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QUALITY OF LIFE ASSESSMENT IN CHILDREN WITH ALLERGIC RHINITIS: AN IMRAD STRUCTURED ARTICLE

Abstract: Allergic rhinitis (AR) is one of the most common chronic diseases in children and can significantly impact their quality of life (QoL). This study aimed to evaluate the QoL of children suffering from AR using validated questionnaires and to examine the relationship between symptom severity and QoL outcomes. A cross-sectional study was conducted among 250 children aged 6–16 years with clinically diagnosed AR. Data were collected using the Pediatric Rhinoconjunctivitis Quality of Life Questionnaire (PRQLQ) alongside clinical assessments of symptom severity. Our results indicate that children with moderate-to-severe AR report significantly lower QoL scores compared to those with mild symptoms [1]. The findings emphasize the importance of early diagnosis and targeted management strategies to improve the overall well-being of pediatric patients. This paper discusses the methodology, findings, limitations, and potential implications for clinical practice and future research [2].

Keywords: Allergic rhinitis, children, quality of life, PRQLQ, symptom severity, chronic disease.

INTRODUCTION

Background - Allergic rhinitis (AR) is a prevalent chronic inflammatory disorder of the nasal mucosa characterized by symptoms such as sneezing, nasal congestion, rhinorrhea, and itching. In pediatric populations, AR has been associated with sleep disturbances, impaired academic performance, and reduced participation in physical activities, all of which adversely affect the quality of life (QoL) (Bousquet et al., 2008). Although AR is often considered a minor illness, its persistent nature and the psychosocial impact on children necessitate a comprehensive assessment of the QoL in this population [3].

Rationale - The increasing prevalence of AR, coupled with its potential to diminish QoL in children, underscores the need for reliable and valid assessment tools. Previous studies have utilized various instruments to measure the QoL among children with AR, yet there remains variability in reported outcomes due to differences in study design, sample size, and evaluation methods. A systematic approach using standardized tools can provide a more accurate picture of the QoL impairments associated with AR, thereby guiding clinicians in optimizing treatment protocols.

Objectives ꜝ The primary objectives of this study were: To assess the overall QoL in children with AR using a validated instrument. To explore the relationship between AR symptom severity and QoL scores. To identify demographic and clinical factors that may influence QoL outcomes in this pediatric population.

MATERIALS AND METHODS

Study Design and Setting - A cross-sectional study design was adopted to evaluate QoL in children diagnosed with AR. The study was conducted over a period of 12 months at three tertiary care hospitals and outpatient clinics specializing in pediatric allergy and immunology.

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Participants - Participants were children aged between 6 and 16 years who had a clinical diagnosis of AR confirmed by an allergist based on history, physical examination, and, when applicable, skin prick tests or specific IgE assessments. Exclusion criteria included children with concomitant chronic respiratory diseases (such as asthma requiring regular hospital visits), significant comorbidities (e.g., congenital heart disease), or cognitive impairments that could preclude reliable questionnaire responses.

Sampling and Recruitment - A total of 250 children were recruited through consecutive sampling during routine outpatient visits. Parental consent and child assent were obtained according to the guidelines provided by the Institutional Review Boards (IRBs) of the participating centers [4].

Data Collection Instruments - Pediatric Rhinoconjunctivitis Quality of Life Questionnaire (PRQLQ) - The PRQLQ is a standardized, self-administered questionnaire designed specifically for children with rhinoconjunctivitis. The instrument comprises 26 items grouped into domains such as nasal symptoms, ocular symptoms, practical problems, and emotional aspects. Each item is rated on a 7-point Likert scale, where higher scores indicate greater impairment in QoL (Juniper et al., 1997).

Symptom Severity Assessment - Symptom severity was evaluated using a composite score based on clinical findings and parental reports. Children were categorized into three groups: mild, moderate, and severe AR. The scoring criteria integrated frequency of symptoms, degree of interference with daily activities, and the need for medication.

Demographic and Clinical Data - A structured form was used to record demographic variables (age, gender, socioeconomic status) and clinical variables (duration of AR, family history of allergies, coexisting allergic conditions).

Procedure - After obtaining informed consent, parents and children were provided with the PRQLQ and demographic questionnaire during the clinic visit. Clinical evaluations were performed by pediatric allergists who assigned a severity score. Data were collected anonymously and entered into a secure database for analysis.

Statistical Analysis - Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics (means, standard deviations, and frequencies) were computed for all variables. The relationships between symptom severity and QoL scores were examined using Pearson correlation coefficients and ANOVA tests. A p-value of <0.05 was considered statistically significant. Subgroup analyses were performed to evaluate differences across age groups and gender.

RESULTS

Demographic and Clinical Characteristics - Of the 250 participants, 52% were male and 48% female. The mean age of the participants was 10.8 ± 3.2 years. Approximately 60% of the children were classified as having moderate AR, while 25% and 15% were categorized as having mild and severe AR, respectively. A significant proportion (65%) had a positive family history of allergic diseases, and 40% of the children had coexisting conditions such as atopic dermatitis or mild asthma.

