A Moving Target: How We Define Avoidant/Restrictive Food Intake Disorder Can Double Its Prevalence

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ABSTRACT

Objective: The *DSM-5* criteria for avoidant/restrictive food intake disorder (ARFID) include ambiguities. Diagnostic criteria that allow for clinical judgment are essential for clinical practice. However, ambiguities can have major implications for treatment access and comparability and generalizability of research studies. The purpose of this study was to determine the degree to which distinct operationalizations of the diagnostic criteria for ARFID contribute to differences in the frequency of individuals who are eligible for the ARFID diagnosis.

Methods: Because criteria B, C, and D are rule-outs, we focused on criterion A, identified 19 potential operational definitions, and determined the extent to which these different methods impacted the proportion of individuals who met criteria for ARFID in a sample of children, adolescents, and young adults (n = 80; September 2016–February 2020) enrolled in an avoidant/restrictive eating study.

Results: Within each criterion, the proportion of individuals meeting diagnostic criteria differed significantly across the methodologies (all *P* values < .008). Using the strictest definition of each criterion, 50.0% (n = 40) of participants met criteria for ARFID. In contrast, under the most lenient definition of each criterion, the number nearly doubled, resulting in 97.5% (n = 78) meeting ARFID criteria.

Conclusions: Comparison of diagnostic definitions for ARFID among children, adolescents, and young adults confirmed a broad range of statistically distinct proportions within a single sample. Our findings support the need for additional contextual support and consensus among disciplines on operationalization in both research and clinical settings.

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Avoidant/restrictive food intake disorder (ARFID) is a debilitating feeding and eating disorder with an unknown prevalence, but estimates range widely from less than 1% (in a nationally representative community sample)[1] to 13.8% (in outpatient eating disorder programs)[2] across outpatient and community settings.[3–5] Variations in prevalence estimates may reflect different definitions of the disorder across settings. The challenges with diagnosis and operationalization using *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (*DSM-5*) criteria have been summarized by the Radcliffe ARFID Workgroup consisting of international experts in feeding and eating disorder clinical practice and research[6] and more recently in a systematic review of diagnostic validity in ARFID.[7] *DSM-5* defines 4 criteria for ARFID diagnosis. Criterion A describes 4 possible sequelae of avoidant and/or restrictive eating behaviors, *any of which qualify a person for the diagnosis of ARFID,* including A1—significant weight loss; failure to maintain adequate growth; A2—nutritional deficiency (eg, iron deficiency anemia); A3—dependence on enteral feeding or nutrition supplements (eg, oral or enteral formulas without an underlying medical condition; use of individual or multivitamin/mineral supplements); and/or A4—psychosocial impairment.[8] Because the last 3 criteria (B, C, and D) are exclusionary (ie, to rule out other eating disorders, co-occurring medical and psychological disorders, and/or cultural practices that might otherwise account for avoidant/restrictive eating), the diagnosis hinges almost entirely on criterion A. Importantly, *DSM-5* provides little text guidance on how to operationalize criteria A1–A4, instead favoring clinical judgment in their application. Thus, within criterion A, each subcriterion could be assessed using different plausible and highly variable methods.

The broad definitions used among *DSM-5* criteria for ARFID provide substantial flexibility in a clinical setting. However, the open-ended nature of the definitions and operationalization in research can result in challenges associated with access to mental health treatment and comparability and generalizability of research studies.[9–13] Various diagnostic tools for ARFID are currently under development, which is a significant advance for the field (see, eg, references 14 and 15); however, they are subject to the same challenges resulting from the broad definitions of *DSM-5* criteria. The differences in prevalence can impact the ability to seek out or receive treatment based on diagnosis and/or severity of symptoms, particularly now

Clinical Points

- Avoidant/restrictive food intake disorder (ARFID) is a feeding and eating disorder with significantly varying prevalence estimates that may reflect different diagnostic definitions across settings.
- In a sample of children and adolescents with avoidant/restrictive eating, this study found that the prevalence of ARFID varied greatly depending on how diagnostic criteria were operationalized. The majority of individuals met criteria for nutritional deficiency and psychosocial impairment, whereas fewer met for low weight and supplement dependence.
- Based on these findings, recommendations are provided for how the criteria might best be operationalized in clinical and research settings to avoid over- or underdiagnosis.

