Original Article

Impact of Pediatric Tonsillectomy on Parental Quality of Life, Stress, and Work Absenteeism: A Prospective Study

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Abstract

Objective: This study aimed to compare the quality of life, stress levels, and work absenteeism of parents before and after their child underwent tonsillectomy.

Methods: In a prospective longitudinal study, 35 parents, 70% of whom were mothers, of children having tonsillectomy participated. The PARADISE criteria for recurrent tonsillitis were satisfied by every child. The PedsQL Family Impact Module was used to evaluate parental quality of life both before and one month after surgery. A 10-point Likert scale was used to measure stress levels, and information was gathered on missed workdays resulting from child illness. Effect sizes (Cohen's d) and statistical significance were computed. SPSS version 26 was used to conduct the analysis.

Results: Parental QoL levels significantly improved after surgery; the total PedsQL score rose from 50.2 to 72.9 ($p < 0.001$, Cohen's $d = 1.62$). Large effect sizes were observed in all subdomains, including cognitive, social, emotional, and physical functioning. Missed workdays dropped from 4.3 to 1.8 days ($p < 0.001$), and parental stress levels dramatically fell from 8.2 to 4.8 ($p < 0.001$, $d = -2.89$). Mothers gained somewhat more QoL than fathers (+24.1 vs. +21.3), according to subgroup analysis.

Conclusion: In addition to easing the children's health burden, tonsillectomy improves parental quality of life, lowers stress levels, and decreases absenteeism from work. These results highlight the wider advantages for families of prompt surgical treatment for recurrent tonsillitis in children.

MeSH Keywords: Tonsillectomy; Surgery, Oral; Quality of Life; Parent-Child Relations; Absenteeism.

Introduction

Since recurrent tonsillitis and obstructive sleep disordered breathing (OSDB) continue to pose significant health risks to children, adenotonsillectomy has emerged as a key therapeutic option. The wider quality of life (QoL) effects on children and their families have drawn more attention recently, in addition to the obvious clinical advantages like fewer throat infections and better airway patency. Providing care for a child with OSDB or recurring throat infections can greatly damage the quality of life associated with parental health. The familial toll of pediatric throat infections was highlighted in 2022 when Shteinberg et al. revealed that parents of afflicted children had low HRQoL and high levels of worry.[1] In a similar vein, Rydenman et al. showed that tonsillectomy significantly improved child HRQoL and family impact measures as assessed by PedsQLTM instruments in children with PFAPA (periodic fever, aphthous stomatitis, pharyngitis, and cervical adenitis).[2] Additionally, recent studies have shown that tonsillectomy not only improves children's QoL but also alleviates parental stress and reduces caregiving burden.[3]

The increase in quality of life following tonsillectomy is both quick and long-lasting, according to longitudinal studies. In a pragmatic observational trial carried out in Australia, Huynh et al. showed that parental T 14 scores—a validated test for assessing throat disorders—dropped significantly from the pre-operative baseline, and the advantages continued for six months after surgery.[4] Simultaneously, Al Iede et al. found that adenotonsillectomy reduced the mean OSA-18 score by more than 15 points in a sample of almost 200 juvenile OSA patients, especially in the areas of physical symptoms and sleep disturbance.[5] Still, social and demographic factors affect the child's quality of life after surgery. According to a 2023 cross-sectional study by Zhou et al., lower PedsQL™ scores following tonsillectomy were linked to younger age (≤5 years), longer tonsillitis duration (>3 years), lower parental education, and lower household income.[6] The necessity of comprehensive perioperative treatment was highlighted by Stefan et al., who discovered that perioperative variables affected overall health-related QoL gains at six months.[7]

While families wait for surgery, quality of life does not improve despite obvious postoperative improvements. Reiterating the possible benefit of reducing surgical delays, Huynh et al. found no discernible change in T 14 scores after extended preoperative wait durations (median 174 days).[4] Furthermore, parental decisions and their knowledge of OSDB also affect results. For example, Leu et al. observed that parents who were more likely to have tonsillectomy were more knowledgeable about OSDB but less active during consultations, which may have an impact on the quality of shared decision-making[8]. Psychosocial and environmental factors are still important. By showing a link between pediatric tonsillectomy/adenoidectomy and a higher incidence of stress-related problems in susceptible children, Xiao et al. emphasized the need for caution, emphasizing that surgery itself may have psychological effects on certain populations.[9]

