The Psychosocial Adjustment of Pediatric Craniofacial Patients After Surgery

FRANCINE G. PILLEMER, Ed.D.
KAYE V. COOK, Ph.D.

The postsurgical psychological status of 25 craniofacial patients, 6 through 16 years of age, was studied using self, teacher, and parent report measures. In contrast to earlier reports of more positive adjustment following corrective surgery, the present study identified several concerns for craniofacial patients, including low self-esteem, impaired peer relationships, and greater dependency on significant adults. Problems were more clearly identified using projective techniques rather than self-report measures. The findings suggest that many children having craniofacial surgery should have supportive psychotherapeutic services. Variables were explored relative to psychosocial functioning. Although few significant correlations were demonstrated, positive psychological adjustment was found to be related to greater physical attractiveness, lower parental stress, and younger age.

KEY WORDS: craniofacial, psychosocial, projective testing, self-esteem

Advances in craniofacial surgery have allowed children with severe forms of craniofacial abnormality to have reconstructive surgery to correct functional and esthetic problems. To date, only a few studies have addressed the psychological adjustment of patients following surgery. Pertsechuk and Whitaker (1982) and Arndt et al (1986) made pre- and postoperative comparisons of self-esteem and peer acceptance and reported improvement. Based on postoperative interviews, Phillips and Whitaker (1979) similarly reported improved social functioning. Palikes et al (1986) studied parental attitudes toward children with craniofacial anomalies. Although their data indicate problems with adjustment in older children, direct measures of self-esteem suggest positive psychosocial functioning postsurgically.

Although these findings are encouraging, extensive psychological literature in related areas of research, such as attachment, stigma, and physical attractiveness, suggests that children with facial anomalies may be at risk for long-term psychosocial problems. Bowlby (1969), an ethologist studying social attachment, emphasized the importance of positive mother-infant interaction for development. Craniofacial anomalies may interfere with the elicitors of parental nurturance and negatively affect the bonding process. For example, structural abnormalities of the mouth could interfere with recognizable smile responses or distort the vocalizations necessary for triggering attachment responses. Documenting that infants with facial disfigurement interact in mother-infant interactions that differ from those of normal infants, Field and Vega-Lahr (1984) reported, based on observations of 10-minute sessions, that mothers of 3-month-old infants with craniofacial anomalies were less actively engaged with them than were mothers of normal infants.

The literature on physical attractiveness, although not focused specifically on disfigured children, has demonstrated that attractiveness is a potent influence on social relationships for children whose appearances are judged to be within the normal range. By 3.5 years of age, children demonstrate a significant preference for choosing more attractive preschoolers as friends, while judging unattractive children as more antisocial (Dion and Berscheid, 1974). Similar findings have been demonstrated among nursery school-aged children (Dion and Berscheid, 1974), with fifth graders (Cavior and Dokecki, 1969), and with adolescents (Lerner and Lerner, 1977). Of major importance, Berscheid et al (1973) reported on a large survey study of adults and found that early experiences associated with unattractiveness (such as teasing) have long-term negative effects on body image.

The literature on stigma addresses the psychosocial impact of disfigurement and disability. When asked to choose among drawings of peers, children ranked the child with a minor facial disfigurement as a less desirable friendship choice than either a normal appearing child or those depicted with several other physical differences, with the exception of obesity (Richardson et al, 1961, 1964). Children notice disfigurement in early childhood (Conant and Buddoff, 1983). With increasing age, the responses of adolescents and young adults to disability show a bias toward competence and some aversion toward persons with physical disabilities (Sigelman and Singleton, 1986). Interestingly, Richman and Eliason (1982) suggest that parents and teachers have lower expectations for facially disfigured children than for their normal appearing counterparts, a bias...
that appears to hinder their expression of competence and may subject them to additional bias from others around them. It can be hypothesized from the literature that children with craniofacial anomalies may be "at risk" for psychosocial problems. The early problems they encounter (e.g., possible disruptions of child/caretaker interaction and negative peer reactions to the deformity) may not be easily overcome even with an improved facial appearance later in life. In the present study, a variety of measures were used in an attempt to assess more formally postsurgical psychosocial issues. In addition to child self-report measures, parent and teacher reports were obtained to provide a more comprehensive assessment of overall functioning. Background variables potentially related to postsurgical psychosocial adjustment, such as age, sex, parental stress, and presurgical attractiveness, were also examined.

