Case Study

Cognitive-Behavioral Treatment of Health-Impairing Food Phobias in Children

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Abstract. Three case reports describe assessment and treatment of three boys (ages 6 to 8 years) hospitalized because of weight loss and malnutrition, caused by severe dietary restriction and/or refusal to eat solid food. Psychological, behavioral, and medical assessments indicated that the boys were of average intelligence, without other significant psychological or medical disorders. Their eating disturbances were conceptualized as phobic disorders maintained by family factors reinforcing the children's avoidant behaviors. Cognitive-behavioral treatment consisted of an individualized combination of contingency management, shaping, desensitization, relaxation training, education, and cognitive restructuring. Generalization and maintenance were promoted by training parents to implement treatment at home before discharge. Treatment positively affected overall calorie intake, weight gain, number of solid foods accepted, and incidence of emesis. J. Am. Acad. Child Adolesc. Psychiatry, 1992, 31, 5:847-852. Key Words: phobia, eating disorders, failure-to-thrive.

Approximately 25% of the general pediatric population exhibits feeding and eating disorders for which professional help is sought (Palmer et al., 1975). Although there exists a growing literature on the treatment of food aversions in infants and young children, the clinical literature largely describes children with significant medical illnesses, mental retardation or developmental disabilities that interfered with the normal early introduction of solids (Illingworth and Lister, 1964; Handen et al., 1986; Blackman and Nelson, 1985; Singer, 1990; Singer et al., 1991). Food phobias have been implicated in the children's refusal to eat. Such phobias are thought to be related to the late introduction of solid foods and the absence of experience during critical periods for the development of feeding skills due to chronic illness or physical disability (Palmer et al., 1975). For example, Linscheid and colleagues (1987) reported a 6-year-old boy with short-gut syndrome, fed by gastrostomy tube, who refused all solid foods. They noted the child's "striking, phobic-like" response to solid foods. Through desensitization procedures and contingency management, the child was gradually weaned from a highly restricted liquid diet to one with a variety of foods and textures that resulted in the elimination of artificial feedings.

Almost nothing is known about the prevalence, effects, and treatment of eating disorders in prepubertal children, especially children who are otherwise medically healthy, without developmental disabilities, and with normal feeding histories in infancy. One exception is a case report of a 4-year-old girl who avoided all solid foods and subsisted on a liquid diet after a traumatic visit to the doctor (Boer and Sippelle, 1970). Her avoidance was conceptualized as conditioned anxiety and treated rapidly and successfully on an outpatient basis with extinction and positive reinforcement. Some authors have conceptualized eating disorders in prepubertal children as early manifestations of anorexia nervosa, but these children rarely met DSM-III-R diagnostic criteria (Chatoor et al., 1987; Halmai, 1985; Jacobs and Isaacs, 1986; Reinhart et al., 1972).affe and Singer (1989) asserted that their subjects comprised a unique, specific syndrome and did not meet DSM-III-R criteria for either anorexia nervosa or bulimia nervosa, despite sharing a number of symptoms compatible with those disorders.

Because of the scarcity of literature on the treatment of prepubertal children with eating disorders, we present three boys, ages 6 to 8 years, who developed severe, chronic eating disorders after the establishment of normal feeding patterns early in life. In all cases, the boys' dietary restrictions resulted in significant nutritional deficiencies and/or growth retardation that precipitated inpatient pediatric hospitalization. None met DSM-III-R criteria for anorexia nervosa or bulimia nervosa, but all three boys did meet DSM-III-R criteria for eating disorder, not otherwise specified, and psychological factors affecting physical condition (American Psychiatric Association, 1987). None of the boys expressed fears of gaining weight or had body image disturbances, binge eating episodes, or self-induced purging of any type. Eating disorders, not otherwise specified, encompass disorders of eating that do not meet the criteria for a specific eating disorder. Their eating disturbances were

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conceptualized as phobic disorders and treated in hospital through a cognitive behavioral systems approach.

