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Identification of feeding problems in children aged 6 Months to 7 years: adaptation and psychometrics properties of the Portuguese Version of the Pediatric Eating Assessment Tool

Inês Guedes

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Identification of feeding problems in children aged 6 Months to 7 years: Validity and Reliability of the Portuguese Version of the Pediatric Eating Assessment Tool

Autor

Inês Guedes

Orientador

Prof. Doutor Nuno Barbosa Rocha, ESS|P.PORTO

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Abstract

Introduction: Research on feeding problems in children is limited due to lack of valid and reliable measures. Feeding problems exist across a variety of health conditions in young children.

Purpose: Adapt and obtain the psychometric properties of the Portuguese adaptation of the The Pediatric Eating Assessment Tool (PediEAT); identify the main types of feeding problems in a sample of Portuguese children between 6 months and 7 years and analyze possible associated factors.

Methods: The final sample consisted of 356 parents, of which 278 reported having a children with no identified food problems, 63 with some type of feeding problem and 15 unsure if their children have an eating problem, aged between 6 months and 7 years.

Results: Subscales demonstrated acceptable internal consistency. Total score and subscale scores were significantly different between children with and without diagnosed feeding problem. Temporal stability was adequate. Scale scores were correlated to sensory processing difficulties.

Conclusion: The use of the PediEAT for research and clinical practice in Portugal is adequately supported by the psychometric properties.

Keywords: problematic eating behavior, feeding difficulties, PediEAT, feeding behaviors, psychometric.

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1. Introduction

The feeding of infants and children is the ability to organize and coordinate the oral-motor functions responsible for the consumption of the calories needed for their growth (Clark, Avery-Smith, Wold, Anthony, & Holm, 2007; Goday, Huh, Silverman, Taylor Lukens, Dodrill, Cohen, & Phalen, 2019; Thoyre, Shaker, & Pridham, 2005). As a complex process, feeding requires the integration of various systems, including the motor, sensory, neurological, cardiorespiratory and gastrointestinal system (Goday et al., 2019). There are also important influences from the environment and the relationship that parents establish with children during feeding (Kerzner, Milano, Maclean, Berall, Stuart, & Chatour; Park, McComish, Pados, Estrem, & Thoyre, 2018; Rybak, 2015; Silverman, 2010).

Infants and children develop the necessary skills to initiate oral feeding as they improve the mechanisms that support the coordination of breathing and swallowing with oral-motor functions (Park, Knafl, Thoyre, & Brandon, 2015). When oral feeding occurs with adequate intake, it allows the growth and maintenance of physiological stability (Curado, Maroco, Vasconcellos, Gouveia, & Thoyre, 2017; Thoyre, Shaker, & Pridham, 2005). However, in some children, this process does not occur innate, or may even be associated with problematic behaviors.

1.1. Problematic behaviors in feeding

Feeding problems arise when the child does not want or cannot eat enough (Estrem, Pados, Park, Knafl, & Thoyre, 2016; Estrem, Thoyre, Knafl, Pados, & Riper, 2018). These problems are normally detected when the child is not progressing in the typical development of the independent diet, in order to support adequate growth, development and hydration and this situation affects both sexes and all socio-economic levels (Borowitz & Borowitz, 2018; Mazze, Cory, Gardner, Alexanian-Farr, Mutch, Marcus, & Heuvel, 2019; Pados, Thoyre, & Park, 2018; Thoyre, Pados, Park, Estrem, Hodges, McComish, & Murdoch, 2013).

Early childhood is the period in which babies and children experience new foods, new tastes and new textures. Most children are able to adapt and develop the skills necessary for oral feeding as transitions go on. However, some children demonstrate difficulty in the efficiency and satisfaction of feeding experiences from birth, struggling to accept a wider variety of flavors and textures. Less often, some children show regression or abrupt change in feeding skills (Thoyre et al., 2005). In the first year of life, children are more vulnerable to feeding difficulties because they are in a transitional phase, to stop eating exclusively a liquid diet to eat purees and solids (Pados, Park, Estrem, & Awotwi, 2015). In addition, it is at this time that changes in the muscles and oral-motor functions begin.

To eat a variety of textures the child must physically and behaviorally adapt to the new sensory and oral experiences. If the child has developmental challenges, these transitions can be more difficult, as they may not have the necessary skills to overcome and adapt to the new food requirements, which may in turn increase the emergence of feeding difficulties (Borowitz & Borowitz, 2018; Park, Knafl, Thoyre, & Brandon,

2015; Thoyre et al., 2013). Problematic eating behaviors start occurring, including: refusing (all or some) food; choking during meals or in anticipation; avoiding certain textures of food; insisting that the food should be offered in a certain way (Rivera-Nieves, Conley, Nagib, Shannon, Harvath, & Mehta, 2019).

As the problematic behaviors are repeated over time, they can become more upturned and difficult to change, ultimately compromising global development, nutrition and growth (Estrem, Thoyre, Knafl, Pados, & Riper, 2018; Parker, Rybin, Heeren, Thoyre, & Corwin, 2016; Thoyre et al., 2013). The problematic behaviors in feeding vary in the intensity of their manifestations and on the impact produced in the routines of children. In healthy children who are developing and growing typically, feeding problems are usually not serious, but rather transient, and can be resolved with time (Cermak, Curtin, & Bandini, 2010; Crapnell, Woodward, Rogers, Inder, & Pineda, 2015).

Food disturbances have been recognized in the Diagnostic and Statistical Manual of Mental Disorders since 1980. In the most recent version, it is concluded that early feeding disturbances in childhood should be assembled in the group of "avoidance/restricted feeding disorders", as well as recognizing 3 problematic behaviors in relation to feeding: children who eat very little, children who eat a restricted number of foods, or children who are afraid to eat (American Psychiatry Association, 2013). In feeding difficulties, a wide variety of eating behaviors can be displayed, even within the same condition; and many conditions share the same problematic behaviors. So, the description of problematic behaviors provides the basis for determining the most probable etiology of the problem and is essential for the development of targeted and effective interventions. Having means to measure these behaviors is therefore essential (Desport, Jésus, Fayemendy, De Rouvray, & Salle, 2011; Piazza, 2008; Rommel & Hamdy, 2016).

