International Journal of Current Pharmaceutical Research

ISSN- 0975-7066 Vol 17, Issue 5, 2025

Original Article

QUALITY OF LIFE IN CHILDREN UNDERGOING ADENOTONSILLECTOMY: A PROSPECTIVE STUDY

RVM SRI HARSHA*, DESU VYSHNAVI, KOPPADA SOWMYA

CMR Institute of Medical Sciences, Hyderabad, Telangana, India
***Corresponding author: RVM Sri Harsha; *Email: rvmsriharsha@gmail.com**

Received: 10 Jun 2025, Revised and Accepted: 30 Jul 2025

ABSTRACT

Objective: To evaluate postoperative Quality of Life using the OSA-18 questionnaire, comparing scores before and six months after Adenotonsillectomy.

Methods: This prospective study was conducted in 2024 at a tertiary care teaching hospital and included 120 children aged 6–15 years undergoing adenotonsillectomy. Children with recurrent tonsillitis and obstructive symptoms were included. Exclusion criteria encompassed malignancy, syndromic conditions, and developmental delays. All surgeries were performed using the coblation technique. The OSA-18 questionnaire and clinical assessments were conducted preoperatively and at six months postoperatively. Data were analyzed using paired Student's t-test with $p<0.05$ considered significant.

Results: Postoperative assessments showed significant reductions in throat pain (82.8%), sleep apnea episodes (99.3%), doctor visits (93.9%), and school absences (92.8%). OSA-18 scores improved across all domains, with the greatest changes in physical symptoms (83.4%) and sleep disturbance (79.5%). Overall QoL improved by 78.6%, indicating enhanced daily functioning and reduced caregiver burden.

Conclusion: Adenotonsillectomy significantly enhances QoL in children with adenotonsillar hypertrophy, improving physical symptoms, behavior, emotional stability, and reducing caregiver stress.

Keywords: Chronic adenotonsillitis, Adenotonsillectomy, Obstructive sleep apnoea 18 questionnaire, Quality of life

DOI: https://dx.doi.org/10.22159/ijcpr.2025v17i5.7052 Journal homepage: https://innovareacademics.in/journals/index.php/ijcpr

INTRODUCTION

Adenotonsillectomy (surgical removal of Palatine Tonsils and Nasopharyngeal Tonsils) is one of the most common surgeries performed worldwide with more than half a million surgeries performed annually [1]. This procedure is indicated primarily for children with recurrent tonsillitis and upper airway obstruction which manifests as obstructive sleep-disordered breathing (SDB) or obstructive sleep apnoea (OSA) [1, 2].

The overall Quality of Life (QoL), cognitive development, emotional stability, and physical health of a child can all be significantly impacted by these conditions. The evaluation of the postoperative Quality of Life in children undergoing adenotonsillectomy has grown in significance due to the increased focus on patient-centered outcomes in contemporary medicine.

Chronic mouth breathing, restless sleep, poor academic performance, behavioral problems, and failure to thrive are common symptoms in children with enlarged tonsils and adenoids [3]. The child's everyday activities and psychosocial development suffer as a result of the related poor sleep quality, daytime fatigue, irritability, and attention problems. In a similar vein, frequent throat infections cause a great deal of emotional and financial strain on caregivers in addition to increasing school absenteeism and decreasing social interaction.

QoL evaluation has emerged as a crucial element in assessing the results of medical treatments. Measures of health-related quality of life in children having Adenotonsillectomy, such as the Pediatric Quality of Life Inventory (PedsQL) and the Obstructive Sleep apnoea-18 (OSA-18) questionnaire, have been validated [4]. These tools aid in measuring how the surgery has affected a number of areas, such as caregiver concerns, physical symptoms, emotional distress, and sleep disturbance.

The OSA-18 questionnaire is a useful screening tool for diagnosis of pediatric OSA. It includes questions directed towards patient's signs, symptoms, consequences and parent's concern. It has been widely used to identify various symptoms like sleep quality, sleep disturbances, emotional and daytime functions along with concerns related to the caregiver [5]. The maximum score which could be obtained from the scale is 126.

