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ORIGINAL RESEARCH

ANALYSIS OF PATIENT SATISFACTION AND QUALITY OF LIFE AFTER MICROTIA RECONSTRUCTION IN 2 YEARS

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ABSTRACT

Background. Microtia is a congenital malformation of the external and middle ear that may lead to hearing impairment and psychosocial challenges. Surgical reconstruction using autologous costal cartilage remains the gold standard for treatment. Evaluating patient satisfaction and quality of life after reconstruction is essential in assessing surgical success.
Method. This descriptive-analytic, cross-sectional study included microtia patients who underwent two-stage reconstruction at Universitas Airlangga Hospital between August 2022 and August 2024. Data were collected through an online questionnaire distributed via WhatsApp groups. A total of 28 eligible participants were analyzed using bivariate statistical tests.
Result. Most participants were male (75%) with unilateral right-side microtia (57.1%) and the most common severity was grade 3 microtia (67.9%). The majority had isolated microtia without other congenital anomalies (67.9%). Overall satisfaction was classified as “moderate” (39.3%), while quality of life was rated as “very good” (57.1%). No significant association was found between the severity of microtia or the presence of congenital anomalies with patient satisfaction or quality of life ($p > 0.05$).
Conclusion: The majority of microtia patients in Indonesia were male (75%), had right-sided unilateral microtia (57.1%), isolated cases (67.9%), and were classified as third-degree based on Hunter’s Classification (67.9%). Overall, 39.3% of patients reported being moderately satisfied with their surgical outcomes. Severity of the condition and the presence of congenital anomalies did not significantly influence satisfaction or quality of life post-reconstruction.

Keywords: Microtia, satisfaction level, quality of life, medical care.

INTRODUCTION

Microtia is a congenital malformation of the outer and middle ear caused by developmental abnormalities during embryogenesis[1,2]. It is often accompanied by hearing impairment due to the absence of the external auditory canal and may be associated with syndromic conditions such as craniofacial microsomia and Treacher Collins syndrome[2,3].

Surgical reconstruction is critical, as individuals with facial deformities often perceive themselves as unattractive and may experience low self-esteem, leading to social withdrawal[4,5]. Patients with microtia are therefore more vulnerable to depression and challenges in social interaction. Autologous costal cartilage reconstruction remains the gold standard technique[5,6].

Assessing patient satisfaction with surgical outcomes is essential for evaluating and advancing surgical techniques[6]. Perceptions of success in microtia reconstruction are largely subjective and depend on the patient's evaluation of the results[7]. Various factors may influence satisfaction, including the severity of the deformity, presence of additional congenital anomalies, and the age at which surgery is performed[8,9]. However, the lack of standardized assessment tools and the variability in outcome perception complicate the evaluation of surgical success[4].

Based on these considerations, this study aims to assess patient satisfaction and quality of life following microtia reconstruction.

METHODS

This study employed a descriptive-analytic approach with a cross-sectional design. The target population consisted of individuals with microtia who had undergone two-stage reconstruction surgery at Airlangga University Hospital between August 2022 and August 2024. Postoperative evaluation was conducted at least three months after surgery and continued until all relevant data were collected.

A total of 28 patients were included in the study. Each parent or guardian of the patient was interviewed by a doctor, either via Zoom or in person, using a structured questionnaire. The questionnaire was administered online via Google Forms[10]. To assess quality of life, the EQ-5D-Y instrument was used.

Data were tabulated and analyzed using Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics were used to calculate frequencies and percentages. Bivariate analysis was performed using the Spearman and Chi-square tests to determine associations between variables.

RESULTS

A total of 34 individuals with microtia underwent two-stage reconstruction surgery (costal cartilage framework harvesting and insertion, followed by framework elevation) at Universitas Airlangga Hospital between August 2022 and August 2024. Questionnaires were distributed to all 34 patients or their family members, with 28 completed responses obtained, resulting in 28 research subjects.