Assessment

All patients were admitted to the Medical-Behavioral Center (MBC), a specialized 15-bed pediatric inpatient unit for the treatment of eating and other psychophysiological disorders, located in a tertiary care, university-based teaching hospital. MBC staff consisted of a pediatrician, psychologist, consulting psychiatrist, dietitian, social worker, and nursing staff specially trained in the implementation of behavioral assessment and intervention. The MBC milieu was designed so that environmental controls could be established for the optimal implementation of behavioral treatment programs.

A cognitive-behavioral-systems approach was employed in assessment and treatment (Mash, 1989), conjointly focusing upon three domains of organization: biological, individual, and family functioning. Medical evaluations ruled out physiological or structural abnormalities as contributors to the eating disturbances. All three boys were at a prepubertal level of sexual maturation, i.e., Tanner Stage 1 (Tanner, 1962). Dietary assessment and occupational, physical, and speech therapy evaluations were also routinely performed. Height and weight were compared to standard percentiles for age and sex (Hammill et al., 1979). Desirable body weight for height and age were also calculated.

Individual psychological assessment consisted of the Wechsler Intelligence Scale for Children, Revised (Wechsler, 1974), school achievement and emotional status, including the Child Behavior Checklist (Achenbach and Edelbrock, 1978) and the Children’s Depression Inventory (Kovacs, 1981). A general clinical interview assessed overall adjustment, with emphasis on the child’s knowledge and beliefs about food, eating, nutrition, growth, and health. Particular attention was paid to identifying knowledge deficits and maladaptive beliefs and responses.

A baseline assessment of three to four meals was uniformly conducted, using procedures adapted from Iwata et al. (1982), and Riordan et al. (1980). This assessment documented the type and amount of foods accepted, the presence of negative behaviors, such as food refusals, crying, gagging, and vomiting, and the child’s emotional state during meals, including evidence of anxiety.

Family assessment included family or parental interviews by a psychologist and dietitian, encompassing the history of the eating problem and prior efforts to overcome it, and current and historical family stressors.

Treatment

Treatment targeted biological, individual, and family domains of organization in an integrated manner. No medical or pharmacological treatments were indicated. However, appropriate nutrition was conceived and presented to the patients as the recommended “medicine” for their condition. Specific behavioral treatment for food refusal was individualized for each patient but generally consisted of a variable combination of contingency management, shaping, ignoring, desensitization, and relaxation training. Cognitive treatment included education and cognitive restructuring, targeting attitudes and beliefs related to eating and growth. All meals were time limited and observed by the nursing or psychology staff. Positive reinforcers were administered contingent on food acceptance or performance of other targeted behaviors, such as sitting at the table, touching food with utensils, or touching food to the lips. Positive reinforcers consisted of praise, access to toys, television, activities, and special visitors. Ignoring or implementing “time-out” were routinely used for negative behaviors.

Meals were initially administered by staff, but parents learned the intervention procedures before discharge, with contingencies fading as the child progressed.

Family treatment included family systems therapy, using varied theoretical approaches, but including a cognitive-behavioral component. Parents were first trained to assist the child with implementing the program on the MBC, then helped to develop a home-going program that was pilot tested during at least one leave-of-absence from the hospital.

For all patients, daily caloric intake was calculated by the dietitian from menus completed from nursing observations of meals. These calculations of caloric intake, daily weights, and total number of different solid foods accepted were used as dependent variables.

Case 1

Roy, age 8 years, was admitted after a 4-week history of refusal to eat any solid foods. He had been well until 6 months before admission when, after choking on a hot dog, he began to alter his dietary intake by avoiding many previously accepted foods. One month before admission, he began to spit food out while eating, complaining that “food won’t go down.” Gradually, he eliminated all solid foods from his diet, and ate only yogurt, ice cream, and instant breakfast drinks.

