Avoidant/Restrictive Food Intake Disorder (ARFID)

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Avoidant/restrictive food intake disorder (ARFID) is an entirely new diagnosis in the DSM-5. ARFID replaces "feeding disorder of infancy or early childhood," which was a diagnosis in the DSM-IV restricted to children 6 years of age or younger; ARFID has no such age limitations and it is distinct from anorexia nervosa and bulimia nervosa in that there is no body image disturbance. ARFID involves a complex and heterogenous etiology, which is reviewed herein. What is known to date regarding the characteristics and medical and psychiatric comorbidities of this patient population are described and compared to other eating disorders. Evaluation and management strategies are also discussed. No data yet exist regarding ARFID's prognosis and prevention; however, recommendations to guide parents in establishing appropriate infant and child feeding practices are provided.

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Introduction

May 2013 marked the much-anticipated publication of the *Diagnostic and Statistical Manual, 5th Edition*[1] (DSM-5) by the American Psychiatric Association (APA). The first major update since 1994, the DSM-5 includes extensive revisions throughout, and includes the new section, "feeding and eating disorders," which replaces and combines two former sections, "eating disorders" and "feeding and eating disorders of infancy or early childhood." The new "feeding and eating disorders" section includes expanded criteria for familiar diagnoses, such as anorexia nervosa (AN) and bulimia nervosa (BN), as well as several new diagnoses, including purging disorder and avoidant/restrictive food intake disorder (ARFID), the latter of which replaces "feeding disorder of infancy or early childhood," which was a diagnosis in the DSM-IV restricted to children 6 years or younger. ARFID is not genuinely a new condition, but this restrictive eating disorder was not clearly defined and characterized until the publication of the DSM-5 in 2013. ARFID is an entirely new diagnosis within the section of feeding and eating disorders in the DSM-5. The DSM-5 provides diagnostic specificity to those patients who do not fear weight gain, but simply cannot meet their nutritional needs for a variety of reasons. The diagnosis of ARFID in the DSM-5 does not have an age restriction; it can therefore be applied to children, adolescents, and adults. However, since the age groups in which it is most commonly diagnosed are older children and younger adolescents, it is most often pediatricians who are called upon to be the first practitioners to consider the diagnosis.

ARFID is an entirely new diagnosis within the section of Feeding and Eating Disorders in the DSM-5.

As early as 1992, Lask and Bryant-Waugh[2] describe several childhood-onset eating disorders involving food restriction that failed to meet criteria for AN due to lack of body image distortion or a desire to lose weight. In 2002, Watkins and Lask[3] expanded on these atypical eating disorders in children and adolescents and classified them as follows: food avoidance emotional disorder, characterizing children with a "primary emotional disorder in which food avoidance is a prominent feature;" selective eating, describing children who "eat very few different foods and sometimes are particular about the brand of food or where the food was bought" but whose growth and development is not negatively impacted by their eating patterns; functional dysphagia, which involves

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a "fear of swallowing, vomiting, or choking, which makes the child anxious about and resistant to eating normally, which results in a marked avoidance of food," and for which there is typically "an easily identifiable precipitant, such as having witnessed someone choking while eating;" and pervasive refusal syndrome, affecting a smaller number of children, but which is "a potentially life-threatening condition manifested by a profound and pervasive refusal to eat, drink, walk, talk, or care for themselves in any way over a period of several months." None of these disorders involve body image distortion or a desire to lose weight, and as their descriptions indicate, there is a constellation of reasons why these patients, who would now be diagnosed with ARFID, do not meet their nutritional needs.

Indeed, ARFID may be the eating disorder with the most heterogenous etiology. Several subcategories have emerged in the research published thus far that attempt to define the reasons behind restricted nutritional intake. In a retrospective study conducted among seven adolescent medicine divisions, 712 patients presented for initial evaluations of eating disorders during a 1-year period, and 98 (13.8%) met criteria for ARFID. According to documented symptoms, 28.7% of ARFID patients had selective eating since early childhood, 21.4% experienced generalized anxiety, 19.4% had gastrointestinal symptoms, 13.2% had a history of vomiting or choking, 4.1% had food allergies and 13.2% had other reasons for their restricted eating.[4] Another study divided 33 ARFID patients into the following four groups: insufficient intake/little interest in feeding (57.6%), limited diet due to sensory characteristics of food (21.2%), aversive/traumatic experience (9.1%), and other reasons (12.1%).[5]

