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ORIGINAL ARTICLE

# Psychosocial Effects of Otoplasty in Children with Prominent Ears

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**Abstract** This study aimed to investigate changes experienced by children during the pre- and postoperative periods of prominent ear corrective surgery. A total of 30 patients with prominent ears, sometimes called "lop ears" or "cup ears," ranging in age from 6 to 14 years were consecutively enrolled in this study. Half of the patients ($n = 15$, 50%) were male. The inclusion criteria specified children with prominent ears and reports of evident anatomic deformity. Clinical evaluations, routine laboratory tests, and interviews were performed in the pre- and postoperative periods. To assess the dissatisfaction or social maladjustment caused by the prominent ears, questionnaires, which are used routinely in psychological and psychiatric practices, were applied in the pre- and postoperative periods. The tests used were the Child Behavior Check List, the State-Trait Anxiety Inventory for Children, and the Children's Depression Inventory. The patients themselves and their parents or guardians reported improvements in terms of anatomic aspect. For the psychological tests, improvements in almost all the assessed items were observed. In conclusion, psychological problems caused by anatomic deformities, such as prominent ears, can be improved by adequate corrective surgery. Psychological support is necessary for the patients.

**Keywords** Plastic surgery · Prominent ears · Psychological aspects

Prominent ears, sometimes called "lop ears" or "cup ears," are an anatomic defect characterized by deformities of the auricular structure, such as the concha valga, with alterations of the auricular-cranium angle, absence of antihelix modeling, and hypertrophy of the concha. This deformity is congenital [1] and affects roughly 5% of the population [2]. It causes a series of disorders, especially in relation to psychological aspects [3–5].

A comparison of data before and after corrective surgical treatment has shown an improvement in the quality of life experienced by individuals with prominent ears [5]. Improvements in self-esteem and minimization of psychosocial anxiety were reported by Sarwer et al. [6, 7]. Other studies propose a new direction for psychological investigations, focusing on questions about imaging of patients submitted to operations. Hasan [8] discussed psychological questions and their impact in plastic surgery, including the motivations and expectations of patients undergoing the operation with respect to their self-image.

The current study aimed to investigate changes that occurred in children with prominent ears using psychological tests and drawings applied in the pre- and postoperative periods of corrective surgery for this anatomic deformity to evaluate the psychosocial profile.

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## Patients and Methods

A total of 30 patients with prominent ears were consecutively recruited in the Plastic Surgery Outpatients' Clinic of the University Hospital de Base. The preestablished age range was 6 to 14 years. Half the patients were boys (n = 15, 50%). The children were included if they had clinical complaints because of the evident anatomic deformity.

Evaluations and interviews performed in the pre-and postoperative periods included the patient's history, clinical examination, and routine laboratory examinations. In the interviews of the children and their parents or guardians, observations and complaints related to problems associated with prominent ears were noted, and the deformity was documented by photography.

To evaluate the patients' dissatisfaction and social maladjustment caused by the prominent ears, questionnaires, which are used routinely in psychological and psychiatric practices, were applied in the pre-and postoperative periods. The questionnaires used were the Child Behavior Check List [9–11], the State-Trait Anxiety Inventory for Children [12, 13], and the Children's Depression Inventory [14, 15].

Statistical analysis was performed on pure scores in the descriptive phase using basic statistics including mean, standard deviation, median, and percentages. For the comparison between the pre- and postoperative phases, the nonparametric sign test for the median was used.

## Results

All 30 children who underwent surgery obtained a good postoperative result, with satisfactory correction of the deformity reported by the patient and parents or guardians. The long-term results were similar to those observed in the immediate postoperative period including an adequate anatomic appearance and facial harmony.

Use of the Child Behavior Check List with the parents is summarized in Fig. 1, and the results are presented in Table 1. Use of the same instrument with teachers is summarized in Fig. 2, with the results shown Table 2.

### State-Trait Anxiety Inventory for Children

Comparing the anxiety state between the pre- and postoperative phases, we verified that the level of anxiety in the postoperative state decreased in 20 children, remained the same in 2 children, and increased in 8 children (Fig. 3). Comparing the anxiety-trait in the pre- with postoperative phases, we verified that the anxiety-trait decreased for 9 patients in the postoperative period, remained the same for 16 patients, and increased for 5 patients (Fig. 4).

