The use of parent report to screen for feeding difficulties in young children

Original Article

Jeanne Marshall[1], Madeline Raatz[2], Elizabeth C. Ward[3, 4], Pamela Dodrill[5]

[1]Children's Nutrition Research Centre, Queensland Children's Medical Research Institute, The University of Queensland, Brisbane, Australia
[2]Division of Speech Pathology, The University of Queensland
[3]Centre for Functioning and Health Research, Queensland Health
[4]School of Health and Rehabilitation Sciences, The University of Queensland
[5]Speech Pathology Department, The Royal Children's Hospital, Queensland Health

Correspondence: Jeanne Marshall
Speech Pathologist
Children's Nutrition Research Centre
Queensland Children's Medical Research Institute
Level 4, Foundation Building
Royal Children's Hospital
Herston Road
Brisbane, Queensland, Australia 4029
Email: j.marshall@uq.edu.au
Phone: +61 7 3636 1265
Fax: +61 7 3636 5578

The use of parent report to screen for feeding difficulties in young children

Abstract

AIMS This study aimed to collect data on Australian children with and without feeding difficulties using a standardised feeding questionnaire, compare this data to international data collected using the same tool, assess the short-term reliability of this tool, and determine the sensitivity and specificity of this tool in detecting feeding difficulties.

METHODS Parents completed the *Behavioural Paediatric Feeding Assessment Scale* (BPFAS). Data on 54 typically developing children (TD) and 81 children with feeding difficulties (FD) aged 2-6 years are presented.

RESULTS Our Australian sample performed comparably to normative data published from Canada and the United Kingdom. Reliable results were demonstrated over a two-week period, and the scale was shown to have high specificity. There was a significant difference between TD and FD children in frequency of undesirable mealtime behaviours ($p<0.01$), and the number of behaviours that were reported as a problem by parents using this tool ($p<0.01$).

CONCLUSIONS This study confirmed that the BPFAS is a valid tool for identifying Australian children with feeding difficulties. Given that it is simple to administer, and has a high reliability and specificity, it is suggested as a useful screening tool for physicians working with young children. Data collected using this tool found that typically developing children display few undesirable feeding behaviours, and few behaviours are perceived as problems by parents. Therefore, any child presenting with a large number of feeding problems on this parent-reported measure should be referred for further multidisciplinary evaluation and treatment as required.

Key words

Feeding difficulties, feeding behaviour, screening, referral and consultation

What is already known on this topic:

- Undesirable mealtime behaviours are often reported as a feature of typical feeding development
- It can be difficult for medical professionals to know when to reassure parents or refer children for further assessment and intervention for feeding difficulties

What this paper adds:

- The *Behavioral Pediatrics Feeding Assessment Scale (BPFAS)* is a valid and reliable screening tool, with high specificity, that is quick and easy to administer
- Children who receive scores above recommended cut-scores on the BPFAS should be referred on for further evaluation +/- treatment by a multidisciplinary feeding team
- Use of this scale will assist in improved detection of children with feeding difficulties requiring further assessment and intervention

The use of parent report to screen for feeding difficulties in young children

INTRODUCTION

Many parents report their children display some undesirable feeding behaviours, including refusal of certain foods or food groups, lengthy mealtimes, and fussiness around food preparation and presentation[1]. This is often described as 'picky eating' and is considered common in childhood, with prevalence statistics in typically developing children ranging from 2 to 50% across different samples[2, 3]. This broad range of prevalence figures is contributed to by lack of a clear definition for picky eating.

More importantly, lack of a specific definition also makes it difficult to delineate between picky eating behaviours that are part of typical development versus what might be considered to be a true feeding difficulty. A continuum of behaviour is proposed, where picky eating could be considered part of both typical and atypical feeding behaviour. It is well understood that some picky eating does occur as a developmental phase in most toddlers: it appears to be the length of time that these behavioural difficulties persist, as well as their degree of impact on mealtime participation, that separate the developmental picky eater from a child with a feeding difficulty[4]. Definitional disparity makes it difficult for medical professionals to make decisions about whether reported picky eating behaviours will likely resolve independently as a component of typical childhood development, or whether referral for further investigation and possible intervention is required.