Characteristics of Patients with Microtia

Of the 28 participants, the majority were male (n = 21; 75%), while 7 (25%) were female (Figure 1a). Unilateral microtia was present in 22 subjects (78.5%), and bilateral microtia in 6 subjects (21.4%) (Figure 1b). The right ear was more commonly affected (n = 16; 57.1%) than the left ear (n = 6; 21.4%).

In terms of severity, grade 3 microtia was the most common (n = 19; 67.9%), followed by grade 2 (n = 6; 21.4%), grade 1 (n = 2; 7.1%), and anotia (n = 1; 3.6%) (Figure 1c). Most patients (n = 19; 67.9%) had isolated microtia without additional congenital anomalies. However, 9 patients (32.1%) had syndromic microtia, with craniofacial abnormalities being the most frequently associated condition (n = 8), and one case involving a spinal anomaly (Figure 1d).

Satisfaction Level and Quality of Life Following Microtia Reconstruction

Overall, participants reported a moderate level of satisfaction with surgical outcomes. Eleven patients (39.3%) were fairly satisfied, eight (28.6%) were satisfied, and four (14.3%) were very satisfied. Dissatisfaction was reported by five patients: four (14.3%) were dissatisfied and one (3.6%) was very dissatisfied (Figure 2a).

In terms of specific ear components, 28.6% of participants were very satisfied with their lobule, while 21.4% were very dissatisfied with their helix (Figure 2b).

Postoperatively, most participants reported a good to very good quality of life. However, 8 subjects (28.6%) experienced pain or discomfort, and 7 subjects (25%) reported feelings of worry, sadness, or unhappiness (Figure 3b).