1.2. Associated problems

Pediatric feeding problems are a high-impact clinical problem, since a disruption in child feeding is associated with negative effects on the social, emotional, physical and cognitive development of the child, but also on the welfare of parents and family life (Estrem, Pados, Thoyre, Kanfl, McComish, & Park, 2016; Thoyre et al., 2013). Known risk factors such as chaotic environments, family conflict, and inappropriate modelling/learning of feeding behaviors are most important for the maintenance and progression of problematic feeding behaviors (Aldridge, Dovey, Martin, & Meyer, 2010).

The theory of dynamical systems guides our understanding of the development of eating behaviors during childhood (Parker, Rybin, Heeren, Thoyre, & Corwin, 2016; Thoyre, Hubbard, Park, Pridham, & McKechnie, 2016; Thoyre et al., 2013). Thus, we understand that the child's eating behaviors can be seen as a transactional disorder that involve complex and codependent interactions between intrinsic properties of the child, the environment and the task itself (Borowitz & Borowitz, 2018; Thoyre, 2016; Thoyre et al., 2013), which is influenced both by the behavior of the child and by the technique of the parents (Kerzner et al., 2015; Crapnell, Woodward, Rogers, Inder, & Pineda, 2015). Since subsystems are dynamic, interact and

change as a result of development, learning and health, the expression of problematic eating behaviors can change over time and can be restricted or molded by the performance of the intrinsic capacities of the child (Parker et al., 2016; Thoyre et al., 2013), and the influence exerted by the family (Estrem et al., 2018). The health status and oral feeding experiences to which the child is subject are also considered factors responsible for influencing the progression in the competence for oral feeding (Thoyre et al., 2005). Other problematic issues concern to the prolonged negative association with food and nutrition, especially in early stages of introducing different flavors and textures. The literature tells us that this issue can effectively lead to the establishment of standards that are more resilient to change and more difficult to treat (Pados, Thoyre, & Park, 2018).

Sensory processing, or the ability to register, integrate, and process sensory input, has also been speculated to influence eating (Seiverling, Williams, Hendy, Adams, Yusupova, & Kaczor, 2018; Thompson, Bruns, & Rains, 2010). Sensory modulation disorders comprise exaggerated (either hyper-reactive or hypo-reactive) responses to sensation, interfere with engagement in daily activities such as eating (Lane, Mailloux, Schoen, Bundy, May-Benson, Parham, & Schaaf, 2019).

Although the DSM V does not identify poor interpretation by parents as a distinct subcategory of feeding difficulties, it is clear however that this is also a clinical problem that needs resolution, and that the caregiver's feeding style should be incorporated into the management of these problems (Kerzner et al., 2015). Feeding is an important part of growth and development and it can be a major source of social interaction within the family system Thus, taking care of a child with feeding difficulties can be stressful for parents and may interfere with the parent-child relationship (Brown, Thoyre, Pridham, & Schubert, 2009; Estrem, Pados, Thoyre, et al., 2016; Estrem et al., 2018).

1.3. Pediatric Eating Assessment Tool

The Pediatric Eating Assessment Tool (PediEAT) consists of a parents' report instrument developed to assess symptoms of feeding problems in children between 6 months and 7 years of age who have begun to eat solid foods (Pados et al., 2018; Park, McComish, Pados, Estrem, & Thoyre, 2018; Park, Thoyre, Pados, & Gregas, 2019; Thoyre, Pados, Park, Estrem, McComish, & Hodges, 2017).

An adequate measure of problematic eating behaviors needs to include the variety of behaviors that the child can exhibit and be applicable to the measures of the various intentional functions, including clinical assessment, communication to the family and caregivers and research (Desport et al., 2011; Piazza, 2008; Rommel & Hamdy, 2016). Thus, in the PediEAT the symptoms are conceptualized in observable behaviors and in the biological functions related to food, the act of eating or the meal itself. This instrument has been systematically developed to measure a wide variety of behaviors and Physiological Symptoms of feeding problems in young children who are eating at least some solid foods (Desport et al., 2011; Piazza, 2008; Rommel & Hamdy, 2016).

The content validity of PediEAT was tested by two methods. First, test of relevance and clarity of the items and scope of the same by an interdisciplinary clinical team and research specialists. Second, content validation by the parents of children with and without feeding difficulties through cognitive interviews. This instrument recognizes that parents are the most ecologically valid reporters with regard to the symptoms of the child's day-to-day, so this should be supplemented by a caregiver familiar with the typical eating habits of the child, mostly of the time by the parents, but may be another primary care provider (Borowitz & Borowitz, 2018; Park et al., 2018; Thoyre et al., 2017).

Contents of PediEAT are comprehensively validated for all potential users, identifying 4 subscales (Physiological Symptoms, Problematic Mealtime Behaviors, Selective/Restrictive Eating and Oral Processing). Studies show that the scores of the PediEAT are correlated with the scores of the criterion measure and that the scores of the PediEAT were significantly different among the reports of parents of children with feeding problems compared with the report of parents who did not had concerns or diagnosis. It also expour studies on its temporal stability and reliability (Park et al., 2018; Thoyre et al., 2017).

1.3.1. Physiological Symptoms

The subscale of PediEAT regarding Physiological Symptoms includes items related to symptoms of aspiration, or presence of residual fluid in the pharynx space, difficulty in coordinating breathing and swallowing, and signs of dysfunction gastrointestinal or gastroesophageal. The inclusion of this subscale makes PediEAT different from other forms of assessment of feeding problems, since Physiological Symptoms are often the first indicators of feeding problems, particularly in respiratory and gastroesophageal symptoms (Pados et al., 2018; Park et al., 2018).

1.3.2. Problematic Mealtime Behaviors

This subscale is related to food refusal, the presence of stress behaviors during meals and strong preference or certain requirements of the child so that meals can occur pleasantly. Although the objective of this subscale is not to measure behaviors considered as "picky eating" many of the behaviors described in the literature as definition of this condition are in fact inserted in this subscale. Clinicians can use this subscale to identify children whose behaviors are outside what is considered normal, taking into account the typical behavioral variations in these ages (Pados et al., 2018; Park et al., 2018).

1.3.3 Selective/Restrictive Eating

The questions related to the temperature and texture of the food, i.e. the sensory experiences that comes from oral feeding are included in this subscale. The literature tells us that hyperreactivity to food properties is a distinct problem of problematic eating behaviors at meal time, and the results of PediEAT can be used

to make this distinction, thus resulting in ability to specifically identify behaviors that are effectively on the basis of the feeding problem and to select targeted interventions (Pados et al., 2018; Park et al., 2018).