that ARFID has been recognized as a psychiatric disorder requiring mental health care. Additionally, differences in operationalization can result in lack of comparability across studies aimed at understanding the biological basis of ARFID. The impact on prevalence due to ambiguity in diagnostic definitions and operationalization will influence the public health perspective and significance of this disorder in the general medical and clinical research communities, which can affect research priorities and funding opportunities that are critical to better characterize and understand ARFID psychopathology.[6] Therefore, examination of different operationalization methodology will provide insight to help guide future revisions of the diagnostic criteria. The objective of the present study was to determine the extent to which different plausible methods used in both clinical and research settings could impact the proportion of individuals who meet criterion A for an ARFID diagnosis in an observational sample of children and adolescents with avoidant/restrictive eating. We hypothesized that under the most lenient definition including all 4 criteria, all participants would meet criteria for diagnosis, and that within the individual criteria, the greatest proportion of participants would fall within criterion A4 defined by psychosocial impairment.

METHODS

Search Strategy

We searched electronic databases (MEDLINE, PubMed, Science Direct, and Web of Science) using the following components in a variety of permutations: ARFID, eating disorders, diagnosis, prevalence/frequency, weight, body mass index (BMI), dietary intake, and psychosocial impairment to find reported methods that could be used to operationalize the diagnostic criteria. We completed a literature review and identified 26 articles that highlight the variability in definitions that could be applied to the *DSM-5* diagnostic criteria for ARFID, and we focused on selecting methods that have been used to operationalize the ARFID criteria specifically or have been used to evaluate similar constructs in feeding or eating disorder populations but have yet to be applied to *DSM-5* criteria for ARFID. The results of our search are summarized in Table 1, which highlights methods that have been, or could be, used to define criteria A1–A4.

Participants

For the purpose of this study, we drew participants from an ongoing observational study examining the neurobiological mechanisms of avoidant/restrictive eating in children and adolescents (R01 MH108595). Our participants with avoidant/restrictive eating included males and females aged 9–23 years (N = 80; September 2016–February 2020). Participants were screened for avoidant/restrictive eating at study entry by either meeting criteria for ARFID on the Eating Disorder Assessment for *DSM-5* (EDA-5)[40] or endorsing significant avoidant/restrictive eating symptoms on the Kiddie Schedule for Affective Disorders and Schizophrenia for School Aged Children-Present and Lifetime version (KSADS-PL).[41] Eligible participants then completed the Pica, ARFID, and Rumination Disorder Interview (PARDI) to further ascertain the presence, severity, and phenotypes of the ARFID diagnosis.[15] More specifically, those with avoidant/restrictive eating restricted their intake by volume and/or variety and met criteria B, C, and D for ARFID (whether they fully met criterion A or not was the focus of the current study). Exclusion criteria included gastrointestinal tract surgery; any *DSM-5* feeding or eating disorder other than ARFID, all of which are assessed in the EDA-5; disordered eating (eg, global score > 4.0 or self-induced vomiting, laxatives, diuretics, excessive exercise) defined by the Eating Disorder Examination Questionnaire (EDE-Q)[42]; history of intellectual disability (IQ < 70); history of psychosis; active substance or alcohol use disorder within the past month; and active suicidal ideation. The prevalence of current and lifetime psychiatric comorbidities within this cohort was previously reported, and it was found that approximately half of the sample met criteria for a current or lifetime comorbid diagnosis. Thus, we did not exclude participants based on psychiatric conditions or pharmacologic treatment for such conditions that may impact feeding/eating behaviors.[43] The Partners Human Research Committee approved the study protocol. We obtained informed consent from adult participants (ages 18 years and older) and parent/guardian consent plus child assent for child participants (ages 9–17 years).

Applied Diagnostic Definitions

We selected methods that could be applied to our sample based on the data available in our study (ie, 19 of 33 methods described in Table 1). For criterion A1, we applied absolute BMI and BMI percentile cutoffs. The methods differed by BMI percentile cutoff, including both 5th and 10th percentile cutoffs for individuals who were under 18 years of age. For all individuals 18 years and over, we used an absolute BMI cutoff of 18.5 kg/m^2. For criterion A2, we coded recent diagnosis of a nutrition deficiency (patient/parent reported) as "yes or no," food group exclusion defined as complete exclusion of *at least 1* food group in the past 4 weeks, and 24-hour dietary

Table 1. Summary of Methods That Could Be Used to Define Criterion A to Designate an Avoidant/Restrictive Food Intake Disorder Diagnosis