Roy lived with his parents and a sister. Recent stressors in the family included his move to a new school, his father's change to a new job, and his mother’s return to work. His 10-year-old sister had a congenital heart disorder with an uncertain long-term prognosis. His history included incidents of spitting out food 1 year previously, which had resolved spontaneously. When Roy was 5 years old, his paternal grandfather, who lived with the family, suffered a stroke. Subsequently, Roy witnessed his grandfather frequently choking and vomiting meals at the dinner table. A medical evaluation of Roy, including barium swallow and esophagoscopy, showed no evidence of organic disease. Psychological evaluation indicated Roy was of average intelligence, without other significant psychological problems. School achievement was average, but Roy exhibited many oppositional behaviors with his parents, especially tantrums.

At admission, Roy was at the 50th percentile for height, 10th percentile for weight, and 89th percentile for his desirable body weight for length, with mild nutritional depletion evident. During baseline, he refused all foods except yogurt, chocolate milk, and instant breakfast drink, and consumed only 75% of his daily estimated needs. When requested to consume soft foods or other liquids, he displayed numerous phobic behaviors, including trembling, crying, escape beh-
behavior, and spitting of saliva onto his shirt.

A behavioral treatment program that included additional components to the standard program described was negotiated. Roy was asked to develop a hierarchy of difficulty for foods that had four levels. Level I consisted of liquids; II, soft foods, such as mashed potatoes and applesauce; III, solid foods, such as sandwiches and casseroles; and IV, fruits and vegetables. Training sessions were instituted, beginning with level I, to help him master eating. The criteria for success were initially low, using shaping procedures (e.g., allowing liquid to touch lips, swallowing, sipping), and were gradually increased. Because Roy’s behavior suggested anxiety, he was taught deep breathing exercises to practice before and during training sessions. Roy was helped to construct positive self-statements to write out, and to repeat to himself during relaxation periods. Initially, he responded by kicking and scratching staff and by having tantrums during meal sessions, while spitting out or smashing foods. Time-out procedures were implemented by physically moving him to his room.

A multiple baseline design (Hersen and Barlow, 1976) across food levels was implemented with a changing criterion to assess the effects of intervention on oral intake. Liquids, and soft and solid foods were introduced sequentially. Criterion behavior for positive reinforcement was increased gradually for variety and amount of foods consumed.

Figure 1 illustrates Roy’s rapid progress in meeting changing criteria for eating behavior that resulted in increasing the total volume of food consumed. Levels II and III, in which he ate applesauce, peanut butter, mashed potatoes, hot cereal, and scrambled eggs, have been used to illustrate the general pattern of response. For each item, the initial acceptance level was low, with rapid improvement.

Parental training in contingency management was diffi-
cult. Both parents initially pleaded with the psychologist to discontinue contingencies because of Roy’s fearful and aggressive behavior, but they gradually demonstrated ability to carry out the program. By discharge, Roy had gained 2.7 kg, was at 97% of his desirable body weight, and was eating a variety of age-appropriate foods. Eating behavior and weight remained normal during a 2-year follow-up period.

Case 2

John, age 6 years, was admitted with a 3-year history of restrictive food intake. He has an unremarkable medical and developmental history until age 18 months, when he was hospitalized for pneumonia and began refusing many previously accepted foods. During the next 5 years, he occasionally experimented with new foods but consistently refused most solid foods, including vegetables, fruits, and meats. John’s dietary restrictions became increasingly severe 6 months before admission, and his food intake severely declined.

John lived with his parents and two sisters. A severe stressor for the family was his mother’s diagnosis of breast cancer with metastases to her spine. This diagnosis coincided with the increase in severity of John’s eating disorder 6 months before admission. A second source of stress was John’s impending transition to elementary school. Prior treatment efforts included 6 months of weekly play therapy.

John’s medical evaluation was unremarkable. He was of high average intelligence, with slightly below average achievement scores.

At baseline assessment, John’s daily caloric intake averaged 41% of his assessed needs. He avoided many foods and ate only ice cream, mashed potatoes, pretzels, rolls, muffins, chocolate milk, and ginger ale. He was at nutritional risk because of significant growth deceleration in weight percentile for his age.

