

DEVELOPMENT AND VALIDATION OF A FEEDING READINESS ASSESSMENT TOOL FOR CHILDREN WITH AUTISM SPECTRUM DISORDER IN SANTA ROSA, BINAN, AND SAN PEDRO LAGUNA

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ABSTRACT

This study aimed to develop a feeding readiness assessment tool for children with ASD, for Occupational Therapy Practitioners working in Santa Rosa, Binan, and San Pedro Laguna. Specifically, this study determined the assessment used by occupational therapy practitioners in assessing feeding, determined the current status of assessment tools used by occupational therapists, and presented a feeding readiness assessment tool designed for children with ASD, and its evaluation from occupational therapy practitioners. Thirty (30) pediatric occupational therapists from selected private clinics were recruited in this descriptive-developmental study. The study involved surveys for the assessments used by OTs in assessing feeding skills, current status of assessment tools, and the evaluation of the developed feeding readiness assessment tool. Overall, pediatric OTs often ($M=2.66$) use the identified assessments in assessing feeding skills in children with ASD, with parent-interview as the always used assessment. Overall, pediatric OTs always ($M=3.31$) encounter identified situations which revealed the current status of administering an assessment tool, where respondents always ($M=3.57$) experience that majority of existing pediatric feeding assessments are based in behavioral theory and interventions, and wherein there are no available feeding assessment tools in the clinics they are affiliated in. A Feeding Readiness Assessment Tool was developed and was rated as outstanding ($M=3.78$) in the researcher-made evaluation questionnaire. This indicates that the feeding readiness assessment tool has successfully met the functions it serves for its users, the pediatric occupational therapists. Despite indications that pediatric OTs often use identified assessments such as parent interview and observation during therapy sessions, the use of a standardized tool that includes assessing sensory processing aspect is recommended. The Feeding Readiness Assessment tool can be a reliable tool for pediatric occupational therapists since it has included assessing postural stability, oral-motor skills, and sensory processing which was lacking in existing feeding assessment tools.

Keywords: Feeding, Assessment Tool, Pediatric Occupational Therapists, Sensory Processing

INTRODUCTION

People of all ages engage in meaningful tasks and activities which improve their health and well-being. In the context of occupational therapy, it covers activities of daily living (ADLs) including eating, dressing, using the restroom, and taking care of oneself that are necessary for basic survival and well-being. ADLs that people must learn to perform independently and take care of themselves include eating and swallowing. Occupational therapists are qualified to carry out

thorough assessments, which involve the selection, use, and interpretation of assessment tools, as well as the creation of specialized intervention plans and the delivery of therapeutic interventions. There are no certifications available for occupational therapists here in the Philippines to provide feeding and eating related interventions. The utilization of standardized tools for assessments and evaluations is restricted, which could lead to improved results for clients (Barrientos, 2023). Feeding issues are claimed to affect 25–45% of children in general, with avoidant restrictive food intake disorder being the most prevalent issue, according to an article by Carpenter and Garfinkel. Mealtime behaviors and the adverse impacts of inadequate nutrition are more common in children with neurodevelopmental disorders and developmental impairments like Autism Spectrum Disorder (ASD). Feeding difficulties associated with selective intake, or consuming a limited variety of meals, can affect children diagnosed with ASD. Research revealed a strong link between eating issues and sensory processing disorders in these population. They are dealing with sensory problems, oral-motor problems, or a mix of the two. Problems with sensory processing are prevalent among children with ASD. Assessing food acceptance and refusal behaviors in children with feeding challenges has been the subject of recent studies. The majority of research on feeding evaluation in children with ASD has focused on identifying problematic mealtime behaviors. But there has been insufficient evaluation of the sensory and other elements that contribute to feeding difficulties. Although there are existing assessment tools for feeding, recent studies revealed that there is no assessment tool that included assessing oral-motor and sensory processing skills of children with ASD. Current feeding assessment tools are limited in assessing problematic mealtime behaviors, and failed to include oral-motor and sensory processing skills, which may contribute to feeding difficulties experienced by this population.

Therefore, the study investigated the development of a feeding readiness assessment tool. The results of the study would benefit occupational therapists in the pediatric setting to be able to assess feeding skills of their patients with ASD. Likewise for children with ASD who have reported or observed feeding difficulties, they will have the opportunity to be thoroughly assessed, and receive the proper intervention, with the use of the developed assessment tool.

LITERATURE REVIEW

Autism and Feeding. Autism spectrum disorder (ASD) is a neurodevelopmental disorder marked by limited interests, repetitive behaviors, and difficulties in social interactions (American Psychiatric Association, 2024). According to an article by Page (2021), compared to typically developing children, those with ASD had a five-fold higher chance of experiencing feeding difficulties. It is believed that feeding problems for children with ASD are multifaceted. It covers behavior, physiology, emotions, cognition, and medical origins. Children with ASD experience a greater number of feeding difficulties and consume a smaller variety of foods (Leader, 2020). The term feeding difficulty is an umbrella term for a broad range of problems pertaining to the intake of food and eating habits. Feeding and eating problems are thought to affect 46%–75% of children with ASD. These problems can include restricted diets, not remaining seated at the table, eating the same thing every meal, and restricting food intake to particular textures and colors (Carpenter & Garfinkel, 2021). There is sufficient evidence that

feeding problems in kids with ASD are positively correlated with sensory processing impairments (Page, 2021).