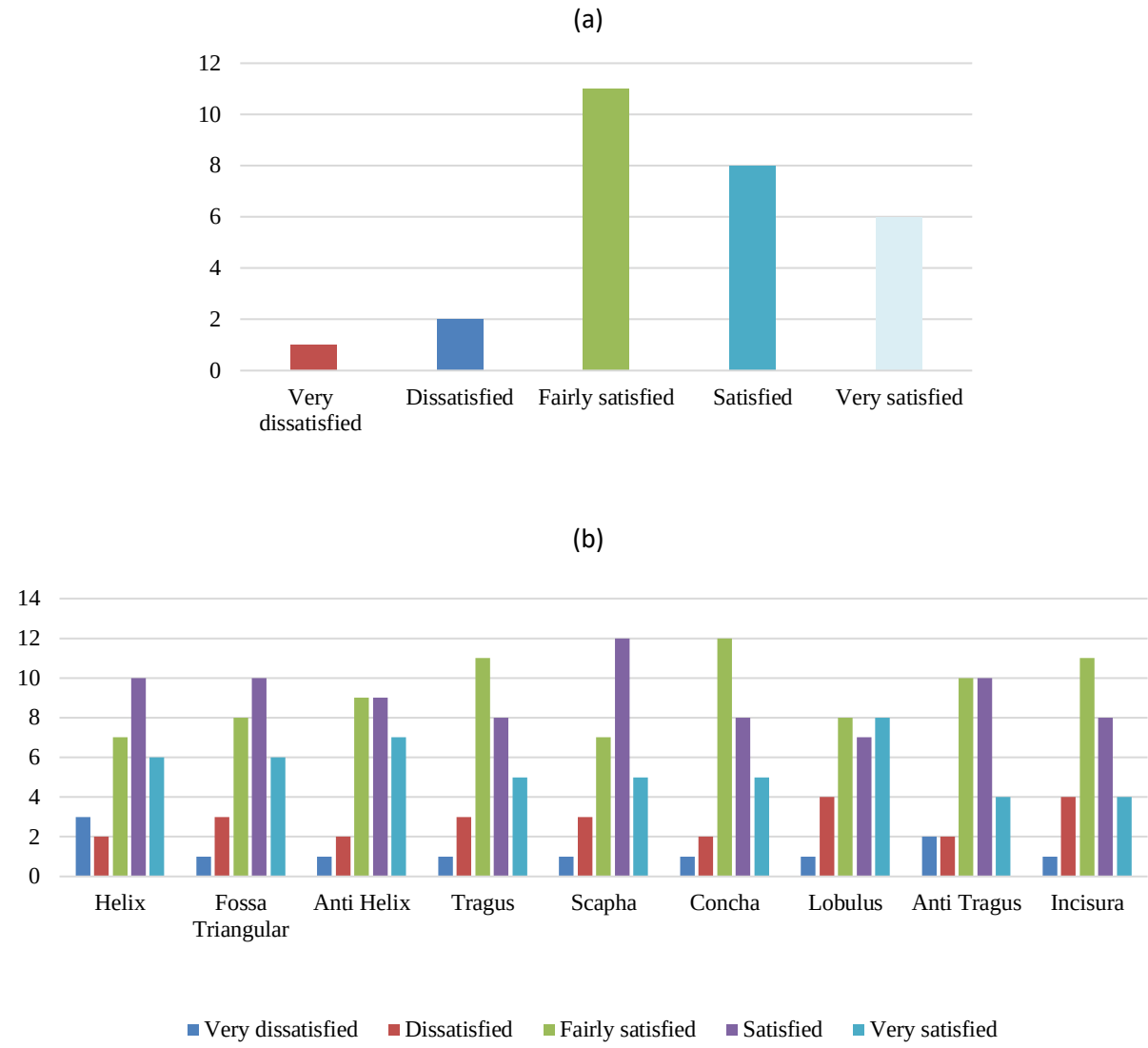
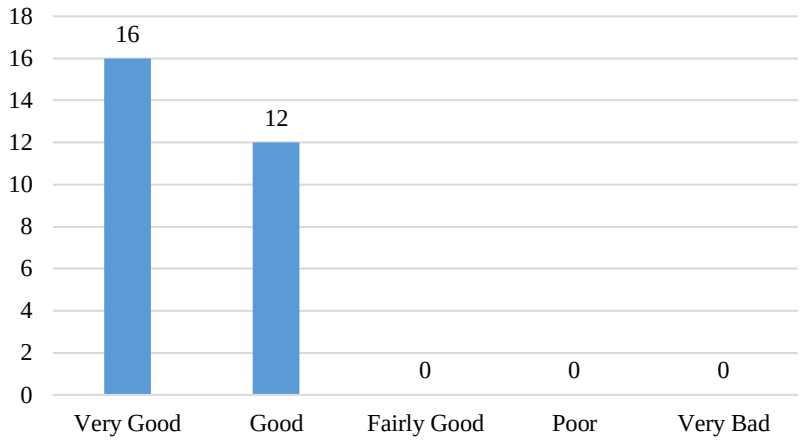


Figure 1. (a) Patient satisfaction following microtia reconstruction and (b) Satisfaction rate of auricle structures.



(b)

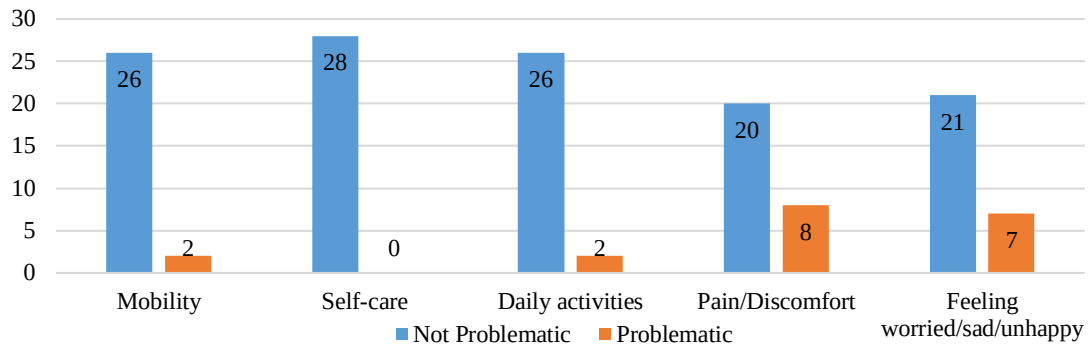


Figure 2. (a) Patient quality of life following microtia reconstruction and (b) Factors associated with the postoperative quality of life of the patients with microtia.

