

## Original Research

### To assess the prevalence and consequences of allergic rhinitis in children

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#### ABSTRACT:

**Aim:** To assess the prevalence and consequences of allergic rhinitis in children. **Methods:** A cross-sectional observational research was carried out with 200 parents of school-aged children visiting OPD at a community health facility participating. **Results:** 74.5 percent of participants claimed the child's nose issue was worse during certain months of the year, and 60.5 percent said the condition is accompanied by itchy-watery eyes. This eye-nose condition was discovered by 90 people as a result of an allergy. This condition impacted everyday activities and hence QoL for 17% of participants. This research found a 30% incidence of nasal symptoms and a 15% prevalence of allergic rhino-conjunctivitis. The distribution of symptoms revealed that blockers made up to 59.5 percent of the overall trial group. According to ARIA standards, the most prevalent kind of allergic rhinitis was moderate to severe persistent allergic rhinitis, which affected up to 35% of individuals tested. Minimum of 55% of participants had one or more co-morbidity (often bronchial asthma), whereas 21% of children had two or more co-morbidities. **Conclusion:** We found that the prevalence of allergic rhinitis in the Indian population, particularly children, has been growing in recent years. Allergic rhinitis is linked to a variety of co-morbid disorders, including asthma, sinusitis, otitis media, and others. Allergic rhinitis has a negative impact on patients' quality of life, and additional research should be done to clarify the situation. AR should not be neglected like any other allergy, and prompt medical intervention and treatment may help to prevent the disease's escalating morbidity.

**Keywords:** allergic rhinitis, children

Received: 23 September, 2021

Accepted: 27 October, 2021

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**This article may be cited as:** Tugave J, Das AK. To assess the prevalence and consequences of allergic rhinitis in children. J Adv Med Dent Scie Res 2021;9(11):159-162.

#### INTRODUCTION

Allergic rhinitis (AR) is one of the most frequent chronic illnesses in children. A mix of allergic and nonallergic rhinitis affects 44-87 percent of rhinitis patients. <sup>1</sup> Despite the high frequency of AR in children, the condition is often misdiagnosed or undertreated. Untreated and undertreated AR reduces the child's and his or her family's quality of life. AR imposes a financial strain on the healthcare system, both directly and indirectly. Due to a rise in the frequency of allergy disorders in both developed and developing nations, Asher and colleagues established the International Study of Asthma and Allergies in Childhood (ISAAC) in 1991, which is a unique international epidemiological research study. In Phase I, they evaluated the prevalence of allergy illnesses worldwide using standardised and validated questionnaires for 6-7-year-old and 13-14-year-old

students. <sup>2</sup> The results of Phase I were used to guide Phase II, which examined the potential etiological variables of asthma, rhinoconjunctivitis, and eczema in addition to the prevalence data. Phase III included follow-up data in many centres throughout the globe after a 5- to 10-year delay. <sup>3</sup> According to this research, the prevalence of AR ranged from 0.8 to 14.9 percent in 6-7-year-olds and from 1.4 to 39.7 percent in 13-14-year-olds over the globe. With additional inquiries, ISAAC's Phase III investigated the potential risk factors for AR. AR presentation is influenced by genetic variables, family history of atopy, and allergy disorders. However, environmental and lifestyle factors were also thought to be important in the disease. The Hungarian data (measured in 2003) were also included in the ISAAC phase III study (2009): the prevalence of AR symptoms was 12.9 percent in children aged 6-7

years and 17.1 percent in children aged 13-14 years.<sup>4</sup> There have only been a few epidemiological investigations in the community of 6-12-year-old students in Hungary. Several variables may influence AR presentation and expression, although their precise nature is unknown.

**MATERIALS AND PROCEDURES**

After receiving clearance from the protocol review committee and the institutional ethics committee, a cross-sectional observational research was undertaken. Following informed permission, a comprehensive history was obtained from the patient or family. All patients were informed about the procedure's approach, risks, advantages, outcomes, and related complications. This research involved 200 parents of school-aged children who visited the OPD at a community health facility. Patients were included in the research by inquiring about their history of sneezing, excessively itchy nose and eyes, thick mucus, nasal obstruction, or shortness of breath with related symptoms; however, patients above the age of 15 years and those with any pathology linked rhinitis were excluded.

A questionnaire was devised to examine the symptoms and history of rhinitis in children, using the standard sequence and procedure set by the ISAAC Steering Committee for cough and the

medical management of asthma, rhinitis, and eczema.<sup>6</sup> This questionnaire, as shown in Table 1, was sent to 450 parents, and the research population was chosen from the first 200 parents who replied positively to Question No. 1 of the questionnaires.

**RESULTS**

74.5 percent of respondents stated the child's nose condition was worse during certain months of the year, and 60.5 percent said it was accompanied by itchy-watery eyes. This eye-nose condition was discovered by 90 people as a result of an allergy. This issue impacted everyday activities and hence QoL for 17% of participants (Table 1).