1.3.4 Oral Processing

This subscale relates to the symptoms of difficulties in oral food processing, such as storing food laterally, preferring more soft food, filling the mouth with food or even having difficulty chewing. The information from this subscale can guide clinicians in the identification of children who are effectively experiencing high symptoms of difficulties in Oral Processing or who are not progressing as expected, and thus contribute to appropriate and timely referrals (Pados et al., 2018; Park et al., 2018).

1.4. Objective of the study

The possibility of identifying risk behaviors or alarm signals in daily feeding routines is fundamental for the global welfare of children and families, either by the possibility of facilitating access to specific interventions, either by the prevention of conducts that may potentiate negative consequences. Thus, the growing increase of feeding problems reports (although it is unclear whether incidence is effectively increasing or whether parents and health professionals are more aware of feeding problems) and, at the same time, late referrals, have led to the need for developing instruments, which after validated, could help clinicians (e.g. pediatricians and physicians of general and family medicine) helping infants and children and their caregivers to identify possible problematic eating behaviors.

The aim of this study is to adapt and obtain the psychometric properties of the Portuguese adaptation of the Pediatric Eating Assessment Tool. We also intend to identify the main types of feeding problems in a sample of Portuguese children between 6 months and 7 years and to analyze possible association with reported sensory and praxis problems of children and parents.

2. Methods

2.1. Procedures and data collection

The ethics review board of the School of Health of the Polytechnic of Porto approved the study. We also obtained permission from the developer of PediEAT to start the translation process. After conclusion of the cultural adaptation process we started the cross-sectional online study that was conducted between May to September 2019. An online survey was developed, including the following parts:

- PediEAT. PediEat is a 78 items questionnaire with 4 subscales (Physiological Symptoms , Problematic Mealtime Behaviors, Selectivity/Restrictive Eating and Oral Processing) that are independently filled and scored (Park et al. al., 2018; Thoyre et al., 2017). The answers to items are coded using a scale, in which the caregiver familiar with the child's eating pattern should indicate how often each behavior described is observable (never = 0; almost never = 1; sometimes = 2; often = 3; almost always = 4; always = 5 or never = 5; almost never = 4; sometimes = 3; often = 2; almost always = 1; always = 0), with lower scores indicating fewer symptoms and higher scores indicating more symptoms of problematic eating. It is important to note that the scores may change between subscales. In addition, there are some items that may not apply to a given child with regard to age, however the instrument itself provides specific instructions for parents before certain items.

- Demographic and clinical data. We obtained demographics from caregivers, including age, country of birth, educational attainment, employment status, average family income, socioeconomic status, region of the country where the family live and household income. We also obtained child demographic, developmental and feeding data including age, gender, nationality, issues related to pregnancy and childbirth (type of delivery, number of weeks of gestation, birth weight, if problems occurred, if resuscitation), current weight and height, diagnosis, medical and / or other health professional follow-up, and questions related to eating (if he have any type of eating problem, and if so, who diagnosed, how he is currently fed, if it needs supplements, if it has been breastfed, age of introduction of the different textures / foods, if it has been oriented, and if the pediatrician has advised any specific assessment).

- Sensory and praxis questions. Given that sensory and praxis issues are a putative predictor of eating problems, we asked about how both parents and children behave in everyday situations that imply adaptive sensory processing (tactile, auditory and vestibular) and praxis responses (coordination, ideation and learning new skills). The questions are the following:

a1. Tactile - Child. "A minha criança fica muito incomodada com certas sensações tácteis, tais como: textura da roupa; materiais pegajosos, gordurosos ou húmidos; brincar com plasticina, areia, barro ou pintar com as mãos; toque, abraços ou beijos; atividades como cortar o cabelo ou as unhas" - "My child gets very bothered by certain tactile sensations, such as: texture of clothing; sticky, greasy or moist materials; play with plasticine, sand, clay or paint with hands; touch, hugs or kisses; activities such as cutting hair or nails"

a2. Tactile – Parents. "Fico muito incomodado(a) com certas sensações tácteis, tais como: textura da roupa; materiais pegajosos, gordurosos ou húmidos; brincar com plasticina, areia, barro ou pintar com as mãos; toque, abraços ou beijos; atividades como cortar o cabelo ou as unhas". - "I get very bothered with certain tactile sensations, such as: texture of clothing; sticky, greasy or moist materials; play with plasticine, sand, clay or paint with hands; touch, hugs or kisses; activities such as cutting hair or nails."

b1. Auditory – Child. "A minha criança fica muito incomodada com certas sensações auditivas, tais como: som de alarmes, apitos e sirenes; ruído de fundo em ambientes como festas ou salas com muitas pessoas; sons habituais nas tarefas domésticas, como o ruído do aspirador ou de máquinas da cozinha" - "My child gets very bothered by certain auditory sensations, such as: sound of alarms, whistles and sirens; background noise in environments such as parties or rooms with many people; usual sounds in household chores, such as vacuum cleaner noise or kitchen machines."

b2. Auditory – Parents. "Fico muito incomodado(a) com certas sensações auditivas, tais como: som de alarmes, apitos e sirenes; ruído de fundo em ambientes como festas ou salas com muitas pessoas; sons habituais nas tarefas domésticas, como o ruído do aspirador ou de máquinas da cozinha" - "I get very bothered with certain auditory sensations, such as: sound of alarms, whistles and sirens; background noise in environments such as parties or rooms with many people; usual sounds in household chores, such as vacuum cleaner noise or kitchen machines."

c1. Vestibular – Child. "A minha criança fica muito incomodada com atividades com muito movimento ou que impliquem movimentos da cabeça para trás como ser pegada ao colo, andar de baloiço, ser atirada ao ar, ou quando a deito para mudar a fralda" - "My child gets very unconfortable by activities with a lot of movement or that involve movements from the head back wards such as being attached to the lap, swing, being thrown into the air, or when I lean him/her it to change the diaper"

c2. Vestibular – Parents. "Fico muito incomodada(a) com atividades com muito movimento ou que impliquem movimentos da cabeça para trás". - "I get very uncomfortable(a) with activities with a lot of movement or that imply movements from the head backwards."

d1. Coordination – Child. "A minha criança tem pouca coordenação, cai muitas vezes, esbarra frequentemente em objetos e parece ser trapalhona" - "My child has little coordination, often falls, often bumps into objects and appears to be clumsy".

