

## Psychometric Properties of the Infant and Child Feeding Questionnaire

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**Objectives** To report the updated psychometric properties of a child feeding questionnaire and to report the psychometric properties of a screening tool developed from this questionnaire. A secondary objective was to consider if items from a behavior checklist embedded within the Infant and Child Feeding Questionnaire may be useful in making referrals for feeding problems.

**Study design** Caregivers of children younger than the age of 4 years with pediatric feeding disorders (as defined by *International Classification of Diseases, Ninth Revision*, criteria) were recruited from 2 outpatient clinics. A comparison group with no feeding problems was recruited during well child checks from community clinics. Caregivers completed a demographic questionnaire and a child feeding questionnaire. Exploratory and confirmatory analyses identified questionnaire items that differentiated groups. Remaining items were summed and area under the curve, sensitivity, and specificity values were calculated to describe the resulting screening tool. ORs of behaviors from the embedded behavior checklist were calculated to determine whether specific behaviors could be useful for referrals.

**Results** Responses of 989 caregivers (pediatric feeding disorders, n = 331; no feeding problems, n = 650) were obtained. Six questions of the child feeding questionnaire differentiated groups accounting for 60% of variance. Sensitivity (73%) and specificity (93%) were greater when any 2 or more of these 6 items was endorsed. Three items of the embedded feeding behaviors checklist show promise for referrals to specific provider disciplines.

**Conclusions** A pediatric feeding disorders screening tool consisting of 6 questions from a child feeding questionnaire is psychometrically sound. Use of this tool may expedite referrals for treatment. Further study of the embedded behavior checklist may be useful for clinical referrals. (*J Pediatr* 2020; ■:1-6).

A child with a pediatric feeding disorder is characterized as not feeding in an expected manner and may have nutritional, medical, and or psychosocial etiologies and/or sequelae.<sup>1</sup> These children have chronic feeding difficulties characterized by swallowing problems, disruptive mealtime behaviors, rigid food preferences resulting in nutrient deficiencies, and failure to master age-appropriate feeding skills.<sup>2</sup> Current estimates of pediatric feeding disorders prevalence range from 2% to 29% of children<sup>3,4</sup> (ie, 478 000-8.7 million in the US).<sup>5</sup> The prevalence of pediatric feeding disorders in children is expected to increase due, in part, to advances in medical treatments that improve survival rates for affected children.<sup>6-9</sup> Unidentified and untreated symptoms of pediatric feeding disorders worsen over time, leading to significant health and behavioral complications<sup>10</sup> that could be prevented with early identification and early intervention.

The Feeding Matters Infant and Child Feeding Questionnaire (ICFQ) was developed through expert interdisciplinary consensus (medicine, nutrition, speech, occupational therapy, and psychology) working in partnership with caregivers of children with Pediatric Feeding Disorders (<http://www.feedingmatters.org/questionnaire>).<sup>1</sup> The original purpose of the ICFQ was for parents or other caregivers to self-assess their concerns regarding their child's feeding habits. As caregivers complete the ICFQ, anticipatory guidance cues are provided to illustrate the nature of the questions being asked. After a caregiver responds to an individual item, feedback based on the response is provided to the respondent. Upon completing the instrument, a report is generated summarizing the caregiver responses and the individual item feedback to help caregivers articulate their concerns to their providers. The response patterns of the ICFQ<sup>11</sup> of 64 caregivers of children diagnosed with pediatric feeding disorders and 54 caregivers of children with no feeding problems were assessed. A key finding of this earlier work was the identification of 4 items that showed potential for use as a screening tool and the identification of 9 feeding behaviors that may be used to direct referrals to specialist providers.

The aim of the present study was to complete psychometric comparison of responses to the ICFQ from caregivers of children with and without pediatric feeding disorders younger than 4 years of age. Specifically, we sought to assess whether items from the ICFQ distinguish children with pediatric feeding disorders from those without pediatric feeding disorders from which a pediatric feeding disorders screening measure could be developed; to determine the sensitivity and specificity of the items extracted from the ICFQ

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ICFQ	Infant and Child Feeding Questionnaire
IRB	Institutional review board
PCP	Primary care provider

for the purpose of developing a pediatric feeding disorders screening measure; and to establish a clinical score for the resulting screening tool that maximizes correctly identified pediatric feeding disorders cases. An exploratory fourth aim was to consider whether items from an embedded behavior checklist (ICFQ item 11) could be useful in referring patients to specific disciplines for clinical feeding evaluations (eg, speech and language pathologist, psychologist, etc).