Criterion	Method	Description	Reference(s)
A1. Significant change in weight; failure to maintain adequate growth	Anthropometrics (eg, absolute body mass index)	Body mass index < 18.5 (≥ 18 years of age)[a]	8, 16, 17
	Anthropometrics (eg, body mass index percentiles)	Body mass index percentile < 5th (< 18 years of age)[a]	18
		Body mass index percentile < 10th (< 18 years of age)[a]	8
	Anthropometrics (eg, weight-for-height)	Weight for height < −2 standard deviations in children > 1 year of age	18
	Anthropometrics (eg, expected body weight)	Deviation from expected body weight	19
	Anthropometrics (eg, peak growth velocity)	Growth velocity less than the following: males 9.5 centimeters/year; females 8.3 centimeters/year	20
	Weight loss	Adults: 5% of body weight over 1 month; 7.5% of body weight over 3 months	21
		Children: 5% of usual body weight, when 2 or more data points are available (2–20 years of age)	22
	Clinical judgment	Practice, experience, knowledge, and continuous critical analysis to determine appropriate diagnosis	
A2. Nutritional deficiency	Clinical interview (eg, Pica, ARFID, and Rumination Disorder Interview)	Provider confirmed recent diagnosis of nutrition deficiency[a]	15
		Food selectivity/aversion defined by food group exclusion[a]	
	Dietary record (eg, 24-hour recall, food record/diary)	Use of dietary history to evaluate intake of foods, and estimate vitamins/mineral intake for comparison against standard requirements or recommended levels of intake	23
		Nutrients consumed at less than 80% of Dietary Reference Intakes for micronutrients[a]	24
	Food frequency questionnaire	Captures usual patterns in dietary intake and variety	25
	Biochemical data	Laboratory analysis indicating vitamin or mineral deficiency	26
A3. Dependence on enteral feeding or nutrition supplements	Clinical interview (eg, Pica, ARFID, and Rumination Disorder Interview)	Currently receiving any tube feeding (includes type of tube feeding pre/post pyloric feeds, continuous vs bolus, specialized formula, etc)[a]	15
		Intake of multivitamin/multimineral nutritional supplement drinks, liquids, pills, or drops (self-initiated, parent-initiated, provider prescribed)[a]	
		Intake of high-energy nutritional supplement drinks to help maintain or gain weight (self-initiated, parent-initiated, provider prescribed)[a]	
	Insufficient oral intake	Inability to meet greater than 60% of intake orally	27
		Insufficient oral intake (defined by anorexia, oral aversion)	28
	Tube or liquid dependence	Dependence on formula by either enteral or oral formula supplementation for 50% or more of a child's caloric needs or failure to consume adequate intake to promote growth	29
		Oral intake constitutes less than 20% of the total required calories and liquids	30
		Enteral calories to oral calories ratio of 60:40	30
		Reliance on a feeding tube to provide nutrition support to ensure growth and/or sustenance, which may function as a ratio of energy required through the tube against the amount of food eaten orally to aid recovery and/or maintain developmental trajectory	31
A4. Psychosocial impairment	Clinical interview (eg, Pica, ARFID, and Rumination Disorder Interview)	Difficulties at home with parents, family, significant others due to eating behaviors[a,b]	15
		Eating related difficulties at mealtimes[a,b]	
		Social difficulties as a result of eating behaviors (eg, does it make it difficult for you to go out with friends, eat at school/college/work, or stay away from home)[a,b]	
		Eating related difficulties in daily functioning at school/college/work[a,b]	
		Eating related difficulties that persist across location (eg, at home, at school, and when eating out)[a,b]	
	Clinical Impairment Assessment	A 16-item measure of the severity of psychosocial impairment due to eating disorder features. The resulting score ranges from 0 to 48 with a higher score being indicative of a higher level of secondary psychosocial impairment. A receiver operating characteristic analysis showed that a global impairment score of 16 was the best cutpoint for predicting eating disorder case status[a]	32,33
	Strengths and Difficulties Questionnaire	A 25-item questionnaire that is divided into 5 scales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behavior. The sum of scales for emotional, conduct, hyperactivity, and peer relationships provides a total difficulties score. The impact supplement asks whether the respondent thinks they have a problem and, if so, inquires further about chronicity, distress, social impairment, and burden to others[a]	34
	Pediatric Quality of Life Inventory	Modular approach to measuring health-related quality of life in both healthy children and adolescents and in those with acute and chronic health conditions	35
	Health related quality of life	Multidimensional approach that includes domains related to physical, mental, emotional, and social functioning	36
	Parenting Stress Index	Screening and triage measure for evaluating the parenting system and identifying issues that may lead to problems in the child's or parent's behavior. Focuses on 3 major domains of stress: child characteristics, parent characteristics, and situational/demographic life stress	37
	Preschool Age Psychiatric Assessment	Captures psychosocial impairments secondary to psychiatric symptomatology in 17 areas of functioning related to life at home, at school, and elsewhere for children 2–3 years of age	38,39
	Clinical judgment	Practice, experience, knowledge, and continuous critical analysis to determine appropriate diagnosis	

