
**Do you know the correlation between atopic dermatitis and dental symptoms?**

Yes	59	39.1%
No	92	60.9%

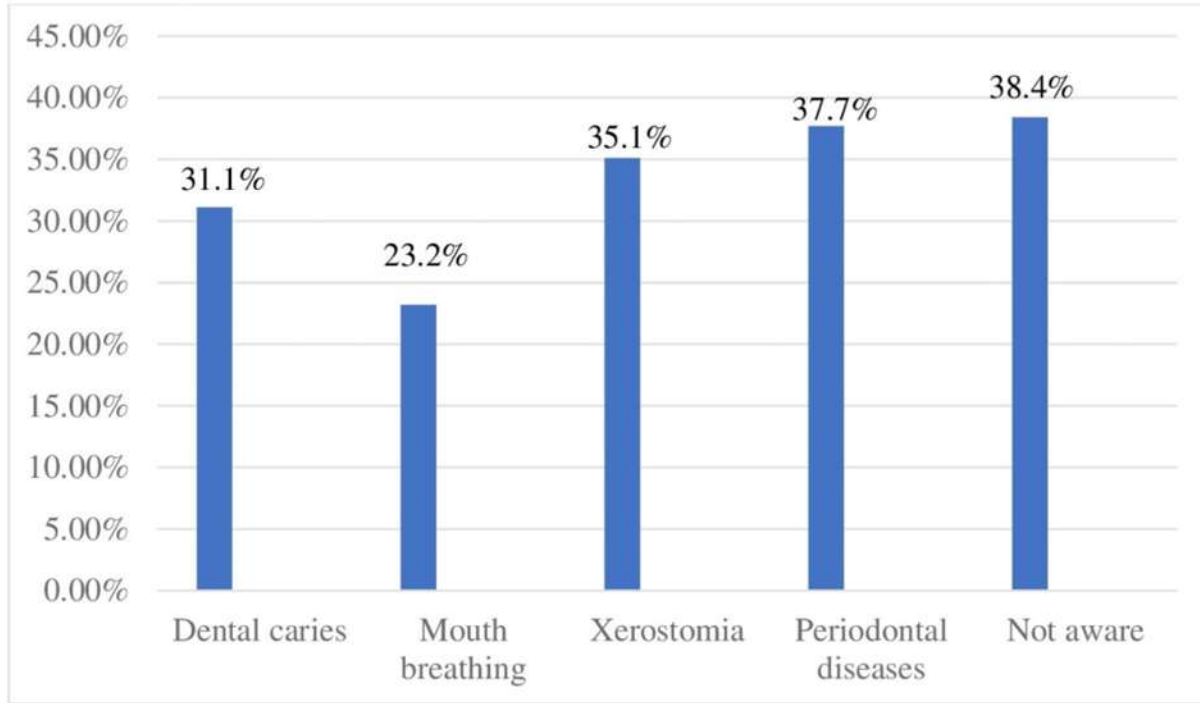
**Do you know about the oral manifestation of atopic dermatitis?**

Yes	61	40.4%
No	90	59.6%

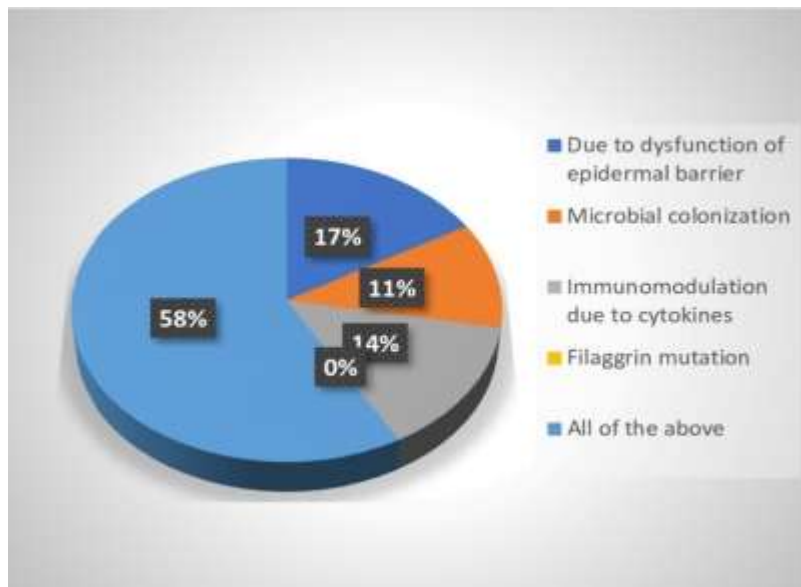
**Figure 1: Graphical representation of agreeability of respondents regarding the ability of a paediatric dentist to diagnose a case of AD**



