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# Awareness Of Allergic Conjunctivitis and Its Impact on Parents of School-Going Children Visiting Eye Clinic in A Speciality Hospital in Chengalpattu District: A Cross- Sectional Study

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## ABSTRACT

Introduction: Allergic conjunctivitis, a common form, affects 6% to 30% of people globally and up to 40% in some studies. In India, rates have increased due to environmental factors like pollen, dust mites, pollution, and climate conditions. Symptoms include itching, swelling, tearing, and sometimes pain or light sensitivity. Many parents lack awareness of ocular allergies, which affects children's treatment and daily functioning. Improving education for parents can help identify symptoms early and support children better. This study highlights the need for better community education to address gaps in knowledge and reduce the impact of ocular allergies on families.

Methodology: This cross-sectional study involved 440 parents of school-going children attending pediatric and ophthalmology OPD in a tertiary care hospital near Chennai. Data was collected using a tested questionnaire on awareness of a specific condition. Analysis used Welch's ANOVA, T tests, and Chi-Square tests after checking data assumptions. Ethical approval and confidentiality were maintained throughout.

Results: The participants' mean knowledge score showed significant differences based on their level of education (p-value < .001), primary source of knowledge (p-value < .001), past history of allergic conjunctivitis in their children (p-value < .001). A significant negative association was noted between the factors, awareness of symptomatic management of allergic conjunctivitis and the burden of the disease on the child and parent. Chemicals from vehicle fumes are of increasing concern but not as much as other known allergens like pollen, hay, mold, pet dander etc., (p-value < .001).

Conclusion: Allergic conjunctivitis affects more than comfort; it can disrupt school, home life, and work. Understanding how to manage triggers and use safe home remedies reduces this impact. Parents who learn about allergic conjunctivitis can help their children attend school consistently and maintain regular family routines. Accurate information from healthcare providers is more helpful than relying on internet searches or social media. Trusted advice offers practical ways to handle symptoms and speed recovery. Common allergens such as pet dander, mold, and vehicle emissions are increasing in cities. Recognizing these triggers and reducing exposure lowers stress for both parents and children. Access to reliable information is essential for effective management

**Key Words:** *Conjunctivitis, Allergic; Children; Parents; Allergens; Mass Media*

## 1. INTRODUCTION

Ocular allergies are a significant public health issue that can greatly impact individuals and their families. Symptoms can interfere with daily activities like school, work, and socializing, leading to frustration and stress. Increasing awareness and understanding of ocular allergies is essential for better identification and management, which can improve treatment outcomes and lessen the impact on daily life.[1]

The prevalence of allergic conjunctivitis is a significant global health issue, affecting between 6% and 30% of the general population, with rates as high as 30% in children.[2] Studies have shown rates as high as 40%, indicating a growing research focus on this condition.[3] In India, there has been a rise in allergic diseases, including conjunctivitis, over the past 20 years. The prevalence varies across the country due to environmental, lifestyle, and socio-economic factors, with some areas experiencing higher rates than others.[4]

Allergic conjunctivitis is widespread in India due to several key factors. Environmental triggers, including grasses, pollens, and dust mites, play a significant role. Climate conditions, such as high temperatures, low annual humidity, and low latitude

regions, further increase susceptibility. Outdoor air pollution from fuel combustion, forest fires, and industrial emissions worsens the problem. Contact with animals like dogs, cats, and livestock also contributes to cases. The condition often presents in repeated episodes and is commonly linked with allergic rhinitis and dry eye. Fortunately, it has a minimal chance for producing long-term complications.[5]

There are several types of allergic conjunctivitis, including seasonal and perennial forms, giant papillary conjunctivitis, and contact allergic blepharoconjunctivitis.[6] Common symptoms include itching, swelling, and tearing, affecting all types. Severe cases may also cause light sensitivity and pain, which can greatly impact daily activities. Understanding these variations and symptoms is key to effective diagnosis and treatment.[7]

Allergic conjunctivitis occurs when allergens trigger an immune response, causing immunoglobulin-E (IgE) to bind to sensitised mast cells.[8] These allergens then trigger an immediate reaction within minutes, causing the release of histamine and other substances like leukotrienes, prostaglandins, and cytokines. These chemicals lead to the classic symptoms of allergic conjunctivitis, such as redness, itching, and swelling. Later, a delayed reaction can occur 4 to 24 hours after exposure. This involves inflammatory cells like eosinophils and neutrophils, which worsen inflammation and may cause ongoing, chronic symptoms.[5]