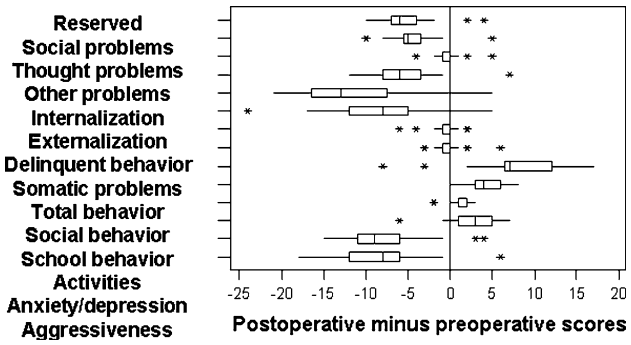


**Fig. 1** Schematic diagram showing the postoperative score minus the preoperative score obtained using the Child Behavior Check List (CBCL) with parents or guardians, according to the behavior pattern. Right of the zero axis shows increases and left shows decreases

**Table 1** The Child Behavior Check List applied to parents

| Variable | Change | *p* Value |
|---|---|---|
| Anxiety and depression | Decreased | 0.0000 |
| Social problems | Decreased | 0.0000 |
| Difficult to think | Decreased | 0.046 |
| Attention problems | Decreased | 0.0000 |
| Aggressive behavior | Decreased | 0.0000 |
| Behavior during activities | Increased | 0.0000 |
| Social behavior | Increased | 0.0000 |
| Behavior at school | Increased | 0.0000 |
| Total behavior | Increased | 0.0000 |
| Somatic disorders | No alterations | 0.24 |
| Delinquent behavior | No alterations | 0.5811 |

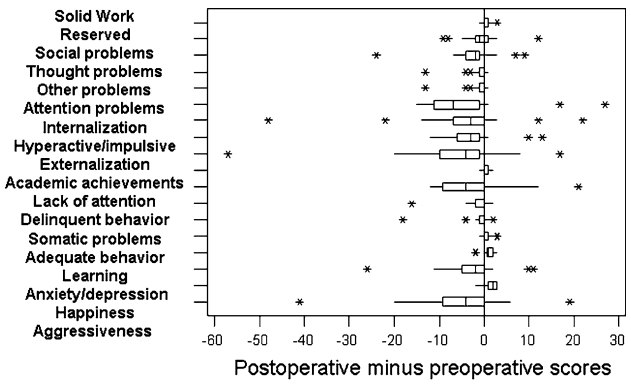


**Fig. 2** Schematic diagram demonstrating the postoperative score minus the preoperative score obtained using the Child Behavior Check List (CBCL) with teachers, according to the behavior pattern. Right of the zero axis shows increases and left shows decreases

### Children's Depression Inventory

The results of the Children's Depression Inventory showed moderate or slight depression and the absence of depression in the preoperative and postoperative phases (Fig. 5).

**Table 2** The Child Behavior Check List applied to teachers

| Variable | Change | *p* Value |
|---|---|---|
| Somatic disorders | Decreased | 0.0384 |
| Anxiety and depression | Decreased | 0.0012 |
| Social problems | Decreased | 0.000 |
| Attention problems | Decreased | 0.0000 |
| Aggressive behavior | Decreased | 0.0002 |
| Total internalizing behavior[a] | Decreased | 0.0096 |
| Total externalizing problems[b] | Decreased | 0.0000 |
| Total problems | Decreased | 0.0000 |
| Inattention | Decreased | 0.0002 |
| Hyperactivity–Impulsiveness | Decreased | 0.0000 |
| Academic achievement | Increased | 0.0001 |
| Stable work | Increased | 0.0461 |
| Learning | Increased | 0.000 |
| Happiness | Increased | 0.0000 |
| Reserved behavior | No alterations | 0.230 |
| Delinquent behavior | No alterations | 0.1200 |
| Adequate behavior | No alterations | 0.1400 |

[a] Total internalizing behavior included reserved behavior, somatic disorders, and anxiety and depression

[b] Total externalizing problems included attention problems, delinquent behavior, and aggressive behavior