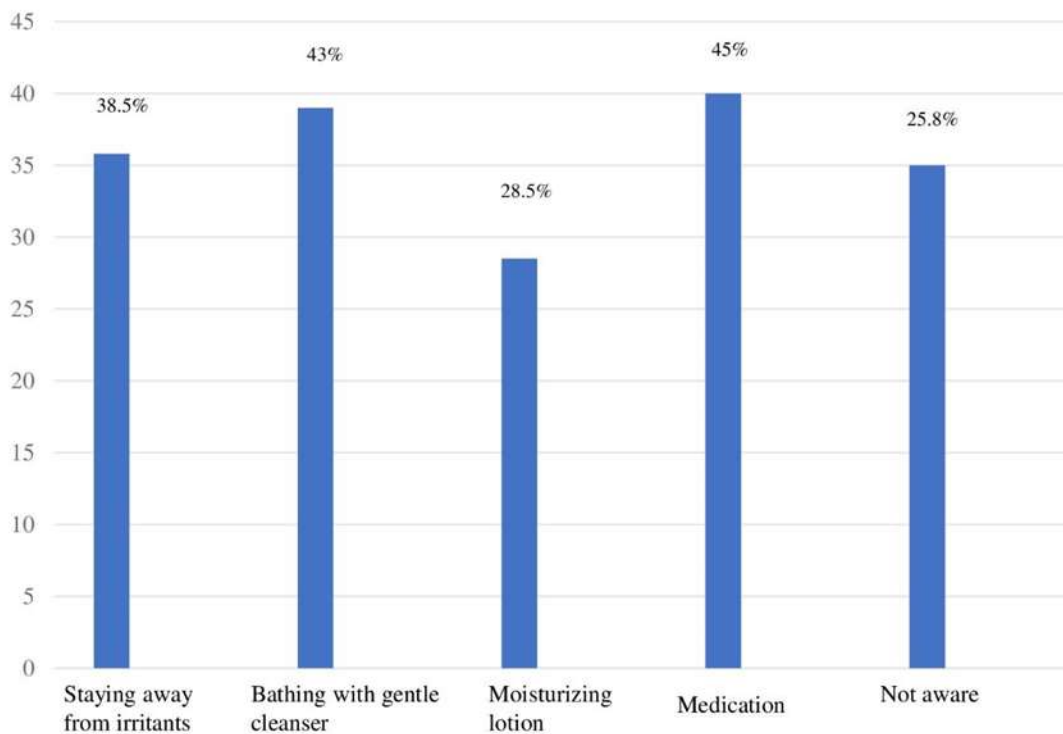
**Figure 2: Graphical representation about awareness of the oral symptoms of atopic dermatitis**



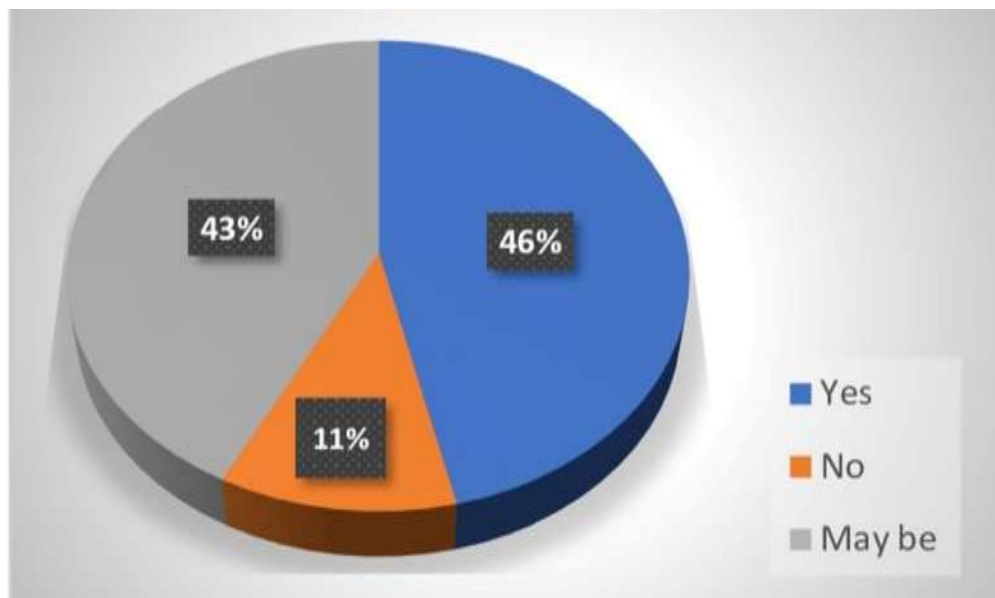
**Figure 3: Graphical representation of pathophysiology of association between dental diseases and atopic dermatitis**