The condition, increasingly common in both children and adults, not only reduces quality of life but, in some rare cases, can cause permanent vision damage if not treated.[6] There are several treatment options available to manage allergic conjunctivitis effectively. Mast cell stabilisers, antihistamines, dual-acting agents, steroids, and NSAIDs can help ease symptoms.[8] Topical antihistamines and mast cell stabilisers are proven to reduce signs of seasonal allergic conjunctivitis when compared to a placebo.[9] Immunotherapy is also recommended as a therapeutic option, particularly for addressing the underlying allergic response.[10]

Parents need to be more aware of their children's medical and social needs. Many parents are not fully aware of their children's health issues, which can have long-term consequences if not addressed properly. This lack of awareness can result in inadequate treatment and poor health outcomes. To address this issue, there is a need for improved educational resources for parents to help them recognize and respond to their children's health needs effectively.[11]

This study aimed to assess the knowledge of ocular allergies among parents with school-going children and the impact of allergic conjunctivitis on their quality of life. Identifying the existing gaps in knowledge and better outcomes can lead to community education and healthcare outreach to improve early detection and symptom management. Increasing awareness empowers parents to support children in daily activities. Education strategies can improve the quality of life for those with ocular allergies

**Objectives:**

- To assess the knowledge of allergic conjunctivitis among the parents of school going children.
- To assess the burden imposed by allergic conjunctivitis on children and their parents.

## 2. METHODOLOGY

This is an analytical cross-sectional study. The sample size was calculated with maximum variance, leading to the largest required sample size, which is a conservative approach when the true prevalence is affected much by regional and seasonal variations. Which was 400, added 10% for missing or erroneous data, making the total 440. This study included 440 parents attending Paediatric and Ophthalmology OPD of a tertiary care hospital near Chennai (Chengalpattu) over a period of four months. Participants who have school-going children and provided informed consent for the study were included. We excluded those who were unwilling to participate or refused consent. Data collection was done using a pre-tested semi-structured questionnaire which tested their awareness and other factors regarding this condition. The Institutional Human Ethics Committee approval was obtained with reference – IHEC-I/3265/24. Responses were entered into google forms which were exported to MS Excel, checked for any missing data, coded, and analysed using IBM - SPSS. The data was checked for normality and homoscedasticity. Mean comparisons between subgroups were done after test for homogeneity, which was significant in all cases. Hence, Welch's ANOVA and T test were selected over the standard ANOVA and Independent T test. Chi-Square test was done for measuring the association between the factors. Ethical practices were strictly followed, ensuring confidentiality, voluntary participation, and minimal risk to participants.

## 3. RESULTS

**Table 1: The Sociodemographics of the participants (n=440)**

| Groups | Sub-groups | Frequency | Percentage |
|---|---|---|---|
| Age of the Child (oldest) | Below 10 years | 261 | 59.3 % |
| | 10 years & Above | 179 | 40.7 % |
| | Total | 440 | 100.0 % |
| Gender of Child (oldest) | Male | 253 | 57.5 % |
| | Female | 187 | 42.5 % |
| | Total | 440 | 100.0 % |
| Residing District | Chengalpattu | 278 | 63.2 % |
| | Chennai | 128 | 29.1 % |
| | Kanchipuram | 26 | 5.9 % |
| | Other Districts | 8 | 1.8 % |
| | Total | 440 | 100.0 % |
| Parent Education (Highest out of both) | Not Completed School | 51 | 11.6 % |
| | Completed School | 137 | 31.1 % |
| | Completed UG/ Diploma | 215 | 48.9 % |
| | Completed PG/ PhD | 37 | 8.4 % |
| | Total | 440 | 100.0 % |
| **The mean age of the children was 8.42 (±3.49)** | | | |

The Sociodemographics of the participants are tabulated in Table 1. We see the mean age of the eldest children of the participating parents in this study to be 8.42 years. There was a male predominance seen among children visiting hospital in this region by 15%. Almost half of the participating parents had an educational qualification of having a college degree. A majority of the participants are from Chengalpattu district followed by Chennai district.