[a]Indicates methods applied to the data set.
[b]Indicates clinically significant difficulty by reaching a score ≥ 4 on the individual items of the Pica, ARFID, and Rumination Disorder Interview.

Table 2. Clinical Characteristics of Participants With Full or Subthreshold Avoidant/Restrictive Food Intake Disorder

	Mean ± SD
Age, y	15.3 ± 3.6
Absolute body mass index,[a] kg/m^2	23.9 ± 6.5
Body mass index *z* score[b]	−0.8 ± 1.5
	% (n)
Sex, female	47.5 (38)
Racial diversity	
Caucasian	90.0 (72)
African American	2.5 (2)
Asian	1.3 (1)
More than 1 race	6.2 (5)
Ethnicity	
Hispanic	8.8 (7)
Non-Hispanic	91.2 (73)

[a]Absolute body mass index for individuals ≥ 18 years of age.
[b]Body mass index *z* score for individuals < 18 years of age.

recalls to determine the number of participants consuming less than 80% of the Dietary Reference Intake (DRI) of at least 1 micronutrient. For criterion A3, we evaluated current use of any tube feeding (yes/no), intake of multivitamin/multimineral supplements and other supplements (ie, drinks, liquids, pills, drops) that were self- or parent-initiated as "yes or no," prescribed supplements (including supplement types mentioned above) as "yes or no," and quantity of nutrition supplement drinks defined as 1 or more per day. Finally, for criterion A4, we applied items from the PARDI including eating related difficulties at home, if eating behaviors affected family/significant others/friends, difficulties at mealtimes, social difficulties, difficulties in daily functioning (eg, at work, school, college), and difficulties with eating that persist across settings (eg, at home, school, restaurants), all of which were rated on a scale of 0–6, with a cutoff of ≥ 4 representative of marked impact as well as standardized questionnaires.[15] In total, we applied 19 methods across all 4 criteria.

Anthropometric Measurements

Study staff measured height with a single stadiometer and weight by an electronic scale in triplicate, then averaged these to obtain final values. We calculated BMI as the ratio of weight (kg) to height (m) squared, BMI *z* score, and BMI percentile according to the Centers for Disease Control and Prevention standardized growth charts.[44]

Assessments and Questionnaires

Doctoral-level psychologists and trained research coordinators administered all psychiatric interviews, including the PARDI, which is a comprehensive measure that captures multidimensional profiles, symptom severity, and clinical features to confer a diagnosis of ARFID.[15] Study staff reviewed all interviews at a weekly interrater reliability meeting with one of the study principal investigators (a licensed clinical psychologist). Interrater reliability of the ARFID diagnosis on the PARDI for 28% of randomly selected cases was excellent (95.6% agreement; $\kappa = 0.7$) based on masked double coding of audiotaped interviews.

Self-reported questionnaires included the Clinical Impairment Assessment (CIA) and the Strengths and Difficulties Questionnaire (SDQ). The CIA is a 16-item measure of the severity of psychosocial impairment due to eating disorder features, where the resulting score ranges from 0 to 48 with a higher score indicative of a higher level of secondary psychosocial impairment.[32,33] A receiver operating characteristic analysis showed that a global impairment score of 16 was the best cutpoint for predicting eating disorder case status.[33] The SDQ is a 25-item measure divided across 5 scales measuring emotional symptoms, conduct problems, hyperactivity-inattention, peer problems, and prosocial behavior.[34] We calculated a "total difficulties" score, which is the sum of subscales for emotional symptoms, conduct problems, hyperactivity-inattention, and peer problems and is categorized by (1) normal (clinically significant problems unlikely): score range 0–15; (2) borderline (slightly raised, may reflect problems): score range 16–19; and (3) abnormal (evident clinically significant problems): score range 20–40. Our version of the SDQ included the "Impact Supplement," which captures overall distress and social impairment summed into an impact score ranging from 0 to 10, with a higher score indicative of great social impairment. The score can be evaluated continuously or categorized into the following: normal: 0; borderline: 1; abnormal ≥ 2.

