CHAPTER 23

Eating and Feeding Disorders in Early Childhood

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Eating and sleep problems are among the most common for referral of infants and toddlers to pediatricians and to infant mental health units, including our own (Keren, Feldman, & Tyano, 2001). This is not surprising, as eating and sleeping are the main daily activities during the first year of life, and both are dependent on the interplay between an infant's characteristics and a caregiver's behaviors.

In this chapter, after reviewing some historical considerations about the concept of eating and feeding problems in infancy, I emphasize the distinction between eating and feeding processes and problems, then follow with a review of the parental risk factors and the role of the quality of the parent–infant relationship in the development of eating disorders. Regarding the classification of eating disorders in infancy, I describe the similarities and differences, as well as the contributions and shortcomings, of DC:0–3R (Zero to Three, 2005), DC:0–5 (Zero to Three, 2016), and DSM-5 (American Psychiatric Association, 2013). I then provide a clinical description and treatment of each of the three main categories—overeating disorder, undereating disorder, and atypical eating disorder—with short, illustrative case vignettes. I end with a section on the different aspects of the evaluation of infants referred for an eating behavior problem.

Brief Historical Considerations

Spitz, as early as 1946, observed a link between severe food refusal and "anaclitic depression." Kreisler (1981) introduced the concept of deviant eating behaviors in the first year of life as a psychosomatic disorder, like sleep problems, breath-holding spells, and infant colic, thus emphasizing the now well-accepted mind–body interplay. Later, describing "psychogenic fatal vomiting," Kreisler (1999) reminded us of how severe an eating disorder in the first year of life can be. Green (1985), drawing on the work of Powell, Brasel, and Blizzard (1967), noted a special category of reactive attachment disorder of infancy, "psychosocial dwarfism," characterized by growth retardation and mood disturbance associated with a reversible hypopituitarism and low growth hormone levels. Through the 1980s, feeding disturbances were often conflated with reactive attachment disorder, including in DSM-III (American Psychiatric Association, 1980), but it is now clear that although eating disorders and attachment disorders may co-occur, they are distinct disorders.

Chatoor and Egan (1983), for example, reported their own observation that a disturbed parent–infant primary caregiving relationship may be the underlying cause of a significant eating disorder, even in the absence of the ex-

treme condition of reactive attachment disorder. Both Chatoor, Hirsch, Ganiban, Persinger, and Hamburger (1998) in the United States and Kreisler (1999) in France defined *infantile anorexia nervosa* as clinical feeding disturbances in which a very serious battle around control and separation–individuation takes place between an infant and mother, and often leads to forced feeding. In pediatric textbooks, the traditional distinction between "organic failure to thrive" and "nonorganic failure to thrive" led to a dichotomous approach that did not fit the clinical reality. Currently, the most accepted approach is the multifactorial one that integrates the physical and psychological aspects of normal and abnormal eating behaviors (Benoit, 2009; Bryant-Waugh, Markaham, Kreipe, & Walsh, 2010).

Eating and Feeding Disorders

Beyond their nutritional aspect, meals are so central in the very young child's daily life that the quality of the feeding and eating experience affects the child's sense of security and basic trust, inner sense of self, mastery, autonomy, and initiative. Metaphorically, we may define the optimal value of a meal as the sum of its calories and its related emotional experience.

The term "feeding" reflects the *interaction* that takes place between the caregiver and the infant, whereas "eating" reflects the infant's autonomous handling of food (e.g., reaching for food, opening the mouth, swallowing). Obviously, the younger the child, the more dependent he or she is on the caregiver's attitudes and on the quality of their relationship in the development of his or her eating patterns. Birch and Doub (2014) have described the process of infants learning to eat in the first 2 years of life, and have shown how parenting and feeding approaches may facilitate or impede the child's development of self-regulation of hunger and food preferences. For instance, feeding practices that encourage eating for soothing may promote a dysfunctional habit of eating in the absence of hunger.

Not all eating problems are relational. Indeed, on the one hand, the very young child's eating disturbance may be a reflection of his or her own characteristics, such as constitutional difficulties of state regulation, difficulties in making changes and transitions, sensory aversions, and reactions to traumatic medical procedures or conditions. On the other hand, disturbed eating may be observed only in the context of a specific feeding relationship, as it reflects the disturbed dyadic or family relationship of which the eating problem is only one of its manifestations.

Parental Risk Factors

Maternal eating disturbances, including bulimia and anorexia nervosa, are risk factors for all types of eating disorders in infancy. In the Avon Longitudinal Study of Parents and Children (ALSPAC), women with lifetime eating disorders have been compared with women without any lifetime psychiatric disorder (Micali, Simonoff, Stahl, & Treasure, 2009, 2011). The authors' main finding was that lifetime eating disorder and active eating disorder during pregnancy increased the risk for infant feeding difficulties, while maternal distress (depression and/or anxiety) was the main mediating factor. A controlling parenting style during mealtimes and play was observed among mothers with eating disorders of all kinds, while their infants suffered from eating problems (Cooper, Whelan, Woolgar, Morrell, & Murray, 2004; Micali et al., 2009, 2011; Stein et al., 2001).