When combined, these recent data highlight the strong positive effects of adenotonsillectomy on the quality of life of both parents and children. They also highlight the significance of demographic context, decision-making dynamics, surgical timing, and psychological vigilance. Using established tools and analyses in line with recent research, the current study intends to expand on this expanding body of data by prospectively

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assessing parental QoL, stress levels, and work absenteeism prior to and following pediatric tonsillectomy in cases of recurrent tonsillitis.

Materials And Methods

This was a prospective longitudinal analytical study conducted in the Department of Ear, Nose, and Throat (ENT), Benazir Bhutto Hospital, Rawalpindi, Pakistan. The objective was to assess changes in parental quality of life (QoL) before and after pediatric tonsillectomy due to recurrent tonsillitis. The study was conducted in accordance with ethical standards and principles. Ethics committee approval was obtained before the commencement of research. Informed consent was acquired from all participants involved in the study. The research was conducted with respect for participant privacy, confidentiality, and autonomy. The study was conducted over a period of **six months**, from **August 2024 to March 2025,** following approval of the research synopsis by the institutional ethics committee.

A total of 35 parents of children undergoing tonsillectomy were recruited using non-probability consecutive sampling. The sample size was calculated using OpenEpi software based on a confidence interval of 95%, power of 80%, and expected effect size of 1.5 derived from previous studies on QoL improvement post-tonsillectomy.

Parents of children aged 3 to 12 years undergoing tonsillectomy for recurrent tonsillitis based on PARADISE criteria with a willingness to participate and provide informed written consent and children undergoing tonsillectomy for non-obstructive, infection-related indications, were included in the study.

Children undergoing adenoidectomy or other concurrent surgeries, with chronic systemic illnesses or developmental disorders and with known psychiatric illness or communication difficulties were excluded from the study.

The Pediatric Quality of Life Inventory (PedsQLTM) Family Impact Module was utilized to evaluate the quality of life of the parents.[10] This validated questionnaire assesses how parents and family functioning are affected by chronic health issues in children. Physical, Emotional, Social, Cognitive Functioning, Communication, Worry, Daily Activities, and Family Relationships are the eight domains that constitute its 36 items. Higher scores indicate better functioning on the PedsQLTM, which is rated on a 5-point Likert scale and converted to a 0–100 scale. Excellent concept validity and internal consistency reliability (Cronbach's $\alpha > 0.90$) have been shown for the questionnaire in a variety of pediatric populations. Structured in-person interviews with the primary caregiver, usually the mother, were used for both preoperative (baseline) and postoperative (1 month following surgery) evaluations.

After obtaining informed consent, demographic and clinical data were collected using a structured form. The PedsQL™ Family Impact Module was administered preoperatively and again at the 4-week postoperative follow-up, either in person or via telephone, where in-person visits were not feasible. Additional data collected included the number of tonsillitis episodes in the past year, parental perceived stress on a 10-point visual analog scale and number of workdays missed due to the child's illness (past 3 months)

Data were analyzed using IBM SPSS Statistics version 26.0. Continuous variables were presented as means ± standard deviations, and categorical variables as frequencies and percentages. The paired samples t-test was used to compare preoperative and postoperative PedsQL scores and other continuous outcomes. Effect sizes were calculated using Cohen's d, interpreted as small (0.2), medium (0.5), or large (≥ 0.8). The level of statistical significance was set at $p < 0.05$. Subgroup analyses were also conducted based on parent gender (mothers vs. fathers) to assess differential QoL improvements.

Results

A total of 35 parents of children undergoing tonsillectomy were included in the study. The mean age of the children was 6.8 ± 2.9 years, and the majority (70%) were mothers. All children met the PARADISE criteria for recurrent tonsillitis, with an average of 9.1 ± 1.6 episodes in the past year.