**Figure 4: Graphical representation of management options of Atopic dermatitis in a paediatric patient**



**Figure 5: Graphical representation of opinions regarding the importance of dental treatment to improve the cutaneous symptoms of Atopic dermatitis patients**



### Discussion

Atopic dermatitis is a chronic, multisystemic inflammatory skin condition that has varying effects on children based on their age groups. AD is a

chronically relapsing hypersensitive skin manifestation characterized by itching. There is a wide range of other associated features that are seen in a proportion of patients. Comorbidities must be considered when caring for a pediatric AD disease

patient. Over the last few years, various studies have tried to identify factors that exacerbate AD. One factor that has not been adequately addressed is the oral health of children with AD<sup>[14]</sup>.

The literature shows varied possible correlations between AD and oral manifestations in pediatric patients. Dental caries, including early childhood caries,<sup>[15]</sup> malocclusion,<sup>[6]</sup> mouth breathing,<sup>[16]</sup> focal odontogenic infections,<sup>[9]</sup> bad breath, sensitive teeth<sup>[17]</sup> etc. found among children and adolescents with AD make it necessary to undergo regular oral examinations to receive appropriate treatment, which is necessary to have a better quality of life. However, it is quite unfortunate that oral manifestations of AD have been given scant attention among dental professionals. As far as our knowledge is concerned, no such study was conducted to assess the awareness and knowledge regarding oral manifestations of AD among dental professionals.

The current study revealed that the majority of participants were unaware of the correlation between AD and oral symptoms as well as the necessity to conduct oral screening among pediatric patients with AD. The majority of participants responded that a pediatric dentist is better equipped for the formal diagnosis of certain oral manifestations of AD. This could be due to the fact that a pediatric dental professional will be the first person to encounter such a situation at the young age of the patient with AD. The study also showed that the majority of the participants were unaware of the oral symptoms of AD. However, few opted for periodontal diseases, xerostomia, and dental caries as the few common symptoms of pediatric patients with AD.

Thus, the present study suggests that awareness and proper knowledge regarding AD should be provided to dental professionals. The dental professionals should understand that the incidence of childhood AD is increasing, which in turn directly affects oral health<sup>[16]</sup>. Screening of pediatric dental patients in clinics and hospitals can help in the early identification of this chronic skin disorder. A timely referral to a dermatologist by the dentist and vice versa may be beneficial for the child and in the overall management of the disease.

The results of this study should be viewed within their limitations. The sample size is heterogenous and a self-selected convenience sample was selected. It is

evident that numbers of dental professionals were insufficient to represent standard practices in the country and thus, the results of this study cannot be generalized. Such cross-sectional studies should be carried out on a larger scale, with a more substantial sample size in order to assess the knowledge among dental professionals of various parts of the country and bring changes in the dental care provision.

Thus, through this questionnaire, it can be inferred that dental professionals are aware about AD and its manifestations but lack essential knowledge about the oral and dental correlations. Dental professionals must recognize that dental treatment of pediatric AD patients can have a positive impact on their lives.

### Conclusion

AD is a common, chronic skin disease with a multifactorial etiology that can adversely affect a child's overall health and development. The diagnosis and clinical follow-up of such a disease require a multidisciplinary professional approach in which dentistry plays a prominent role as the oral cavity frequently signals or evidences important manifestations. Thus, the dentist should be made aware of AD and its oral manifestations to provide a better quality of life to the patients. According to this research, the awareness and knowledge among dental professionals regarding the dental manifestations of AD is insufficient, thus, nuances in care should be addressed to allow for maximal disease control throughout childhood and adolescent years.

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