A longitudinal study of mothers and fathers with binge-eating disorder and their children at 18 and 36 months of age (Cimino et al., 2016) showed that the presence of this diagnosis in one or both parents influences the severity of maladaptive parent–infant feeding interactions and the children's emotional–behavioral problems over time. Sherkow, Kamens, Megyes, and Loewenthal (2009) observed mother–infant dyads at a therapeutic play nursery for mothers with eating disorders and their children, and suggested a developmental pathway, as well as several mechanisms that help in understanding the pathogenesis of the intergenerational transmission of eating disorders from mothers to daughters.

Maternal depression and anxiety have been consistently associated with feeding difficulties in young children (Benoit, 2009; Blissett, Meyer, & Haycraft, 2007; Chatoor, Hirsch, et al., 1998; Coulthard, Blissett, & Harris, 2004). Stein and colleagues (2001) have further characterized the feeding styles of these mothers as nonresponsive (i.e., too controlling, too indulgent or underinvolved). Noncontingent feeding, in turn, has been related to under- or overweight

conditions among young children (Micali et al., 2009). A relatively recent study (Braden et al., 2014) has shown that mothers with binge eating and depression tend to offer food to soothe their child's negative emotions, which leads the child to develop "emotional eating."

Parents who have conflicts about control of their own food intake often adopt controlling child-feeding practices in an attempt to prevent the child from becoming overweight (Birch & Davison, 2001), instead of promoting their child's ability to self-regulate intake. Sonneville and colleagues (2013) have found a strong link between parental control and overeating, and food sneaking, hiding, and hoarding. Parental pressure, control, and restriction over what how much the child eats increases risk for child overeating, as well as undereating (Scaglioni, Salvioni, & Galimberti, 2008). Maternal sense of competence has been found to negatively correlate with mother–child conflict and control around mealtimes (Aviram, Atzaba-Poria, Pike, Meiri, & Yerushalmi, 2015).

The important role of the father in the young child's eating behavior has been shown in a relatively recent study (Blissett et al., 2007). More recently, Thullen, Majee, and Davis (2016) have looked at the father's involvement and the quality of coparenting (satisfaction with task distribution, mutual support, cooperation, agreement on upbringing practices) as they relate to infant eating behaviors. They showed how fathers' participation in feeding is different from that of mothers, with increased involvement in feeding over the first few years requiring an ongoing negotiation around coparenting related to feeding.

Maternal postpartum depression is well known to affect all domains of parenting negatively (see Murray, Halligan, & Cooper, Chapter 10, this volume). It is less known that a significant percentage of fathers also develop postpartum depression. Paulson, Dauber, and Leiferman (2006) studied more than 5,000 American families and detected postpartum depression among 14% of mothers and 10% of fathers. Mothers who were depressed were approximately 1.5 times more likely to engage in less healthy feeding and sleep practices, and both mothers and fathers engaged less positively with their child. Similarly, in a general population screening study conducted in Finland (Luoma et al., 2013) among 194 families, 21% of fathers and 24% of mothers scored above the cutoff point for depressive and anxiety symptoms on the Edinburgh Postnatal Depression Scale. In another study of 219 fathers of infants ages 1–24 weeks, Cockshaw, Muscat, Obst, and Thorpe (2014) found a link between paternal depressive symptoms and infant feeding difficulties. Similar findings about the impact of parent depression and parenting stress on the young child's eating behavior (both undereating and overeating) have been reported (Hughes, Power, Liu, Sharp, & Niklas, 2015). General risk factors, such as low parental education, low income, and young maternal age, have been found to be relevant both for undereating and overeating (Dubois, Farber, Girard, Peterson, & Tatone-Tokuda, 2007).

Parent–Infant Relationship Disturbances

In 1998, Chatoor and colleagues demonstrated an association between feeding disorders and mother–infant disturbed relationships, with control struggles predominant. Mothers of infants with feeding disorder have been shown to exhibit greater negative affect, intrusiveness, and struggle for control, and they are less inclined to physically touch their child than mothers whose infants do not exhibit feeding difficulties. Infants with feeding disorders have been observed to be more withdrawn (Feldman, Keren, Rosval, & Tyano, 2004). Mothers of infants with feeding difficulties did not facilitate their child's attempt to eat autonomously and to explore food, and were more intrusive and in a constant struggle for control. In turn, the children had difficulty self-regulating during meals, and tended to be oppositional (Ammaniti, Ambruzzi, Lucarelli, Cimino, & D'Olimpio, 2004). These studies do not make clear a direction of effects, that is, whether mothers are responding to aberrant infant cues or whether their behaviors are contributing to infant feeding difficulties (or both).

More recently, fathers have been included in studies about feeding disorders, and have been shown to be less sensitive and more intrusive, and their children were less responsive to them during play and feeding (Atzaba-Poria et al., 2010). Interestingly, child temperament was linked to father–child conflict and control around mealtimes, but not to mother–child conflictual feeding interaction (Aviram et al., 2015). Family conflicts around food and control are quite common; often one of the parents is him- or herself a picky eater, and the tense at-

mosphere impacts on the young child's eating behavior (Davies et al., 2006).