d2. Coordination – Parents. "Tenho pouca coordenação, caio muitas vezes, esbarro frequentemente em objetos e pareço ser trapalhão(trapalhona)" - "I have little coordination, I often fall into objects and I seem to be a clumsy.".

e1. Ideation – Child. "A minha criança brinca repetidamente com os mesmo objetos e tem dificuldade em introduzir novas ideias quando brinca" - "My child plays repeatedly with the same objects and has difficulty introducing new ideas when playing"

e2. Ideation – Parents. "Gosto de fazer repetidamente as mesmas coisas e tenho dificuldade em ter novas ideias de coisas para fazer" - "I like to do the same things repeatedly and I have difficulty having new ideas of things to do".
f1. Learning new skills – Child. "A minha criança tem dificuldade em aprender tarefas motoras novas, como gatinhar, saltar ou dar aos pedais na bicicleta." - "My child has difficulty learning new motor skills/tasks such as crawling, jumping or giving to pedals on the bike."
f2. Learning new skills – Parents. "Tenho dificuldade em aprender tarefas motoras novas, como dançar ou aprender gestos novos de desporto" - "I have difficulty learning new motor skills/tasks, such as dancing or learning new sports gestures."

All participants, prior to answering the questionnaire, agreed to participate in the study by declaring their consent using and online informed consent form formulated in accordance with the World Medical Association Helsinki Declaration (2013), which contains the description and purpose of the study, the explanation that the data collected are used for statistical purposes only, ensuring that participation is voluntary, and ensuring the privacy, confidentiality of the data collected and the ability to withdraw at any time without prejudice to it.
If the participants gave their consent and indicated their email, 15 days after completing the questionnaire, they were asked for a second completion of the same questionnaire to get data on temporal stability.

2.2. Participants

The participants in this study were parents or caregivers (hereafter referred to as "parents") of children with and without feeding problems. To participate, parents had to be 18 years of age or older, caring for a 6 month to 7-year-old child being offered at least some solid foods, and self-report as being literate in Portuguese.
Parents of children without feeding problems were recruited from parent support groups, contacts of the research team, kindergartens, and students and staff from Polytechnic of Porto. To increase the participation of parents of children with diagnosed feeding problems, or diagnosed at-risk for feeding problems, we also recruited from nine pediatric clinics and one private social institution that gave authorization. Doctors and therapists sent the link of the survey to those parents that consented on participating in the study. All parents were asked to report on a single child.

2.3. Translation process and statistical analysis

The process of translation and cultural adaptation of the PediEAT consisted of initial translation, back-translation, and pretesting. The translation from English to Portugal Portuguese was carried out by two independent translators, one occupational therapist and the other a psychologist. Both translations were

compared with the original questionnaire to assure that they respected the construct and a combined version was generated after a consensus procedure. Back translation consisted of translating the instrument from the Portuguese language back to the original English language and was conducted by a professional translator fluent in both Portuguese and English. This version was analyzed by the team responsible for the development of the original instrument and inconsistencies were discussed and corrected when needed. The final version was pre-tested with 5 parents to assure that the instrument is easily understood by the target population before the psychometric tests.

Psychometrics were conducted using the International Business Machines' Statistical Package for the Social Sciences (IBM SPSS) version 26. The internal consistency of the PediEAT was evaluated using Cronbach's alpha. Internal consistency is inadmissible when Cronbach's Alpha is less than 0.6 and low when it varies between 0.60 and 0.69; when the alpha is greater than or equal to 0.70 is satisfactory; when the value varies between 0.80 and 0.90 the internal consistency is considered good and excellent when it is greater than 0.90 (Maroco & Garcia-Marques, 2013).

Test-retest validity was analyzed using a subsample on the baseline day and 2 weeks later. Test-retest correlation was measured using Pearson correlations. R values can vary between positive and negative, and for values from 0.30 to 0.50 the correlation is weak; for values between 0.50 and 0.70 the correlation is moderate and when equal to or greater than 0.70 the correlation is strong (Mukaka, 2012).

Discriminant validity was assessed by testing differences between two groups (feeding problems and no feeding problems), analyzed with an independent samples t-test. Associations between PediEAT and sensory and praxis items were also examined using Pearson correlations.

Finally, to investigate the underlying PediEAT structure of the Portuguese version, we used an exploratory factor analysis using the principal-factor method with orthogonal varimax rotation. The Kaiser-Meyer-Olkin measure of sampling adequacy was calculated. Number of factors was fixed 4 to match the original factor structure.

3. Results

This chapter will present the process of translation and cultural adaptation of the instrument well as the results obtained, with emphasis on the variables that characterize the sample as well as in the variables that allow answering the questions of investigation.

3.1. Translation process

We found inconsistencies in some words (e.g., silent vs quiet) and terms (e.g., gets sweaty vs gets clammy). After discussion we reached a consensus. In the process of translation and cultural adaptation, there was no modification and/or elimination of any item. The Portuguese version of the PediEAT maintained the same structure as the original American English version with 78 questions, of which 27 on the Physiological Symptoms subscale, 23 on the Problematic Mealtime Behaviors, 15 on the selectivity / restricted eating and 13 on the Oral Processing.

English Version	Feeding Flock Validity Assessment – Terms in Discussion	Final Portuguese version
5. Sounds different during or after a meal (for example, voice becomes hoarse, high-pitched, or quiet)	"Silent" and "quiet" – the Portuguese word should reflect "quiet".	5. Soa de forma diferente enquanto come ou depois (por exemplo, a voz torna-se rouca, estridente ou silenciosa)
13. Sweats/gets clammy during meals	"Gets sweaty" and "gets clammy" – the Portuguese word must reflect clammy as a cold sweat, damp, moist.	13. Transpira/fica suada durante as refeições
19. Gags when it is time to eat (for example, when they see food or when placed in high chair)	"Choking" and "gagging" - choking is an obstruction in the airway while gagging is a reflexive action, also known as the pharyngeal reflex or laryngeal spasm, is a contraction of the back of the throat triggered by an object touching the roof of your mouth, the back of your tongue, the area around your tonsils, or the back of your throat.	19. Engasga-se quando é altura de comer (por exemplo, quando vê a comida ou quando a sentam na cadeira de alimentação)
20. Gags with smooth foods like pudding	"Choking" and "gagging" are different. First the translation was "comida mole" (back-trasnlation: "pasty food"). Pasty food seems like sticky food, while the item is asking about smooth food like a pudding.	20. Engasga-se com comida mole como pudim
21. Gags with textured food like coarse oatmeal	First translation we used "papas de flocos de aveia", which caused confusion. Final version was the culturally accepted meal "papas de aveia" (BT=outmeal)	21. Engasga-se com comida com textura como papas de aveia
22. Gags, coughs, or vomits when brushing teeth	Check for differences between "Choking" and "gagging"	22. Engasga-se, tosse ou vomita quando escova os dentes (Se a criança ainda não tem dentes, escolha a opção Nunca. Se a criança não permite que lhe escovem os dentes, escolha a opção Sempre)
28. Avoids eating by playing or talking	In the first version we used "Evita comer começando a brincar ou a falar" but in the backtranslation it was not clear the idea of to avoid eating the child starts to play and leave off the talking.	28. Começa a brincar ou a falar para evitar comer
59. Will eat textured food like coarse oatmeal	First translation we used "papas de flocos de aveia", which caused confusion. Final version was the culturally accepted meal "papas de aveia" (BT=outmeal).	59. Come comida com textura como papas de aveia