METHOD

Subjects

Twelve male and 13 female children from the Craniofacial Program at Boston Children’s Hospital and their parent(s) participated in the study. The children ranged in age from 6 years through 16 years. All children had undergone major reconstructive surgical procedures for correction of congenital anomalies of face and skull. Participants were from varied cultural and socioeconomic backgrounds. Information concerning the specific diagnoses and ages of the children appears in Table 1.

Children were identified for study by hospital record review of all Craniofacial Program patients who underwent surgery within a 5-year period. Age, date of surgery, and the type of surgical procedures were used as criteria in determining patient eligibility. Age parameters were chosen to allow use of consistent measures across subjects, and children had to be at least 1 year postoperative. The latter criterion was implemented to ensure that adequate recovery had taken place and that there had been some opportunity for social interaction since the correction. Overall, 29 eligible patients were identified, and all but two families were located. Of the 27 parents initially contacted by telephone, only two refused to participate. Both refusals were linked to parental dissatisfaction with the surgical result.

Experimental Procedure

Whenever possible, participation in the study coincided with routine follow-up medical visits. Prior to administration of the measures, children and their parent(s) met with the research group to discuss the study. Informed consent was asked of all parents and of children over the age of 9 years. Measures were administered to children and their parent(s) simultaneously, but in separate rooms. Child measures were given by the primary investigator and parent measures by the clinic social worker. Teacher measures were mailed to the child’s primary teacher, who was asked to return them to the clinic.

Measure

Subjects were administered a battery of standardized instruments to assess postsurgical psychological and cognitive status. Measures included three subtests (vocabulary, information, and block design) of the Wechsler Intelligence Scale for Children–Revised or WISC-R (Wechsler, 1974), three scales (masculinity-femininity, maturity, inhibition) from the Missouri Children’s Self Concept Scale or MCPS (Sines et al, 1974), the Piers-Harris Children’s Self-Concept Scale or Piers-Harris (Piers, 1969), and four pictures (task 1, designed to assess socialization with peers; task 2, trust; task 6, separation from mother; and task 12, a positive self-concept) from the Tasks of Emotional Development test or TED (Cohen and Weil, 1971). The MCPS is an objectively scored, nonverbal test of personality in which the child is asked to sort a series of cards according to whether the pictured event looks like “fun.” The Piers-Harris is also an objective measure and consists of 80 statements to which the respondent answers “yes” if it describes him or her or “no” if it does not.

The TED test is a projective measure that requires the child to tell a story about pictures designed to depict common developmental issues. Each story is scored on the following dimensions: (1) perception (i.e., the child’s ability to perceive the developmental task pictured); (2) outcome (i.e., the success of the child’s solution to the developmental task); (3) affect (i.e., the appropriateness of the feelings described by the child in solving the task); and (4) motivation (i.e., the adequacy of the reasons the child gives for the solution). Responses provide information about “inner conflicts around the emotional development task portrayed by the stimulus” (Cohen and Weil, 1971, p.54) and about the child’s everyday coping mechanisms. To minimize any biases, responses were scored by a trained rater and validated by Dr. Weil, the measure’s second author. Neither person had any information about the study.