Approaches to Classification in Early Childhood

Recent attempts to classify feeding and eating disorders in young children have varied widely, from those proposing many different types of disorders to those that lump disparate types together by emphasizing common features. Though other classifications have been proposed, I am limiting this brief discussion to three that have been or potentially will be especially important within infant mental health—DC:0–3R (Zero to Three, 2005), DSM-5 (APA, 2013), and DC:0–5 (Zero to Three, 2016). I consider these different conceptualizations briefly, indicating their similarities, differences, contributions, and shortcomings wherever possible.

DC:0–3R

This system, derived from a conceptualization developed by Chatoor (2002), is an etiology-based classification of six subtypes of eating disorders in the first 3 years of life, designated "feeding behavior disorders": (1) feeding disorder of state regulation; (2) feeding disorder of caregiver–infant reciprocity; (3) infantile anorexia; (4) sensory food aversion; (5) feeding disorder associated with concurrent medical condition; and (6) posttraumatic feeding disorder. In all six subtypes, failure to gain appropriate weight is one of the required diagnostic criteria.

This approach was adopted with modification in the *Research Diagnostic Criteria—Preschool Age* (American Academy of Child and Adolescent Psychiatry, 2002) and later adopted with further modification in the *Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood—Revised* (DC:0–3R; Zero to Three, 2005). Nevertheless, since the introduction of the DC:0–3R classification in 2005, there have been few validating investigations from other clinical groups or settings (see Bryant-Waugh et al., 2010).

One exception is a longitudinal study by Ammaniti and his colleagues (2012), who focused on infantile anorexia and showed that infants with this diagnosis in early childhood later developed ongoing eating problems, anxiety/depression and withdrawal, as well as rule-breaking behaviors and social problems. There were significant correlations between the children's eating problems and their emotional difficulties, and their mothers' increased emotional distress and disturbed eating attitudes. Very recently, this team (Lucarelli, Ammaniti, Porreca, & Simonelli, 2017) also showed that families of infants with infantile anorexia have difficulties in expressing and sharing pleasure, and in structuring a predictable and flexible context. Their infants showed little autonomy and had difficulty in being actively engaged and tuned with parents.

The DC:0–3R (Zero to Three, 2005) classification has been criticized for several reasons. Davies and colleagues (2006) criticized the limited inclusion of infant–parent relational disturbances in the conceptualization. Bryant-Waugh and colleagues (2010) noted limited research and validation of the specific disorders. A large-scale survey (800+ respondents from five continents) conducted by Zero to Three and World Association for Infant Mental Health (WAIMH) in 2013 revealed that numerous clinicians were concerned about the overlap of several categories in the conceptualization, a criticism also noted by Bryant-Waugh and colleagues. For example, they reported that posttraumatic feeding, feeding disorder associated with a medical illness, and parent–child relationship disturbance often co-occur and may manifest as a general refusal to eat and poor interest in food, as observed in the infantile anorexia study. Also, the general term "feeding behavior disorders" may imply that all the types of eating problems in the first years of life are essentially relational, which is obviously not true for all cases (e.g., infants with sensory aversions or regulatory difficulties).

The use of the term "behavior" may reinforce the dichotomous and outdated distinction between organic and nonorganic eating disorders (Reilly, Skuse, Wolke, & Stevenson, 1999). The obligatory criteria "failure to gain weight," "growth deficiency," "nutritional deficiencies," or "delay of oral development" did not include young children with problematic eating patterns who do not exhibit these specific features. For example, picky eaters who receive multivitamin supplements, 2-years-olds fed with several bottles a day or even breast-fed, and young children with parenteral feeding are exhibiting clinical significant eating problems (Bryant-Waugh et al., 2010; Steinberg, 2007). Hence, this criticism is that impairment criteria should not be

based on weight or nutritional deficiencies, but more on the impact of the eating problem on the child's physical and social–emotional development, and/or on the family overall functioning.

"Feeding disorder of caregiver–infant reciprocity" is confusing because, on the one hand, it implies the presence of a parent–infant relationship disorder; on the other hand, if a relationship disorder is present, the disorder is excluded. Also, the term "infantile anorexia" is misleading because it may imply that this is an early form of the classic anorexia nervosa observed in adolescence, although no longitudinal data support continuity between these two disorders. The typical conflict over control and autonomy seen in these cases labeled as "infantile anorexia" seem to suggest *symptoms* of a parent–infant relationship disorder.

DSM-5

In part because of some of the critiques of DC:0–3R's classification, DSM-5 authors decided to "lump" disparate disorders together in a single avoidant/restrictive food intake disorder (ARFID) that covers infants through adults. As such, it emphasizes commonalities across developmental periods, with core features of eating/feeding disturbance not accounted for by food unavailability, cultural norms, or other eating disorders that involves weight loss, nutritional deficiency, dependence on a feeding tube, or dietary supplements (American Psychiatric Association, 2013).