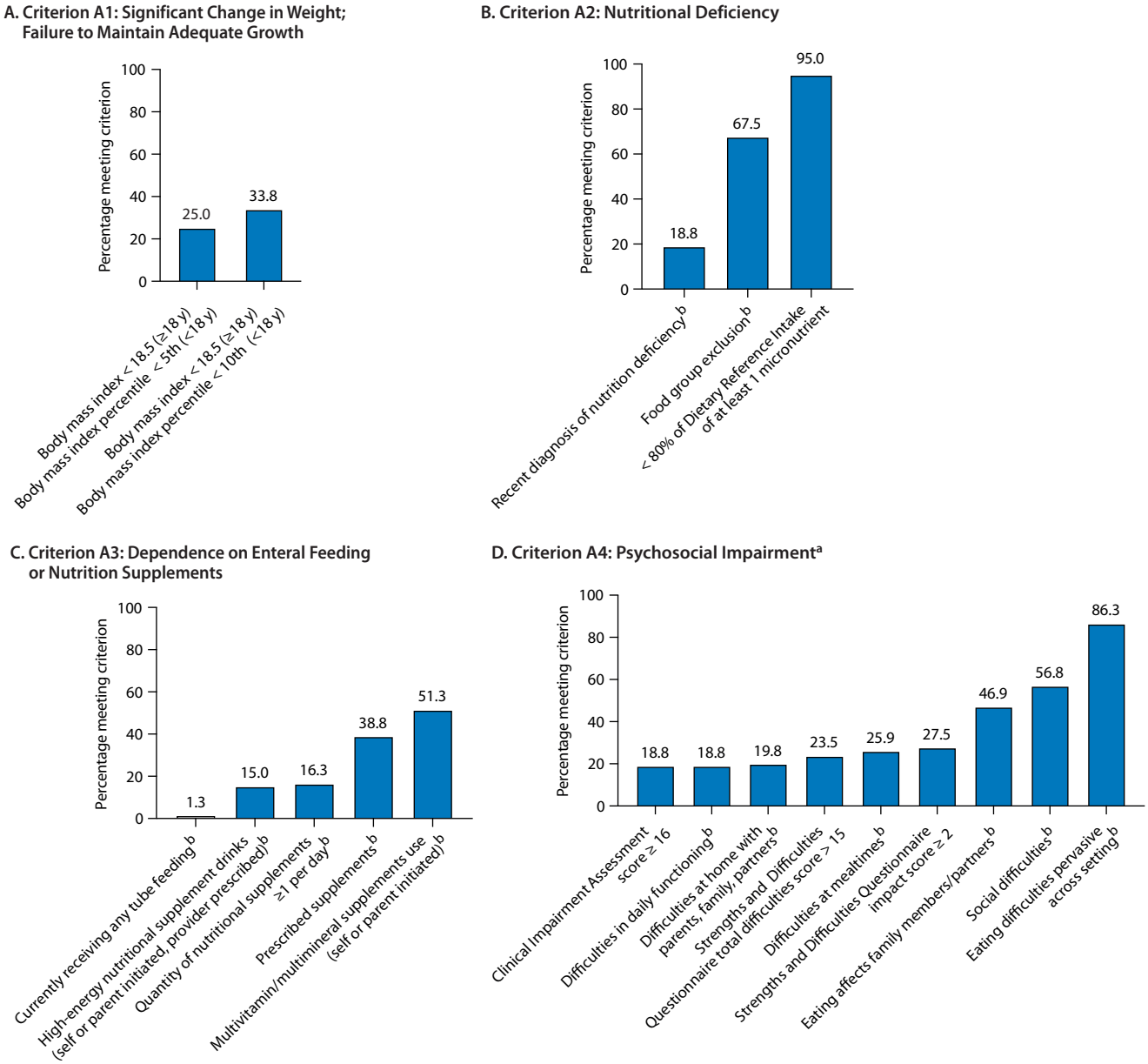
Dietary Intake

For criterion A2, we used reference values from the Dietary Guidelines for Americans and Dietary Reference Intakes to determine the percent of participants not meeting 80% of a micronutrient recommendation based on age and sex.[45,46] We collected data from a 24-hour dietary recall, which were entered and analyzed by the Nutrition Data System for Research (NDS-R) software from the Nutrition Coordinating Center at the University of Minnesota at the Massachusetts General Hospital Translational and Clinical Research Center.[47–51] For criterion A3, "dependence on nutritional supplements" includes questions from the PARDI capturing use of both multivitamin/multimineral and individual supplements, as well as calorie-containing nutrition supplements.[15]