<table>
<thead>
<tr>
<th>TABLE 1 Diagnostic Classification of Subjects by Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
</tr>
<tr>
<td>Age (Years) Crouzon Syndrome Treacher Collins Syndrome Hemifacial Microsomia Hypertelorism Other* Total</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Age (Years) Crouzon Syndrome Treacher Collins Syndrome Hemifacial Microsomia Hypertelorism Other* Total</td>
</tr>
<tr>
<td>6-8 2 2 1 1 1 25</td>
</tr>
<tr>
<td>9-12 3 1 1 1 0 6</td>
</tr>
<tr>
<td>13-16 2 1 3 2 4 12</td>
</tr>
<tr>
<td>Total 7 4 5 4 5 25</td>
</tr>
</tbody>
</table>

* The following conditions are included in the “other” category: neurofibromatosis (one child); rare facial clefts (one child); craniometaphyseal dysplasia (one child); and late cleft lip and palate deformities (two children).
Parents were administered five scales (anxiety, withdrawal, depression, social skills, and lie) of the Personality Inventory for Children or PIC (Wirt et al., 1977), a Parent-Caretaker Questionnaire, and selected items from the Questionnaire on Resources and Stress, or QRS (Holroyd, 1973). The lie scale on the PIC was used as a validity determinant of parental responses. The Parent-Caretaker Questionnaire, designed for this study and administered in clinical interview format, elicited information concerning parental recollections of the child’s birth and infancy, feelings about the child’s facial appearance before and since surgery, and observations about the child’s functioning postsurgically.

Teachers were asked to complete a questionnaire designed to assess the child’s academic, cognitive, social, and affective functioning. This questionnaire is a composite of two measures developed for local research projects.* Without any knowledge of the study’s design or purpose, five independent raters assessed the attractiveness of the children in pre- and postsurgical hospital photographs using a seven-point scale where one is defined as extremely attractive, and seven as extremely unattractive. Individual ratings were initially completed on postsurgical photographs, then on presurgical photographs. Pre- and postsurgical photographs were then paired for each child, and the two pictures were presented simultaneously. Raters assessed the degree of facial imperfection in each picture, using a nine-point scale devised by Hay (1970).

RESULTS

Objective Child Measures

MCPS

Subjects were within the normal range on the maturity and masculinity-femininity scales, but their performance on the inhibition scale ($\bar{x} = 54.56$) was significantly higher than the normative mean of 50 ($\sigma_x = 2, z = 2.28, p<0.05$). Sixty percent of the children scored at least one standard deviation above the mean.

Piers-Harris

Subjects obtained a mean total self-esteem score of 48.60 ($s_x = 3.1$), which was not significantly lower than the normative mean of 51.84 ($z = -1.17$).

Projective Child Measures

TED

Tables 2 and 3 summarize the clinical and available normative data in percentages. Normative data are based on boys and girls under 12 years of age from two income groups (middle to upper middle and lower middle to middle socioeconomic status). Percentages were computed from the published norms by combining the various subcategories of responses into more global designations (i.e., successful outcome or unsuccessful, appropriate affect or motivation or inappropriate), as suggested by the authors of the measure, and then computing the median percentage of the two sexes and the two socioeconomic groups.

Table 2 compares the percentage of children in the clinical sample who correctly identified the developmental issues depicted in the card with the median and range of percentages in the normative sample. Table 3 reports, of those in the clinical sample who correctly identified the developmental issue in tasks 1, 2, and 6, the percentage who described the situation by affect and motivation appropriate to the picture and by a successful outcome, in comparison with the normative sample. Normative data are unavailable for task 12.

TABLE 2 Percentage of Children Who Correctly Perceived the Developmental Issue Depicted in the Cards*: Comparison of Clinical and Normative Data

<table>
<thead>
<tr>
<th>Task</th>
<th>Clinical Sample</th>
<th>Normative Data†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1: Socialization</td>
<td>100.0 Median 100.0</td>
<td>Range 95.6-99.6</td>
</tr>
<tr>
<td>Task 2: Trust</td>
<td>60.0 Median 90.7</td>
<td>Range 85.3-94.4</td>
</tr>
<tr>
<td>Task 6: Separation</td>
<td>64.3 Median 64.3</td>
<td>Range 41.6-83.7</td>
</tr>
</tbody>
</table>

* Percentages are based on all children.
† Norms are reported for four samples, two groups of boys and two of girls, differing by social class (lower middle to middle, middle to upper middle social class).