Because it is a relatively new diagnostic entity, few studies are available that permit an assessment of the validity of the criteria of ARFID. Nevertheless, the disorder has the advantage of not requiring inferences about etiology, as the DC:0–3R does, and it focuses on behaviors that are relatively easy to observe. Virtually all of the six disorders in DC:0–3R would be best captured by ARFID in DSM-5. The obvious downside to such an all-encompassing definition is that variable phenotypes may exist within the broad criteria.

DC:0–5

The overarching changes that were made in DC:0–5 classification, as well as the specific changes in the category of eating disorders, have been described in detail elsewhere (see Keren, 2016). DC:0–5 defines three main categories of eating disorders, based on the child's observable eating behaviors: overeating disorder, undereating disorder, and atypical eating disorders.

Overeating Disorder

Parents' awareness of the potentially pathological significance of overeating in infancy is less than that for undereating disorders, and most eating-related referrals of infants to pediatricians are for undereating. In fact, there are few data about overeating behaviors among infants and toddlers (despite rising concern about obesity among school-age children). To date, the prevalence of overeating in infants is unknown. Still, clinical observations suggest that some toddlers express verbally a preoccupation with food at the expense of other developmentally appropriate activities. These toddlers may actively search for food and become very distressed at efforts to redirect them. Hence, this is a clinical condition that warrants diagnosis, treatment, and collection of data for better understanding.

In clinical settings, overt preoccupation with food and active searching for it is rarely seen before age 2 years because autonomy, verbal skills, and motor skills are required to search for the food. In contrast, *overfeeding* is quite common under age 2 years, and especially during the first year of life, often as a result of the caregiver's use of food as soother and/or attribution of hunger in response to the infant's crying. If overfeeding occurs only with one primary caregiver, a diagnosis of relationship-specific disorder of early childhood, with manifestations of overeating, is appropriate.

Risk Factors

There is evidence of a strong genetic component in the regulation of appetite and food preferences (sweet and salty vs. bitter and sour tastes) during the early years (Scaglioni, Arrizza, Vecchi, & Tedeschi, 2011). Still, parents and caregivers play a crucial role in modeling children's eating behaviors (Birch et al., 2001; Birch & Doub, 2014). Chronic misreading of infant feeding cues, such as feeding when the infant is not hungry, has been shown to contribute to the development of overweight by impairing the infant's response to internal states of hunger and satiation. Caregivers who exert excessive control over what and how much children eat contribute to childhood excessive

weight gain and obesity. Control comes in three forms: restriction of food to prevent overweight (especially common among parents who have problems controlling their own food intake), pressure to eat more food, and pressure to eat "healthy food" (Scaglioni et al., 2011).

Caregiver instrumental feeding, restriction, emotional feeding (i.e., using food to help the child regulate emotions), encouraging the child to eat and using food as a reward, weight-based restriction, and fat restriction have been associated prospectively with the development of emotional eating, snacking behavior, and overeating (Rodgers et al., 2013). In an interesting study, Bergmeier, Skouteris, Horwood, Hooley, and Richardson (2014) looked at the contribution of the child's characteristics, such as temperament, to maternal feeding practices and found a significant correlation between difficult temperament and maternal feeding practices.

Diagnosis

The disorder is present when infants/young children exhibit a pattern of overeating or attempting to overeat. They seem preoccupied by food and engage in food seeking or talk excessively about food even though there is no food scarcity. Finally, the food preoccupation is associated with distress or impaired functioning.

Course and Prognosis

No controlled longitudinal study of infants with clinically significant overeating behaviors has yet been reported. Any link between overeating in infancy and binge eating or bulimia nervosa later has not been supported by research. A very recent publication of a 30-year prospective study (Nicolls, Statham, Costa, Micali, & Viner, 2016) reported lack of correlation between childhood eating behaviors and obesity with the development of bulimia and compulsive eating in adulthood. Furthermore, a prospective birth cohort study (Munkholm et al., 2016) has shown that overeating at ages 5–7 years was associated with restrained eating in preadolescence. These findings do not support continuity of diagnosed eating disorders in early childhood into adolescence/young adulthood.

Still, there are significant long-term consequences of overeating in early childhood, including obesity, lack of participation in age-appropriate social activities, and ultimately, peer rejection. The Longitudinal Study of Child Development in Quebec (Dubois et al., 2007) performed on 1,498 children revealed that overeaters at the age of 2.5 years were six times more likely to be overweight at 4.5 years. Hence, it is important to diagnose and to treat the disorder as early as possible.

Treatment

To date, there are no specific guidelines for the treatment of overeating disorder in infancy and early childhood. However, treatment must be based on the diagnosis and on the identified contributing factors in either the infant, the parent, or their relationship. Providing psychoeducation to parents on the importance of setting limits with the child, having fixed meal schedules, modeling their own eating habits, and providing adequate playful activities between meals is always the first therapeutic step. In cases in which the overeating is a manifestation of a relationship-specific disorder, the main focus of the treatment will be the relationship rather than the child's overeating behavior (Escobar et al., 2014). In complex cases with parental psychopathology and problematic feeding styles, the treatment may be lengthy because of the need to work through parental projections and negative attributions. In contrast, whenever there is no specific risk factor, psychoeducation and dietary guidance usually lead to improvement. Helping parents find nonfood alternatives to occupy their infants'/toddlers' time and energy, such as toys, books, and music, has been found helpful (Kong et al., 2016). Universal preventive interventions at well-baby clinics may be beneficial, as has been shown by Paul and colleagues (2014).