Assessment for feeding difficulties has traditionally been completed via anthropometry, direct observation of the child in mealtime situations, and via parent questionnaires regarding dietary variety and behaviour. Since behaviour is often a core feature of feeding difficulty, it is an important feature to quantify at baseline and after treatment. A number of different parent-reported scales for measuring child feeding behaviour have been developed with varying psychometric strengths and

weaknesses (e.g. Crist and Napier-Phillips, 2001[5]; Lukens and Linscheid, 2005[6]; Archer et al., 1991[7], and Berlin et al., 2011[8]). The lack of a consistent screening tool results in inconsistent referral and management for children with feeding difficulties.

The *Behavioural Pediatrics Feeding Assessment Scale* (BPFAS)[5, 9] is a parent-completed screening tool that is quick and easy to use, and assists in identifying children with feeding difficulties. The BPFAS has undergone more rigorous psychometric testing than other measures of childhood feeding behaviours published in the literature to date, and large samples of normative data are available from Canada[5] and the United Kingdom (UK)[9]. However, there is currently no known normative data published for Australian children with or without feeding difficulties, so the validity of this tool in an Australian population is unknown.

In addition, there is minimal research regarding the sensitivity and specificity of this tool for the identification of feeding difficulties. Further information in this area would assist clinicians to feel confident about their decisions about whether to refer a child for further intervention based on test scores derived from this tool. There is also currently little information about short-term variability of parent-reported feeding behaviours. This information is important to collect to help clinicians determine whether changes in behavioural outcomes following feeding programs are as a result of intervention, or simply reflect natural variance.

Thus, the aims of this paper were to compare data collected on an Australian sample using the BPFAS to normative data from Canada and the UK, examine reliability of this tool for measuring undesirable mealtime behaviour over a two-week period in typically developing children, and determine the sensitivity and specificity of this measure in detecting feeding difficulties.

MATERIALS AND METHODS

Participants

Typically developing children (TD) and children with feeding difficulties (FD) aged 2-5;11 years were recruited in Australia. Children from both groups were included if they had no diagnosed/ suspected medical conditions, and no history of food allergies/ intolerances. Children with swallowing disorders (i.e. dysphagia) requiring fluid or texture modification were excluded from this study. TD children additionally had no developmental or feeding concerns reported. FD children were identified via enrolment in a concurrent intervention study, and diagnosis of FD was confirmed via clinical assessment. Measures used in clinical assessment for the FD group included a 3-day prospective weighed diet record, the Sensory Profile[10], oral motor assessment[11], and anthropometry, as well as the BPFAS described below. Diagnosis of feeding difficulty was considered to include: (1) limited dietary variety across food groups (<10 fruits/ vegetables, <10 protein-rich foods, <10 carbohydrate-rich foods) or limited range of textures for their age; (2) took longer than 30 minutes (on average) to complete meals and/or (3) clinically significant difficult mealtime behaviours as identified by the BPFAS. Children with autism spectrum disorder (ASD) and children with a non-medically complex history (NMC) were both included as part of the FD group.

Procedure

Parents of children in the FD groups (FD:ASD and FD:NMC) completed the BPFAS on one occasion. Parents of children in the TD group completed the BPFAS on two occasions over the period of two weeks. Both groups also completed a brief demographic questionnaire regarding family structure, educational levels, employment, and smoking status.

Ethical approval for this study was obtained from the Childrens' Health Services Queensland Human Research Ethics Committee, and The University of Queensland Medical Research Ethics Committee, and the study conforms to the provisions of the Declaration of Helsinki (1995). The parents of all children enrolled in this study provided informed consent to participate, and anonymity was preserved.