## Methods

This study was approved by the institutional review boards (IRBs) at each of the 2 participating institutions (University of Utah IRB protocol #00074797 and Milwaukee Children's Hospital IRB protocol #442506-5). Participants with pediatric feeding disorders and no feeding problems were recruited equally from university hospital-based outpatient clinics at the 2 participating institutions. Inclusion criteria focused on male and female children (age: birth to 4-years) who met *International Classification of Diseases, Ninth Revision*, criteria for feeding difficulties, as evidenced by feeding aversion, difficulty feeding, developmental delay in feeding, and extreme selectivity.<sup>12</sup> Diagnosis of pediatric feeding disorders required that the child be evaluated and diagnosed with a pediatric feeding disorder by an interdisciplinary team or physician with special training in feeding and nutrition concerns. The no feeding problems group comprised male and female children (age: birth to 4 years) without an *International Classification of Diseases, Ninth Revision*, diagnosis of feeding difficulties recruited from community well-child clinics visits at the participating institutions. Caregivers of children with pica, rumination, eating disorders, or a lack of food in the home were excluded, as were children who had recovered from a previous feeding problem. Caregivers of children in the no feeding problems group confirmed an absence of feeding concerns and confirmed that the child had no conditions that had the potential to result in a feeding problem (eg, surgical or traumatic injury, pneumonia, or chronic dehydration or malnutrition).

### Instruments

**Demographic Questionnaire.** Before completion of the ICFQ, caregivers completed demographic questions regarding their relationship to the child, their level of education, household income, marital status, ethnicity, and the size of the household. This information was compared between research-site participants to assess regional differences between study populations.

**ICFQ.** This questionnaire was accessed online at [www.feedingmatters.org/questionnaire](http://www.feedingmatters.org/questionnaire). The caregivers first entered the child's due date and birth date, resulting in the automatic calculation of the appropriate age-adjusted version of the questionnaire. Age-specific versions of the ICFQ contain the same 12 questions. Questions 1-4, 6-10, and Question 12 are dichotomous yes/no responses. Question 5

is a multiple-choice question related to meal duration. Question 11 is an embedded behavioral checklist consisting of 18 directly observable feeding problems allowing the respondent to select as many of the subitems as appropriate. The purpose of the checklist is to describe symptoms that warrant clinical attention as opposed to the detection of a pediatric feeding disorders. Analyses aimed at developing a pediatric feeding disorders screening measure focused exclusively on items 1-10 and 12. The exploratory analysis focused on the relative contribution of item 11 for potentially guiding referrals. Each of the age-specific versions of the ICFQ contained the same set of questions with only minor wording modifications for age appropriateness (ie, infant vs child) (see items in **Table 1**; available at [www.jpeds.com](http://www.jpeds.com)).

### Procedures

Consented participants in the pediatric feeding disorders and no feeding problems groups completed the ICFQ before, during, or after their appointment, depending upon primary care provider (PCP) preference or clinic flow processes. The ICFQ was completed by caregivers using an iPad or desktop computer. Once completed, ICFQ summaries were printed and provided to the participants. A copy of each participant summary was maintained by each site for comparison with the database to confirm and validate data entries.

### Statistical Analyses

Sociodemographic comparisons and their relations to an ICFQ total score were conducted employing  $\chi^2$  statistics to determine whether covariates were necessary for subsequent analyses. A path analysis model of the remaining significant sociodemographic variables was conducted to assess the unique contribution of each variable toward differentiating those with pediatric feeding disorders from those without pediatric feeding disorders (predicting group membership). Next, to identify the subset of items of the ICFQ from which a screening instrument might be developed (ie, Aim 1): probit regression was used to determine which items significantly predicted membership to the pediatric feeding disorders group, while controlling covariates including child age. The percent variance of each item was also calculated. A preliminary regression model was conducted in which child age, ICFQ questions, including the embedded behavioral checklist items, were included as predictors of group membership. This initial model revealed that none of the behavioral checklist items uniquely predicted pediatric feeding disorders status above and beyond the information provided by the other items and child age and, thus, ICFQ items from the behavioral checklist were analyzed separately to consider whether these items could be useful for describing the clinical presentation of affected children.