DISCUSSION

Characteristics of Patients with Microtia

This study included 28 individuals with microtia, consisting of 21 males and 7 females, reinforcing the widely reported higher prevalence of microtia in males. Similar trends have been documented in China (72%)[11], South Korea (67.3%)[12], France (63%)[2], Japan (61%)[13], the Netherlands (60.8%)[14], the United States (59.3%)[15], and South America (54.4%)[16]. The higher male-to-female ratio in Indonesia may also contribute to the observed pattern[17].

Unilateral microtia was more common (78.5%) in this study, with 57.1% affecting the right ear. This is consistent with prior findings indicating that microtia predominantly occurs unilaterally and more frequently on the right side, with rates as high as 61%[14].

In terms of severity based on the Hunter classification, grade 3 microtia was the most prevalent (67.9%), followed by grade 2 (21.4%), grade 1 (7.1%), and anotia (3.6%). These findings align with previous research showing grade 3 as the most frequent type[18], likely due to its more visible deformity, which increases the likelihood of seeking medical attention. In contrast, the milder appearance of grade 1 microtia may lead to underreporting or reduced urgency for treatment.

Most cases (67.9%) were classified as isolated microtia, while 32.1% were associated with other congenital anomalies. This trend mirrors studies from Asian and South American populations, where isolated microtia accounts for approximately 63% of cases[14].

Satisfaction Level Following Microtia Reconstruction

Satisfaction levels following reconstruction were evaluated based on the aesthetic outcome of individual ear subunits and the overall ear appearance. Patients reported the highest satisfaction with the lobule (28.5%), followed by the antihelix (25%), helix (21.4%), triangular fossa (21.4%), tragus (17.9%), scapha (17.9%), and concha (17.9%). These findings are consistent with a previous study[5] in which satisfaction with the lobule and helix was highest (74% and 71%, respectively). This may be due to the more linear and replicable shape of these structures, which closely resemble the natural curvature of rib cartilage used in reconstruction[4].

Other studies, however, have reported lower satisfaction with complex subunits such as the anti-tragus, likely due to the intricate shape and the difficulty of accurate reconstruction[8]. The tragus–incisura–anti-tragus region has also been noted as one of the most challenging areas to recreate surgically[7].

Overall, this study found that patient satisfaction with the reconstructed ear was generally moderate, with the highest ratings for the lobule. This supports previous findings suggesting that the lower third of the ear, particularly the lobule, significantly contributes to the aesthetic perception of the ear's overall appearance[5].

The Relationship Between the Severity of Microtia and Satisfaction Level

This study found no significant association between microtia severity and patient satisfaction following

reconstruction. Although additional congenital anomalies were more frequently observed in patients with more severe microtia (particularly grade 3), this did not appear to impact satisfaction levels. These results suggest that while greater severity may increase surgical complexity, it does not necessarily influence patients' subjective satisfaction with the outcome.

The Relationship Between the Presence of Congenital Anomalies and Satisfaction Level

Microtia can present as either isolated (non-syndromic) or syndromic, with the latter involving additional congenital anomalies that could potentially affect reconstruction outcomes and satisfaction. Previous studies have noted that patients with associated conditions—such as hemifacial microsomia—often experience lower satisfaction due to persistent facial asymmetry, which can impact the aesthetic results of reconstruction[19]. However, this study found no statistically significant relationship between the presence of congenital anomalies and satisfaction levels, suggesting that successful reconstruction may still yield acceptable outcomes regardless of comorbidities.

Quality of Life Following Microtia Reconstruction

Overall, the quality of life among microtia patients who underwent two-stage reconstruction in this study was reported as very good. This supports the view that reconstructive surgery can alleviate many of the social and psychological burdens associated with microtia. Patients with microtia often face psychosocial challenges, including bullying, social stigma, and difficulties with relationships or employment in adulthood[7]. Surgical reconstruction plays a critical role in improving both physical appearance and social confidence.