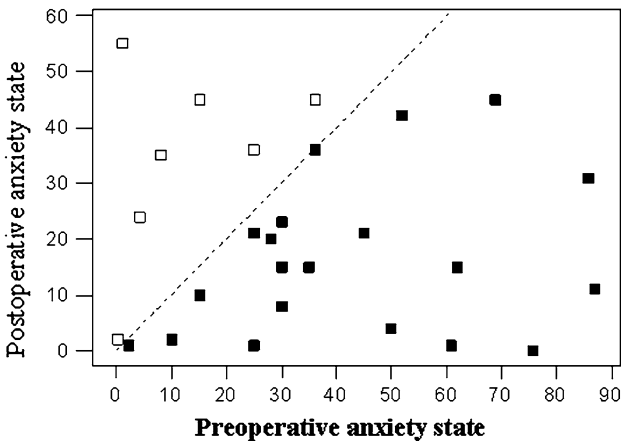


**Fig. 3** Dispersion graph showing the results of a comparison between the preoperative and postoperative phases of patients' anxiety state. Note the high number of patients with an anxiety state in the preoperative phase

We concluded that the Children's Depression Inventory has psychometric proprieties relevant to depression research.

## Discussion

The current study demonstrates the benefits of corrective plastic surgery for prominent ears. The ideal age for correction of this anatomic problem is 1 or 2 years before the child starts school, normally at about the age of 6 years,

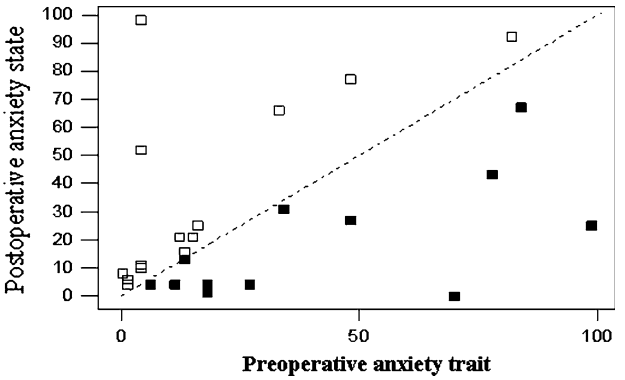


**Fig. 4** Dispersion graph showing the results of a comparison between the preoperative and postoperative phases of patients' anxiety trait. Note that the numbers of patients are not very different between the two sides of the trace

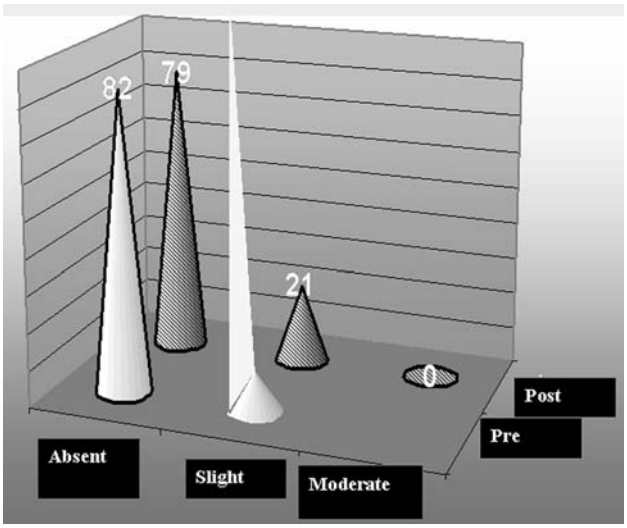


**Fig. 5** Percentage distribution of the results from the depression inventory for children in the pre- and postoperative phases

when the auricular development is complete [16]. At preschool ages, children do not note this deformity, so at this stage they do not suffer from the psychological trauma frequently evidenced in older children with prominent ears. However, the situation changes when the children start school activities [17–19].

Publications have stressed that anatomic deformities can cause psychological alterations and that surgical correction becomes the therapy of choice. The plastic surgeon sees this type of alteration in the day-to-day routine, and the best approach requires a profound understanding of the problem, including clinical, surgical, and psychological aspects. Because psychological aspects play an important part in the life of children with prominent ears, the best approach makes use of a multidisciplinary team. However harmonic prominent ears look, people with this deformity are very resentful.

The literature describes the individual who has known the stigma related to some individualized deformity [20,21]. Such an individual experiences personality vulnerability, emotional instability during childhood, and very low self-esteem.

The current study detected postoperative improvements in school and learning achievements, in-group activities, and out-of-school activities. Additionally, the study identified that prominent ears represent a greater problem for boys than girls because boys find it difficult to hide their ears with their hair.