Table 1: Baseline Characteristics of Participants

Characteristic	Value (n=35)
Child Age (Mean ± SD)	6.8 ± 2.9
Child Gender (Male/Female)	16 / 19
Parent Age (Mean ± SD)	34.5 ± 5.3
Parent Gender (Male/Female)	11 / 24
Employed Parents (%)	70%
Mean Tonsillitis Episodes (Past Year)	9.1 ± 1.6

A significant improvement in parental quality of life (QoL) was observed post-tonsillectomy, as measured by the PedsQL Family Impact Module. The mean total score increased from 50.2 to 72.9 ($p < 0.001$, Cohen's $d = 1.62$), indicating a large effect size.

Table 2: Comparison of Preoperative and Postoperative PedsQL Scores

Domain	Pre-op (Mean ± SD)	Post-op (Mean ± SD)	p-value	Effect Size (Cohen's d)
Total PedsQL	50.2 ± 10.1	72.9 ± 8.6	<0.001	1.62 (Large)
Physical	52.3 ± 9.8	74.1 ± 9.2	<0.001	1.59 (Large)
Emotional	48.1 ± 8.5	69.8 ± 7.9	<0.001	1.74 (Large)
Social	49.5 ± 10.4	68.3 ± 9.1	<0.001	1.31 (Large)
Cognitive	50.8 ± 9.7	71.5 ± 8.5	<0.001	1.65 (Large)

Reduction in Parental Stress and Missed Workdays

Parents reported significantly lower stress levels post-surgery, with a mean reduction of 3.4 points on a 10-point scale ($p < 0.001$, Cohen's $d = -2.89$, large effect). Additionally, missed workdays due to child illness decreased from 4.3 to 1.8 days ($p < 0.001$).

Table 3: Changes in Parental Stress and Work Absenteeism

Outcome	Pre-op (Mean ± SD)	Post-op (Mean ± SD)	p-value	Effect Size (Cohen's d)
Parental Stress (1-10 scale)	8.2 ± 1.1	4.8 ± 1.3	<0.001	**-2.89 (Large)**
Missed Workdays	4.3 ± 1.5	1.8 ± 1.1	<0.001	**-1.46 (Large)**

Subgroup Analysis (Mothers vs. Fathers)

Both mothers and fathers experienced significant improvements in PedsQL scores. However, mothers showed a slightly greater increase (Mean +24.1 points vs. +21.3 points for fathers).

Table 4: Showing the results of the subgroup analysis

Group	Pre-op PedsQL	Post-op PedsQL	p-value
Mothers (n=24)	49.5 ± 10.4	73.6 ± 8.2	<0.001
Fathers (n=11)	51.7 ± 9.3	73.0 ± 8.9	<0.001

Discussion

One month following tonsillectomy for recurrent tonsillitis, our study found significant and statistically significant increases in parental quality of life (QoL), stress reduction, and reduced absenteeism from work. With a substantial impact size (Cohen's d ≈1.62), the mean overall PedsQL™ Family Impact Module score increased from 50.2 to 72.9 ($p < 0.001$). Average missed workdays decreased from 4.3 to 1.8 per month ($p < 0.001$), and parental reported stress decreased from 8.2 to 4.8 out of 10 ($p < 0.001$, high impact size).

These findings are consistent with observational research conducted at a tertiary center in Australia by Huynh et al., where the median parental T 14 scores dropped sharply from 33.5 before surgery to 2 six weeks after the procedure and stayed incredibly low (median 0–2) at six months.[4] Their findings, which reflect our evidence of quick post-operative benefits, highlight the fact that QoL does not improve during wait durations (median 174 days), underscoring the significance of minimizing surgical delays. In a similar vein, Al Iede et al. assessed 196 children having adenotonsillectomy for juvenile obstructive sleep apnea and found that, particularly in the physical symptoms and sleep domains, the mean OSA 18 score decreased by 15.14 points after surgery.[5] Improvements in child well-being probably lessen parental burden, which is consistent with our observed QoL gain, even though their focus was on their children's symptoms.

