ENCYCLOPEDIA on Early Childhood Development

Assessment and Treatment of Pediatric Feeding Disorders

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Introduction

A feeding disorder is identified when a child is unable or refuses to consume a sufficient quantity or variety of solids and liquids to maintain proper nutrition.[1] The complications from feeding problems range from mild (e.g., missed meals) to severe (e.g., severe malnourishment).[2] Mealtime difficulties occur in approximately 25% to 35% of typically developing children and up to 80% of individuals with developmental disabilities.[3-6] Feeding disorders may be manifested by total refusal to eat, dependence on supplemental feedings (e.g., gastrostomy tube), inappropriate mealtime behaviour, and selectivity by type and texture.

Subject

The causes of feeding disorders are equally varied. Feeding problems are often caused by a number of biological and environmental factors, which interact.[7,8] For example, Rommel et al. evaluated 700 children referred to an interdisciplinary feeding team and found combined causes (e.g., medical, behavioural, oral-motor) of the feeding problem occurred in over 60% of patients.[8]

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Biological factors may include early experiences with medical procedures, chronic hospitalization, or medical problems, which cause eating to be painful. Even after the painful medical condition is treated, the child may continue to refuse food because if the child never or rarely eats, he or she never learns that eating is no longer painful. If the child refuses to eat, he or she does not have the opportunity to practice eating and does not develop the skills to become a capable eater. Refusal to eat may lead to growth failure, which contributes to poor feeding skills as undernourished children lack the energy to become capable eaters.[9] Thus, a cycle develops in which the child refuses food, fails to learn that eating is no longer painful, misses opportunities to develop oral motor skills, and fails to gain weight.

Problems

Even when the cause of food refusal is a painful medical condition, caregiver responses to the child during meals may worsen the problem. Piazza and colleagues observed caregivers and children with feeding problems during meals, which showed that caregivers used a variety of strategies to encourage eating such as distracting, coaxing, and reprimanding; allowing the child to periodically take a break from or avoid eating; and providing preferred food or toys.[10] All children displayed refusal behaviour and infrequently ate bites of food. When Piazza et al. analyzed the effects of caregiver behaviour during meals on child feeding behaviours, results indicated that the above listed strategies used by the caregivers to encourage eating actually worsened behaviour for 67% of the children.[10]

These results are not surprising given the relation between the causes of feeding problems and caregiver behaviour. Parental strategies such as stopping the meal or coaxing may produce the immediate effect of temporarily stopping undesirable child behaviour. From the child's perspective, the study by Piazza et al. suggested that if refusal behaviour produces a "good outcome" for the child (e.g., the meal ends), refusal will continue.[10]

Research Context

The treatment strategies with the most scientific support are based on behaviour analysis.[11-16] Kerwin and Volkert and Piazza examined the research literature on treatment of pediatric feeding disorders to identify which treatments had enough scientific support to be labeled "effective." Kerwin and Volkert and Piazza found that behavioural interventions were the only treatments with enough scientific evidence to be labeled "effective." Similar analyses by Sharp

and colleagues, Ledford and Gast, and Williams and colleagues supported those of Kerwin and Volkert and Piazza.[11,13-16]

Research Results and Conclusions

Because children have feeding problems for a variety of reasons, treatment should focus on all of the components (i.e., biological, oral motor and psychological) that contribute to feeding problems and should be interdisciplinary.[17,18] One preliminary analysis of the outcomes for 50 children admitted to an interdisciplinary day-treatment feeding program indicated that over 87% of the goals for treatment were met by discharge from the program. When increases in calories consumed by mouth were the goal of treatment, 70% of patients reached their goal. Even when children did not reach 100% of their oral intake goal, their levels of oral intake were increased substantially and within 20% of the goal One hundred percent of patients met their goals for increasing texture, decreasing bottle dependence, increasing self-feeding skills, and increasing variety of foods consumed.

All patients receiving their nutrition via tube experienced decreases in tube feedings and 70% of patients met their goals for decreases in tube feedings. Patients who entered the program with a *nasogastric tube* either left the program without the tube (75%), or the tube was removed shortly after discharge (100%). Ninety-seven percent of patients met their goals for decreasing inappropriate mealtime behaviour. Eighty-eight percent of caregivers were trained to implement the treatments with greater than 90% accuracy, and the treatment was transferred successfully to the home and community in 100% of cases.

Follow-up data indicated that the majority of patients continued to make progress toward age-typical feeding (e.g., volume increases *gastrostomy-tube* feeding decreases and initiation of self-feeding).[17] Williams and colleagues, Greer and colleagues, and Laud and colleagues provided similar data in that interdisciplinary treatment with a behaviour analysis focus produces positive outcomes for children with severe feeding problems.[19-21]

Implications

Interdisciplinary, intensive treatment of pediatric feeding disorders is successful in improving a wide variety of feeding problems, including dependence on supplemental feedings, selectivity by type and texture of food, inappropriate mealtime behaviour, failure to transition to age appropriate textures of food, and failure to self-feed to name a few. Successful treatment of these

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feeding problems has a number of important implications for children with feeding problems, their families, and society. Long-term, chronic feeding problems are associated with (a) health risks for the child,[22] (b) increased perceived stress for the child and family,[23] (c) mental health problems in families,[24] (d) increased risk of eating disorders such as anorexia,[25] and (e) increased health care costs for the child and family.[19] Therefore, treatment of pediatric feeding problems can result in (a) improved health of the child, (b) improved quality of life for the child and family, (c) decreased mental health problems in families, (d) reduced risk of long-term eating problems, and (e) reduced health care costs. Obviously, children who are dependent on technology such as gastrostomy-tubes (G-tube) for their nutritional needs have high health care costs. For example, the health care cost for a child with a G-tube is approximately $41,811 for the first year. Over two years, the health care cost for that child is estimated to be $78,811 and after five years, the cost is $189,811. These estimates are for uncomplicated care (e.g., no other significant medical problems related to the gastrostomy-tube) and do not include costs associated with family or individual therapy that may be necessary as a result of increased stress or psychopathology that has been documented in families of children with feeding problems. Moreover, the health care costs for these children may extend over many years if the child continues to need the gastrostomy-tube for nutrition or if the child develops eating problems such as anorexia later on. Williams and colleagues found that intensive, behavioural treatment was a cost-effective alternative to long-term supplemental feedings.[19] Intensive, interdisciplinary treatment for feeding problems can eliminate the need for a gastrostomy-tube and result in age typical feeding, which can end the need for ongoing medical treatment in about 2 years. The estimated cost of intensive treatment for the feeding problem is approximately $55,620 over 2 years. Thus, treatment of the feeding problems results in a savings of $23,191 over a 2-year period and a cost savings of a minimum of $134,191 over 5 years when compared to using a gastrostomy-tube for the problem.

Thus, not only are there obvious quality of life improvements for children with feeding problems and their families, but also there are significant cost savings when feeding problems are treated using interdisciplinary approaches with a behaviour-analytic focus.

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