CLINICAL VIGNETTE

A 2½-year-old boy persistently asked for food, at home and at kindergarten, and ate significantly more than his peers. He was slightly overweight, with normal development; his affect was sober, and he preferred staying close to his father rather than playing during his assessment in the clinic. He had been a fussy baby, and he was given the bottle as a soother. Daily separations were hard on him, as was falling asleep at night. His mother typically put him to bed, and he protested vigorously if she tried to leave his side when he was awake. He was described as oppositional with his mother only. His mother had a history of depression and anxiety that was

exacerbated after he was born. The level of parenting distress for both parents was high.

This child met criteria for several DC:0–5 disorders, including (1) overeating disorder (persistently asking for food, at home and at kindergarten, and eating significantly more than his peers), and (2) relationship-specific disorder of early childhood (mother) with oppositional and sleep symptoms. The recommended treatment for this child included triadic and dyadic sessions, in addition to the mother's referral for individual treatment.

Undereating Disorder

The common reasons for referral of infants with undereating include delay or lack of eating skills; difficulty with fluids or with foodstuffs; reluctance or refusal to eat based on taste, texture, temperature, or any other sensory factors; lack of interest in food/poor appetite; slow eating; and fear of shocking and selective eating (Bryant-Waugh et al., 2010). Estimates are that 25% to 40% of infants and toddlers are referred by their caregivers because of feeding problems (McDermott et al., 2008). Severe refusal to eat is diagnosed in 3–10% of children but only 1–2% of them have a severe, long-lasting eating disorder (Manikam & Perman, 2000). Among subgroups of the general population, such as children with developmental disabilities, including autism, these figures may be different; in our clinical experience, severe undereating problems are quite frequent and more complex, in that they involve a complex transactional model with dysfunction in sensory, cognitive, and emotional responses (de Moor, Didden, & Korzilius, 2007; Keen, 2008).

Diagnosis

A diagnosis of undereating disorder is made when young children consistently eat less than expected for their age and exhibit maladaptive eating behaviors. Loss of weight or failure to gain weight is not a criterion because some infants have pathological patterns of eating but maintain their weight. For instance, infants may refuse the transition to solids but drink milk without weight loss. Prolonged mealtimes, stressful mealtimes, lack of appropriate autonomous feeding, nocturnal eating (after 1 year of age), prolonged breast or bottle feeding, and failure to taste new textures, are common associated features.

Picky eating is often not associated with poor weight gain, but tension and distress are very common among the parents of these children. Attempts at either praising or criticizing do not have any effect on the child. Some of these children exhibit aversion to specific smells, textures, and tastes, and may seem to have some kind of sensory aversion, combined with a behavioral component. Selective picky eating may start in the second half of the first year. Some infants start being selective at around age 9 months, at the transition to solids; others have a history of refusal to wean from breast feeding. However, selective eating may start at any age. If there is an accompanying physical illness, it is important to make sure that the undereating pattern is not fully explained by it or by a medication side effect.

Comorbid Diagnoses

Comorbid medical diagnoses are often relevant in the most complex cases in which both physical and emotional/behavioral factors interact. These should be recorded on Axis III of the DC:0–5 classification. The most common medical diagnoses include milk allergy; esophagitis, due to structural abnormalities that affect the gastrointestinal system; neurodevelopmental disabilities; oral hypersensitivity and oral–motor dysfunction; systemic chronic illnesses, such as cardiac, kidney diseases, cystic fibrosis; and chronic pain due to various conditions.

Based on the general principles of the DC: 0–5, a diagnosis of relationship-specific disorder with one caregiver may co-occur with the diagnosis of undereating disorder, if the infant exhibits symptomatic behaviors (other than abnormal eating) and the other symptoms are limited to one relational context.

Differential Diagnosis

Undereating may be a *symptom* of adjustment reaction, depression, posttraumatic stress disorder, or reactive attachment disorder, rather than a diagnosis in itself; therefore, these diagnoses must be ruled out, based on the child's history and symptoms. A diagnosis of relationship-specific disorder of early childhood should be made instead of undereating disorder whenever the eating problem is observed *only* in the con-

text of the relationship with one specific caregiver.

Course and Prognosis

Despite lack of continuity in categorical disorders, there is some degree of continuity between eating problems in infancy and in older ages. McDermott and colleagues (2010) have found that around 40% of the irregular eaters at age 5 years were still irregular eaters at 14 years. Independent contributions included the children's own capacity to regulate their sleep and mood, as well as maternal anxiety and negative feelings toward the child during the early years. Hemmi, Wolke, & Schneider (2011) showed that infants with crying, sleeping, and/or feeding problems have more behavioral problems as children than controls, especially in multiproblem families.