Table 3 Percentage of Children Who Described the Developmental Issue by the Indicated Dimension*: Comparison of Clinical and Normative Data

<table>
<thead>
<tr>
<th>Task</th>
<th>Clinical Sample</th>
<th>Normative Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task 1: Socialization</td>
<td>Successful outcome†</td>
<td>24.0 Median 75.6</td>
</tr>
<tr>
<td>Appropriate affect‡</td>
<td>84.0 Median 77.8</td>
<td>Range 36.1-98.2</td>
</tr>
<tr>
<td>Appropriate motivation§</td>
<td>52.2 Median 78.9</td>
<td>Range 59.4-92.6</td>
</tr>
<tr>
<td>Task 2: Trust</td>
<td>Successful outcome†</td>
<td>86.7 Median 99.6</td>
</tr>
<tr>
<td>Appropriate affect‡</td>
<td>93.3 Median 88.7</td>
<td>Range 0.0-100</td>
</tr>
<tr>
<td>Appropriate motivation§</td>
<td>73.3 Median 81.9</td>
<td>Range 0.0-90.5</td>
</tr>
<tr>
<td>Task 6: Separation</td>
<td>Successful outcome†</td>
<td>75.0 Median 96.6</td>
</tr>
<tr>
<td>Appropriate affect‡</td>
<td>37.5 Median 80.4</td>
<td>Range 50.0-91.4</td>
</tr>
<tr>
<td>Appropriate motivation§</td>
<td>37.5 Median 67.5</td>
<td>Range 40.0-95.1</td>
</tr>
</tbody>
</table>

* Percentages are based on children who correctly perceived the issue.
† Numbers report the percentages of children who perceived the issue depicted in the cards and described a successful outcome. The remaining children who perceived the issue described an unsuccessful outcome.
‡ Numbers report the percentages of children who perceived the issue depicted in the cards and described appropriate affect. The remaining children who perceived the issue described inappropriate affect.
§ Numbers report the percentages of children who perceived the issue depicted in the cards and described appropriate motivation. The remaining children who perceived the issue described inappropriate motivation.
**Task 1: Peer Socialization.** In the card designed to assess socialization skills, a single child is watching a peer group he or she may choose to join. Responses to this card indicated that craniofacial patients are concerned about their socialization with peers. Patients correctly perceived the card as a representation of social interaction as frequently as indicated that craniofacial patients are concerned about their socialization with peers. A majority of the sample (72 percent) perceived the card as representing separation. Several children became so anxious when viewing the card that they were unable to tell a story. Unlike the normative sample, however, most children who perceived the task accurately did not give appropriate affective responses. For example, the child who successfully separated from the adult figure was described as feeling angry or sad in doing so. In addition, most craniofacial patients did not offer appropriate motivations for the child’s action. The child who successfully separated generally did so to avoid a conflict; similarly, the child who was described as failing to separate feared either the loss of the mother’s love or the potential of physical harm.

**Task 2: Trust.** In this card, a woman, generally seen as a mother figure, is shown holding a cookie jar while a child reaches into it. Children who have trust in adult figures view the mother as willingly providing food. Responses indicated that craniofacial children are less trusting of adults. Fewer of the clinical sample perceived the mother as a willing provider. For those children who perceived the mother as trustworthy, however, affective responses were generally appropriate in that the child was described as happy and content. Motivational responses were somewhat less likely to be scored as appropriate than were those in the normative group. The mother was usually described as giving food because she viewed it as her duty, an “inappropriate” motivation.