ARFID is distinct from anorexia nervosa and bulimia nervosa in that there is no body image disturbance; ARFID patients may express a desire to increase their eating and gain needed weight, but they simply cannot get themselves to do it. The reasons behind this inability appear to be as varied as the patients themselves. The literature to date has identified some common patterns, which may be used to inform the course of treatment. ARFID is similar to other eating disorders in that management involves a multidisciplinary team approach and includes medical, nutritional, and psychological practitioners. However, the role each discipline plays may vary to a greater degree than for other types of eating disorders based on the many variants in the etiology of the ARFID diagnosis. As ARFID has been in existence as an official diagnosis for less than four years, available literature is primarily limited to retrospective chart reviews and single case studies.

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Diagnosis

As noted earlier, while feeding and eating disorders of infancy and early childhood in the DSM-IV was limited to children not older than 6 years, ARFID has no diagnostic age restrictions. ARFID distinguishes a cohort of individuals who experience persistent difficulty in meeting their nutritional needs despite a lack of body image or weight concerns. The DSM-5 sets forth four diagnostic criteria, titled criterion A through D, each of which must be satisfied for a diagnosis of ARFID to be made. Criterion A of the DSM-5 definition states that the eating disturbance is coupled with *at least one* of the following: significant weight loss (or failure to meet expected weight and height trajectories in children and adolescents); nutritional deficiencies (such as iron deficiency anemia); a dependence on nutritional supplements, (i.e., oral or enteral formulas), to meet energy requirements without an underlying condition necessitating this; and/or significant interference with day-to-day functioning due to the inability to eat appropriately. Some individuals with ARFID experience high levels of anxiety and distress when near certain foods or faced with particular smells and textures, resulting in missed school or work and social isolation. Additionally, inadequate nutrition may contribute to irritability, anxiety, and other changes in mood.

Bryant-Waugh, 2013[6] presented a case study and developed a checklist for the criteria described earlier (criterion A in the DSM-5) that includes seven questions to guide practitioners in establishing whether criterion A is fully satisfied.

Questions target the patient's food intake range and amount, the persistence of the eating disturbance, and if signs of nutritional deficiency or interference with daily living are present.

For ARFID to be diagnosed, the eating disturbance cannot be associated with a "culturally sanctioned practice"[1] (e.g., religious fasting or intentional dieting) or a shortage of available food (DSM-5 criterion B). There must be no evidence of body image or weight concerns, and the eating disturbance must not be present solely as part of anorexia nervosa or bulimia nervosa (DSM-5 criterion C). In addition, another medical or psychiatric condition cannot better explain the eating disturbance; if a concurrent condition exists, the "severity of the eating disturbance exceeds that routinely associated with the condition or disorder and warrants additional clinical attention." (DSM-5 criterion D).[1]

ARFID is not meant to encompass all picky/fussy eaters. Its purpose is to identify patients with clinically significant restrictive eating, the magnitude of which results in severe nutritional deficiencies and/or persistent inability to meet energy needs.

As discussed earlier, current research has demonstrated several common symptom-based groupings or subtypes of ARFID. For purposes of evaluation and treatment, it may be useful to broaden these categories and distinguish short-term ARFID patients from long-term ARFID patients. This delineation is based not on symptoms, but primarily considers the length of time the symptoms have been experienced. Short-term patients include those with a more recent, acute onset of symptoms: fear of choking or vomiting after witnessing (or experiencing) such an episode, or possibly a more sudden onset of gastrointestinal symptoms or lingering fear after an episode of gastrointestinal distress. Long-term ARFID patients include those who report a long-standing history of poor or selective eating, and possibly those patients with an extended history of generalized anxiety or gastrointestinal issues, which have interfered with normal eating throughout childhood or over the course of several years. While there is no outcomes-based research available for ARFID, it is likely—and it has been our experience—that short-term and long-term ARFID patients require different treatment strategies and variable outcomes can be expected, with the short-term patients faring better than the long-term patients regarding both success and length of treatment required.