Behavioral Pediatrics Feeding Assessment Scale (BPFAS)

The BPFAS is a 35-item questionnaire developed by Crist and Napier-Phillips (2001)[5]. This questionnaire contains 25 questions that relate to children's mealtime behaviours, and 10 that relate to parent's feelings and/ or mealtime strategies. All questions are rated on a 5-point Likert Scale, where parents indicate the frequency with which the behaviour occurs (creating a frequency score). Parents are also required to indicate whether each of the behaviours listed presents a problem for them (creating a problem score). Crist and Napier-Phillips[5] provided normative data from Canada in their 2001 paper, and further normative data has been provided from the UK by Dovey, Jordan, Aldridge, and Martin (2013)[9]. Scoring of this tool involves calculating an overall Total Frequency Score (TFS) and Total Problem Score (TPS), as well as a TFS and TPS for child and parent behaviours (Figure 2). In addition, cut-scores have been developed for each of the sub-test scores (Figure 2). Individuals with scores higher than these cut-scores are considered to be at-risk of feeding difficulties.

Results from our Australian sample were compared to Canadian and UK results for both clinical (TD) and non-clinical (FD) groups[5, 9]. It should be noted that children with ASD were specifically excluded from the international samples of children with feeding difficulties. Thus, data for children with FD: ASD are presented as a separate sub-group in our Australian sample.

Statistical Analyses

In testing validity of the tool, groups were compared using t-tests and Analysis of Variance (ANOVA), and t-tests were applied in post-hoc analysis. Where proportions between groups were compared, chi-square tests were used. A p-value of less than 0.05 was considered statistically significant. Where

multiple tests were applied to the same data, a more conservative p-value of less than 0.01 was considered statistically significant.

Where short-term reliability was assessed, paired t-tests were used to measure changes in the same participants across time points. A p-value of less than 0.05 was considered statistically significant.

Sensitivity and specificity were tested using previously developed cut-scores as determined by Dovey et. al[9]. (Figure 1).

INSERT FIGURE 1 near here ENREF 10

RESULTS

Demographic information

Overall, 81 FD children (36 FD: NMC; 45 FD: ASD) and 54 TD children were recruited. Table 1 presents demographic information. There were no statistically significant differences between the three groups with regard to male to female ratio. With regard to age, there were no significant differences between groups, but there was a trend towards the FD: ASD group being older than the TD group. There was also a trend towards more mothers having received tertiary education in the TD group than in both FD groups. Across all groups, the majority of parents were non-smokers.

INSERT TABLE 1 near here

Typically developing group (TD)

Comparison of results for the BPFAS from the typically developing (non-clinical) groups from Australia, the UK, and Canada revealed similar results for the three populations across sub-test scores (Table 2). The only sub-test where there was a significant difference between any of the groups was in the TFS-Child sub-test, with the Australian group displaying significantly higher scores than the UK group (49.7 vs. 45.6 out of 125). However, average scores from both groups were below

the recommended cut-score of 61 for this sub-test, indicating that both groups had typical feeding behaviours, and so this difference was not considered to be clinically significant.

INSERT TABLE 2 near here

With regards to reliability, for the most part, no significant differences were observed in BPFAS scores for the Australian TD group over a two-week period (Table 3). The only exceptions were the TPS-Child and TPS-Total scores, which were significantly lower on the second administration of this assessment. However, the actual number of child behaviours identified as a problem between measurements only differed by approximately one behaviour on both sub-tests (3 vs. 2 out of 25 for TPS-Child; 4.1 vs. 2.8 out of 35 for TPS-Total) and, as a result, this was not considered to be clinically significant. Importantly, differences were not reflected in the proportion of children at each time-point above the recommended cut-scores (Table 3) ENREF 9. For all sub-tests, correlations between first and second time-points were very strong, and all statistically significant (TFS-Child $r=0.91$, $p<0.01$; TPS-Child $r=0.88$, $p<0.01$; TFS-Parent $r=0.88$, $p<0.01$; TPS-Parent $r=0.88$, $p<0.01$).

INSERT TABLE 3 near here

Feeding difficulties group (FD)

Results from the clinical groups (i.e. those children with FD) across countries were also comparable (Table 2). The Australian cohort of FD: NMC children presented with a trend towards higher scores than the Canadian clinical group on the TFS-Child (75.2 vs. 69.9 out of 125) and TPS-Total subtests (18.9 vs. 15.4 out of 35), and significantly higher scores on the TPS-Child subtests (13.7 vs. 10.7 out of 25). However, given that in all cases the mean scores for both groups were above the cut-score for their respective sub-tests, indicating that both groups had feeding difficulties, the differences between groups were not considered clinically significant.