**Table 2: Knowledge and other factors of the participants (n=440)**

| Groups | Sub-groups | Frequency | Percentage |
|---|---|---|---|
| **Knowledge Level** | Poor (0 – 3) | 147 | 33.41 % |
| | Average (4 – 6) | 259 | 58.86 % |
| | Good (7 – 10) | 34 | 7.73 % |
| | Total | 440 | 100.0 % |
| **Major source for knowledge** | Eye Doctor/ Health Care Professional | 134 | 30.5 % |
| | Media / Internet | 228 | 51.8 % |
| | Family, Friends or Relatives | 78 | 17.7 % |
| | Total | 440 | 100.0 % |
| **H/O any Allergens near residence** | Excessive dirt/ Windy open areas (dusty environment) | 46 | 10.5 % |
| | Vehicle Fumes/ Traffic congestions | 120 | 27.3 % |
| | Pollen/ Hay/ Mold (wet environments) | 84 | 19.1 % |
| | Many Cats/ Dogs/ Rodents or Birds | 42 | 9.5 % |
| | None of the above | 148 | 33.6 % |
| | Total | 440 | 100.0 % |
| **Aware of any symptomatic management** | No | 306 | 69.5 % |
| | Yes | 134 | 30.5 % |
| | Total | 440 | 100.0 % |

There were 10 questions for the assessment of knowledge regarding allergic conjunctivitis, each correct answer awarding 1 point. The maximum knowledge score possible is 10 and the minimum 0. Table 2 shows us that the majority of the participants (59%) had average scores followed by 33% with poor scores. Only about 8% had good knowledge scores. The majority of the participants revealed that their major source for answering these questions were mass media or social media. Followed by around 30% whose source were either an ophthalmologist or general practitioner. Then regarding the presence of any known allergens for allergic conjunctivitis, a majority replied there were no known allergens in their surroundings, followed by vehicle fumes. Around 40% of the participants identified at least one known allergen for this condition in their surrounding environment. Finally, concerning the symptomatic management of allergic condition, a 30% revealed they were aware of either Over the counter (OTC) medications for allergic conjunctivitis or cold fomentation and other symptomatic managements.

Table 3 shows the burden of this condition among the participants. 164 (37.3%) participants revealed that their child has been diagnosed with allergic conjunctivitis in the past. Of the 164, 113 (69%) participants mentioned that they have taken work leave due to this condition for doctor visits or home care for their child. Of the 164 participants who mentioned having their child been diagnosed at least once from this condition, a majority mentioned that their ward has taken around 3 to 7

days of leave from school due to allergic conjunctivitis during the last one year (12 months).

**Table 3: Burden of Allergic conjunctivitis among the participants**

| Groups | Sub-groups | Frequency | Percentage |
|---|---|---|---|
| Has your child ever been diagnosed with Allergic Conjunctivitis up to your knowledge ? | No | 276 | 62.7 |
| | Yes | 164 | 37.3 |
| | Total | 440 | 100.0 |
| Did you ever had to take a leave of absence from work because of this condition for your child ? | No | 327 | 74.3 |
| | Yes | 113 | 25.7 |
| | Total | 440 | 100.0 |
| During the last one year, how many days (approx.) has your child missed school because of this condition?* | None | 276 | 62.7 |
| | 1 – 2 days | 25 | 5.7 |
| | 3 – 4 days | 50 | 11.4 |
| | 5 – 7 days | 56 | 12.7 |
| | > 1 week | 33 | 7.5 |
| | Total | 440 | 100.0 |
| * - Higher values taken in case of multiple children | | | |

**Table 4: The factors affecting the knowledge score among the participants**

| Group | Sub-groups | Mean | SD | p-value |
|---|---|---|---|---|
| **Education** | Not Completed School | 2.43 | ±0.81 | < .001 |
| | Completed School | 3.55 | ±1.09 | |
| | Completed UG/ Diploma | 4.32 | ±1.36 | |
| | Completed PG/ PhD | 6.43 | ±0.86 | |
| **Child has had Allergic Conjunctivitis** | No | 3.70 | ±1.43 | < .001 |
| | Yes | 4.62 | ±1.48 | |

| | | | | |
|---|---|---|---|---|
| **Primary Source of Knowledge** | Eye Doctor/ Health Care Professional | 5.05 | ±1.28 | < .001 |
| | Mass Media / Social Media | 3.67 | ±1.46 | |
| | Family/ Friends / Relatives | 3.40 | ±1.14 | |
| Welch's ANOVA & Welch's T test – Significant if p-value < 0.05 | | | | |

**Table 5: Association between h/o allergic conjunctivitis and awareness of symptomatic management for the same**

| **Are you aware of any symptomatic management for this condition ?** | | **Has your child ever been diagnosed with allergic conjunctivitis ?** | | |
|---|---|---|---|---|
| | | No | Yes | Total |
| No | n | 213 | 93 | 306 |
| | % | 69.6% | 30.4% | 100.0% |
| Yes | n | 63 | 71 | 134 |
| | % | 47.0% | 53.0% | 100.0% |
| Chi-Square Test – Significant; p-value < .001 | | | | |

As expected, from Table 4, we see the mean knowledge scores increase significantly with increasing level of education among the parents. Similarly, parents who were familiar with this condition by first-hand experience from their children also had a significantly higher level of knowledge. The parents who mentioned that their major source of knowledge regarding this condition were directly from a health care professional had a significantly higher level of knowledge.