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It is crucial to appreciate that ARFID is not meant to encompass all picky/fussy eaters. Its purpose is to identify patients with clinically significant restrictive eating, the magnitude of which results in severe nutritional deficiencies and/or persistent inability to meet energy needs. ARFID does not encompass what are considered age-appropriate changes in eating patterns, including food neophobia, defined as the rejection of, or reluctance to eat, foods that are novel or unknown, which commonly develops in toddlerhood and peaks between ages 2 and 6 years before decreasing as the child ages and then stabilizing.[7] There are some disagreements in the literature as to when food neophobia stabilizes: some studies suggest it decreases gradually until early adulthood, while others have found that stabilization occurs earlier in adolescence.[7]

While there is no gold-standard definition of picky/fussy eating, it is commonly described as consuming an inadequate variety of foods by rejecting a substantial amount of both familiar and new foods.[7] Picky/fussy eating is not necessarily associated with underweight and nutritional deficiencies in children; likewise, not all picky/fussy eaters will develop ARFID. If growth and development are indeed impaired, or the patient is not able to engage in normal daily activities, such as going to school or engaging in social activities, then further evaluation is warranted. Feeding experts have opined that by its nature as a DSM-5 diagnosis, ARFID is a psychiatric disorder, and as such, "marked interference with psychosocial functioning," which is only one out of four possible symptoms listed in DSM-5 criterion

A, should be required, not optional, for an ARFID diagnosis to be made.[8] However, the DSM-5 permits an ARFID diagnosis based on the presence of only one (or more) symptoms listed in criterion A, which may or may not include psychosocial functioning difficulty.

The discussion above regarding picky/fussy eating centers on only one possible presentation of ARFID in which the patient has historically been a poor eater, i.e., a long-term ARFID patient. In reality, the ARFID patient population is perplexingly heterogeneous.

Epidemiology and Etiology

With the introduction of ARFID and other new and revised diagnoses in the DSM-5, the number of "unclassified" eating disorders declined dramatically. Patients now diagnosed with ARFID would previously have been relegated to eating disorder not otherwise specified (EDNOS), a catch-all diagnosis in the DSM-IV for patients not meeting full criteria for other eating disorders such as anorexia nervosa or bulimia nervosa. A study in our own division of adolescent medicine demonstrated the improvement in diagnostic specificity of the DSM-5 by examining the records of 309 patients (83.2% female) seen for eating disorder evaluations and assigning patients diagnoses based on both the DSM-IV and proposed DSM-5 criteria. A diagnosis of EDNOS was assigned to 198 patients (64.6%) using DSM-IV criteria. This number dropped dramatically using DSM-5 criteria. All except four EDNOS patients were reclassified using DSM-5 diagnoses, including 60 patients now diagnosed with ARFID, of which 61.7% were female. In summary, patients with ARFID comprised 20% of the total sample and 30% of the EDNOS group. Also noteworthy is that all patients with a diagnosis other than EDNOS kept their original diagnosis with use of the new DSM-5 criteria.[9]

Six institutions conducted a similar study and found that when using DSM-5 criteria, 31 (14%) of 215 adolescent patients presenting for an initial eating disorder evaluation received a diagnosis of ARFID. Compared to patients with DSM-5 anorexia nervosa, ARFID patients' weights were slightly higher on average, albeit still underweight (median body weight percentage for ARFID 90.2 ± 16.3% vs. 83.8 ± 6.8% for AN).[10] In a retrospective chart review of 177 patients attending a day treatment program for eating disorders during 2008–2012, 22.5% met DSM-5 criteria for ARFID. In line with other studies, all patients diagnosed with ARFID would have previously received a DSM-IV diagnosis of EDNOS. In addition, patients with ARFID were significantly younger than those with other eating disorders (11.1 ± 1.7 years for ARFID vs. 14.2 ± 1.5 years for other EDs) and a greater percentage were male (20.5% for ARFID vs. 4.5% for other EDs).[11]

Another adolescent medicine multi-institution study diagnosed ARFID in 98 (13.8%) of the 712 presenting eating disorder cases. Compared to those with AN or BN, the ARFID population had a higher percentage of males (28.6% ARFID vs. 14.3% AN vs. 6.0% BN), the average age was younger (12.9 ± 2.5 years ARFID vs. 15.6 ± 1.9 AN vs. 16.5 ± 1.3 BN) and duration of illness was longer (33.3 ± 41.3 months ARFID vs. 14.5 ± 12.2 AN vs. 23.5 ± 17.1 BN).[4] In addition, ARFID patients were more likely to have comorbid medical conditions or anxiety disorder, but less likely to have a mood disorder. This study, discussed earlier, was also the first to detail ARFID's varied etiology in assigning subcategories to the groupings of symptoms reported: selective (picky) eating since early childhood, generalized anxiety, gastrointestinal symptoms, fears of eating secondary to fear of choking or vomiting, food allergies, and other less common reasons. The data from that study are included as Table 1 of this review.