When data on the Australian TD and FD groups were compared, ANOVA analysis revealed significant differences in BPFAS scores across all sub-tests (Table 4), with the TD group displaying significantly

lower scores than the FD groups. Post-hoc analysis revealed that there were no statistically significant differences in scores between children with FD: ASD and FD: NMC, with both groups scoring high on this tool.

INSERT TABLE 4 near here

When applying test cut-scores to the combined Australian data, the BPFAS demonstrated high sensitivity in detecting feeding difficulties across all domains (>75%), as well as a high positive predictive value (>70%). Specificity and negative predictive values were strong across most domains (>85%) (Table 5).

INSERT TABLE 5 near here

Desirable behaviours rated as occurring *seldom* or *never* in the FD group included trying new foods, eating fruit, eating meat, and eating vegetables. Children with FD were *often* or *always* described as taking longer than 20 minutes to finish a meal. Parents described *often* or *always* feeling frustrated and/ or anxious when feeding their child, using coaxing to encourage their child to eat, making special meals for their child when they refused to eat, and feeling concerned regarding their child's health.

Examination of responses to specific items across the assessment tools revealed that both groups (TD and FD) presented with moderate frequency for the following behaviours: restricting food textures to pureed foods; leaving the table during meals; disrupting meals by talking; and negotiating what will or will not be eaten during meals. In addition, both groups presented with low frequency scores for parental use of threats at mealtimes.

DISCUSSION

Findings from this study indicate that the BPFAS is a valid and reliable screening tool, with high specificity. Furthermore, this tool is quick and easy to administer, and its use will assist in improved detection of children with feeding difficulties requiring further assessment and treatment.

Australian results for the BPFAS across clinical and non-clinical groups were found to be comparable to those reported from the UK and Canada. This suggests that the BPFAS as a tool is suitable for use in an Australian population.

Results from this study, as well as from previous studies using this tool, indicate that the feeding profiles reported by parents of TD children are fundamentally different to those of FD children, both in terms of frequency of difficult mealtime behaviours, and in the number of behaviours that are identified as a problem by parents. Total frequency and total problem scores were significantly different between the TD and FD groups: as expected, we found Australian TD children demonstrated a high frequency of desirable mealtime behaviours (e.g. 'eats fruits and vegetables'), and a low frequency of undesirable mealtime behaviours (e.g. 'tantrums at mealtime'), and this observation was inverted in the FD group.

Further to previous studies, we found that the profiles of the FD: ASD and FD: NMC groups on this assessment were similar, and both were different to the TD group, which suggests that both groups should be considered as presenting with FD on this assessment. Thus, any children presenting with a high frequency of undesirable mealtime behaviours that are identified as a problem by parents should be referred for further evaluation and input.

Examination of the small number of items where TD and FD groups performed similarly on the assessment serves a functional purpose. As these behaviours are identified as occurring in similar frequency across both samples, it can be suggested that these behaviours may be part of typical development, and not specific to feeding difficulty. This suggests that children presenting with low frequency difficult behaviours in the areas listed may only require parental reassurance and

monitoring in the short term. Similar concerns across these items highlights a need for further research and education for parents about expectations for growth, diet, and behaviour in a typical child[12, 13]. There is, however, definite scope for further research into undesirable mealtime behaviours that commonly present across typically developing children, children with typical picky eating behaviours, and children with feeding difficulties.

The BPFAS was observed to be reliable across a two-week period for behaviour frequency scores in a typically developing group of children. The small reduction in reported problem behaviours on the second administration was not considered to be clinically significant. However, given that parents of FD children have been found to exhibit higher levels of stress than parents of TD children[14], and that stress may impact on parent reporting[15], it is recommended that short-term reliability of the BPFAS be further tested in children with feeding difficulties, with stress considered as a potential confounder.