A comparison of the Child Behavior Check List results between parents and teachers showed a greater improvement at school than at home in the postoperative period with respect to internalization problems such as anxiety, depression, happiness, and learning, and with respect to externalization problems such as aggressive, cruel, and delinquent behavior.

The use of the Children's Depression Inventory with patients demonstrated that 7% of the patients with moderate depression in the preoperative period suffered only slight depression in the postoperative period. Thus, there was an improvement in this trait.

The application of the State-Trait Anxiety Inventory with the children in our study indicated that the anxiety state diminished for 18 children from the preoperative to the postoperative period. This is a transitory state of apprehension, tension, and worry related to the stress and anxiety of the surgical procedure itself. However, the anxiety trait, which demonstrates individual differences in trends when situations of anxiety are experienced, showed that for 8 children, the score dropped in the postoperative period, whereas for 14 children, it remained at the same level.

Many of the children in the study had complained for years about their deformity with phrases such as "I do not want to go to school" and "I don't want to study," making integration at school and in their own homes difficult The parents of these children affirmed that their child "is fearful and sad," "is distracted and cautious at home," "fights a lot at school due to the teasing," "cries in front of the mirror," "is untidy," "has fear and is shy," "is ashamed of people seeing his ears" and "eats excessively and is anxious." After the corrective surgical procedure for the prominent ears, most of these complaints disappeared, thus showing improvement in the social-familiar environment.

The first victims of children with prominent ears are the parents. They suffer the first consequences of a hereditary stigma initially more than the children themselves. Their child's problem becomes their own. During the first year, the problem remains within the home. The parents try, by all means possible, to soften the effect from the excessive projection of the ears using varying devices.

Soon the child leaves the protection of the home and starts to develop his role within other groups and to direct his interests toward people other than the parents. Preparing to establish interpersonal relationships outside the home, the child begins the difficult task of adjusting to strangers and of controlling the erotic and aggressive impulses as a means of coping in society. The child develops the necessity to belong to a peer group and to be accepted by his colleagues, as well as the necessity to feel responsible and to be capable of performing deeds that are acceptable.

Children are very sensitive and know when they are accepted or rejected. The structure of their world, molded by their earlier phases of life, will be reinforced or modified in this period. The children can develop with a great ability to socialize and with wishes to cooperate with colleagues. But when rejected, they can develop negative and rebellious attitudes with the same intensity. It is unnecessary to state that the position of the children in this microsociety will have a decisive influence on their social roles later in adult life.

Often, children return home crying, asking for help from their parents because of nicknames, bullying, and teasing caused by their prominent ears, leading the children to despair. The feeling of being despised and persecuted contributes to making life hard, and children become cautious and reserved. In such cases, when the children do not become rebellious, they become anxious, aggressive, and violent individuals. All of these attitudes are prejudicial and negative, both for the children and society as a whole.

In one publication, Góis et al. [22] certify that nothing is more common than teasing or being teased at school. Frequently, school children experience humiliating nicknames, teasing, shoves, or gossip, or they are ignored by the whole class. Many people have already seen or been victims of this kind of teasing. In particular, children who present with some type of anatomic deformity, such as prominent ears, do not fit into the normal pattern or contemporary idea of beauty. This was reported in a survey requested by the Brazilian Multiprofessional Association for the Protection of Childhood and Adolescence. Of the 5,482 students ages 11 to 14 years from 11 government and private schools in Rio de Janeiro who were interviewed during the survey, more than 40.5% admitted to bullying or being victims of bullying.

Confirming the improvement demonstrated by the results of the tests in the current study, the testimonies in the postoperative clinical evaluations showed the satisfaction and happiness of the children and their parents or guardians. The testimonies included words such as "my kid is more tranquil and worried with his studies"; "classmates do not mock him anymore"; "his hair is shorter than

before"; "he is more concerned with how he looks"; "he feels more attractive"; "he goes to church"; "he dresses better"; "he is learning to dance"; "he is happier"; "he has another life"; "he goes to Capoeira classes (a type of Brazilian dance)"; "today he shows his ears"; "he helps at home"; "he is more self-confident"; "he is calmer"; and "he wants to lose weight."

## Conclusion

In conclusion, psychological problems originating from anatomic deformities such as prominent ears can be reduced by means of appropriate corrective surgery. Psychological support is necessary for the patient.

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