The Relationship Between the Severity of Microtia and Quality of Life

Statistical analysis revealed no significant association between microtia severity and post-reconstruction quality of life across all assessed domains: mobility ($p = 0.796$), self-care (data not analyzable), daily activities ($p = 0.459$), pain/discomfort ($p = 0.086$), and emotional well-being ($p = 0.936$).

These findings contrast with prior studies that reported improved quality of life in patients with severe microtia (grade 3) following reconstruction[6]. The discrepancy may be due to individual variability in psychological resilience or differences in healthcare support. Nevertheless, successful surgical outcomes can play a key role in reducing emotional distress and improving overall well-being.

The Relationship Between the Presence of Congenital Anomalies and Quality of Life

This study found no significant relationship between the presence of congenital anomalies and post-reconstruction quality of life. However, existing literature suggests that patients with comorbid conditions may experience more complex clinical courses. For instance, patients with concurrent anomalies—such as cardiac or spinal defects—often require extended medical care, which may increase psychological stress and healthcare burden[20,21]. Moreover, while reconstruction can improve ear appearance, patients with additional conditions may continue to face general health issues and social integration challenges[9].

CONCLUSIONS

Most patients with microtia in Indonesia are male (75%), present with right-sided unilateral involvement (57.1%), isolated cases (67.9%), and are classified as grade 3 based on the Hunter Classification (67.9%). Overall satisfaction following microtia reconstruction was moderate, with 39.3% of patients reporting being fairly satisfied. Importantly, neither the severity of microtia nor the presence of congenital anomalies showed a significant association with patient satisfaction or post-reconstruction quality of life. These findings suggest that successful surgical outcomes can provide a consistent level of satisfaction and quality of life, regardless of clinical severity or comorbid conditions.

DECLARATIONS

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Competing and Conflicting Interest

The authors declare no competing interests or conflicts of interest related to this work.

Ethical Approval

Ethical approval for this study was granted by The Research Ethics Committee of Rumah Sakit Universitas Airlangga (no : 188/KEP/2024).

Informed Consent

Applicable.