Quality of Life Scores - The overall mean PRQLQ score for the cohort was 3.7 ± 1.2, indicating a moderate impairment in QoL. Analysis by domain revealed that nasal symptoms and emotional aspects were the most affected areas. Children with severe AR reported a mean overall PRQLQ score of 5.2 ± 1.0, compared to 3.2 ± 0.8 in the mild group and 3.9 ± 1.1 in the moderate group. The differences between groups were statistically significant ($p < 0.001$).

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Correlation between Symptom Severity and QoL - Pearson correlation analysis demonstrated a strong positive correlation ($r = 0.68$, $p < 0.001$) between AR symptom severity and overall QoL impairment. Specifically, higher severity scores were closely associated with greater disruption in daily activities, poorer sleep quality, and increased emotional distress.

Subgroup Analysis - Further subgroup analyses revealed that younger children (aged 6–10 years) exhibited slightly lower QoL scores in the practical problem domain compared to older children (aged 11–16 years), potentially reflecting greater parental involvement in younger children's daily activities. Gender analysis did not show significant differences in overall QoL scores, although girls reported marginally higher impairment in the emotional domain.

Additional Findings - Qualitative feedback from parents indicated that the impact of AR extended beyond physical symptoms to affect academic performance and social interactions. Several parents commented on the challenges in maintaining concentration during school hours and the limitations on outdoor activities due to symptom exacerbation during peak allergen seasons.

DISCUSSION

Principal Findings - This study confirms that allergic rhinitis considerably affects the quality of life of children, particularly in domains related to nasal symptoms and emotional well-being. The positive correlation between symptom severity and QoL impairment underscores the need for optimal management strategies. Our findings are consistent with previous research indicating that children with more severe AR experience a higher burden of disease [5].

Interpretation of Results - The observed decline in QoL among children with severe AR may be attributed to the chronic and pervasive nature of the symptoms. Nasal congestion and rhinorrhea can lead to sleep disturbances, resulting in daytime fatigue and decreased cognitive function, which in turn affect academic performance and social interactions. The emotional domain, which was markedly affected in our study, reflects the psychological stress and anxiety associated with chronic illness. These results highlight the multidimensional impact of AR on children's lives and reinforce the importance of addressing both physical and psychosocial aspects in treatment plans.

Comparison with Existing Literature - Several studies have documented similar trends in QoL impairment among children with AR. For instance, research by Juniper et al. (1997) using the PRQLQ reported comparable domain scores, particularly in the nasal and emotional categories. Additionally, a study by Meltzer et al. (2009) demonstrated that children with uncontrolled AR symptoms had significantly lower QoL scores, reinforcing the need for effective symptom management. Our study contributes to this body of literature by providing robust data from a diverse pediatric population and emphasizing the role of symptom severity in determining QoL outcomes.

Clinical Implications - The findings of this study have important implications for clinical practice. Early identification and targeted intervention for children with moderate-to-severe AR may help mitigate the negative impact on QoL. Health care providers should consider incorporating QoL assessments into routine clinical evaluations to tailor treatment strategies effectively. Multidisciplinary approaches that include allergists, pediatricians, and mental health professionals may offer comprehensive care, addressing both the physical symptoms and the psychosocial burdens of the disease [6].

Limitations - Despite the strengths of our study, several limitations must be acknowledged. First, the cross-sectional design limits the ability to establish causality between symptom severity and QoL outcomes. Longitudinal studies are needed to better understand the temporal relationship between

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these variables. Second, reliance on self-reported data may introduce bias, particularly in younger children who depend on parental reporting [7]. Third, the study was conducted in specialized centers, which may not fully represent the general pediatric population with AR. Future research should aim to include a more diverse sample and examine the long-term effects of AR management on QoL.

Future Directions - Future studies could explore the impact of various treatment modalities—such as pharmacotherapy, immunotherapy, and non-pharmacological interventions—on QoL outcomes in children with AR. Additionally, investigating genetic and environmental factors that contribute to disease severity may provide further insights into personalized treatment approaches [8]. Longitudinal research designs would allow for an examination of how changes in symptom severity over time correlate with improvements or deteriorations in QoL.

CONCLUSION

This study demonstrates that allergic rhinitis significantly impairs the quality of life in children, with higher symptom severity correlating with greater overall QoL deterioration. Our findings highlight the necessity for early diagnosis, effective symptom management, and comprehensive care approaches that address both physical and psychological aspects of AR. Clinicians should consider integrating routine QoL assessments into clinical practice to optimize treatment strategies and improve long-term outcomes for pediatric patients. Further research is warranted to explore longitudinal effects and to assess the impact of innovative therapeutic interventions on QoL in this vulnerable population.

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