One study stands out for its contrasting results: a retrospective chart review of initial adolescent eating disorder cases spanning 12 years (2000–2011) and including 205 patients, found that only 5% met criteria for ARFID,[12] notably lower than the 14–22% range reported by the four other studies discussed herein; it is unclear why this population differed. Compared to a matched sample of patients with AN, patients with ARFID were younger, there was a significantly higher proportion of patients under the age of 12 years old, and a higher percentage of male patients (20.6%, $n = 7$ ARFID vs. 8.3%, $n = 3$ AN), although the latter difference was not statistically significant. ARFID patients presented with the following symptoms, which were in line with other studies: abdominal pain (35.3%), fear of vomiting (26.5%), generalized anxiety with eating (20.6%), complaints of feeling full (20.6%), nausea (17.6%), and unpleasant sensory experiences associated with eating (17.6%).[12] This study also reported that 12% of ARFID patients eventually changed diagnoses to AN restricting subtype over the course of treatment due to changes in (or acknowledgment of) body image or weight gain concerns.

TABLE 1. Clinical Characteristics of Patients with ARFID, Anorexia Nervosa, or Bulimia Nervosa

	ARFID (n=98)	Anorexia Nervosa (n=98)	Bulimia Nervosa (n=66)	Statistics (ANOVA)
Age	*12.9 ± 2.5*	*15.6 ± 1.9*[*]	*16.5 ± 1.3*[*]	*F[2,259] = 71.2, p<.001*
% Median BMI	*86.5 ± 15.1*	*81.0 ± 9.2*[*]	*107.5 ±16*[*]	*F[2,259] = 80.8, p<.001*
Lowest Weight (lbs)	*76.9 ± 26.2*	*91.0 ± 16.1*[*]	*117.3 ± 21.0*[*]	*F[2,247] = 64.7, p<.001*
Highest Weight (lbs)	*89.8 ± 33.1*	*118.7 ± 28.3*[*]	*142.9 ± 27.2*[*]	*F[2,245] = 59.1, p<.001*
Duration (months)	*33.3 ± 41.3*	*14.5 ± 12.2*[*]	*23.5 ± 17.1*	*F[2,258] = 11.3, p<.001*
Gender[a,b]				*Chi-square (df = 2) = 15.0, p<.001*
Female (%)	*71.3*	*85.7*	*94.0*	
Male (%)	*28.6*	*14.3*	*6.0*	
Intake Setting				*Chi-square (df = 2) = 5.6, p<0.10*
OPD (%)	*87.7*	*85.7*	*97.0*	
Other (%)	*12.3*	*14.3*	*3.0*	
Referral Source[b]				*Chi-square (df = 10) = 26.7, p<0.01*
Self (%)	*6.2*	*10.2*	*15.5*	
PCP (%)	*51.6*	*50.0*	*53.0*	
Mental Health (%)	*11.3*	*16.3*	*22.7*	
EmergencyDept (%)	*10.3*	*11.2*	*4.6*	
Social Service (%)	*1.0*	*4.1*	*1.5*	
Other (%)	*0.0*	*3.0*	*3.0*	
Medical Condition Or Sx[a,b]				*Chi-square (df = 14) = 54.4, <.001*
Yes, related (%)	*34.6*	*8.2*	*4.6*	
Yes, unrelated (%)	*16.3*	*2.0*	*6.1*	
None (%)	*49.1*	*89.8*	*89.3*	
Mood Disorder[b]				*Chi-square (df = 4) = 33.3, p<.001*
MDD/Dysthymia (%)	*7.2*	*19.4*	*23.1*	
Other (%)	*11.3*	*11.2*	*35.4*	
None (%)	*81.5*	*69.4*	*41.5*	
Anxiety Disorder[a,b]				*Chi-square (df = 6) = 23.4, p<.001*
GAD (%)	*28.6*	*14.3*	*7.6*	
OCD (%)	*6.1*	*8.2*	*1.5*	
Other (%)	*23.5*	*13.3*	*24.2*	
None (%)	*41.8*	*64.2*	*66.7*	