REFERENCES

1. Bly RA, Bhrany AD, Murakami CS, Sie KCY. Microtia Reconstruction. *Facial Plast Surg Clin North Am*. 2016;24(4):577-591. doi:10.1016/j.fsc.2016.06.011
2. Stoll C, Alembik Y, Dott B, Roth MP. Associated anomalies in cases with anotia and microtia. *Eur J Med Genet*. 2016;59(12):607-614. doi:10.1016/j.ejmg.2016.10.012
3. Chen X, Zhang R. Microtia epigenetics. *Medicine*. 2019;98(41):e17468. doi:10.1097/MD.0000000000017468
4. Cui C, Li Y, Zhang R, et al. Patient Perception and Satisfaction Questionnaire for Microtia Reconstruction: A New Clinical Tool to Improve Patient Outcome. *Journal of Craniofacial Surgery*. 2018;29(2):e162-e167. doi:10.1097/SCS.0000000000004239
5. Widodo DW, Mars R, Suwento R, Alviandi W, Oriza IID, Bardosono S. Satisfaction and health-related quality of life of patients with microtia following reconstructive surgery using the Nagata technique. *PLoS One*. 2021;16(9):e0256652. doi:10.1371/journal.pone.0256652
6. Awan B, Samargandi O, Aldaqal S, Sehlo M. EPA-0175 – Life satisfaction and quality of life in adolescents with grade III microtia: the effect of improved body image disturbance after ear reconstructive surgery. *European Psychiatry*. 2014;29:1. doi:10.1016/S0924-9338(14)77633-3
7. Cui C, Hoon SY, Zhang R, et al. Patient Satisfaction and Its Influencing Factors of Microtia Reconstruction Using Autologous Cartilage. *Aesthetic Plast Surg*. 2017;41(5):1106-1114. doi:10.1007/s00266-017-0907-y
8. Akter F, Mennie JC, Stewart K, Bulstrode N. Patient reported outcome measures in microtia surgery. *Journal of Plastic, Reconstructive & Aesthetic Surgery*. 2017;70(3):416-424. doi:10.1016/j.bjps.2016.10.023
9. Ronde EM, Esposito M, Lin Y, van Etten-Jamaludin FS, Bulstrode NW, Breugem CC. Long-term aesthetics, patient-reported outcomes, and auricular sensitivity after microtia reconstruction: A systematic review. *Journal of Plastic, Reconstructive & Aesthetic Surgery*. 2021;74(12):3213-3234. doi:10.1016/j.bjps.2021.08.004
10. Gunadiputri DI, Aisyah IF, Zarasade L, Lestari P, Putri IL. Microtia in Indonesia: Characteristics and Family History Analysis on the Presence of Other Congenital Anomalies in Patients With Microtia. *The Cleft Palate Craniofacial Journal*. Published online February 5, 2025. doi:10.1177/10556656251317798
11. Charles T. *Grabb and Smith's Plastic Surgery*. 7th ed. (Chung K, Gosain A, Gurtner G, Mehrara B, Rubin JP, Spear SL, eds.). Wolters Kluwer Health/Lippincott Williams & Wilkins; 2014.
12. Lee KT, Yang EJ, Lim SY, et al. Association of congenital microtia with environmental risk factors in South Korea. *Int J Pediatr Otorhinolaryngol*. 2012;76(3):357-361. doi:10.1016/j.ijporl.2011.12.009
13. Yamauchi M, Yotsuyanagi T, Ikeda K, et al. Clinical and genetic analysis of microtia in Japan. *J Plast Surg Hand Surg*. 2012;46(5):330-334. doi:10.3109/2000656X.2012.700018
14. van Nunen DPF, Kolodzynski MN, van den Boogaard MJH, Kon M, Breugem CC. Microtia in the Netherlands: Clinical characteristics and associated anomalies. *Int J Pediatr Otorhinolaryngol*. 2014;78(6):954-959. doi:10.1016/j.ijporl.2014.03.024
15. Cabrejo R, Persing J, Alperovich M. Epidemiologic Assessment of Microtia in Over 23 Million Consecutive United States Births. *Journal of Craniofacial Surgery*. 2019;30(2):342-346. doi:10.1097/SCS.0000000000004885
16. Luquetti DV, Leoncini E, Mastroiacovo P. Microtia-anotia: A global review of prevalence rates. *Birth Defects Res A Clin Mol Teratol*. 2011;91(9):813-822. doi:10.1002/bdra.20836
17. Badan Pusat Statistik. *Statistik Indonesia 2023*.; 2023.
18. Zhang Y, Wang C, Yang M, Pan B. Inheritance analysis and family history for microtia: A hospital-based study in China. *Int J Pediatr Otorhinolaryngol*. 2023;171:111613. doi:10.1016/j.ijporl.2023.111613
19. Johns AL, Stock NM, Costa B, Billaud Feragen K, Crerand CE. Psychosocial and Health-Related Experiences of Individuals With Microtia and Craniofacial Microsomia and Their Families: Narrative Review Over 2 Decades. *The Cleft Palate Craniofacial Journal*. 2023;60(9):1090-1112. doi:10.1177/10556656221091699
20. Cao T, Chen Q, Wang B, Hu J, Zou M, Zhang Q. Epidemiological Research of Microtia Combined With Congenital Heart Disease. *Journal of Craniofacial Surgery*. 2021;32(3):920-924. doi:10.1097/SCS.0000000000007296
21. Hauc SC, Boroumand S, Hosseini H, et al. National Trends in Microtia Repair Cost and Hospital Length of Stay. *Journal of Craniofacial Surgery*. Published online August 15, 2023. doi:10.1097/SCS.0000000000009599