Next, a model containing items of the ICFQ excluding the embedded behavior checklist was analyzed. Confirmatory factor analysis of the remaining items employing probit regression was conducted to ensure adequate psychometrics (unidimensionality, model fit, etc). To create a short screening measure from these items identified (ie, Aim 2),

statistically significant predictor items from the confirmatory factor analysis were summed and the area under the curve, sensitivity, and specificity statistics were calculated. To determine a clinical cutoff score for the resulting screening tool (ie, Aim 3) the total number of screener items endorsed were considered to maximize sensitivity and specificity.

An exploratory objective of this work was to consider whether specific items endorsed from the embedded behavior checklist could be useful in making discipline-specific referrals (eg, refusals to eat may require psychology assessment, whereas choking or coughing during meals may require speech-language pathology assessment) (Table I). To conduct this analysis, an OR analysis was completed to determine which behaviors were indicative of various etiologies of a feeding or swallowing problem. The criterion alpha level for was set at  $\alpha = .05$  for all analyses.

## Results

Responses of 989 caregivers (pediatric feeding disorders  $n = 331$ ; no feeding problems  $n = 650$ ) were obtained. Demographic comparisons are shown in Table II. Significant differences were found across the pediatric feeding disorders and no feeding problems groups (Table II) in terms of education

( $\chi^2[7, N = 971] = 40.13, P < .01, \phi = .20$ ), marital status ( $\chi^2[5, N = 971] = 17.33, P < .01, \phi = .20$ ), income ( $\chi^2[7, N = 971] = 39.54, P < .001, \phi = .2$ ), and child age ( $t[984] = 10.503, P < .001, d = 0.66$ ). However, race ( $\chi^2[8, N = 971] = 10.71, P = .22, \phi = .10$ ) was not significantly different between groups. Despite individual demographic differences, only group status ( $F[1,951] = 801.88, P < .001, \text{partial } \eta^2 = .46$ ) and child age ( $F[1,951] = 6.82, P < .01, \text{partial } \eta^2 = .01$ ) predicted differences in ICFQ total scores using a model that included education ( $F[6, 951] = 1.29, P = .26, \text{partial } \eta^2 = .01$ ), marriage ( $F[4, 951] = 1.59, P = .17, \text{partial } \eta^2 = .01$ ), and income ( $F[6, 951] = 1.58, P = .15, \text{partial } \eta^2 = .010$ ). As such, only age was included as a covariate in subsequent analyses.

## Questions Distinguishing Groups

To determine which ICFQ questions differentially predicted those with and without a pediatric feeding disorder and to obtain an estimate of explained variance, unstandardized probit regression with robust standard errors was employed. The initial model controlled for child's age and contained 11 items of the ICFQ (items 1-10 and item 12) but excluded the behavior checklist (item 11). Model constraint analyses revealed that these 11 items did not differ in predicting group