Picky eating often improves spontaneously over time, especially when parents stop reacting to the child's eating behavior, but some children remain picky eaters into adulthood. Still, in a recent longitudinal study of 1,327 children from the Copenhagen Child Cohort 2000 (Micali, Rask, Olsen, & Skovgaard, 2016), those children who were very picky or slow and poor eaters in infancy, who came from non-Danish parents, and whose mothers suffered from a psychiatric diagnosis, persisted in being picky and poor eaters at 5–7 years of age.

Treatment

The treatment plan should be based on the identified biological and/or psychological contributors in the infant, the parent, and/or the relationship. A multidisciplinary team can tailor psychoeducational, behavioral, and/or psychotherapeutic interventions for the infant and family.

Treatment outcome studies are sparse (McGrath Davis, Schurle Bruce, Mangiaracina, Shulz, & Hyman, 2009), although a variety of approaches have been reported. Behavioral management (e.g., regular mealtimes, no between-meals snacks or drinks, no use of praise nor criticism), parental psychoeducation about the infant's needs for autonomy, control and mastery, and parent–infant interactive guidance aimed at improving the caregiver feeding styles (e.g., controlling or indulgent) are the most commonly reviewed approach for undereating disorder (Chatoor, 2009; Kerzner et al., 2015; Luiselli, 2000; Silverman, 2015). The basic principle is to have the parents determine "what, when, and where" the infant eats, and to have the infant decide "how much" to eat. This seems straightforward, but it is often is difficult to implement. Challenges increase when parents have their own issues about trust, autonomy, and control, or when infants do not provide clear cues about their needs. When undereating behavior reflects a significant relationship disorder, the main focus of treatment needs to be the relationship and not necessarily the feeding. Medications for undereating disorder in infancy are very rarely administered, except in cases of trauma to the oropharynx or esophagus, in which the infant's anticipatory anxiety before each meal leads to full food refusal and does not improve with desensitization techniques. Administration of fluoxetine (0.3 mg/kg per day) to 2-year-old twins with food refusal that had developed after several invasive gastrointestinal procedures was reported (Celik, Diler, Tahiroglu, & Avci, 2007) as a successful intervention that led to significant decrease in the twins' fear and anxiety, and improvement in their eating behavior.

The duration of these treatments is extremely variable, depending especially on the parents' capacity for self-reflection and change. Unsurprisingly, parental psychopathology makes these treatments much more complex and lengthy.

CLINICAL VIGNETTE

A 3½-year-old girl was referred for evaluation of the timing of an eventual weaning of nasogastric tube (NG) feeding; the tube had been in place since she was 4 months old, following an unexplained lack of thriving. She was born prematurely at 33 weeks' gestation and had a very significant developmental delay. Her mother stayed at home for 2 years and gave up her own professional career to care for her daughter. The child entered child care at age 2 years, and up to the referral time, she had exhibited strong separation anxiety when away from her mother. A miniseparation between the girl and each of her parents revealed a resistant attachment behavior with her mother but secure attachment. According to DC:0–5, the young child met criteria for two comorbid disorders: undereating disorder (with chronic NG tube feeding) and relation-

ship-specific disorder of early childhood with separation anxiety symptoms with her mother. On Axis III, the child's failure to thrive and language delay would be noted.

Atypical Eating Disorders

Studies of atypical eating behaviors in infancy, such as pica, rumination, hoarding, and pouching, are scarce, and additional research is needed. Their respective prevalence is unclear. Bryant-Waugh and colleagues (2010) raised the question of possible obsessive and compulsive features of pica and rumination, and accordingly, whether they should be classified as a form of obsessive–compulsive disorder (OCD). Both pica and rumination disorder may occur in association with mental retardation and autism spectrum disorder, and they are designated as independent diagnoses only if severe enough (Bryant-Waugh & Piepenstock, 2008; O'Brien, Bruce, & Camilleri, 1995).

Pica

Pica is defined as persistent eating of *nonfood* substances, such as earth, chalk, paper, soap, cloth, string, wool, soil, paint, gum, hair, ice, clay, starch, metal or plastic objects, or feces. Pica usually does not involve general aversion to food; neither is it necessarily accompanied by failure to thrive. Iron and zinc deficiencies have been reported in some cases. Before the age of 2 years, mouthing of objects with occasional ingestion is part of normal development; therefore, caution is warranted about making a diagnosis of pica in children less than 24 months of age (indeed, ICD-10 diagnostic criteria for pica specify a minimum age of 2 years).

Pica can occur in otherwise normally developed young children, although the phenomenon is more common in children with diagnoses of intellectual disability, autism, childhood-onset schizophrenia, and Kleine–Levin syndrome. Some cases of pica are linked with neglect or lack of parental supervision. In these cases, pica may be considered as a symptom of a parent–infant relationship disorder. Pica may be associated with trichotillomania *(*hair pulling and swallowing) and skin-picking disorder (Bryant-Waugh & Piepenstock, 2008).