Across most domains, the BPFAS demonstrated a high specificity and negative predictive value (>85%). This suggests that clinicians should feel confident in referring children who score above the recommended cut-scores for further assessment. In cases where children fall below the cut-scores but clinical concern exists, monitoring should occur, and the child should be referred on for further input if concerns persist.

Limitations

Parent-reported measures have an inherent potential risk of bias. For the TD sample, it could be argued that the recruitment method may have attracted some parents who had some underlying concerns about feeding development in their children and, thus, this sample may have had more children with some degree of feeding difficulty than the typical population at large. However, the fact that the FD groups performed significantly differently to the TD group suggests that this tool is robust enough to withstand some potential recruitment bias. In addition, it may also be argued that

the relatively small FD sample presented may not be generalisable to the full population of children with FD. However, the fact that the FD: ASD and FD: NMC groups performed similarly to each other, and to international clinical groups, suggests that sampling was fairly representative of FD children overall. Finally, although data regarding cultural background were not captured, it is possible that this sample may not be representative across different cultures. Thus, further research is required in identifying features of feeding difficulty across different cultural contexts.

CONCLUSIONS

Data collected on Australian children with and without feeding difficulties using the BPFAS was comparable to data collected from Canada and the UK, which suggests that this tool is valid for use in identifying Australian children with feeding difficulties. Using this screening tool, children with feeding difficulties were found to present with a significantly greater number of undesirable mealtime behaviours, and distinctly different mealtime profiles to typically developing children. BPFAS scores were found to be reliable in typically developing children across a two-week time period. High specificity of the BPFAS cut-scores suggests that any children who receive scores above the recommended cut-scores for this tool should be referred on for further evaluation by a multidisciplinary feeding team, and should receive intervention where necessary. Overall, the BPFAS is considered a useful and robust tool for screening paediatric feeding difficulties.

Table 1. Demographic information for the Australian sample

	Non-clinical group/ Typically developing (TD)	**Clinical group/ Feeding difficulties (FD)**		
	TD (n=54)	**FD: NMC (n=36)**	**FD: ASD (n=45)**	**p-value**
Age in months	46.8 (±13.8)	49.2 (±11.8)	53.2 (±10.6)	0.04*
Male, n (%)	35 (65%)	25 (69%)	36 (80%)	0.25
Number of siblings, median	1	1	1	0.77
Mother had tertiary education, n (%)	52 (96%)	32 (89%)	36 (80%)	0.04*
Father had tertiary education, n (%)	43 (80%)	29 (81%)	32 (71%)	0.71
Smoker in household, n (%)	0 (0%)	2 (6%)	4 (9%)	0.10
Percent energy intake met, mean (SD)		88.6 (±17.6%)	94.8 (±23.5)	0.20
BMI percentile, mean (SD)		0 (±0.8)	0.2 (±1.0)	0.24
Oral motor impairment, n (%)		28 (78%)	35 (78%)	1.00
Oral sensory hypersensitivity, n (%)		18/30 (60%)	22/36 (61%)	1.00
				* p<0.05

FD: NMC=non-medically complex children with feeding difficulties; FD: ASD=children with autism spectrum disorder and feeding difficulties

Table 2. TD (non-clinical) and FD: NMC (clinical) groups from Australia (AUS) vs. non-clinical and clinical groups from Canada (CAN) and the United Kingdom (UK)