The purpose of this prospective study is to compare OSA-18 scores before and after surgery in order to assess the postoperative QoL in pediatric patients undergoing Adenotonsillectomy.

MATERIALS AND METHODS

Study design and participants

A prospective study was conducted over 6 mo at a tertiary care teaching hospital in 2024. The study included 120 children aged 6 to 15 y who underwent Adenotonsillectomy under General Anaesthesia. Informed consent was obtained from the parents or guardians of all participants, and the study was approved by the Institutional Ethics Committee.

Inclusion criteria

- Children aged 6–15 y
- Diagnosed with recurrent attacks of tonsillitis (≥3–4 episodes/year for ≥2 y) [6].
- Diagnosed with adenotonsillar hypertrophy [7].
- Exhibiting obstructive symptoms like snoring, mouth breathing, sleep apnoea.

Exclusion criteria

- Suspected malignancy.
- Bleeding disorders.

- Congenital craniofacial abnormalities.
- Developmental delays or neurologic deficits.
- Syndromic conditions or congenital hearing loss.

Preoperative assessment

The parents completed structured questionnaires that assessed the frequency of tonsillitis attacks, school absences, visits to the doctor, sleep disorders and general well-being over the past 6 mo before surgery. The symptoms of sleep apnoea were documented by clinical evaluation and by lateral nasopharyngeal X-ray.

Surgical procedure

All surgeries were performed under General Anesthesia using the Coblation technique by the same Surgeon to avoid bias.

RESULTS

Postoperative assessment

Six months post-surgery, patients were reassessed using the same Questionnaire with regard to the time after surgery. Changes in symptom frequency, sleep quality, emotional behavior, and school attendance were documented. Statistical significance was calculated using paired Student's t-test, with a p-value<0.005 considered significant.

Table 1: Demographic distribution of patients

Parameter	Number of patients	Percentage (%)
Age Group (Y)		
6-10	73	60.83
11-15	47	39.17
Gender		
Male	65	54.16
Female	55	45.83
mean Age (Y)	9.45±1.12	

Table 1 shows the demographic distribution of children, where, out of 120 children, 65 were males (54%) and 55 were females (46%), with a mean age of 9.45±1.12 y. The average duration of symptoms before surgery was 2.5 y.

Table 2: Degree of adenoid and tonsillar hypertrophy

Grade of hypertrophy	Adenoid	Tonsil
Grade I	0	2 (1.66%)
Grade II	19 (15.83%)	14 (11.67%)
Grade III	68 (56.67%)	62 (51.67%)
Grade IV	33 (27.5%)	42 (35%)

Table 2 indicates that most children had Grade III and IV hypertrophy in both adenoids and tonsils, indicating significant airway obstruction and supporting the diagnosis and surgical indication.

Table 3: Symptom severity comparison before and after surgery

Clinical parameter (over past 6 mo)	Preoperative mean±SD	Postoperative mean±SD	p-value
Throat pain episodes	7.25±1.2	1.25±0.8	<0.05
Doctor visits	4.95±1.5	0.30±0.4	<0.05
School absence (days)	8.30±2.0	0.60±0.5	<0.05
Sleep apnoea episodes/night	2.90±1.0	0.02±0.1	<0.05

Table 3 shows a dramatic postoperative improvement, which is seen across all clinical variables like throat pain, sleep apnoea and doctor visits, thereby confirming the effectiveness of Adenotonsillectomy. The p-value was found to be significant in all domains (<0.05), showing clinical significance.

Table 4: Quality of life score distribution based on OSA-18

OSA-18 domain	Mean preoperative score	Mean postoperative score	Improvement (%)
Sleep disturbance	25.4	5.2	79.5%
Physical symptoms	18.7	3.1	83.4%
Emotional distress	16.3	3.9	76.1%
Daytime functioning	20.1	4.8	76.1%
Caregiver concern	27.8	6.2	77.7%
Total OSA-18 Score	108.3	23.2	78.6%

Table 4 shows a substantial reduction in all five domains of the OSA-18 quality of life questionnaire following Adenotonsillectomy. The most significant improvements were seen in physical symptoms (83.4%) and sleep disturbance (79.5%), indicating better rest and fewer health complaints. Overall, the total OSA-18 score improved by 78.6%, reflecting a marked enhancement in both the child's and caregiver's quality of life post-surgery.