61. Chews their food enough	We discussed if chews their food enough is chewing the bite adequately for that food and it was decided that phrasing was adequate.	61. Mastiga a comida o suficiente
67. Gets food stuck in their cheek or roof of mouth	Discussion about the word "keeps"/"gets". Keeps" is not quite the same- it isn't volitional – it just happens; the above items (stores food….) is volitional/ intentional. It was decided that "Fica com a comida presa…" was adequate.	67. Fica com a comida presa nas bochechas ou no céu da boca
68. Prefers smooth foods like yogurt	First the translation was "comida mole" (back-translation: "pasty food"). Pasty food seems like sticky food, while the item is asking about smooth food.	68. Prefere comida mole como iogurtes

Table 1 – Inconsistencies in the translation and cultural adaptation of PediEAT

3.2. Demographic and clinical data

367 parents completed the survey, of which 305 parents of children with no identified food problems and 62 referenced by doctors or therapists for some type of feeding problem. 2 cases were removed because the parent gave a duplicate insertion and 9 because the child was aged above the limit of 7 years old. Final sample consisted of a total of 356 parents living in Portugal.

17.7% of the sample reported the target child had a diagnosed feeding problem; an additional 4.2% reported they were unsure if the child had a feeding problem. Most of the sample is north country resident 82%, which 83.7% with college/university education level and 94.1% employed. The target children were distributed in 11 age categories of the Portuguese Society for Pediatrics periodicity schedule from 6 months to 7 years of age, represented with equal distributions from 2 to 4 years (n= 143) and 4 to 7 years (n=137), and n=76 between 6 and 24 month. Children were equally representative in terms of gender, boys (n=175) and girls (n=181). 99.4% of the children eat by oral feeding. Main child conditions in the group of children with feeding problems were ASD (n=14), development delay (n=11) and language delay (n=7). 10 children with feeding problems had no medical or developmental condition. Table 2 provides frequencies of the target children by age group and sex. Table 3 provides descriptive statistics of the parent respondents and target children.

	Sex		Total
	Female	Male	
Age			
6-9 months	5	4	9
9-12 months	6	6	12
12-15 months	4	8	12
15-18 months	7	6	13
18-24 months	14	16	30
24-30 months	14	11	25
30-36 months	18	17	35
3-4 years	47	36	83
4-5 years	38	25	63
5-6 years	18	22	40

6-7 years	10	24	34
Total	181	175	356

Table 2 – Frequencies of the target children by age group and sex

Variable	**Frequency (%)**
Relationship to child	
Mother	94.7
Father	5.3
Household Income	
Less than 1 minimum wage	2.0
About 1 minimum wage	6.2
More than 1 minimum wage	36.2
More than 2 minimum wages	31.5
More than 3 minimum wages	24.2
Education	
High school or less	16.3
College/University	83.7
Parent reports of child with feeding problems	
Yes	17.7
No	77.9
Unsure	4.2
Diagnosed feeding problem	12.0
Oral feeding	99.4
Gastrotomy probe	0.6
Select child condition sin children with feeding problems	**Frequency (n)**
Allergies	2
Autism spectrum disorder	14
Asthma	1
Chromosomopathy	1
Bronchopulmonary dysplasia	1
Eosinophilic esophagitis	1
Vision problems	2
Sensory processing disorder	4
Congenital problem	1
Teeth problems	1
Suction/breathing/swallowing	2
Developmental delay	11
Giftedness	1
Language delay	7
Cleft palate	1
Asthma	1
Health in general	1
Glaucoma	1
No medical or developmental condition	10

Table 3 – Descriptive statistics for respondents and target children (n = 356)

3.3. Internal Consistency– original factor structure

Cronbach's coefficient alpha (α) was used to assess internal consistency reliability of the total PediEAT and the subscales. The total PediEAT had excellent internal consistency (α =0.92) and the 4 subscales had excellent to good internal consistencies (respectively α = 0.84, 0.94, 0.71, 0.81). All 4 subscales, and total PediEAT scores were strongly positive correlated. The Problematic Mealtime Behaviors subscale was the

most strongly correlated with the total score. Moderate positive correlations were found between the subscales scores.

	PediEAT Total	PediEAT Physiologic Symptoms	PediEAT Problematic Mealtime Behaviors	PediEAT Selectivity/Restrictive Eating	PediEAT Oral Processing
PediEAT Total	1				
PediEAT Physiologic Symptoms	0.65**	1			
PediEAT Problematic Mealtime Behaviors	0.88**	0.43**	1		
PediEAT Selectivity/Restrictive Eating	0.73**	0.33**	0.48**	1	
PediEAT Oral Processing	0.61**	0.41**	0.32**	0.37**	1

Table 4 – Subscales and total PediEAT scores correlations (r)

3.4. Discriminant validity

Total PediEAT and subscale scores were compared for a subset of the sample with and without feeding problems using independent-samples t tests. The feeding problem group was defined as parent-report of child having a diagnosed feeding problem (n=63). The no feeding problem group was defined as parent report of no feeding problem, no diagnosed feeding problem, no use of feeding services, and no use of a feeding tube (n=278). Total PediEAT scores were significantly higher (i.e., more feeding problem symptoms) for the feeding problem group (M=110.71, SD=37.33) compared with the no feeding problem group (M=60.50, SD=24.83; t=4.53, p=0.000). All 4 PediEAT subscale scores were also significantly higher (p=0.000) for children with feeding problems from those without (Physiological Symptoms – M=12.46, SD=11.68 vs M=5.65, SD=5.09; Problematic eating - M=50.62, SD=22.66 vs M=22.47, SD=14.00; Selectivity - M=32.06, SD=10.95 vs M=21.58, SD=8.93; Oral Processing - M=15.57, SD=8.17 vs M=10.80, SD=7.48). Further OneWay Anova with Bonferroni post-hoc revealed significant differences for total PediEAT score between the no feeding problem group and the unsure group (n=15) but did not revealed differences between the feeding problems group and the unsure group (F=92,088, p=0.000).