Further analysis revealed (Table 5) an association between parents being aware of symptomatic management for allergic conjunctivitis after already experiencing the condition in their children and getting treatment for it earlier. It was also evident that those who were aware of common symptomatic management techniques associated with their child taking a fewer number of leaves from school than those who weren't (Table 6).

**Table 6: Association between child school days missed and awareness of symptomatic management for the same**

| **Are you aware of any symptomatic management for this condition ?** | | **During the last year, how many days (approx.) has your children missed school because of this condition ?** | | | | |
|---|---|---|---|---|---|---|
| | | None | 1 - 2 days | 3 - 4 days | 5 - 7 days | > 1 week |
| No | n | 213 | 8 | 17 | **40** | **28** |
| | % | 77.2% | 32.0% | 34.0% | **71.4%** | **84.8%** |

| | | | | | | |
|---|---|---|---|---|---|---|
| Yes | n | 63 | **17** | **33** | 16 | 5 |
| | % | 22.8% | **68.0%** | **66.0%** | 28.6% | 15.2% |
| Total | n | 276 | 25 | 50 | 56 | 33 |
| | % | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Chi-Square Test – Significant; p-value < .001 | | | | | | |

**Table 7: Association between parent workdays missed and awareness of symptomatic management for the same**

| **Are you aware of any symptomatic management for this condition ?** | | **Did you ever had to take a leave of absence from work because of this condition for your child ?** | | |
|---|---|---|---|---|
| | | No | Yes | Total |
| No | n | 218 | 88 | 306 |
| | % | 71.2% | 28.8% | 100.0% |
| Yes | n | 109 | 25 | 134 |
| | % | 81.3% | 18.7% | 100.0% |
| Chi-Square Test – Significant; p-value = .026 | | | | |

It was also evident that parents who were familiar with basic techniques of managing allergic conjunctivitis were significantly lesser in taking leave from their work due to this condition in their child (Table 7). Finally, Table 8 shows there is an association between occurrence of allergic conjunctivitis and allergens. It was least associated with no known allergens in their vicinity of their residence, as one would expect. But the most commonly presenting factor associated with allergic conjunctivitis was the presence of Pollen, hay or mouldy (wet surroundings), followed by presence of pets or domestic animals in the surroundings.

**Table 8: Association between pollution type and allergic conjunctivitis**

| **H/O any Allergens near residence** | | **Has your child ever been diagnosed with allergic conjunctivitis ?** | | |
|---|---|---|---|---|
| | | No | Yes | Total |

| | | | | |
|---|---|---|---|---|
| Excessive dirt/ Windy open areas (dusty environment) | n | 25 | 21 | 46 |
| | % | 54.3% | 45.7% | 100.0% |
| Vehicle Fumes/ Traffic congestions | n | 79 | 41 | 120 |
| | % | 65.8% | 34.2% | 100.0% |
| Pollen/ Hay/ Mold (wet environments) | n | 36 | 48 | 84 |
| | % | 42.9% | 57.1% | 100.0% |
| Many Cats/ Dogs/ Rodents or Birds | n | 21 | 21 | 42 |
| | % | 50.0% | 50.0% | 100.0% |
| None of the Above | n | 115 | 33 | 148 |
| | % | 77.7% | 22.3% | 100.0% |
| Chi-Square Test – Significant; p-value < .001 | | | | |

## 4. DISCUSSION

This study measures what parents of school-aged children know about allergic conjunctivitis. It examines how this condition affects both children and their families, including missed school days or changes in daily routines. The research also highlights how symptoms like eye redness, itching, and discomfort can disrupt a child's ability to learn and play. By sharing clear information about allergic conjunctivitis and its triggers, we aim to help parents reduce stress on themselves and their children. Promoting better knowledge may not solve every challenge, but it helps families manage this condition more confidently.

To measure knowledge about allergic conjunctivitis, parents answered 10 questions, each worth one point. Scores could range from 0 to 10. Most parents (59% of participants) scored in the average range, 33% had low scores, and only about 8% achieved high scores. The knowledge score regarding allergic conjunctivitis increased with the parents' level of education. This is evident of the fact that education plays an important role in knowledge. And research by Anna Z and Elizabeth ML, highlights the importance of education in improving health outcomes and reducing disparities, by reviewing existing research.[12] And Karina F et al., indicate that education increases health knowledge and improves health outcomes.[13] So in order to improve health outcomes, improving knowledge and awareness do play a significant role.