John’s difficulties were conceptualized for him as a fear of food maintained by an external source, a “food-fear monster” who was currently dominating John during meal time (White, 1985, 1986). Individual cognitive therapy focused on providing accurate information about the importance of eating an appropriate quantity and variety of food. A behavioral feeding program was developed that employed elements of a changing criterion design and systematic desensitization. John generated a list of “mastered” foods that he could eat without difficulty and a list of “feared” foods. Three new feared foods were presented each day, one food at each meal, with two subsequent trials. Meals also included mastered foods, and oral intake was maintained by requiring John to eat 50% of these.

When John met treatment goals, he received greater access to ward privileges, wore a large badge to prompt social reinforcement, and received stickers. When he met all goals for a day, he received a toy from his parents. When John was unable to meet goals for a practice session or meal, positive practice (lifting the problematic food up and down with his spoon five times) and time-out were used.

John initially had difficulty, then made rapid progress increasing the number of foods eaten (Fig. 2). On the ninth day of hospitalization, he made an overnight home visit.
His caloric intake increased to 74% of his assessed dietary needs. His weight increased to 104% of his desirable body weight. Follow-up for 3 months indicated John continued to increase the variety and amount of foods eaten.

Case 3

Tom, age 7½ years, was admitted with a 5-year history of food restriction and emesis after meals. He had been well until the age of 2, when he became ill with fever and emesis and began vomiting during or after meals. A medical evaluation indicated esophagitis, which was treated pharmacologically for several months. At approximately the same age, Tom and his mother received outpatient, behaviorally oriented psychological treatment for his eating difficulties. After this treatment, the frequency of emesis decreased and adequate caloric intake was established. However, Tom continued to exhibit significant restrictions in food choice.

When Tom started kindergarten, emesis became more frequent. He also reported gastrointestinal discomfort and emesis during lunch at school in response to unpleasant food smells or “gross” comments about food by other children. A pattern of increasing anxiety symptoms was described, especially during meals in social situations.

His medical evaluation was unremarkable. A psychological evaluation suggested that Tom displayed significant anxiety with somatic complaints at home and school. Recent family stressors included increased marital conflict and an exacerbation in his maternal grandmother’s bipolar disorder.

Tom was below the fifth percentile for height and weight for his age and at the 89th percentile for desirable body weight for height. During baseline assessment, Tom accepted an appropriate variety of foods; however, his overall caloric intake was only 67% of that needed for catch-up growth. When encouraged to consume greater quantities, he expressed physical discomfort, became whiny and agitated, or had an emesis.

A behavioral program was instituted to increase the volume of food consumed and to reduce the level of distressed behavior occurring during meals. Tom was placed on a changing criterion program that required him to consume increasing quantities of food in order to receive ward privileges. He was also taught to practice relaxation whenever he felt discomfort. After emesis, he was allowed to rest for 20 minutes, then required to complete the meal. Tom was asked to rank order his level of difficulty for eating situations, and a systematic desensitization program was implemented around eating in public places.

Tom initially displayed considerable anxiety and resistance toward the plan. Within a week, however, he was able to consistently meet the established criteria for consumption to gain weight (Fig. 3) and for reduced frequency of emesis. At discharge, Tom was consuming 83% of his estimated caloric needs and was at 90% of his desirable body weight. By 3 months follow-up, he was at 96% of his desirable body weight.

Table 1 summarizes the characteristics of the patients and their weight gains during their hospital stay. All three boys reversed a prehospitalization pattern of weight loss and substandard caloric intake relative to estimated dietary needs. Follow-up, in all cases a minimum of 5 months later, indicated continued oral intake of a variety of solid foods, normalized eating patterns, and weight gain.