3.5. Sensory and praxis associated factors

We also looked at relations between PediEAT scores and sensory and praxis characteristics of children and their parents (Table 6 and 7). PediEAT total score and subscales were mostly correlated with tactile

and praxis problems of children. Surprisingly, PediEAT total score and subscales scores were also associated to reported sensory and praxis problems of parents.

	Tactile	Auditory	Vestibular (movement)	Coordination	Praxis – Ideation	Praxis – Learning new motor skills
PediEAT Total	0.419**	0.308**	0.219**	0.228**	0.351**	0.256**
PediEAT Physiologic Symptoms	0.253**	0.180**	0.209**	0.251**	0.235**	0.263**
PediEAT Problematic Mealtime Behaviors	0.388**	0.293**	0.160**	0.144**	0.306**	0.157**
PediEAT Selectivity/Restrictive Eating	0.345**	0.211**	0.203**	0.09	0.287**	0.204**
PediEAT Oral Processing	0.175**	0.173**	0.099	0.278**	0.175**	0.211**

Table 5 – correlations between PediEAT scores and sensory and praxis characteristics of children

	Tactile	Auditory	Vestibula (movement)	Coordination	Praxis – Ideation	Praxis – Learning new motor skills
PediEAT Total	0.137**	0.138**	0.164**	0.203**	0.249**	0.336**
PediEAT Physiologic Symptoms	0.08	0.1	0.065	0.212**	0.194**	0.304**
PediEAT Problematic Mealtime Behaviors	0.138**	0.092	0.174**	0.177**	0.227**	0.319**
PediEAT Selectivity/Restrictive Eating	0.056	0.091	0.085	0.051	0.170**	0.163**
PediEAT Oral Processing	0.107**	0.158**	0.109**	0.179**	0.118**	0.173**

Table 6 – correlations between PediEAT scores and sensory and praxis characteristics of parents.

3.6. Temporal Stability

A total of 66 participants repeated the questionnaire 2 weeks after baseline. PediEAT total and subscales scores at baseline and 2 weeks later were strongly correlated as follows: Physiological Symptoms r=0.90,p=0.000; Problematic Mealtime Behaviors r=0.96,p=0.000; Selective/Restrictive Eating r=0.79,p=0.000; Oral Processing r=0.70,p=0.000; and Total Score r=0.94,P=0.000.

3.7. Factor Analysis of the Portuguese version

The construct validity of the PediEAT subscales was examined using a 4 components factor analysis with varimax rotation. The Kaiser-Meyer-Olkin measure was 0.867, indicating an adequate sample size, which together accounted for 36.18% of the data variance. This process led to the elimination of ten items with factor loading inferior than 0.3 (items 9, 10, 15, 20, 22-26 from the physiologic symptoms and 52 from the

subscale Selective/Restrictive Eating). Items 64 and 65 from the original subscale Selective/Restrictive Eating were included in the Oral Processing subscale, and the items 75 to 78 from the original subscale Oral Processing were included in the Selective/Restrictive Eating.

PediEAT Items	Factor 1	Factor 2	Factor 3	Factor 4
[1. Fica com lágrimas nos olhos quando come]		**0.603**		
[2. Fica vermelha à volta dos olhos ou na cara quando come]		**0.643**		
[3. Tosse enquanto come ou depois de comer]		**0.740**		
[4. Faz sons como gargarejar ou como se precisasse de tossir ou clareia a garganta enquanto come ou depois de comer]		**0.674**		
[5. Soa de forma diferente enquanto come ou depois (por exemplo, a voz torna-se rouca, estridente ou silenciosa]		**0.649**		
[6. Engasga-se ou tosse com água ou com outros líquidos finos]		**0.459**		
[7. Baixa a cabeça em direção ao peito quando engole]		**0.506**		
[8. Tem comida ou líquidos a sair pelo nariz quando come]		**0.326**		
[9. Fica pálida ou azulada à volta dos lábios durante as refeições]*		0.258		
[10. Respira mais rapidamente ou com mais dificuldade enquanto come]*			0.246	
[11. Precisa de parar durante a refeição para descansar ou para recuperar o fôlego]		**0.619**		
[12. Fica cansada de comer e não é capaz de terminar]		**0.430**		
[13. Transpira/fica suada durante as refeições]		**0.569**		
[14. Inclina a cabeça para trás enquanto come]		**0.452**		
[15. Arrota mais do que o habitual enquanto come]*		0.228		
[16. Vomita durante a hora das refeições]		**0.612**		
[17. Vomita entre as refeições (entre 30 minutos após a última refeição e até à próxima)]		**0.359**		
[18. Arqueia as costas durante ou após as refeições]		**0.395**		
[19. Engasga-se quando é altura de comer (por exemplo, quando vê a comida ou quando a sentam na cadeira de alimentação)]		**0.434**		
[20. Engasga-se com comida mole como pudim]*				0.213
[21. Engasga-se com comida com textura como papas de aveia]		**0.354**		
[22. Engasga-se, tosse ou vomita quando escova os dentes (Se a criança ainda não tem dentes, escolha a opção Nunca. Se a criança não permite que lhe escovem os dentes, escolha a opção Sempre)]*				0.277
[23. Fica com a barriga inchada depois de comer]*		0.269		
[24. Fica com a cara vermelha, pode chorar com a saída das fezes]*		0.276		
[25. Tem gases]*			0.287	
[26. Baba-se quando come]*			0.271	
[27. Tem dificuldade em comer por ter o nariz entupido]		**0.369**		
[28. Começa a brincar ou a falar para evitar comer]	**0.752**			
[29. Necessita que lhe digam para começar a comer]	**0.818**			
[30. Tem de ser lembrada para continuar a comer]	**0.828**			
[31. Não quer comer durante as refeições, mas quer comer depois]	**0.743**			
[32. Para de comer depois de algumas dentadas]	**0.860**			
[33. Recusa-se a comer]	**0.761**			
[34. Mostra mais stress durante as refeições do que noutros momentos (lamenta-se, chora, fica zangada, faz birras)]	**0.749**			
[35. Gosta de alguma coisa num dia e já não gosta no seguinte]	**0.666**			
[36. Insiste em que a comida seja oferecida de uma determinada maneira (como por exemplo, a forma como a comida aparece no prato, ou o prato ou colher que usa, ou onde se senta)]	**0.552**			
[37. Insiste em ser alimentada pela(s) mesma(s) pessoa(s)]	**0.633**			
[38. Fica incomodada com o cheiro da comida]	**0.498**			
[39. Atira ou afasta a comida]	**0.591**			
[40. Prefere beber em vez de comer]	**0.680**			
[41. Prefere comida crocante]	**0.416**			
[42. Come melhor quando entretida]	**0.593**			
[43. Demora mais de 30 minutos para comer]				