One of the ways these parents gained some knowledge on this topic were through first handed experience gained from the child undergoing this condition itself. This is proved from the significantly higher scores of parents whose children had experienced the condition previously. Another cofactor for this is that these parents had received information on allergic condition directly from a health care professional which could increase the validity of the received information. As most parents said they relied on mass media or social media as their main source of information and only about 30% learned from an ophthalmologist or general practitioner. But those who learned from healthcare professionals had a higher mean knowledge score than those who relied on other sources. This matches findings by Carolyn CC, Martina AC et al, and Bradford WH et al, who observed that while people often turn to the internet for information, advice from healthcare professionals remains the most reliable and trusted. Some may argue that online platforms offer quicker answers, but these studies also show that information from healthcare professionals still outweighs the benefit of convenience for most individuals seeking important health information.[14–16]

When asked about allergens causing allergic conjunctivitis, most parents said they didn't know of any near their homes. About 70% could name at least one nearby allergen, such as pollen, hay, or signs of dampness and mold. Fewer children developed allergic conjunctivitis in homes where parents didn't report local allergens. The condition appeared most often in

places where parents noticed pollen, hay, or damp and mouldy environments. The presence of pets or other animals around the home also played a role. These findings challenge the belief that allergens are only a concern in rural or agricultural settings.[17] Even city homes can contain triggers such as mold or pet dander, and nowadays more increasingly chemicals from vehicle fumes, which can affect children's eye health and have been proven to cause allergic conjunctivitis.[18,19] The rise in apartments with closely located homes increasing humidity and reducing ventilation is another significant factor for mold.[20,21]

The burden of allergic conjunctivitis showed up clearly in the study findings. Out of all participants, 164 parents (37.3%) reported that their child had been diagnosed with this condition at some point. Among those families, 113 parents (69%) had to take time off from work to care for their child or bring them to a doctor. Most of the 164 children who received a diagnosis missed between three and seven days of school over the past year because of their symptoms. Data also showed a pattern: About 30% of parents said they knew about some over-the-counter medicines or cold compresses to manage symptoms at home and these parents who knew how to manage allergic conjunctivitis often acted sooner and got help for their children earlier. Their children missed less school than those whose parents lacked this knowledge. Parents who understood basic treatments spent less time away from work, which helped their families manage interruptions. Researchers, Jalal SM et al., Kamal M et al., Paliwal Y et al., from their individual works state that having adequate knowledge regarding treatment or symptomatic management and possible side effects of OTC medications can significantly reduce the burden of the disease.[22–24]

These results underline the value of parent awareness in reducing the burden of this common eye problem. Some might believe that minor symptoms do not need active management, but the data show that a simple approach at home can reduce lost school days and lessen the impact on family life.

**RECOMMENDATIONS**

Some key points to consider in promoting awareness and increasing knowledge regarding allergic conjunctivitis among the general public to improve their health outcomes and reduce burden.

- Vehicle fumes can trigger allergic conjunctivitis in susceptible individuals making the condition common not only in rural areas or wet areas, but also in growing urban regions.
- Benefit of treatment options including over-the-counter antihistamine eye drops, artificial tears, and prescription medications.
- Prevention strategies include wearing protective eyewear, keeping car windows closed, and using air purifiers inside homes.
- People with existing allergies or asthma may be more sensitive to known allergens and need to take extra precautions like avoiding triggers, carrying PPE like masks and eyewear.
- Proper treatment is essential to prevent vision loss and other complications.
- Parents who have managed allergic conjunctivitis before, may share their knowledge and experience with other parents.

## 5. CONCLUSION

Allergic conjunctivitis affects more than just comfort. It can interrupt school attendance, disrupt home life, and interfere with work. Even knowing a few basic facts about managing triggers or using safe home remedies can greatly ease the strain. Parents who understand allergic conjunctivitis help their children stay in school and keep family routines steady.

Awareness of this condition often grows with higher education and accurate advice from healthcare providers, rather than depending only on internet searches or social media. Reliable guidance gives parents practical ways to respond, manage symptoms, and help children recover faster. Common allergens such as pet dander, mold, and vehicle emissions are growing in urban areas. Recognizing these triggers and knowing how to reduce exposure can lessen stress for both parents and children. Access to dependable information is key

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