DISCUSSION

The most common surgical procedure for children with adenotonsillar hypertrophy who exhibit obstructive symptoms and recurrent infections is still Adenotonsillectomy. Assessing postoperative improvement in quality of life (QoL) after Adenotonsillectomy in children was the main goal of this study. A substantial improvement was found in several areas of pediatric well-being based on the OSA-18 questionnaire and general well-being parameters. The value of this procedure in pediatric otolaryngologic practice is reinforced by these findings, which are in line with the international literature.

The results of this study demonstrated significant postoperative reductions in throat pain (by 82.8%), school absences (by 92.8%), and doctor visits (by 93.9%), along with nearly complete resolution of sleep apnoea episodes (by 99.3%). The OSA-18 scores reflected

comparable patterns, with overall scores improving by 78.6% and the most notable gains seen in the domains of physical symptoms (83.4%) and sleep disturbance (79.5%)—findings that underscore the holistic benefit of Adenotonsillectomy.

These findings are consistent with those of Mitchell and Kelly (2004), who assessed QoL in children with OSA undergoing Adenotonsillectomy and found that OSA-18 scores and sleep quality significantly improved [8]. Improved behavioral and cognitive functioning following surgery was also observed in their study, confirming the crucial link between sleep, neurodevelopment, and academic achievement. Similar to this, our study found significant postoperative improvements in areas such as emotional distress (76.1 percent) and daytime functioning (76.1 percent), demonstrating that the benefits went beyond physical health.

The review by Garetzin 2008 [9] summarised the literature on Adenotonsillectomy and neurocognitive outcomes in children with sleep-disordered breathing. They focussed on the behavioural and cognitive results and concluded that surgical treatment leads to improvements in attention span, daytime behaviour, and emotional regulation. These observations are mirrored in our study, especially in the emotional distress and daytime functioning components of the OSA-18.

Similar to the opinion of a study in 2005 by Stewart *et al.* that correlated polysomnographic changes with QoL after Adenotonsillectomy, our study showed a parallel outcome in areas related to symptoms such as snoring, episodes of apnoea and quality of sleep [10]. Although polysomnography was not included in our methodology, the consistent improvements in symptomatic and questionnaire-based treatment reflect similar clinical progress and highlight the role of Adenotonsillectomy as both diagnostic and therapeutic intervention.

Our study's results closely match those of Huang *et al.* (2014) [11], who carried out a prospective longitudinal study of 135 kids who had Adenotonsillectomy for Obstructive Sleep apnoea (OSA). According to the OSA-18 questionnaire, both studies showed notable short-term improvements in quality of life (QoL), especially in physical symptoms and sleep disturbance.

In support of these conclusions, the study by Marcus *et al.* in 2013 said that according to the caregivers, Adenotonsillectomy significantly improved sleep-related symptoms and behavior [12]. Our findings are supported by caregiver-reported QoL changes, which validate the importance of parental input in pediatric QoL studies, even though they did not observe any discernible difference in objective attention tests when compared to watchful waiting.

The study by Flanary *et al.* in 2003 [13] said that long-term follow-up using the OSA-18 survey showed significant reductions in scores across all domains—sleep disturbance (mean decreased from 5.06 to 1.04), physical symptoms (4.54 to 2.22), and emotional distress (3.20 to 2.06), all with $P<.001$, indicating marked improvement in disease-specific QoL. Clinical parameters also showed highly significant reductions—throat pain episodes/year dropped from 7.25 to 1.25, school absences from 8.3 to 0.6 days, and sleep apnoea episodes/night from 2.90 to 0.02 ($p<0.005$). Collectively, these findings highlight that both studies confirm the surgical benefits by detailed QoL evaluation.

CONCLUSION

Adenotonsillectomy leads to substantial improvement in the postoperative Quality of Life among pediatric patients with recurrent tonsillitis and obstructive symptoms as evidenced by the OSA-18 tool. Children experienced relief from key symptoms such as throat pain, sleep apnoea, mouth breathing, and daytime fatigue following surgery. Postoperative improvements extended beyond physical health, positively impacting emotional well-being, behavior, school attendance, and overall daily functioning. Caregivers also reported reduced emotional and logistical burden, indicating better family quality of life and reduced healthcare dependence.