**Task 6: Separation from the Mother.** In this card, a child and woman face each other as the child reaches toward an outside door as if to open it. Responses to this card indicated that craniofacial patients were ambivalent about separating from their parents and home. Whereas almost two-thirds of the normative sample perceived the child as leaving, less than one-third of the clinical sample accurately perceived the card as representing separation. Several children became so anxious when viewing the card that they were unable to tell a story. Unlike the normative sample, however, most children who perceived the task accurately did not give appropriate affective responses. For example, the child who successfully separated from the adult figure was described as feeling angry or sad in doing so. In addition, most craniofacial patients did not offer appropriate motivations for the child’s action. The child who successfully separated generally did so to avoid a conflict; similarly, the child who was described as failing to separate feared either the loss of the mother’s love or the potential of physical harm.

**Task 12: Self-Concept.** This card shows a child standing at a dresser and looking in the mirror. While no normative data are available for comparison, the nature of responses indicated that craniofacial patients have low self-esteem. A majority of the sample (72 percent) perceived the task as representing a child in a position to evaluate him or herself. One-third of the children described positive self-evaluations, and for all children, their affect was appropriate for their evaluation. Those who viewed the child as having negative attributes emphasized physical appearance and, as was appropriate, described the child’s affective response as sadness. Motivations were scored as inappropriate for half the subjects. For example, when the self-evaluation was negative, the child was described as worthless because of another person’s low regard.

**Parent Measures**

**PIC**

In comparison with a normative score of 50, on three subscales, parents gave their children a mean depression rating of 54.5 ($s = 2.4$), social skills rating of 55.1 ($s = 2.8$), and withdrawal rating of 53.8 ($s = 2.4$). These scores indicate that the study group was more depressed and less socially adept than was the normative group ($p<0.05$). The mean rating on the withdrawal scale was significant at the $p<0.10$ level, thereby indicating a tendency toward intentional isolation.

**Parent/Caretaker Questionnaire**

When asked about their feelings at the time of their child’s birth, 60 percent of the parents stated that they felt either sadness, disappointment, disbelief, worry, or shock. In contrast to these initial responses, however, an overwhelming majority (92 percent) reported generally pleasant memories of their child’s later development. The two parents who did not have positive recollections pinpointed the need for numerous surgical interventions as the reason.

**School Functioning**

**Teacher Questionnaire**

When teachers were questioned about the children’s academic, social, behavioral, and motor functioning, the majority of children had “moderate” to “significant” problems with task competence (63.6 percent), peer relations (59.1 percent), and adult relations (54.5 percent). When task competence was further examined, one-half of the sample was performing below age level in reading skills, and 40 percent were deficient in math. Teachers perceived 40.9 percent of the children to be performing below their ability level. This generally was attributed to either overdependence on adults or a lack of task organizational and planning abilities. When describing peer relationships, teachers reported that 36.4 percent were “wanted” as a group member by classmates, 50 percent were “tolerated,” 9.1 percent were “avoided,” and 4.5 percent were “actively rejected.” Teacher’s comments indicated that problems with adult relationships were characterized by overdependence rather than by issues around limit-setting. Subjects generally did not appear to have serious behavioral problems, although teachers reported that approximately one-third of the sample exhibited hostility or aggression and that almost one-quarter were withdrawn.

**WISC-R**

Although teachers perceived their students as neither performing up to their abilities nor doing as well as other
children in their classes, scores obtained by subjects on a standardized intelligence measure were in the average range. In comparison with normative performance scores of 10, the average performance on the information subtest was 9.6 (s = 3.2); vocabulary subtest, 10.2 (s = 3.2); and block design subtest, 10.6 (s = 2.5).