The course of pica is variable. It may be self-limited or become protracted and lead to medical emergencies. Some cases of pica are diagnosed following intestinal obstruction and/or perforation, infections such as toxoplasmosis and toxocariasis following ingestion of feces or dirt, and lead poisoning from ingestion of dirt or wood chips with lead paint. Pica predisposes to iron deficient anemia, which in turn is associated with pica.

Treatment of pica depends on the specific associated features that have been determined in the evaluation process of each case. Specific treatments vary from strictly behavioral to relationship-focused approaches.

Rumination

Rumination is defined as the repeated regurgitation of food following feeding or eating. The Rome III diagnostic criteria (Rasquin et al., 2006) differ from DSM-5 criteria, as the latter requires a minimum duration of 3 months rather than 1 month, an onset of 3–8 months, a lack of distress in the infant, together with poor interaction with others, and its absence during sleep. It is a rare but serious condition, with a typical presentation: The ruminating infant often arches its back with its head held back, while making sucking movements with the tongue, and seems to be engaged in a self-soothing or self-stimulating activity. Between meals, the infant may be hungry and irritable. Weight loss and failure to gain weight are common, up to the point of malnutrition, especially when the regurgitation follows every meal (O'Brien et al., 1995). Rumination can be observed across all the age range, from the first year of life to adulthood (Malcolm, Thumshirn, Camilleri, & Williams, 1997).

Identified contributing factors to the appearance of rumination in infancy include neglect, lack of stimulation, and severely disordered parent–infant relationship, though in some cases the etiology cannot be determined.

Differential diagnosis includes gastroesophageal reflux, vomiting, pyloric stenosis, hiatal hernia, and Sandifer syndrome. These need to be ruled out before the diagnosis of rumination is made.

The course of rumination disorder varies from being self-limited to becoming protracted and potentially fatal (due to malnutrition). As for pica, if rumination is one of the symptoms of parent–infant relationship disorder, diagnosis of rumination on Axis I in DC:0–5 is noted only if severe and warrants a special nutritive treatment.

Hoarding

Hoarding is described as storing food in unusual places (e.g., under a pillow, in a closet, in a desk). Finding food in unusual places is indicative of the diagnosis. The disorder has not been described in children less than 2 years old. The child may be overweight or underweight, depending on what he or she does with the hidden food. Food hoarding requires ruling out hunger, neglect, and maltreatment (Sonneville et al., 2013).

Pouching

Pouching relates to the child holding food in his or her mouth for long periods of time without swallowing it. There are no published cases of pouching food in children less than 2 years old, yet, occasionally I see this behavior in failure to thrive clinics, especially among infants who have been tube fed and are being weaned, as well as among toddlers who have experienced forced feeding and/or traumatic medical procedures. Dental caries are often an associated sign in cases in which pouching happens on a daily basis and for several hours (Bhargav, Hedge, Chandra, Gaviappa, & Shetty, 2014). There are no available data on risk and prognostic features of pouching during infancy. Obviously, ruling out any medical condition that prevents the child from swallowing is warranted before a diagnosis of pouching is made.

Tube-Fed Infants

Tube feeding is commonly used in nutrition for infants while they are treated for systemic disease, congenital malformations, or mental retardation (Hartdorff et al., 2015). Those young children who have had prolonged periods of tube feeds (NG tube feeding or percutaneous endoscopic gastrostomy [PEG]), often develop refusal to try any oral feeding, even though they no longer require tube feeding. Contributing factors to this complication include age at which oral feeding starts, medical complications, exposure to taste and textures during sensitive periods, aversive experiences, and ways of giving tube feeds (Mason, Harris, & Blissett, 2005). Weaning from the tube then becomes a challenging task that requires a multidisciplinary team to work through issues of feeding schedules, sensory implications of tube feeding, pain management, oral–motor difficulties, and behavioral patterns of both child and parent (Edwards et al., 2016). Clinical, multidisciplinary monitoring of hunger provocation by decreasing the amount of the tube feeds has been shown to be an effective approach (Benoit, Wang, & Zlotkin, 2000); Hartdorff et al., 2015). Though weaning treatment can be done in an outpatient setting, an inpatient setting may be recommended, as it enables a relatively short (e.g., 3 weeks) intensive multidisciplinary intervention. Therapeutic gains of such a model have been reported to persist 1 year postdischarge (Brown et al., 2014).

Clinical Assessment of Eating/Feeding Disorders in Young Children

The goals of assessing young children with eating problems are to determine appropriate diagnoses and to identify the specific factors that have led to the development of the disorder. This formulation aids in planning and implementing appropriate treatment.

Regardless of the types and causes of eating disorders, history taking must address several key elements (Birch & Davison, 2001): How does the problem manifest? Is the child suffering from any medical disease? Have the child's weight, nutritional status, and development been affected? What is the atmosphere during meals? Is the family under stress? Are daily routines disrupted because of the struggles over eating? Does the child have a concurrent sleep problem, since sleep and eating problems often co-occur and exacerbate one another? Answers to these questions help the clinician assess the degree of impairment in the child and/or the family.