Non-clinical (TD) groups	**AUS (n=54)**	**CAN (n=96)**	**UK (n=509)**	**AUS vs. CAN p-value**	**AUS vs. UK p-value**
TFS-Total, mean (SD)	68.1 (±15.7)	63.9 (±14.2)	^	0.11	
TFS-Child	49.7 (±11.3)	46.6 (±10.2)	45.6 (±12.4)	0.10	0.01*
TFS-Parent	18.4 (±5.4)	17.3 (±4.8)	16.9 (±5.6)	0.22	0.06
TPS-Total	4.1 (±6.2)	3.0 (±4.5)	^	0.26	
TPS-Child	3.0 (±4.4)	2.2 (±3.2)	2.0 (±3.6)	0.24	0.11
TPS-Parent	1.1 (±1.9)	0.8 (±1.6)	0.7 (±1.7)	0.33	0.14
Clinical (FD) groups	**AUS FD:NMC (n=36)**	**CAN (n=95)**	**UK (n=64)**	**AUS vs. CAN p-value**	**AUS vs. UK p-value**
TFS-Total , mean (SD)	103.5 (±15.9)	98.4 (±17.1)	^	0.11	
TFS-Child	75.2 (±12.1)	69.9 (±12.6)	72.4 (±15.5)	0.03*	0.32
TFS-Parent	28.3 (±5.5)	28.5 (±5.9)	27.5 (±8.7)	0.86	0.58
TPS-Total	18.9 (±6.6)	15.4 (±7.8)	^	0.01*	
TPS-Child	13.7 (±5.3)	10.7 (±5.6)	11.7 (±5.6)	<0.01**	0.08
TPS-Parent	5.2 (±2.4)	4.7 (±2.8)	4.4 (±2.9)	0.31	0.14
					*p<0.05 **p<0.01 ^ = data not available

FD: NMC=non-medically complex children with feeding difficulties; FD: ASD=children with autism spectrum disorder and feeding difficulties; FD=feeding difficulties; TD=typically developing; TFS=total frequency score; TPS=total problem score

Table 3. Reliability of the Behavioral Pediatrics Feeding Assessment Scale over a two-week period in Australian typically developing children

	Pre (n=54)	**Post (n=54)**	**p-value**
TFS-Total, mean (SD)	68.1 (±15.7)	66.9 (±16.7)	0.15
TFS-Child	49.7 (±11.3)	48.9 (±11.7)	0.22
TFS-Parent	18.4 (±5.4)	18.0 (±5.6)	0.34
TPS-Total	4.1 (±6.2)	2.8 (±6.0)	<0.01**
TPS-Child	3.0 (±4.4)	2.0 (±4.1)	<0.01**
TPS-Parent	1.1 (±1.9)	0.8 (±2.0)	0.05
>cut-score TFS-Total, n (%)	7 (13%)	7 (13%)	1.00
>cut-score TFS-Child	7 (13%)	5 (9%)	0.76
>cut-score TFS-Parent	12 (22%)	12 (22%)	1.00
>cut-score TPS-Total	11 (20%)	7 (13%)	0.44
>cut-score TPS-Child	11 (20%)	7 (13%)	0.44
>cut-score TPS-Parent	9 (17%)	6 (11%)	0.58
			*p<0.05 **p<0.01

TFS=total frequency score; TPS=total problem score

Table 4. Behavioral Pediatrics Feeding Assessment Scale scores for the Australian sample – Clinical and non-clinical groups

	Non-clinical group	Clinical groups		p-value
	TD (n=54)	FD NMC (n=36)	FD ASD (n=45)	
TFS-Total, mean (SD)	68.1 (±15.7)	103.5 (±15.9)	97.2 (±16.8)	<0.01**
TFS-Child	49.7 (±11.3)	75.2 (±12.1)	69.1 (±12.2)	<0.01**
TFS-Parent	18.4 (±5.4)	28.3 (±5.5)	28.1 (±6.2)	<0.01**
TPS-Total	4.1 (±6.2)	18.9 (±6.6)	18.8 (±6.9)	<0.01**
TPS-Child	3.0 (±4.4)	13.7 (±5.3)	13.2 (±5.1)	<0.01**
TPS-Parent	1.1 (±1.9)	5.2 (±2.4)	5.6 (±2.4)	<0.01**
>cut-score TFS-Total, n (%)	7 (13%)	31 (86%)	35 (78%)	<0.01**
>cut-score TFS-Child	7 (13%)	30 (83%)	32 (71%)	<0.01**
>cut-score TFS-Parent	12 (22%)	34 (94%)	39 (87%)	<0.01**
>cut-score TPS-Total	11 (20%)	32 (89%)	42 (93%)	<0.01**
>cut-score TPS-Child	11 (20%)	31 (86%)	40 (89%)	<0.01**
>cut-score TPS-Parent	9 (17%)	31 (86%)	40 (89%)	<0.01**
				* p<0.05 **p<0.01