ARFID = Avoidant / Restrictive Food Intake Disorder, OPD = out-patient department, PCP = primary care physician, BMI= Body Mass Index MDD = major depressive disorder, GAD = generalized anxiety disorder, OCD = obsessive-compulsive disorder

***Significant difference from ARFID, p≤0.05 by Tukey's HSD**

[a]Significant difference between Anorexia Nervosa and ARFID by chi-square, p<.05 after Bonferroni correction

[b]Significant difference between Bulimia Nervosa and ARFID by chi-square, p<.05 after Bonferroni correction

Two non-eating disorder focused studies have reported on prevalence rates of ARFID in the general pediatric population. In the first study, researchers examined 2231 consecutive new referrals to pediatric gastroenterology specialty clinics via retrospective chart review.[5] Patients were 8–18 years old and 1.5% (33 patients) were found to have a diagnosis of ARFID. One or more ARFID symptoms were present in an additional 54 patients (2.4%), but a diagnosis could neither be assigned nor excluded based on available chart information. There were very few cases of other eating disorders (three cases of AN, two cases of BN, and one case of BED).

In the second study, researchers reviewed 29 cases of pediatric acute-onset neuropsychiatric syndrome (PANS) and pediatric acute-onset neuropsychiatric disorder associated with streptococcal infections (PANDAS) in children ages 5-12 years.[13] In order to be diagnosed with PANS/PANDAS, there must be acute onset of either obsessive-compulsive disorder (OCD) or severely restricted eating, as well as multiple neuropsychiatric symptoms. Restrictions in food intake are typically due to fears of food contamination, choking, swallowing, or sensory concerns, all of which could also be present in a patient with ARFID. All PANS cases described involved food restriction and also met criteria for ARFID. The authors highlight important differences in presentation of PANS/PANDAS (primarily the acuity of symptom onset) as well as in treatment and outcomes. According to the authors, antibiotic or immunomodulatory therapy often results in swift symptom resolution of PANS/PANDAS. This study points out the need for consideration of a PANS/PANDAS diagnosis in patients with acute onset of restrictive eating or food avoidance, without prior history of picky eating.

In total, all studies to date have shown that a greater number of males than females have been diagnosed with ARFID relative to other eating disorders. Although the average age of diagnosis reported thus far is between 11 and 14 years, emerging case reports show that adults can develop ARFID as well.[14,15] However, a fair percentage of older children and adolescents are diagnosed with ARFID around the time of their typical growth spurt, which matches the reported average age of diagnosis. This may primarily relate to the long-term ARFID patients in that throughout childhood they may be growing appropriately, albeit following the lower percentiles for weight and height. Once these patients enter early adolescence, their restrictive and selective eating may simply not be adequate to maintain their growth trajectories, thus garnering more concern from pediatricians. Indeed, it is pediatricians who are most often called to diagnose these patients and guide families toward treatment options.

Medical and Psychiatric Comorbidities and Complications

While ARFID encompasses a broad spectrum of etiologies, it has been consistently demonstrated that ARFID patients are more likely to be younger, male and have a higher incidence of comorbid medical or psychiatric disorders compared to those with other eating disorders.[4,5,11,12] Higher rates of OCD[4,11] and generalized anxiety disorder[4,5,11,12] have been reported by multiple sources. Higher rates of autism spectrum disorder, learning disorders, and cognitive impairment have been reported by one source.[11] Two studies found ARFID patients to have a longer duration of illness,[4,16] whereas another found it to be similar to other eating disorders.[11]

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Weight and degree of malnutrition were similar to patients with AN in two studies in outpatient settings.[9,11] In one study, a significantly lower number of ARFID patients required hospitalization (or had been previously hospitalized) when compared to patients with AN.[12] For both the ARFID and AN patients that were hospitalized, admission was required due to medical instability, i.e., unstable vital signs and/or low weight.

A recent prospective cohort study of selective eating in preschoolers found that moderate and severe levels of selective eating was associated with higher rates of anxiety, depression, and attention-deficit hyperactivity disorder.[17] This study also found that selective eating is a marker for later increased psychopathological symptoms, and that these symptoms became more severe as selective eating also increased in severity. However, a clear definition of selective eating and the degree of food restriction was lacking in this study; therefore, it is unknown if these patients would have received a definitive diagnosis of ARFID.