Data Analysis

We tabulated and analyzed all data using SAS v 9.4 (Cary, North Carolina). To evaluate whether the proportion of participants who met each criterion differed by definition, we conducted a nonparametric test, the Cochran *Q* test, which is an extension of the McNemar test. The Cochran *Q* test allowed us to assess for significant differences between dependent proportions across the 4 categories within criterion A. For criterion A1, we used the McNemar test because there were only 2 methods to compare. For all other criteria, we used the Cochran *Q* test. Our study met the following assumptions for the Cochran *Q* test: binary responses for dependent variables, subjects are independent of one another, and a sufficient sample size. Significance was determined at a P value < .0025, to control the overall experiment-wise error rate.

Figure 1. Comparison of Diagnosis Proportions in an Observational Study of Individuals With Full or Subthreshold Avoidant/Restrictive Food Intake Disorder Based on Different Definitions for the Diagnostic Criteria[a]



[a]Data are presented as percentage of individuals meeting applied diagnostic method.
[b]Items from the Pica, ARFID, and Rumination Disorder Interview.

RESULTS

Participant characteristics are presented in Table 2.

Applied Methods for Criterion A1: Significant Change in Weight; Failure to Maintain Adequate Growth

The 2 applied methods resulted in significantly different proportions ($\chi^2_{1,\ 80} = 7.00$, $P = .008$). Only 25.0% of participants met criteria for an ARFID diagnosis using an absolute BMI cutoff of 18.5 kg/m^2 for individuals over 18 years of age, combined with a BMI percentile of less than the 5th percentile for individuals less than 18 years of age. In comparison, 33.8% of participants met criteria for ARFID using an absolute BMI cutoff of 18.5 kg/m^2 for those older than 18 years of age, combined with a BMI percentile of less than the 10th percentile for those under 18 years of age (Figure 1A).

Applied Methods for Criterion A2: Nutritional Deficiency

The proportions of participants meeting criteria were significantly different across all 3 methods ($\chi^2_{2,\ 80} = 33.8$, $P < .0001$). The greatest proportion of participants, 95.0%, met criterion A2 by consuming less than 80% of the DRI for at least 1 micronutrient, compared to 67.5% who met criteria for complete exclusion of at least 1 food group.

Within criterion A2, recent diagnosis of a micronutrient deficiency had the lowest proportion at 18.8% (Figure 1B).

Applied Methods for Criterion A3: Dependence on Enteral Feeding or Nutrition Supplements

The applied definitions resulted in significant variability among participants for criterion A3 ($\chi^2_{4,80} = 83.8$, $P < .0001$) and are summarized in Figure 1C. The proportion of participants consuming self-initiated or parent-initiated supplements was 51.3%, compared to prescribed supplements of 38.8%. With respect to calorie-containing nutrition supplements, a similar proportion reported general use defined by "yes or no" and quantity defined by "taking greater than one per day" at 15.0% and 16.3%, respectively.

Applied Methods for Criterion A4: Psychosocial Impairment

Within criterion A4, we evaluated individual items in the PARDI in addition to scoring above clinical cutoffs on the CIA and SDQ (Figure 1D), which resulted in significantly different proportions ($\chi^2_{8,80} = 265$, $P < .0001$). In the PARDI interview, the item examining whether an individual has difficulties with eating that persist across locations (eg, at home, at school, at restaurants) resulted in the greatest proportion of individuals meeting criteria at 86.3%, followed by the item examining whether eating causes difficulties socially (eg, does it make it difficult for you to go out with friends, eat at school/college/work, or stay away from home) at 56.8%, and the item examining whether eating cause difficulties at home, more specifically if their eating behavior affects family members/significant others, at 46.9%.

Evaluation of psychosocial impairment by the CIA and SDQ (total difficulties score) resulted in lower proportions, with only 18.8% of participants scoring ≥ 16 on the CIA and 23.5% of participants categorized as borderline (16–20) or abnormal (20–40) on the SDQ. Using the SDQ impact score, 27.5% of participants were categorized as abnormal (impact score ≥ 2).