**Table II. Sociodemographic characteristics and differences feeding group status**

Demographic variables	Entire sample (N = 971)	Feeding problem group (N = 321)	No feeding problems group (N = 650)*	P value
	n (%) or mean ( $\pm$ SD)	n (%) or mean ( $\pm$ SD)	n (%) or mean ( $\pm$ SD)	
Child characteristics				
Age, mo	12.82 (7.47)	20.83 (12.77)	12.71 (10.49)	<.01
Education				<.01
College graduate	376 (38.7)	114 (35.5)	262 (40.3)	
High school diploma or equivalent	94 (9.7)	46 (14.3)	48 (7.4)	
Postgraduate degree	252 (26)	55 (17.1)	197 (30.3)	
Prefer not to answer	2 (0.2)	1 (0.3)	1 (0.2)	
Some college	172	74 (23.1)	98 (15.1)	
Some high school	19 (2)	10 (3.1)	9 (1.4)	
Trade/technical/vocational training	53 (5.5)	21 (6.5)	32 (4.9)	
Marital status				<.01
Divorced	310 (32.0)	11 (3.4)	11 (1.7)	
Married	55 (5.7)	256 (79.8)	567 (87.6)	
Prefer not to answer	161 (16.6)	2 (0.6)	3 (0.5)	
Separated	173 (17.9)	7 (2.2)	2 (0.3)	
Single, never married	146 (15.1)	45 (14)	64 (9.9)	
Income				<.01
\$100 000+	310 (32)	69 (21.5)	241 (37.2)	
\$15-25 000	55 (5.7)	21 (6.5)	34 (5.3)	
\$26-50 000	161 (16.6)	66 (20.6)	95 (14.7)	
\$51-75 000	173 (17.9)	56 (17.4)	117 (18.1)	
\$76-100 000	146 (15.1)	52 (16.2)	94 (14.5)	
Less than \$15 000	47 (4.9)	28 (8.7)	19 (2.9)	
Prefer not to answer	76 (7.9)	29 (9)	47 (7.3)	
Race and ethnicity				.22
African American	44 (4.5)	16 (5)	28 (4.3)	
Asian-Pacific Islander	44 (4.5)	13 (4)	31 (4.8)	
White	753 (77.8)	249 (77.6)	504 (77.9)	
Hispanic	76 (7.9)	23 (7.2)	53 (8.2)	
Multiracial	10 (1)	4 (1.2)	6 (0.9)	
Native American	7 (0.7)	5 (1.6)	2 (0.3)	
Other	23 (2.4)	5 (1.6)	18 (2.8)	
Prefer not to answer	11 (1.7)	6 (1.9)	5 (0.8)	

\*Three individuals with no feeding problems did not report demographic information.

membership as a function of age ( $\chi^2 = 14.39$ ,  $df = 11$ ,  $P = .21$ ). The 11 items and age were shown to explain 64% of variance for group membership with an age-based difference in children. A subset of 6 items, along with child age, significantly distinguished group membership. Distinguishing items included: Question 3 (Does your baby/child let you know when he is hungry?), Question 4 (Do you think your baby/child eats enough?), Question 5 (How long does it usually take to feed your baby (child)? (Meal duration less than 5 minutes or greater than 30 minutes indicated), Question 6 (Do you often have to do anything special to help your baby (child) eat?), Question 7 (Does your child let you know when he is full?), and Question 12 (Based on the questions you have answered, do you have concerns about feeding your baby?) (Table III). Confirmatory factor analysis of these 6 binary question items suggested a good fit to a unidimensional (one factor) model:  $\chi^2/df = 32.74/9$ ,  $P < .01$ ; root mean square error of approximation (90% CI) = 0.048 (0.031-0.067), comparative fit index (CFI) = 0.99; standardized root mean square residual = 0.045.

To determine whether the sum of the 6 questions identified from the core questions could be used as a screening questionnaire, a second probit regression analysis was conducted using only the 6 core question items identified in the earlier step. The total score of these items (standardized estimate = 0.71, SE = 0.02,  $P < .01$ ) and age (standardized estimate = 0.16, SE = 0.03,  $P < .01$ ) predicted group membership (pediatric feeding disorders vs no feeding problems), explaining 60% of variance (SE = 0.25,  $P < .001$ ) whereas controlling for an age-based difference in children in ICFQ scores (correlation between ICFQ and age = .33,  $P < .01$ ).

To determine the clinical threshold of the resulting tool, further consideration of the sensitivity and specificity analyses was conducted (Table IV). The sensitivity of the 6 screening items was maximized when any 1 of the 6 question items was endorsed (ie, response of "yes") (0.910). However, when selecting 1 question item as the clinical threshold, the specificity of the screening item was relatively lower (0.738) and increased the odds of false-positive screenings. When endorsement of 2 items was defined as a clinical threshold,

the sensitivity reduced (0.729), but specificity increased (0.932). Clinical thresholds defined by 3 or more question items reduced the sensitivity to an unacceptable level (0.539 or lower) and specificity increased minimally (0.974 or more). The Figure (available at [www.jpeds.com](http://www.jpeds.com)) shows graphical representation of the receiver operating characteristic curve.