	0.721		
[44. Precisa que a hora da refeição seja calma]	**0.491**		
[45. Quer a mesma comida mais de duas semanas seguidas]	**0.539**		
[46. Gosta de comer]	**0.719**		
[47. Come alimento variados (frutas, vegetais, proteínas, etc.)]	**0.510**		
[48. Está disposta a ficar sentada durante a hora da refeição]	**0.502**		
[49. Abre a boca quando lhe é oferecida comida]	**0.626**		
[50. Está disposta a tocar na comida com as mãos]	**0.438**		
[51. Come alimentos com texturas variadas misturas]	0.454		**0.462**
[52. Come comida mais quente que a temperatura da sala]*			0.265
[53. Está disposta a comer sozinha (se ainda pequena, segura no copo, come bolachas sozinha)]	0.367		**0.425**
[54. Mantém a comida na boca enquanto come (comida significa que não são líquidos)]			**0.489**
[55. Mantém os líquidos na boca enquanto bebe]			**0.462**
[56. Mantém a língua dentro da boca enquanto come]			**0.350**
[57. Mostra ter fome antes das refeições]			**0.394**
[58. Come comida que precisa ser mastigada]			**0.460**
[59. Come comida com textura como papas de aveia]			**0.431**
[60. Come comida gelada, como gelados]			**0.584**
[61. Mastiga a comida o suficiente]			**0.741**
[62. Move a comida na boca de um lado para o outro enquanto mastiga sem ajuda]			**0.660**
[63. Cheira a comida ou objetos]			**0.433**
[64. Cospe a comida para fora]		**0.573**	
[65. Come demasiadamente depressa]		**0.475**	
[66. Armazena a comida nas bochechas ou no céu da boca]		**0.679**	
[67. Fica com a comida presa nas bochechas ou no céu da boca]		**0.722**	
[68. Prefere comida mole como iogurtes]		**0.510**	
[69. Põe demasiada comida na boca ao mesmo tempo]		**0.586**	
[70. Põe os dedos na boca para mover a comida]		**0.664**	
[71. Prefere sabores fortes]		**0.469**	
[72. Morde a colher ou garfo e não os larga facilmente]		**0.676**	
[73. Range os dentes quando está acordada (se a sua criança não tem dentes por favor selecione a opção "Nunca")]		**0.487**	
[74. Mastiga brinquedos, roupas ou outros objetos]		**0.582**	
[75. Tem de ser lembrada para mastigar a comida]			**0.483**
[76. Suga a comida para a amolecer ou humedecer, em vez de a mastigar]			**0.523**
[77. Mastiga a comida mas não a engole]			**0.412**
[78. Mastiga um bocado de comida por um longo período (cerca de 30 segundos ou mais)]			**0.297**

Table 7- Factor loadings of the Portuguese version of the Pediatric Eating Assessment Tool Scales

3.8. Internal Consistency Reliability – revised factor structure of the Portuguese Version

Cronbach's coefficient alpha (α) was used to assess internal consistency reliability of the Portuguese version. 3 subscales changed the factor structure and thus were revised (physiologic symptons, Selective/Restrictive Eating and Oral Processing). The 3 subscales kept excellent to good internal consistencies (respectively α = 0.852; 0.774; 0.827).

4. Discussion

An adequate assessment of feeding problems is extremely important to determine the need for referral, to select appropriate interventions and to monitor the effectiveness of them (Borowitz & Borowitz, 2018; Thoyre et al., 2017). The research show that the largest of families with children with feeding problems need guidance with regard to food itself, as well as a reference figure that makes communication between the medical part, the intervention therapy and the family, helping them to establish meaningful goals and to optimize the family's routine (Estrem et al., 2018; Park et al., 2018; Thoyre, 2016). Thus, differentiating children with what is considered a typical diet, of children who fight daily with the challenges that food imposes on them and that therefore requires a specialized evaluation can really be a challenge for clinicians (Pados et al., 2018). PediEAT does not replace a clinical evaluation, and also does not intend to make a diagnosis, but can give the health professional a screening and an objective assessment of the child's feeding in the perspective of parents in order to facilitate the diagnosis and decisions of treatment (Pados et al., 2018; Thoyre et al., 2013).

This study has provided the first portuguese version of the PediEAT, following a rigorous translation method to ensure that PediEAT terms, identify sources of different symptoms of feeding problems properly in Portuguese context. Achieving cultural equivalence is thereby essential for the beginning of the protocol validation process, because, from it, all the rest of the process can be performed (Coster & Mancini, 2015). The literature is very clear about the need for a specificity of a feeding problem risk identification protocol, and how specific is it to the population, situation or pathology for which it is intended (Thoyre et al., 2017).

The psychometric data of the PediEAT was examined with an adequate size sample of parents of children with and without feeding problems. Target children were distributed across the intended age ranges of the instrument, 6 months to 7 years, and over-represented by children witch parents reported the existence of feeding problems, thereby increasing the ability to characterize a wide range of feeding symptoms. For those who reported feeding problems, only 0.6% parents reported their child required supplemental tube feedings while 4.2% reported being unsure of whether their child had a feeding problem.

The data also shown that the internal consistency of the Portuguese version is very close to the consistency of the original version, suggesting that the Portuguese version is able to measure the same characteristic as the original instrument.