**Correlates of Postsurgical Adjustment**

**Age at Surgery**

Children who were older at the time of surgery had poorer self-concepts and were more withdrawn and depressed than younger subjects. The average surgical age in months for children giving appropriate reasons for their positive or negative self-concept in response to TED card 12 (x = 96.89, s = 37.65, n = 9) was significantly lower at the p<0.05 level of confidence than for children who gave an inappropriate reason (x = 132.33, s = 30.46, n = 9). Subjects ascribing inappropriate motivations generally attributed their low self-esteem to problems with peer evaluations. Children who were older at the time of surgery were rated by their parents as more withdrawn on the PIC withdrawal scale (p<0.01).

**Age of Testing**

On three TED items, older subjects tended to produce more deviant responses. Older children were less likely to perceive a trusting relationship with a mother figure on task 2. On task 12, they more often gave a negative self-evaluation and an inappropriate reason for their negative evaluation. For example, they were more likely to be self-critical as a result of peer rejection. Older children were viewed as more withdrawn by their parents on the PIC withdrawal scale (p<0.01).

**Attractiveness**

Children who were evaluated as more attractive by independent raters reported on the Piers-Harris behavior items that their actions were more socially appropriate than their less attractive peers. This was true using both the ratings of attractiveness (p<0.05) and of facial imperfections (p<0.05). Those children who were rated as having the least facial imperfections evaluated themselves on the Piers-Harris as more intelligent and having a higher school status (p<0.05).

**Pre- and Postsurgical Appearance Rating**

The degree of improvement in appearance with surgery was slight. The attractiveness rating improved 0.19, and facial imperfections decreased an average of 0.32 rating points, neither of which is statistically significant.

Postsurgical psychological status was not clearly related to the degree of improvement. Few outcome measures were significantly related to improvement scores, and the overall pattern of results was inconsistent.

**Parental Stress**

Parents who were highly stressed, as indicated by the QRS measure, rated their children as more anxious (PIC anxiety, r = 0.73, p<0.05), depressed (PIC depression, r = 0.58, p<0.05), and socially inadequate (PIC social skills, r = 0.47, p<0.05) than did parents who were less highly stressed. These children also demonstrated lower self-concept than did children whose parents were under less stress. Parents whose children correctly perceived self-concept as the theme on card 12 of the TED test were significantly less stressed (their average QRS score was significantly lower) than were parents whose children failed to perceive the theme of the card (a mean of 18.6 [s = 10.1] in comparison with 28.9 [s = 9.0], t(23) = 2.35, p<0.05).

**Other Variables**

Gender was unrelated to postsurgical psychosocial adjustment. When cognitive status was examined, the behavior factor on the Piers-Harris correlated significantly with the average WISC-R score (r = 0.59, p<0.01). More intelligent children tended to evaluate their actions more positively. Approximately half of the sample was receiving or had received psychotherapeutic treatment with a school counselor or mental health specialist.

**DISCUSSION**

Assessment of psychosocial status following major surgery suggests that children with craniofacial abnormalities are more likely to show an inhibited personality style, low self-esteem, impaired peer relationships, and greater dependence on significant adults when compared with a normative sample. These psychosocial concerns were more clearly identified using projective techniques such as the TED and PIC test than by using other, more objective measures such as the MCPS and Piers-Harris.

Responses to the TED test indicate that children with craniofacial anomalies may resist separation and react to it with feelings of anger, sadness, or fear. They appear overly dependent on adults yet are less likely to trust adults to provide for their needs willingly and appropriately. The literature on attachment suggests that early interference with mother-infant bonding may impair the development of trust and the child’s subsequent ability to separate from the mother (Bretherton, 1985). If parental memories of negative feelings at their child’s birth indexes problems with early bonding, the outcomes observed in the clinical sample support the long-term developmental implications of the attachment literature.