Three of the 18 feeding behaviors embedded in question 11 were significantly related to group status when we controlled for child age. As shown in Table V, a child described as "Refuses to eat," "Does not chew," and "Coughs" was significantly more likely to belong to the pediatric feeding disorders group than the no feeding problems group. In other words, caregivers selecting these 3 behaviors from the embedded checklist were more likely to have a child belonging to the pediatric feeding disorders group than the no feeding problems group.

## Discussion

In the US, pediatric feeding disorders affect 478 000 to 8.7 million children nationwide<sup>3-5</sup> and account for 3% of pediatric hospital admissions<sup>13</sup> secondary to sequela of the pediatric feeding disorders (acute malnutrition, dehydration, etc).<sup>14</sup> Although PCPs are best positioned to identify children with pediatric feeding disorders, they lack tools to reliably distinguish these from transient, minor feeding concerns.

Our results demonstrate that the questionnaire items of the ICFQ are psychometrically sound distinguishing children with pediatric feeding disorders from those without pediatric feeding disorders. This study demonstrated that 6 items of the original ICFQ may be used to develop a screening tool that shows similar discriminatory properties to the full ICFQ, when any 2 or more of the 6 screening questions are endorsed, the sensitivity (likelihood of detecting the greatest number of children with pediatric feeding disorders) in relation to the specificity (likelihood of detecting a true positive screening) are maximized. This may be a useful tool for healthcare providers who currently lack such clinical tools and may expedite the identification of individuals who have pediatric feeding disorders. The underlying assumption

**Table III. Probit model controlling for child age**

Questions or variables	Estimate	SE	Est./SE	P value
1. Does your baby like to be fed? (R)	0.053	0.039	1.365	.172
2. Do you feed your baby (does your baby eat) more often than every 2 hours?	0.011	0.035	0.302	.762
3. Does your baby (child) let you know when he is hungry? (R)	0.101	0.039	2.618	.009
4. Do you think your baby (child) eats enough? (R)	0.123	0.035	3.504	<.001
5. How long does it usually take to feed your baby (child)? (RC)	0.134	0.030	4.486	<.001
6. Do you often have to do anything special to help your baby (child) eat?	0.251	0.032	7.911	<.001
7. Does your child let you know when he is full? (R)	0.106	0.036	2.971	.003
8. Do you have concerns about your baby's (child's) weight?	0.062	0.033	1.887	.059
9. Most of the time, does your child seem content after eating? (R)	0.072	0.044	1.656	.098
10. Do you enjoy feeding time with your baby (child)? (R)	0.045	0.037	1.213	.225
12. Based on the questions you have answered, do you have concerns about feeding your baby (child)?	0.217	0.035	6.213	<.001
Child age	0.143	0.033	4.349	<.001

R, reversed; RC, recoded.

P value is based on 2-tailed analyses;  $R^2 = 0.639$ .



**Table IV. Sensitivity and specificity: Coordinates of the curve**

Numbers of items endorsed	Sensitivity	Specificity
0	1.000	0
1	.910	0.738
2	.729	0.932
3	.539	0.974
4	.283	0.992
5	.100	0.995
6	.019	0.998
7	.000	1

Test result variable(s): 6-item total score.

The smallest cutoff value is the minimum observed test value minus 1, and the largest cutoff value is the maximum observed test value plus 1. All the other cutoff values are the averages of 2 consecutive ordered observed test values.

is that the use of this screening tool streamlines and enhances the process by which patients are referred for formal clinical assessments. Completing the screening may direct children to more formal assessments and treatments by appropriate specialists potentially reducing the risk of increased symptom severity should the symptoms go undetected.

Our exploratory aim, assessing the usefulness of the behavior checklist embedded in the ICFQ, shows promise as the specific concerns may help clinicians make referrals to subspecialists. As our results show, individual subitem endorsement and perhaps varying clusters of subitems may be linked to specific etiologies. For example, a family that endorses “coughs” during feeding may be referred to a speech-language pathologist for a swallow study, whereas a family who endorses “refuses to eat” may be referred to a pediatric

psychologist. As such, these observable feeding behavior items could be used to discuss assessment and treatment referrals with families.