Pennell et al.[18] describe two cases of ARFID and concurrent stimulant-treated attention-deficit hyperactivity disorder (ADHD) in a 10-year-old male and a 9-year-old female hospitalized due to cachexia and medical instability. Both patients had a long history of selective eating since infancy or early childhood, and it appeared that the initiation of stimulant medication to treat ADHD had exacerbated pre-existing ARFID, resulting in swift and severe weight loss. As stimulants have an appetite-suppressing effect, both patients were administered the atypical antipsychotic medication risperidone while hospitalized, as a method to increase appetite and reduce the severity of ADHD symptoms, as well as the oppositional defiant disorder (ODD) symptoms also present in the male patient. The authors advise practitioners to screen for selective eating in all patients for which stimulants are being considered to treat their ADHD.

Evaluation and Management

No empirical data have been published regarding evaluation and treatment since the inception of ARFID in the DSM-5; treatment has primarily been described in case studies or studies in which ARFID was retrospectively diagnosed with chart reviews. Management considerations include the effect on weight and growth, the extent of nutritional compromise, the impediment of social and emotional function,[6] as well as whether the patient is considered a long-term or short-term ARFID sufferer.

The nature of ARFID is such that treatment must focus on more behavioral and nutritional approaches than is required in the management of other eating disorders. In addition, patients with ARFID often present with complex medical and psychological histories, making generalized treatment recommendations nearly impossible. However, there are within-group similarities among those patients with short-term ARFID and long-term ARFID, despite patients having various reasons for their restricted dietary intake.

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The success of behavioral and nutritional treatment may largely depend on whether the patient has had ARFID long-term or short-term. In our experience, short-term ARFID patients fare better and recover more quickly once intensive treatment is initiated. Several factors may contribute to this, including the fact that a patient who was previously eating adequately but recently developed ARFID will have a standard of regular eating the patient remembers—and can return to—with behavioral and nutritional assistance. Working with a mental health professional to address the underlying anxiety and a Registered Dietitian Nutritionist to provide nutritional guidance can often result in a swift turnaround of a short-term eating disturbance. A patient with long-term ARFID who has historically been a selective eater has no such "normal eating" standard and, as treatment progresses, is in unchartered nutritional territory. These long-term patients likely require more intensive treatment over an extended period. The benchmarks for successful treatment of long-term patients with ARFID may be different as well, i.e., the goals may be to minimize some symptoms, such as the impact on psychosocial functioning or reliance on oral nutritional supplements, instead of complete elimination of the diagnosis.

The literature to date indicates that treatment should assess and target the aspects most responsible for the avoidance or restriction of food intake. ARFID patients may have long-standing histories of poor nutritional intake or may have recently started restricting food due to anxiety, fear of choking/vomiting, or avoidance of physical pain, or sensory experiences. Treatment reported in case studies often includes management of anxiety, systematic desensitization, and a structured nutritional plan with gradual exposure based therapy and relaxation techniques. Problematic foods are progressively incorporated into the patient's eating pattern. ARFID treatment goals should be tailored according to the patient's needs and should be realistic and attainable as follows: to ameliorate nutritional, physical, and emotional risks, while assisting the patient in managing anxiety and expanding their range of eating.[6]

Patients may need hospitalization if there is virtually no oral intake or if other pressing medical concerns are present. In a retrospective study comparing ARFID and AN patients hospitalized for medical stabilization, ARFID patients had a longer length of stay (8 days vs. 5 days for AN) and greater reliance on enteral nutrition, despite a similar calorie intake as AN patients.[19] The authors note that greater reliance on enteral nutrition—not the ARFID diagnosis—may explain the differences in length of hospitalization. Patients primarily receiving enteral nutrition were started on lower calories and experienced slower weight gain. At presentation, ARFID patients (13%, $n = 41$) were younger, had less weight loss and less bradycardia than patients with AN (64%, $n = 203$). Among the ARFID patients in this study, fear of vomiting (38%) and abdominal pain (26%) were the most common contributors to weight loss. In contrast to other findings, this study reported much higher rates of psychiatric comorbidities in the patients with AN (42%) than the patients with ARFID (12%). After a follow-up period of 1 year, more patients with ARFID were deemed to be in remission (62% vs. 46% for AN), although the difference was not statistically significant. As mentioned earlier, two case studies reported that hospitalized patients with ARFID have benefitted from antipsychotic medications, which improved anxiety, appetite, and sleep.[18]