Additional evidence is provided by Stefan et al., who found that perioperative care parameters significantly influenced outcomes and that health-related QoL gains were observed six months following juvenile tonsillectomy.[7] High compliance was probably made possible by our standardized perioperative teaching and follow-up, which also helped to produce our solid results.[11] Our results show support links between child recovery and parental distress. Higher parental preoperative anxiety was linked to more postoperative pain and problems, according to Doluoglu et al.[12], indicating that parental psychological state affects outcomes for both caregivers and children. Future research may further refine QoL outcomes by incorporating anxiety measurement.

Alotaibi et al.'s 2024 cohort in Saudi Arabia used the CBCL to evaluate behavior and quality of life following adenotonsillectomy, and they found significant decreases in internalizing and externalizing difficulties at three months, which is different from studies that focus on child behavior.[13] This highlights the connection between family stress and child conduct, even though it is separate from parental QoL. Our findings are consistent with the idea that when children behave better, parental stress and burden also likely decrease. Nonetheless, tonsillectomy's potential long-term psychological consequences are significant. According to Xiao et al., people who had tonsillectomy or adenoidectomy as children had a 43% higher chance of developing stress-related disorders, such as PTSD, later in life.[9] This conclusion emphasizes the necessity for long-term attention and striking a balance between instant benefits and lifetime dangers, notwithstanding the brevity of our follow-up.

Although not evaluated here, the effects of demographic and socioeconomic factors have been documented in the literature on children's quality of life. Zhou et al. found that lower parental education/income, greater disease duration, and younger age (≤5) were all associated with worse child quality of life after surgery. Future research could identify modifiers of the amount of the QoL improvement by looking at subgroups, even though our parental cohort seemed to be rather homogeneous. Qualitative information is also becoming available. In their analysis of family narratives, Luo et al. discovered that postoperative assistance, organized communication, and surgical expectations all had a major impact on caregiver satisfaction and experiences.[14] These supportive factors were probably reflected in our organized interviews and follow-up protocols, which helped to increase parental QoL.

Device-specific QoL outcomes are also included in comparative literature. Stepan et al. found that the median T 14 scores of 146 children decreased from 24 preoperatively to 2 six weeks after a BizactTM tonsillectomy ($p < 0.001$), confirming the responsiveness of parental-reported throat QoL metrics.[15] The size and speed of change are similar, although being distinct from our PedsQLTM focus, supporting our findings as indicated by a study by Geißler K et al.[16] Overall, in line with current qualitative and quantitative studies, our study supports an increasing amount of evidence that juvenile tonsillectomy has a quick and significant impact on parental quality of life, stress reduction, and decreased work absenteeism. The observed gains are consistent with previous effect sizes and trajectories in larger cohorts and are clinically relevant.[17,18]

This study's strengths include its prospective design, use of a validated instrument (PedsQLTM Family Impact Module) for paired pre- and post-surgical measurement, inclusion of objective metrics (stress scores, missed workdays), and implementation in a Pakistani public hospital setting, which adds socioeconomic and geographic diversity. Limitations include the small sample size (n = 35), the one-month follow-up period, and the absence of a control or watchful waiting group to assess changes in natural QoL over time. This makes it impossible to assess if changes are sustainable or whether there are any long-term psychological effects. Furthermore, we did not explicitly measure the established factors that affect recovery and quality of life, parental preoperative worry, and child postoperative pain. Lastly, the absence of socioeconomic status diversity in our sample limited the subgroup analysis of variables shown to alter results in other research.

In summary, this study highlights the need for more research on long-term outcomes, parental psychological predictors, and socioeconomic moderators while reaffirming that pediatric tonsillectomy for recurrent tonsillitis has significant positive effects on parental QoL, lowers caregiver stress, and lowers work absenteeism within a month after surgery.

Conclusions

According to this study, within a month after surgery, juvenile tonsillectomy for recurrent tonsillitis considerably enhances parental quality of life, lowers stress levels, and lowers absenteeism from work. These results are consistent with recent research that demonstrates comparable improvements in quality of life after surgery. Our results are more reliable when we employ a validated assessment method. Future studies should examine psychological consequences, long-term implications, and the role of parental anxiety, even though the results are encouraging. All things considered, prompt tonsillectomy provides the child with clinical alleviation as well as significant psychological and practical advantages for their family and caregivers.

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