Consistent with parental responses, the TED identifies peer relationships as a second major problem. Children with craniofacial anomalies demonstrated low self-esteem more often than did the normal sample. This was often attributed to the negative opinions of others. Similarly they expected peer interactions to be unsuccessful and peers to be rejecting and hostile. The stigma of a facial deformity may explain the impaired peer relations these children experience. Extensive literatures on physical attractiveness and stigma indicate that attractiveness influences popularity even in the preschool years (Dion and Berscheid, 1974) when prefer-
ence for able-bodied peers begins (Weinberg, 1978). Anxiety resulting from peer relationships may contribute to increased depression and overdependence on adults, especially if adults are more tolerant and expect lower performance from children with physical differences (Richman and Eliason, 1982).

Children’s responses to standardized, objectively scored measures (Piers-Harris and MCPS) indicated fewer problem areas than did the TED and PIC, thereby suggesting that denial may be a primary defense mechanism among these children, as earlier hypothesized by Pertschuk and Whitaker (1985). Objective measures require the child to answer direct, personal questions, or to indicate events that are liked or disliked. In contrast, when responding to a TED task, the question is indirect. The subject responds about a child depicted on a card. Earlier studies generally have used more objective measures, which our study suggests do not adequately identify the extent of these children’s concerns. Although denial serves as an adaptive defense against potentially severe forms of stress (Geist, 1979), such as unattractiveness and peer rejection, it interferes with accurate psychological assessment and treatment. One limitation of projective measures is that they may be influenced by experimenter bias. In the present study, this bias was avoided by blind scoring. When this limitation is addressed, projective measures may be especially effective for identifying underlying problems.

Teacher evaluations corroborate data from the projective measures in an everyday arena of peer and adult interaction. Whereas cognitive assessment demonstrated a normal range of intellectual competence in the three areas assessed, teachers expressed concern about overall school performance, particularly in task competence, peer relations, and adult relations. In addition to lower adult expectations of disfigured children (Richman and Eliason, 1982), our data suggest that underachievement may be caused by overdependence on teachers to structure the school environment and by limited peer support in academic as well as social endeavors.

Few significant relationships between background characteristics and postsurgical psychological adjustment were demonstrated. Consistent with predictions from previous physical attractiveness and stigma research, age, appearance, and parental stress were significantly associated with adjustment in some fashion. Children who were older at the time of surgery or at testing had poorer self-concepts and were more withdrawn and depressed than younger subjects, consistent with developmental changes in reactions to disability (Sigelman and Singleton, 1986). Children who were more attractive postsurgically, as determined by independent ratings of hospital photographs, tended to have higher self-concepts. Finally, the stigma literature suggests that adjustment is strongly related to family functioning (Barbarin, 1986); these findings are corroborated by the present study. Parents who were highly stressed by life events rated their children as more anxious, depressed, withdrawn, and socially inadequate.

Interestingly, the attractiveness ratings of hospital photographs did not demonstrate a significant improvement in appearance following surgery. In contrast to other reports of postsurgical improvement (Murray et al., 1979), most patients were still rated as unattractive. The failure to demonstrate improvement requires further study, particularly because information about postsurgical attractiveness can contribute to more effective surgical decision making when the primary purpose of surgery is improved facial appearance.

Two major limitations characterize the present study and suggest directions for future research. Presurgical data, which would allow more precise assessment of change in psychological functioning following surgery, are unavailable. Second, these findings should be examined in a larger sample of subjects.

In summary, psychological and educational assessments suggest that parents and involved professionals should be aware of the possibility of overdependence on adults, unidirectional peer relationships, and related issues of inhibition, withdrawal, poor self-concept, and a trend toward depression. The presence of these difficulties in the experimental sample following corrective surgery indicates that reconstructive procedures are not a panacea. Psychosocial problems appear rooted in years of prior negative experiences. It is concluded that appropriate intervention demands coordinated efforts by medical and psychological services to offer extensive therapeutic support following surgery.

REFERENCES


Commentary

The purpose of the Pillemer and Cook study was to describe the psychological adjustment of 25 patients with craniofacial anomalies ranging in age from 6 through 16 years. All of the patients had had at least one craniofacial operation within 5 years of the study. Assessment of the patients was by a battery of standard psychometric tests, by parent and teacher rating of patients, and by ratings of facial attractiveness of patients.