We proposed for the Portuguese version the same factorial structure as the original. The factor loadings for the items 64 and 65 suggested that they are more related to Oral Processing rather than the original subscale Selectivity/Restrictive Eating, and items 75 to 78 to Selectivity/Restrictive Eating rather than Oral Processing. Regarding items 64 and 65, children who have trouble interpreting and understanding sensations do not feel or taste foods in the same way as others. The flavor, temperature or texture of food may seem vague or even confusing to a child, and without accurate sensory information to feel what is

happening in their mouths, children often have trouble managing the food. So, children who have trouble interpreting oral information and planning the necessary movements to eat (Oral Processing) may spit food out or even eat too fast, which often leads to messy eating and clumsy behavior during mealtimes (Roley, Mailloux, Miller Kuhaneck, & Glennon, 2007). With regard to the change in items 75 to 78 the existing literature on Selectivity/Restrictive Eating tell us that children may exhibit unusual responses to sensation being excessively sensitive to the look, smells, tastes and textures of food, and so they may refuse to touch, taste or eat new foods. Furthermore they complain when a familiar food looks different, gag or vomit in anticipation or presentation of food, so when they have the food on their mouths sometimes they need to be remembered to chew, may tend to suck and soften the food instead of chewing, avoid chewing or even chewing and not swallowing the food as an attempt to more easily cope with unpleased sensations (May-Benson & Schaaf, 2015).

A correlation between difficulties in tactile sensory modulation and praxis of children with feeding problems is also demonstrated in this study, which may be supported by current knowledge on sensory integration patterns that supports the association that exists between motor and sensory functions and the whole process of feeding, eating and swallowing (Borowitz & Borowitz, 2018; Nadon, Feldman, Dunn, & Gisel, 2011). Before reaching 7 years, the brain is fundamentally a sensory processing machine, which means that it obtains information directly from sensations. Thus, the adaptive response more motor than mental. Sensory integration occurs with movement, talk, and play, and is the basis for more complex processes. Sensory-integrative functions develop in a natural order, and all children follow the same basic sequence, and those that deviate significantly from the normal sequence are conducive to having problems with other aspects of life, such as feeding (Lane et al., 2019; Roley et al., 2007; Tamura et al., 2011; Thompson, Bruns, & Rains, 2010). In fact, sensory processing has been shown to be correlated with measures of feeding, dressing, and toileting, and negatively correlated with maladaptive behaviors (Schaaf, Hunt, & Benevides, 2012; Stein Duker, Polido, & Cermak, 2012).

Furthermore, it is known that babies with poor functioning of tactile system may have less emotional safety as well as problems in breastfeeding, and later in eating solid foods. These children may have suction difficulties and consequently may not appreciate certain textures and solid foods, being more likely to have maladaptive behaviors, or behaviors that negatively affect feeding, which may include feeding problems (Roley et al., 2007; Yi, Joung, Ho Choe, Kim, & Kwon, 2015).

The pattern of poor sensory modulation has been most frequently discussed in the literature. Defined as a problem in the capacity to regulate and grade response to sensory environment that disrupts ability to participate and perform, it imposes challenges into demands of daily life (Schaaf & Miller, 2005). Children with poor sensory modulation have poor adaptative responses and so are reported to have over or underreactivity to normal levels of stimuli in their environment (Schaaf & Miller, 2005).

Another contribution from this study is the correlation found between parent's scores of praxis issues and feeding problems of their children. Feeding in childhood is a reciprocal process between the child and the caregiver, and the relationship that the caregiver establishes with the child can affect the acceptance of food, the state growth, as well as how the child feels about food (Crapnell, Woodward, Rogers, Inder, & Pineda, 2015; Unlu, Aras, Eminağaoğlu, Büyükgebiz, & Bekem, 2008). Silberstein and colleagues (2009) refer that there are 5 independent factors as predictors of feeding problems, specifically less affectionate touch on the part of the mother during the moments of interaction, less adaptation of the mother during the moments interaction during feeding, fewer psychomotor abilities of babies at 4 months, more intrusive behaviors on the part of the mother, and less involvement of the baby during feeding in the 1st year of life. The results also show that the main types of feeding problems in our sample fall into food selectivity. A large number of parents often describe their children as "picky eaters", meaning that the child refuses to taste or eat a variety of foods, has no desire to experience new foods, and/or eats more slowly in a deliberate way (Borowitz & Borowitz, 2018; Cermak, Curtin, & Bandini, 2010; Garg, Williams, & Satyavrat, 2015). It should be noted however that reluctance to consume new foods, a behavior called food neophobia, is a characteristic and natural reaction of the child to something unknown, which should not be interpreted as a permanent aversion to the food. Fear of eating is often misinterpreted by parents as an inappropriate form of selectivity (Kerzner et al., 2015). Recent studies show that feeding problems are a concern for more than 10 to 25% of parents of healthy children under three years of age and more than 50% of mothers complain that at least one of their children does not eat properly. This number increases to 80% when children have developmental problems such as autism spectrum disorder (PEA) or cerebral palsy (Estrem, Thoyre, Knafl, Pados, & Riper, 2018; Yi et al., 2015). However, only 1 to 5% of infants and children suffer from severe feeding problems with an impact on growth and development (Kerzner et al., 2015; Yeung et al., 2015; Yi et al., 2015).

The Portuguese version of PediEAT was able to discriminate between feeding problems and no feeding problems. This suggests that the PediEAT could be useful in clinical practice, and since parental reporting measures are relatively inexpensive in terms of costs, in addition to putting a minimum burden on the family, and allowing frequent measures, they become ideal tools to track the development of the problems of and respond to the intervention. In addition, the results of parents ' reports have the potential to be immediately available, which reinforces their usefulness (Thoyre et al., 2013).

A major limitation of our study is that the diagnosis of children's feeding difficulties was based on parent reporting and not confirmed through medical records. Another issue is the fact that in the group of children with feeding difficulties there is a very small percentage of children with more severe feeding problems in need of nasogastric tube or gastrostomy.

Future research should help obtain Portuguese normative data with children with typical development without feeding difficulties for each age group in order to obtain cut-off points for normative subscale scores by age in order to strengthen the interpretation of the PediEAT scores.

5. Conclusion

The Portuguese version of PediEAT is a valid and reliable instrument for assessment of feeding problem symptoms of children aged 6 months to 7 years, although factor structure requires further examination with bigger samples. As such, it can aid in the identification and quantification of feeding problems in young children. We have demonstrated that PediEAT scores were significantly different between children with parent report of a diagnosed feeding problem compared with those without parent concern or diagnosis. We also obtained data showing that sensory and praxis problems are associated with PediEAT scores.

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