Our earlier pilot study<sup>11</sup> exploring the psychometric properties of the ICFQ did not include balanced recruitment of participants by condition and age. As such, the small sample size and other demographic differences between groups reduced generalizability of earlier findings despite outcomes supporting development of a screening instrument from ICFQ items. In the current study, the sample was expanded from 121 caregivers to 986 caregivers. The current sample offers greater balance across the full range of ages (ie, birth to 4 years) and by presence/absence of pediatric feeding disorders. Under these conditions, our current analyses yielded strong indications that items from the ICFQ distinguished between pediatric feeding disorders and no feeding problems groups accounting for more than 66% of the variance. Furthermore, constraint analyses revealed that ICFQ items did not differ in predicting group membership as a function of age, indicating that the questionnaire is stable with respect to age of child. These outcomes support our hypothesis that a screening tool can be constructed from a subset of items from the original ICFQ that distinguishes between children with and without pediatric feeding disorders younger the age of 4 years. However, the validity and reliability of ICFQ items need to be determined before a final psychometrically sound screening instrument can be determined.

Earlier evaluation of the ICFQ items showed that 4 items significantly discriminated children with pediatric feeding disorders from a community sample (no feeding problems).<sup>11</sup> In the current study, 6 items significantly discriminated between the pediatric feeding disorders and no feeding problems groups with 3 of these items overlapping between the 2 studies (“Do you think your baby/child eats enough?”, “Do you have to do anything special to help your baby/child eat?”, and “Based on the questions you have answered, do you have concerns about feeding your baby/child?”). Similarly, the earlier study showed that 9 items from the embedded behavioral checklist differentiated groups whereas 3 feeding behaviors differentiated the groups in the current study with only 2 items overlapping (“Coughs” and “Refuses to eat”). The larger sample size enabled implementation of statistical methods that were not possible on the smaller pilot population as one explanation for these differences. Specifically, controlling for child age equalizes the variance across all ages helping to detect problems regardless of the age of the child. Such a screening instrument would also add a valuable tool into primary care practice to help predict children likely to outgrow feeding problems and those requiring early intervention with minimal to no cost in time to the well-visit appointment.

Although this study represents a step forward to establish the predictive value of question items from the ICFQ for distinguishing between children with and without pediatric feeding disorders, additional work is needed to finalize such a screening tool. It is possible that demographic variables, including group differences in education, socioeconomic

**Table V. Logistic regression of ICFQ feeding behaviors**

Core question 11	OR	Lower 2.5% CI	Upper 2.5% CI	P value
1. Gets upset when his face is touched at the start of feeding	2.19	0.78	6.16	.30
2. Refuses to eat	3.18*	1.92	5.26	.01
3. Does not chew	4.2*	2.17	8.13	.02
4. Does not swallow	1.97	1.07	3.64	.12
5. Turns away from the breast or bottle or cup	1.7	0.98	2.94	.14
6. Arching his body	1.01	0.46	2.2	.98
7. Chokes	1.68	0.83	3.4	.26
8. Coughs	2.72*	1.53	4.83	.03
9. Gags	2.01	1.18	3.42	.07
10. Cries	2.2	1.09	4.42	.13
11. Makes loud breathing noises	8.16	1.98	33.59	.22
12. Turns blue	1.21	0.47	3.08	.72
13. Becomes limp or worn out before the end of feedings	2.13	1.05	4.3	.14
14. Falls asleep before the end of feeding	1.01	0.38	2.69	.99
15. Vomits after eating	0.85	0.44	1.63	.59
16. Pushes food away or pushes away food	1.61	0.96	2.69	.15
17. Puts hands in front of face	0.77	0.37	1.59	.42
18. Tantrums	17.59	1.60	194.07	.44
Child age	1.06	1.04	1.08	<.001

\*Items significantly related to group status when controlling for child age.

Logistical regression results controlling for age with all sub-questions from item 11 of the ICFQ.

status, and marital status, may have impacted results and warrant closer examination with a broader participant demographic. It is also possible that the life experiences of caregivers of children already diagnosed with pediatric feeding disorders may have had some effect on their response patterns, possibly skewing results in some manner.