In the report of the National Eating Disorders Quality Improvement Collaborative, 14 adolescent medicine programs retrospectively reviewed the charts of 700 adolescents at intake and 1-year follow-up.[16] Patients were 9–21 years, had a DSM-5 restrictive eating disorder (AN, atypical AN, or ARFID) and had at least three visits. In this study, 12.4% of patients were diagnosed with ARFID, a similar range as reported by others. No differences were found among institutions in terms of weight restoration, regardless of taking

varied approaches to treatment (e.g., individual therapy, family-based treatment (FBT), inpatient medical, partial hospitalization, and intensive outpatient). Notably, fewer ARFID patients were followed for 1 year, despite having much lower odds of weight recovery compared to AN and atypical AN patients. The authors note, "patients with ARFID may be dropping out of care because they need to be treated with different therapies compared with the classic treatment for AN with nutrition, mental health treatment, and medical visits." It is also possible that patients with short-term ARFID (i.e., those with fear of vomiting or choking or recent onset of GI symptoms) do not remain in treatment for very long because once they get a turnaround in their symptoms recovery proceeds much more quickly than for those with other types of restrictive eating disorders.

Prevention and Prognosis

Limited information is available regarding all aspects of ARFID, and there are simply not yet adequate data to determine the expected course of illness and prognosis of a patient with ARFID. While there is no way to predict who will develop ARFID, pediatricians should be aware of the high parental concern regarding child food intake. In particular, many parents are concerned that their child does not eat enough, often leading to the parent pressuring or bribing the child to eat even when the child is growing predictably and is not underweight.[20]

There is evidence from the feeding literature that parental pressure to eat actually negatively impacts food intake, is correlated with higher levels of picky eating and lower weight during childhood,[21,22] and contributes to both a dissociation with hunger/satiety cues and with eating for external reasons, such as emotion.[23,24] A recent study investigated recollections of picky eating and pressure to eat, as well as current self-reported intuitive eating and disordered eating behaviors in 170 college-aged students. Analysis revealed that parental pressure to eat, but not picky eating during childhood, was associated with greater disordered eating behaviors in young adulthood.[25] The disordered eating behaviors included those associated with bulimia, but not a drive for thinness. The authors conclude that parental pressure may interfere with the normal development of intuitive eating; however, they also note that the extent to which parental pressure to eat contributes to, or is reactive to, the problematic eating pattern is not yet well understood.

Many parents have concerns regarding infant and child feeding and eating, especially perceived undereating. Pediatricians can guide families in establishing appropriate infant and child feeding practices, which will enable the child to develop a healthy relationship with food and competence with eating, and to grow predictably. The Satter Feeding Dynamics Model, including the division of responsibility in feeding, is recognized by The American Academy of Pediatrics, The Academy of Nutrition and Dietetics, and the United States Department of Agriculture (USDA) Food and Nutrition Service as the gold-standard for child feeding.[26] Division of Responsibility in Feeding involves assigning the parent and child different roles: the parent is responsible for the *what*, *when,* and *where* of feeding; the child is responsible for *how much* to eat and *whether* to eat at all. The parents' role includes the following: preparing and providing meals and snacks at consistent times, making mealtimes pleasant, modeling appropriate mealtime behavior, and not pressuring children to eat. Parents should not give food "handouts" whenever the child requests, but should adhere to general set meal and snack times. Following appropriate guidelines for child feeding will help children learn to eat the foods the parents eat, to establish internal food regulation cues, and to be comfortable with eating. While this does not guarantee prevention of ARFID, it will give the child the best chance of being a lifelong successful and competent eater.

In summary, ARFID is a diagnosis that is a mere four years old, newly included in the DSM-5. What is known about the nature of ARFID thus far is that it does not include body image distortion; it is primarily diagnosed in older children and adolescents, but the potential age range is quite wide; and it is diagnosed in more males than females relative to other eating disorders. Treatment of ARFID involves both behavioral and nutritional approaches; successful treatment is likely greater in short-term vs. long-term ARFID patients. Over the next few years, we are certain to learn more regarding effective treatment for all patients diagnosed with ARFID.

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