Impact of Differing Definitions on Overall ARFID Frequency (Criteria A1–A4)

When we took into account the strictest (ie, the least frequently endorsed) definition of each criterion A1–A4, which included A1: BMI < 18.5 kg/m^2, BMI percentile < 5th; A2: recent diagnosis of a nutritional deficiency, A3: intake of high-energy nutritional supplement drinks to maintain or gain weight (self-initiated, parent-initiated, provider prescribed), or A4: CIA score ≥ 16, 50.0% (n = 40) of participants met criteria for an ARFID diagnosis. In contrast, when we used the most lenient (ie, the most commonly endorsed) definition of each criterion, which included A1: BMI < 18.5 kg/m^2, BMI percentile < 10th; A2: meeting < 80% of DRI for at least 1 micronutrient; A3: intake of multivitamin/multimineral nutritional supplement drinks, liquids, pills, or drops (self-initiated, parent-initiated); or A4: difficulties with eating that persist across locations (eg, at home, school, restaurants), we found that 97.5% (n = 78) met criteria for an ARFID diagnosis.

DISCUSSION

The *DSM-5* criteria for ARFID are ambiguous, such that there are many plausible ways of defining each criterion. In a community sample of youth with avoidant/restrictive eating, using the most lenient definitions (compared to the strictest) resulted in twice the number of individuals meeting criteria for the disorder. Specifically, nearly all (97.5%) met criteria under the lenient definition, whereas half (50.0%) met criteria under the strictest definition. Our findings are consistent with the variability in prevalence estimates of ARFID among child and adult populations, which have ranged from 1.0%–13.8%, and demonstrate the need for additional context to best operationalize *DSM-5* criteria.[1–5] In our sample, the majority of individuals met criteria for nutritional deficiency and psychosocial impairment, whereas fewer individuals met for low weight and supplement dependence. However, measures of dietary intake as a proxy for nutritional deficiencies are subject to self-reporting bias, and the limitations of food composition databases ultimately impact nutritional status estimations. Thus, it would be more conservative to use biochemical data from laboratory studies to determine nutritional status.

Psychosocial impairment captures the significant social implications of avoidant/restrictive eating that are often more pronounced, not addressed by primary care providers, and independent of physiologic symptoms.[52] *DSM-5* criteria for ARFID were recently revised to enable individuals to meet criteria for ARFID by psychosocial impairment alone (in the absence of criteria A1–A3).[6] Because psychosocial impairment was one of the most commonly endorsed criteria in our sample but is arguably also one of the most subjective to assess, prioritizing the operationalization of psychosocial impairment will be a crucial next step in defining the diagnosis. For example, codifying the extent to which assessors should rely on information gathered from collaterals (eg, parents, caregivers, teachers) to assess psychosocial impairment would be especially informative.

Depending on which diagnostic criteria are met, individuals with ARFID may require different treatment modalities or multidisciplinary team composition. At minimum, a primary care practitioner/pediatrician is necessary to monitor physical health.[6] In addition, those who meet criterion A1 due to low weight or faltering growth may need close follow-up from their primary care provider and/or referral to medical specialist (eg, adolescent medicine specialist) with expertise in the medical sequelae of undernutrition. Furthermore, they may require referral to a psychologist or other behavioral health provider for techniques to support weight gain. Next, individuals who meet criterion A2 or A3 may require the support of a dietitian for initiation or manipulation of nutrition supplementation. Finally, individuals who meet criterion A4 may require the support of a psychologist or other behavioral health provider

to improve psychosocial functioning. Depending on the co-occurrence of other medical conditions that may serve as etiologic or maintaining factors, other team members may include occupational therapists, speech and language pathologists, endocrinologists, and/or gastroenterologists.

The prevalence at a population level influences access to mental health treatment and the comparability and generalizability of research studies. For example, individuals or families who are seeking specialized services for ARFID may or may not receive the clinician conferred diagnosis based on their operationalization of the diagnostic criteria ultimately limiting access to treatment or services. The number of research studies and publications on ARFID continues to rise, making it even more imperative to standardize operationalization criteria for comparability across studies. A recent examination of trends in clinical research of mental health disorders, including feeding and eating disorders, found that between 2007–2018, academic medical center/hospital funded trials grew faster in mental health research compared to non–mental health research, a reflection of the epidemiologic impact of these disorders.[53] Thus, our findings on operationalization of *DSM-5* diagnostic criteria can inform the development of diverse, well designed, innovative research that will help guide clinical practice.