The validity and reliability of items needs to be determined before a final psychometrically sound instrument can be determined. Although 3 observable feeding behaviors were identified as predictive of pediatric feeding disorders membership, additional work is needed to determine whether these observations may be of use in making appropriate referrals. Thus, future work will include a multisite clinical trial to refine and finalize the screening instrument with consideration of regional and population-specific factors such as sex, race, education, and socioeconomic status to inform interpretation of findings. It is also important to note that this study was not blinded to the participating families nor to the investigative teams. Although all the data were prospectively collected, it is possible that bias may have occurred in the interpretation of results. Multisite testing would also enable additional evaluation of screening instrument feeding behaviors predictive of specific feeding and swallowing problems requiring specific specialists for appropriate clinical assessment. Furthermore, as a consensus definition for pediatric feeding disorders continues to be used, PCPs will be more cognizant of pediatric feeding disorders and have a lower threshold for considering the diagnosis or referral via an instrument such as this.

Earlier identification and treatment of pediatric feeding disorders may prevent the development of comorbid conditions that negatively impact cognitive, physical, emotional and social development. Earlier detection and treatment of pediatric feeding disorders also may reduce adverse effects on caregiver-child relationships.<sup>15</sup> Consequently, a significant and longstanding impact on the occurrence and management of pediatric feeding disorders is anticipated to reduce the incidence of hospital admissions related to pediatric feeding disorders or related healthcare costs. ■

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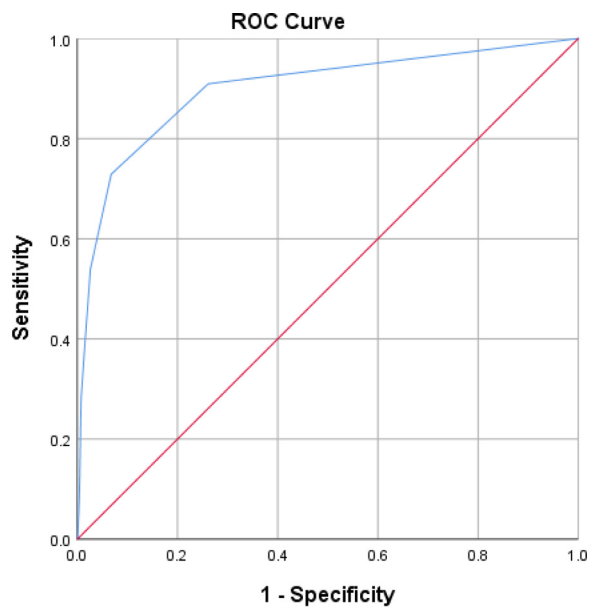
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**Table I. Core questions of the ICFQ and associated red flag response**

Core question items	Red flag response for all age groups
1. Does your baby like to be fed?	No
2. Do you feed your baby (Does your baby eat) more often than every 2 hours?	Yes
3. Does your baby (child) let you know when he is hungry?	No
4. Do you think your baby (child) eats enough?	No
5. How long does it usually take to feed your baby (child)?	<5 min or >30 min
6. Do you often have to do anything special to help your baby (child) eat?	Yes
7. Does your child let you know when he is full?	No
8. Do you have concerns about your baby's (child's) weight?	Yes
9. Most of the time, does your child seem content after eating?	No
10. Do you enjoy feeding time with your baby (child)?	No
11. Does your child often do any of the following when you feed him (he eats)? check all that apply.:	>2 of the following apart from (s)
(a) Gets upset when his face is touched at the start of feeding.	
(b) Refuses to eat	
(c) Does not chew	
(d) Does not swallow	
(e) Turns away from the breast, bottle, or cup	
(f) Arches his body	
(g) Chokes	
(h) Coughs	
(i) Gags	
(j) Cries	
(k) Makes loud breathing noises	
(l) Turns blue	
(m) Becomes limp or worn out before the end of feedings	
(n) Falls asleep before the end of feeding	
(o) Vomits after eating	
(p) Puts hands in front of the face	
(q) Pushes away food	
(r) Tantrums	
(s) None of the above	
12. Based on the questions you have answered, do you have concerns about feeding your baby (child)?	Yes



Diagonal segments are produced by ties.

**Figure.** Sensitivity and specificity ROC curve. *ROC*, receiver operating characteristic.