TD=typically developing; FD: NMC=non-medically complex children with feeding difficulties; FD: ASD=children with autism spectrum disorder and feeding difficulties; TFS=total frequency score; TPS=total problem score

Table 5. Sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of Behavioral Pediatrics Feeding Assessment Scale for Australian typically developing and feeding difficulties groups

	Sensitivity	**Specificity**	**PPV**	**NPV**
TFS-Total	87%	81%	76%	90%
TFS-Child	87%	77%	71%	90%
TFS-Parent	78%	90%	84%	86%
TPS-Total	80%	91%	86%	87%
TPS-Child	80%	88%	81%	87%
TPS-Parent	83%	88%	82%	89%

TFS=total frequency score; TPS=total problem score

Figure 1: Test scoring parameters for the Behavioral Pediatrics Feeding Assessment Scale

	Maximum score	**Cut-score**
TFS-Total	175	>84
TFS-Child	125	>61
TFS-Parent	50	>20
TPS-Total	35	>9
TPS-Child	25	>6
TPS-Parent	10	>2

REFERENCES

1. Jacobi C, Agras WS, Bryson S, Hammer LD. Behavioral validation, precursors, and concomitants of picky eating in childhood. *J Am Acad Child Adolesc Psychiatry*. 2003; **42 (1)**: 76-84.

2. Mascola AJ, Bryson SW, Agras WS. Picky eating during childhood: a longitudinal study to age 11 years. *Eating Behaviors*. 2010; **11**: 253-7.

3. Chatoor I. Feeding disorders in infants and toddlers: diagnosis and treatment. *Child Adolesc Psychiatr N Am*. 2002; **11**: 163-83.

4. Fischer E, Silverman A. Behavioral conceptualization, assessment, and treatment of pediatric feeding disorders. *Semin Speech Lang*. 2007; **28**: 223-31.

5. Crist W, Napier-Phillips A. Mealtime behaviors of young children: a comparison of normative and clinical data. *J Dev Behav Pediatr*. 2001; **22**: 279-86.

6. Lukens CT, Linscheid, T. Development and validation of an inventory to assess eating and mealtime behavior problems in children with autism. *J Autism Dev Disord.* 2008; **38 (2)**: 342-52.

7. Archer LA, Rosenbaum PL, Streiner DL. The children's eating behavior inventory: reliability and validity results. *J Pediatr Psychol*. 1991; **16**: 629-42.

8. Berlin KS, Davies WH, Silverman AH, Rudolph CD. Assessing family-based feeding strategies, strengths, and mealtime structure with the Feeding Strategies Questionnaire. *J Pediatr Psychol*. 2011; **36**: 586-95.

9. Dovey TM, Jordan C, Aldridge VK, Martin CI. Screening for feeding disorders. Creating critical values using the behavioural pediatrics feeding assessment scale. *Appetite*. 2013; **69**: 108-13.

10. Dunn W. Sensory Profile: Caregiver Questionnaire. U.S.A.: PsychCorp; 1999.

11. Morris SE, Klein MD. Pre-Feeding Skills: A Comprehensive Resource for Mealtime Development. (2 ed.) United States of America: Therapy Skill Builders; 2000.

12. Kuhl ES, Clifford LM, Stark LJ. Obesity in preschoolers: behavioral correlates and directions for treatment. *Obesity*. 2012; **20**: 3-29.

13. Birch LL. Development of food preferences. *Annu Rev Nutr*. 1999; **19**: 41-62.

14. Greer AJ, Gulotta CS, Masler EA, Laud RB. Caregiver stress and outcomes of children with pediatric feeding disorders treated in an intensive interdisciplinary program. *J Pediatr Psychol*. 2008; **33:** 612-20.

15. Harvey L, Bryant-Waugh R, Watkins B, Meyer C. Parental perceptions of childhood feeding problems. *J Child Health Care*. 2013; doi: 10.1177/1367493513509422.