Self-report measures completed by parents are available to assess maternal feeding behaviors, including the Child Feeding Questionnaire (Birch et al., 2001) for monitoring and restriction of food intake and controlling behavior, the Preschooler Feeding Questionnaire (Baughcum et al., 2001) for putting pressure or prompting the child to eat, the Parent Feeding Style Questionnaire (Wardle, Sanderson, Guthrie, Rapoport, & Plomin, 2002) for assessing instrumental (i.e., using food for reward) and emotional feeding (i.e., using food to regulate children's negative emotions). The Control Over Eating Questionnaire (Ogden, Reynolds, & Smith, 2006) examines covert and overt forms of parental control, and the Comprehensive Feeding

Practices Questionnaire (Musher-Eizenman & Holub, 2007) assesses parents' restriction of high-sugar and high-fat foods, as well as the use of food for reward.

Because parent-report questionnaires are subject to bias, direct observation of *both the child's eating behavior and the parent–child interaction* is necessary for the assessment of any type of eating/feeding problem (Bergmeier, Skouteris, & Hetherington, 2015). Contingency, reciprocity, mutual enjoyment, absence of control, struggle, and bargaining are the main manifestations of optimal feeding interactions (Chatoor, Loeffler, McGee, & Menvielle, 1998). A classification of feeding styles has been proposed recently (Kerzner et al., 2015) and includes *responsive* (the parent divides responsibilities; the parent's responsibilities are to determine what, when, where to eat, and lets the child determine how much), *controlling* (the parent ignores the child's hunger cues and may use inappropriate coercive and reward practices), *indulgent* (the parent feeds the child whenever and whatever the child asks for), or *neglectful* (the parent ignores the child's physical and emotional needs). Kerzner and colleagues (2015) suggest that pediatricians can readily differentiate feeding styles by asking three questions: How anxious are you about your child's eating? How would you describe what happens during mealtime? What do you do when your child won't eat? Responses from neglectful parents are vague; controlling parents describe pressuring/forcing their child to eat; indulgent parents describe pleading, begging, and preparing special foods. Responsive feeders follow the concept of a division of responsibility: The parent determines where, when, and what the child is fed; the child determines how much to eat. Responsive feeders guide the child's eating instead of controlling it. They set limits, model appropriate eating, talk positively about food, and respond to the child's feeding signals.

The young child's eating behavior should be assessed in terms of motor and developmental skills, as well as self-feeding skills and willingness to try a variety of foods. Hence, an interdisciplinary team for both assessment and treatment is recommended (Silverman, 2010).

At the Schneider Hospital for Sick Children (Tel Aviv), we have developed a multidisciplinary "breakfast picnic" assessment for children ages 9 months–4 years. The term "picnic" is used to convey to the parents playfulness and enjoyment, in contrast with the threatening perception of the hospital. Parents are instructed in advance to bring their infant after an overnight fast (in order to have the hunger drive activated).

One parent sits close to the infant at the picnic table, together with two other parent–infant dyads and the multidisciplinary team (occupational therapist, dietitian, child psychologist and/or psychiatrist, nurse, pediatrician), and the other parent sits in the rear (parents decide which of them sits close to the child). The food is placed at the middle of the table, within the infants' reach but not on their plates. The parent is instructed to let the infant do whatever he or she wishes, is given a plate of his or her own, and is encouraged to eat, too. So does the team.

This paradigm allows us to observe both eating and feeding interaction. We assess the infant's cognitive, emotional, and motor–oral skills, the extent of his or her autonomous exploratory, imitation, and eating behavior, as well as the parent's perception of the infant's eating capacities and tolerance for letting the child lead. When the infant is only breast- or bottle-fed, the infant's motor–oral skills and self-regulation are observed during the feeding interaction, as well as the parent's feeding behavior. In this setting, we often encounter parents who want to feed their child according to their own perceptions of what and how much their child should eat, though the infant wants to eat by him- or herself. This direct and multidisciplinary observation becomes the basis for planning the intervention; quite often, the "picnic" is therapeutic in itself: the child, being hungry and not pressed by the parent to eat, eats autonomously, to the parents' great surprise. This context of direct observation is also useful to elicit spontaneous parental statements/beliefs about feeding practices, and attributions to their child's behaviors.

Identification of the child's and parents' physical and emotional risk factors for the development of eating disorders is essential for treatment planning. More specifically, parental psychopathology and especially eating disorders must be assessed, as well as the child's sensory processing, oral–motor skills, and temperament. Needless to say, a full medical workup needs to be done in every case, as psychological causes for eating disorder do not exclude physical causes, and vice versa.

Conclusions

Eating disorders of all types continue to be viewed as common but often complex and multifactorial disorders in infancy. Research on eating disorders, especially intervention outcome studies and long-term follow-up studies, are still very much needed. It is my hope that the new DC:0–5 diagnostic criteria will help clinicians to plan well-designed studies. Both assessment and treatment require an integrated multidisciplinary team rather than having mental health professionals separated from other professionals.

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