INTRODUCTION

- 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.¹
- Current estimates of pediatric feeding disorder prevalence range from 2% to 29% of children²,³ (i.e., 478,000-8.7 million in the US).⁴
- Unidentified and untreated symptoms of pediatric feeding disorder worsen over time, leading to significant health and behavioral complications.⁵
- 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 disorder younger than 4 years of age.

METHODS

Participants

- Caregivers of children with and without pediatric feeding disorder (age: birth to 4-years) were recruited equally from university hospital–based outpatient clinics at the 2 participating institutions.
- Diagnosis of pediatric feeding disorder required that the child be evaluated and diagnosed with pediatric feeding disorder by an interdisciplinary team or physician with special training in feeding and nutrition.
- The no feeding problems group had no feeding difficulties and were recruited from community well-child clinics visits.

Instruments

- Demographic Questionnaire
- Infant Child Feeding Questionnaire (ICFQ)

Procedures

- Participants from both groups completed the ICFQ.
- ICFQ summaries were printed and provided to the participants with a copy maintained by each site to confirm and validate data entries.

RESULTS

Identifying Screener Questions

- Responses of 989 caregivers (pediatric feeding disorders n = 331; no feeding problems n = 650) were obtained.
- The 11 items of the ICFQ and age were shown to explain 64% of variance for group membership.
- A subset of 6 items, along with child age, significantly distinguished group membership.
- Does your baby/child let you know when he/she is hungry?
- Do you think your baby/child eats enough?
- How long does it usually take to feed your baby/child? (Meal duration less than 5 minutes or greater than 30 minutes indicated problem)
- Do you often have to do anything special to help your baby/child eat?
- Does your child let you know when he/she is full?
- Based on the questions you have answered, do you have concerns about feeding your baby?
- Confirmatory factor analysis of these 6 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.

Statistical Analyses

- Probit regression was used to identify items from the ICFQ which differentiated group membership.
- Confirmatory factor analysis of the remaining items was conducted to ensure adequate psychometrics (unidimensionality, model fit, etc).
- To create a screening measure from these items, 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 the total number of independent screener items that were endorsed by respondents were considered to maximize sensitivity and specificity.
RESULTS CONT'D

Finalizing Screener Questions

• 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 predicted group membership explaining 60% of variance (SE = 0.25, P < .001).

Determination of Screener Clinical Score

• Sensitivity of the 6 screening items was maximized when any 1 of the 6 question items was endorsed. However, the specificity was reduced, increasing the odds of false-positive screenings.
• When endorsement of 2 items was defined as a clinical threshold, the sensitivity was acceptable, and specificity increased.
• Clinical thresholds defined by 3 or more question items reduced the sensitivity to an unacceptable level.

<table>
<thead>
<tr>
<th>Numbers of items endorsed</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.000</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>.910</td>
<td>.738</td>
</tr>
<tr>
<td>2</td>
<td>.729</td>
<td>.932</td>
</tr>
<tr>
<td>3</td>
<td>.539</td>
<td>.974</td>
</tr>
<tr>
<td>4</td>
<td>.283</td>
<td>.992</td>
</tr>
<tr>
<td>5</td>
<td>.100</td>
<td>.995</td>
</tr>
<tr>
<td>6</td>
<td>.019</td>
<td>.998</td>
</tr>
<tr>
<td>7</td>
<td>.000</td>
<td>1</td>
</tr>
</tbody>
</table>

APPENDIX: DRAFT-SCREENING TOOL

INFANT & CHILD FEEDING AND SWALLOWING DISORDER SCREENING TOOL

<table>
<thead>
<tr>
<th>Does your baby/child let you know when he is hungry?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you think your baby/child eats enough?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>How many minutes does it usually take to feed your baby?</td>
<td>&lt;5</td>
<td>5-30</td>
</tr>
<tr>
<td>Do you often have to do anything special to help your baby (child) eat?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Does your child let you know when he is full?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Based on the questions you have answered, do you have concerns about feeding your baby?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Total Score

Scores ≥ 2 are clinically significant

REFERENCES

Feeding Matters’ innovative Infant and Child Feeding Questionnaire® (ICFQ®) was authored in partnership with internationally renowned thought leaders representing multiple disciplines related to feeding. The ICFQ® is an age specific tool designed to identify potential feeding concerns and facilitate discussion with all members of the child’s healthcare team.

According to a seminal study published in the 2020 Journal of Pediatrics*, the ICFQ® has been shown to accurately identify and differentiate pediatric feeding disorder (PFD) from picky eating in children 0-4 years of age based on caregiver responses to 6 specific questions. This 6-question quick screener continues to undergo research as Feeding Matters strives to promote the early identification of PFD.

**6-QUESTION SUBSET**

<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your baby/child let you know when he is hungry?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think your baby/child eats enough?</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Does your baby/child let you know when he is full?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Based on the questions above, do you have concerns about your baby/child's feeding?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Red flag answers are in orange. If 2 or more of your answers are orange please contact your pediatrician.

Concerned? Take the full questionnaire: feedingmatters.org/questionnaire
EARLY IDENTIFICATION

Expediting the identification of PFD may prevent the development of conditions that negatively impact a child’s cognitive, physical, emotional and social development. Feeding is an intricate and complex skill that develops within a feeding relationship. Earlier detection and treatment of PFD also may reduce adverse effects on caregiver–child relationships. By completing the ICFQ© screening, children can be directed to appropriate specialists for more formal assessments and management. The first step in reducing the risk of increased symptom severity is identification.

CONTRIBUTING AUTHORS

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