Discussion

With rare exception, previous work documenting the results of behavioral treatment for feeding and eating disorders in preadolescents has focused on infants and younger children with mental retardation, significant medical illness, or developmental disabilities, which interfered with the acquisition of developmental feeding skills before solid food mastery. A unifying construct in the development of intervention programs for these children has been that of treatment of a phobic response to the introduction of new foods. Additionally, the concept of “phobia” has been a consistent theme in conceptualizations of adolescent and adult eating disorders, transcending a variety of theoretical frameworks, including behavioral, psychodynamic, and interpersonal approaches (Halmi, 1985; Rosen and Leitenberg, 1982; Bruch, 1982). In our cases, eating disorders with extreme food...
aversions were conceptualized as “phobic” disorders treated through cognitive-behavioral-systems interventions, including ignoring, desensitization based on hierarchical ordering of feared stimuli, relaxation training, and contingency management.

Several features of these three patients are consistent with the conceptualization of their eating disturbances as phobic responses. These features included the children’s reactions to the feared stimulus (crying, escape behavior, trembling, rapid respiration), the absence of other significant psychological or medical disorders, and the pattern of an initial specific food restriction that increasingly generalized over time until nutritional status and growth were significantly compromised (Barrios & Hartmann, 1988). For all three boys, the initial onset of feeding difficulty or restriction was reportedly preceded by a potentially anxiety-producing physical event, namely, a choking episode, or in one case an acute medical illness. Significant psychological stressors were also noted in each family and may have contributed to the initial avoidance response as well as to the generalization of avoidant behavior through increased family tension and anxiety and/or parental difficulty with limit-setting related to mealt ime behavior. Thus, parent-mediated consequences may have maintained the initial avoidant behavior.

The association between eating-related stressors, such as choking or flu-like symptoms, and subsequent avoidant behavior toward food fits well with theoretical models of conditioned phobias. However, hypotheses about causality should be tempered by an awareness that parents and children may retrospectively attempt to understand and rationalize feeding difficulties through an explanatory event, whether or not that event actually preceded the onset of difficulties (Brown and Harris, 1986). Subsequent prospective research is required to clarify issues of precipitating stressors and the role of family factors in maintaining food avoidance.

Normal school-aged children have been shown to demonstrate numerous fears and phobias in validation samples (Maurer, 1965; Ollendick, 1983). However, the occurrence of health-threatening phobic behaviors related to food and eating in normal children who have already acquired mastery of developmental feeding skills and normal eating patterns has not been widely noted. A prior case report (Boer and Sippelle, 1970) used only operant behavioral procedures. Given the older ages of our patients, we found the addition of cognitive therapeutic techniques to be helpful. Such techniques have been incorporated successfully with the treatment of eating disorders in adults, especially bulimia nervosa (Fairburn, 1985), but have not been well described for children or adolescents.

Conceptualization of eating disorders in prepubertal children as food phobias provides a model for treatments within a three-stage medical behavioral-system model (Herbert, 1987), incorporating a thorough multidisciplinary assessment to rule out biological dysfunction as either a primary cause or a contributing factor. Assessment of both individual and family functioning focuses upon behaviors, attitudes, and beliefs. This evaluation leads to designing of behavioral-systems interventions, based on developing new behaviors and response strategies that are mediated by the beliefs, perceptions, and attributions of children and their families (Herbert, 1987). Within this framework, understanding the belief systems of significant people in the child’s life and their active involvement in treatment is critical. The addition of cognitive strategies to behavioral techniques in treating phobia is consistent with Lang’s (1979) bioinformational theory of emotion that suggests that fears are mediated by the cognitive construct associated with an affective image.

This approach affords several advantages over previous medical or behavior modification strategies. It integrates and examines biological, individual, and systems causes, directly confronts a child and family’s emotional attitudes and beliefs toward eating, and actively engages the child in treatment according to his or her level of cognitive development. These three case studies underscore the need for future controlled research with larger numbers of children presenting with phobic avoidance behaviors toward food and eating. Continued study of such children may afford insights into underlying commonalities across eating disorders occurring at varying developmental stages.

References


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