FUNDING

Nil

AUTHORS CONTRIBUTIONS

All authors have contributed equally

CONFLICT OF INTERESTS

Declared none

REFERENCES

1. Ingram DG, Friedman NR. Toward adenotonsillectomy in children: a review for the general pediatrician. JAMA Pediatr. 2015;169(12):1155-61. doi: 10.1001/jamapediatrics.2015.2016, PMID 26436644.
2. Kaditis AG, Gozal D. Adenotonsillectomy: the good the bad and the unknown. Curr Opin Pulm Med. 2022;28(6):537-42. doi: 10.1097/MCP.0000000000000911, PMID 36039903.
3. Swain SK, Sahu MC, Choudhury J, Ananda N. Adenotonsillectomy affecting quality of life in pediatric patients: our experiences at a tertiary care teaching hospital of Eastern India. Ann Indian Acad Otorhinolaryngol Head Neck Surg. 2020;4(1):1-4. doi: 10.4103/aiao.aiao_29_18.
4. Sistla SK, Lahane V. OSA 18 questionnaire: tool to evaluate quality of life and efficacy of treatment modalities in pediatric sleep disordered breathing due to adenotonsillar hypertrophy. Indian J Otolaryngol Head Neck Surg. 2022 Dec;74 Suppl 3:6406-13. doi: 10.1007/s12070-019-01757-0, PMID 36742702.
5. Silva VC, Leite AJ. Quality of life in children with sleep disordered breathing: evaluation by OSA-18. Braz J Otorhinolaryngol. 2006;72(6):747-56. doi: 10.1016/s1808-8694(15)31041-7, PMID 17308827.
6. Paradise JL, Bluestone CD, Colborn DK, Bernard BS, Rockette HE, Kurs Lasky M. Tonsillectomy and adenotonsillectomy for recurrent throat infection in moderately affected children. Pediatrics. 2002;110:7-15. doi: 10.1542/peds.110.1.7, PMID 12093941.
7. Brodsky L. Modern assessment of tonsils and adenoids. Pediatr Clin North Am. 1989 Dec;36(6):1551-69. doi: 10.1016/s0031-3955(16)36806-7, PMID 2685730.
8. Mitchell RB, Kelly J, Call E, Yao N. Quality of life after adenotonsillectomy for obstructive sleep apnea in children. Arch Otolaryngol Head Neck Surg. 2004;130(2):190-4. doi: 10.1001/archotol.130.2.190, PMID 14967749.
9. Garetz SL. Behavior, cognition and quality of life after adenotonsillectomy for pediatric sleep disordered breathing: summary of the literature. Otolaryngol Head Neck Surg. 2008 Jan;138(1)Suppl:S19-26. doi: 10.1016/j.otohns.2007.06.738, PMID 18164375.
10. Stewart MG, Glaze DG, Friedman EM, Smith EO, Bautista M. Quality of life and sleep study findings after adenotonsillectomy in children with obstructive sleep apnea. Arch Otolaryngol Head Neck Surg. 2005;131(4):308-14. doi: 10.1001/archotol.131.4.308, PMID 15837898.
11. Huang YS, Guilleminault C, Lee LA, Lin CH, Hwang FM. Treatment outcomes of adenotonsillectomy for children with obstructive sleep apnea: a prospective longitudinal study. Sleep. 2014;37(1):71-6. doi: 10.5665/sleep.3310, PMID 24470697.
12. Marcus CL, Moore RH, Rosen CL, Giordani B, Garetz SL, Taylor HG. A randomized trial of adenotonsillectomy for childhood sleep apnea. N Engl J Med. 2013;368(25):2366-76. doi: 10.1056/NEJMoa1215881, PMID 23692173.
13. Flanary VA. Long-term effect of adenotonsillectomy on quality of life in pediatric patients. Laryngoscope. 2003 Oct;113(10):1639-44. doi: 10.1097/00005537-200310000-00003, PMID 14520088.