Our study has several strengths. First, we were able to draw a large sample from an ongoing observational trial that captures a variety of measures including the PARDI, CIA, and SDQ, which we were able to include in our curated list of diagnostic methodology. In addition, we utilized comprehensive anthropometric data that included both BMI and BMI percentiles, and 24-hour dietary recall data within our analysis. However, our study must be interpreted in light of some limitations; more specifically, we reference clinical judgment as a common tool used to apply the diagnostic criteria but were unable to evaluate this in our sample given that this study was executed in a research rather than clinical setting. Additionally, there was a lack of racial and ethnic diversity in our sample, which may reflect underutilization of care for minority populations with eating disorders.[54] Finally, even children without ARFID may fail to meet recommended standards for nutrient intake. Thus, our use of the DRI to classify adequacy of micronutrient intake in our sample is limited by lack of an age- and sex-matched population control group, and interpretation of this criterion should be considered in light of reported population standards.[55]

In the current study, we found that some operationalizations of the diagnostic criteria appeared to underestimate the frequency of ARFID whereas others appeared to overestimate it. Combining these findings with our experience as clinical researchers and providers of many disciplines, we make the following recommendations to operationalize current *DSM-5* criteria for ARFID: For criterion A1, we suggest, when a single data point is available, BMI percentile < 10th for individuals under 18 years of age and absolute BMI < 18.5 kg/m^2 for individuals greater than 18 years of age. Alternatively, if the patient's weight does not fall in the underweight range and longitudinal data are available, we recommend considering weight loss defined as loss of 5% of body weight or crossing of 2 major BMI percentile lines for children and adolescents and loss of 10% of body weight for adults. For criterion A2, we found that nutrient deficiency significantly overestimated (intake < 80% of DRI for at least 1 micronutrient) or underestimated (recent diagnosis of nutrition deficiency) prevalence and thus recommend biochemical testing at the time of diagnosis to evaluate status and risk of nutrient deficiency. For criterion A3, we support the Radcliffe ARFID Workgroup recommendation of a definitional threshold of ≥ 50% or more of daily caloric intake via oral supplementation or any tube feeding that is not required by a concurrent medical condition.[6] Lastly, for criterion A4, rather than using strict cutoffs on clinical questionnaires (which appeared to underestimate psychosocial impairment in the current study), we recommend incorporating specific elements of interviews and questionnaires into a clinical interview to gain more perspective into the severity of psychosocial impairment. For example, specific items evaluating psychosocial impairment from the PARDI (Table 1) could be used.

That being said, it is possible for individuals to meet elements of criterion A (ie, have low weight, nutritional deficiency, supplement dependence, or psychosocial impairment) without having ARFID. For example, BMI may naturally fall below the 10th percentile for individuals who are constitutionally lean, and supplement dependence may result from certain medical conditions (eg, eosinophilic esophagitis or intestinal malabsorption). Indeed, it is the food avoidance and restriction itself that is the sine qua non of the disorder. Thus, future iterations of *DSM* should provide a clear definition of food avoidance and restriction along with recommendation for ascertainment, to provide the optimal context for diagnosis.

In summary, our findings support the need for clearer guidelines in operationalizing the *DSM-5* diagnostic criteria for ARFID in both research and clinical settings. The current diagnostic criteria would benefit from additional contextual support to guide providers/researchers within multiple disciplines on the most effective operationalization of *DSM-5* diagnostic criteria for ARFID and by more frequent revisions and continual development of *DSM-5* intermediate to whole manual revisions.[56] Gaining consensus among different fields about operationalization of *DSM-5* diagnostic criteria for ARFID is critical as our understanding of ARFID continues to evolve for both research and clinical work.

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Potential conflicts of interest: **Drs Thomas** and **Eddy** receive royalties from Cambridge University Press for the sale of their book *Cognitive-Behavioral Therapy for Avoidant/Restrictive Food Intake Disorder: Children, Adolescents, and Adults*. **Drs Thomas**, **Becker**, and **Eddy** will receive royalties for their forthcoming self-help book for adults with ARFID. **Dr Lawson** is on the scientific advisory board and has a financial interest in OXT Therapeutics, a company developing an intranasal oxytocin and long-acting analogs of oxytocin to treat obesity and metabolic disease, and her interests were reviewed and are managed by Massachusetts General Hospital and Partners HealthCare in accordance with their conflict of interest policies. All other authors have no conflicts of interest.

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Additional information: Data are available upon request. Proposals should be directed to jjthomas@mgh.harvard.edu. To gain access, data requestors will need to sign a data use agreement upon proposal approval.

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