The importance of the study is its substantiation of the growing literature that suggests that a craniofacial anomaly can be associated with significant psychopathology. The psychopathology includes underachievement in school (Spriesterbach, 1973; Richman, 1976; Kommers and Sullivan, 1979), social avoidance of peers, and excessive dependence on immediate family members (Peter et al., 1975; Richman and Harper, 1978; Simonds and Heimburger, 1978; Wasserman et al., 1985).

Some might take exception to the word "psychopathology" in this context and argue that social withdrawal or shyness is not psychopathologic or necessarily maladaptive for children with craniofacial anomalies (Clifford, 1983). However, avoidance disorders in childhood and adolescence are a diagnostic category in the American Psychiatric Association Diagnostic and Statistical Manual (1987). The essential feature of the disorder is an obsessive shrinking from contact with unfamiliar people that is of sufficient severity to interfere with social functioning in peer relationships and is of at least 6 months duration. This is coupled with a clear desire for social involvement with familiar people such as peers the person knows well and family members. (p. 61)

The most serious complication of avoidance disorders, which may persist to adulthood, is failure to form social bonds beyond the family and feelings of isolation and depression (American Psychiatric Association, 1987). Given the potential seriousness of social withdrawal, Pillemer and Cook's study supports the contention that children with craniofacial anomalies and their families have sufficient psychosocial risk to warrant routine early evaluation by a mental health professional.

However, there are some methodologic weaknesses of the Pillemer and Cook study that are worthy of note. First, there was no control group. Patients were compared with published normative data. Second, the authors discussed developmental differences in their patients, but told the reader how they categorized patients by age. Third, the number of previous operations may affect results on adjustment measures. The authors did not report how many operations each patient had or the stage of each patient's surgical course.

Nevertheless, the Pillemer and Cook study is a clear example of descriptive psychometric work completed by other investigators in the field. It can be said with some confidence that children with craniofacial anomalies are at risk for identifiable psychological problems. Unfortunately, we don't know why. Several reasons come to mind. They could be at risk because of their appearance, multiple hospitalizations, and the effects of their disability on family functioning. An obvious question is "Where do we go from here?"

Clifford (1988) has suggested that craniofacial psychologists go back to their roots, mainstream psychology, to help guide their research. Craniofacial psychology has been conducted largely outside of the theoretic and methodologic mainstream of psychology. Pillemer and Cook alluded to several psychological theories, but they did not develop a unified conceptualization to design their research and to develop specific questions. They attributed the personality and social adjustment problems in children with craniofacial anomalies to the social rejection experienced because they are unattractive and/or "stigmatized." The implication is that, by improving aesthetic appearance early in life, the patient will have a better chance of making a healthy social adjustment. Unfortunately, social psychological theory informs us that this may or may not be true (Katz, 1981). The social reaction to facial impairment is not necessarily dependent on the physical severity of the impairment (Katz, 1981). Children with craniofacial anomalies almost always have some degree of visible impairment, and they may have to cope with appearance-related social problems throughout...
life. MacGregor et al (1953) reported that patients with minor facial impairments often had more difficulties with social relationships than did patients with severe impairments.

It is time to move on to study how the development of children with craniofacial anomalies compares with that of healthy children and children with other chronic disabilities. Are there areas in which coping with a chronic physical disability actually helps patients to become more psychologically and socially resilient? Future studies ought to be multifactorial and based on mainstream psychological theory, such as that of Garmezy and Rutter (1983). Pillemer and Cook have helped us to move toward a higher level of scientific practice in craniofacial psychology by contributing to a solid descriptive base upon which more theory-based controlled research can be conducted.

REFERENCES


Joyce M. Tobiasen, Ph.D.
Associate Professor of Pediatrics
University of Kansas Medical Center
Kansas City, Kansas