This research found a 30% incidence of nasal symptoms and a 15% prevalence of allergic rhinoconjunctivitis.

The distribution of symptoms revealed that blockers made up up to 59.5 percent of the overall trial group. (Table 2.) According to ARIA standards, the most prevalent kind of allergic rhinitis was moderate to severe persistent allergic rhinitis, which affected up to 35% of individuals tested. Table 3.

Minimum of 55% of participants had one or more co-morbidity (often bronchial asthma), whereas 21% of children had two or more co-morbidities. Table 4 shows the prevalence of various co-morbidities.

**Table 1: Rhinitis-specific questionnaire items**

Q. no.	Questions	Response rate	Percent (%)	Remarks
1	In the past 12 months, has your child ever had a problem with sneezing, or a runny or blocked nose when he/she did not have cold or flu? (If your answer is NO, please skip questions: 2-6)	200/450	44.44	Yes
2	If yes, is the child's nose problem worse during specific months of the year?	149/200	74.5	Yes
3	Has this nose problem been accompanied by itchy-watery eyes?	121/200	60.5	Yes
4	If yes, does this nose and eye problem occur when your child is in the same room with a cat, dog, disturbance of house dust, or when outdoors near freshly cut grass?	77/121	63.64	Yes
5	In the past 12 months, how much did this nose problem interfere with your child's daily activities?	34/200	17	Not at all
6	In the past 12 months, has your child had "hay fever"?	90/200	45	Yes

**Table 2: Symptom distribution**

Symptom distribution	Number	%
Sneeze Runners	81	40.5
Blockers	119	59.5

**Table 3: Severity of symptoms among the patients studied**

Severity of symptoms	Number	%
Moderate/severe & persistent	70	35
Mild & persistent	57	28.5
Moderate/severe & intermitter	44	22
Mild & intermittent	29	14.5

**Table 4: Co-morbid conditions of allergic rhinitis**

Co-morbid conditions of allergic rhinitis	Number	%
Bronchial asthma	110	55
Sinusitis allergic	63	31.5
Atopic dermatitis	55	27.5
Conjunctivitis	30	15
Recurrent otitis media	40	20
Adenoids	40	20
Asthma	37	18.5
Sleep Disturbance	19	9.5
Nil	90	45

## DISCUSSION

It is commonly known that up to 30% of the Indian population, including youngsters, suffers from at least one allergy illness.<sup>5</sup> In India, the reported incidence of allergic rhinitis is between 20% and 30%.<sup>6</sup> Allergic rhinitis has been on the increase in India in recent years. According to the international study of asthma and allergies in children (ISAAC) phase 3 (2009), nasal symptoms were as common as 12.9 percent and 23.6 percent in the 6-7- and 13-14-year age groups, respectively, whereas allergic rhinoconjunctivitis was 3.9 percent and 10.4 percent.<sup>2</sup> In our own research, which included children aged three to fifteen, the results were 30% and 15%, respectively.

Allergic rhinitis is known as 'sneeze runners and blockers' because of its unusual clinical presentation. The major symptoms of allergic patients, as well as 'sneezers and runners,' include sneezing, itchy nose, itchy eyes, and anterior rhinorrhea. Patients who are 'blockers' have nasal congestion with thick mucus, post nasal drip, and shortness of breath as the primary complaint.<sup>7</sup> Our research likewise found a much larger number of blockers (59.5%) than sneeze runners (40.5%), which is comparable to Deb et al's study but differs in that their patients were adults with allergic rhinitis.<sup>7</sup>

A research done in Mysore revealed a steady growing trend of allergic rhinitis in children aged 6 to 14 years from 1998 to 2013.<sup>8</sup> Our results likewise indicated a greater prevalence, which corresponded to this study's prevalence of 21.2 percent in 2013.

Allergic rhinitis is linked to a variety of co-morbid disorders, including asthma, sinusitis, otitis media, atopic dermatitis, and nasal polyps.<sup>9</sup> Asthma was the most prevalent co morbid illness in the Deb et al research, affecting almost half of the patients.<sup>8,9</sup> A variety of co-morbid disorders are discovered to be related with allergic rhinitis in this research as well. The majority of children with allergic rhinitis (55%) had one or more co-morbidities, whereas 45 percent had 'no' co-morbidities. Sharma et al. discovered that 41.9 percent of children had no reported co-morbid condition.<sup>10</sup> Common allergens to allergic rhinitis were shown to be primarily permanent or seasonal, and to be present both inside and outdoors. Pollens (grass, trees, weeds), home dust mites, pets, moulds, fungus, and food are the most prevalent.<sup>7</sup>

## CONCLUSION

We determined that the incidence of allergic rhinitis in the Indian population, particularly children, has been rising in recent years. Allergic rhinitis is linked to a variety of co-morbid disorders, including asthma, sinusitis, otitis media, and others. Allergic rhinitis has a negative impact on patients' quality of life, and additional research should be done to clarify the situation. AR should not be neglected like any other allergy, and prompt medical intervention and treatment may help to prevent the disease's escalating morbidity.

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