Role of Occupational Therapists in Feeding. Occupational therapy practitioners are specifically trained to facilitate and encourage participation in ADLs, such as feeding, eating, and swallowing, as stated in a Barlow & Sullivan (2021) article. An occupational therapist can assess feeding-related motor skills and sensory-processing abilities (Zhu & Dalby-Payne, 2019). To guarantee that feeding difficulties are addressed holistically and that significant parental concerns are incorporated into programs for kids with ASD, an occupational therapist should be an integral part of this multidisciplinary method (Bonsall, 2021). Occupational therapists manage patients with a client-centered approach that acknowledges any underlying medical conditions that can cause food refusal. Occupational therapists are also skilled at assessing difficulty and modifying behavior for occupational engagement. Therefore, occupational therapists possess essential skills for managing food selectivity in a respectful manner (Suarez & Bush, 2020).

Existing Assessment Tools for Feeding. Standardized questionnaires, parent-child interaction observations, and interviews are all useful tools to evaluate feeding issues in children. In order to create a successful treatment plan and monitor the child's clinical improvement during therapy, it is essential to use an assessment tool (Kivilcim, 2019). There is no agreement on how to assess for eating disorders in this population, despite the possibility that eating disorders are secondary to an autism diagnosis (Baraskewich, 2021). According to a study by Bonsall (2021), parents of children with ASD have reported system-wide issues with accessing services addressing feeding concerns, ranging from a lack of problem identification to a scarcity of appropriate services. This is despite the prevalence and severity of feeding difficulties in this population.

Feeding Assessment Tools Used by Occupational Therapists in the Philippines. Participants reported difficulty recalling the assessment instruments used during evaluations due to the lack of standardized tools that concentrate on a child's feeding skills. The Sensory Profile was preferred by the participants, nevertheless, and almost all of them acknowledged its value (Barrientos, 2023). According to a Gomez (2021) study, the Short Sensory Profile (SSP) evaluates a child's ability to comprehend sensory information while participating in activities that is completed by a parent or caregiver. Therapists find it difficult to relate a child's participation in everyday activities to their reported sensory processing difficulties, even with the extensive use of these measures. A study by Page (2021) found that children with feeding difficulties had lower overall scores on the Short Sensory Profile, indicating greater atypical sensory processing, when feeding challenges were measured via a questionnaire. Oral texture sensitivity and scent, however, were not separated on the Short Sensory Profile.

Current Status of Assessment Tools. Multiple etiologies and intervention strategies that are observed in practice are not adequately captured by the majority of pediatric feeding assessments, which are grounded in behavioral theory and therapies. Three main obstacles to tool utilization were feelings of incompetence, forgetfulness, and logistical challenges. Staff meetings, education presentations, and discussions with colleagues were proved to be the most successful teaching strategies about an assessment tool. The literature contains a lack of

feeding evaluation tools geared toward pediatric populations, particularly those that do not integrate an occupational therapy and sensory integration lens (Stitik, 2019).

Criteria of a Good Assessment. The following criteria for a good assessment were outlined in an article by Norcini (2018): validity or coherence, reproducibility or consistency, usability, feasibility, and acceptability. Coherence or validity is the utilization of assessment results for a specific goal is supported by a coherent body of evidence. Consistency or reproducibility considers if the assessment were to be conducted again in the same conditions, the results would remain unchanged. Comparability is when given at several testing cycles or institutions, the same evaluation produces comparable results in terms of scores or decisions. Viability is where with the facts and context, the evaluation is reasonable, realistic, and practical. Acceptability means the evaluation procedure and findings are regarded as credible by the stakeholders.

METHODOLOGY

This study utilized a descriptive-developmental design to establish the need to develop a feeding readiness assessment tool. The primary sources of data were pediatric occupational therapists from selected private clinics in Santa Rosa, Binan, and San Pedro Laguna who handle patients diagnosed with Autism Spectrum Disorder. There was a total of thirty-two (32) licensed occupational therapists in the selected private clinics. Using the Rao soft sample size calculator with 95% level of confidence, thirty (30) licensed occupational therapists are intended to be selected in the study. Purposive sampling was used in selecting the respondents of this study. This study utilized researcher-made questionnaires that were distributed personally to the respondents. The researcher-made questionnaires were validated by a panel of experts consisting of five (5) senior occupational therapists, or those who have at least 5 years of experience working in the pediatric setting. The variance of the items in the researcher-made questionnaires were validated by a statistician using Cronbach's Alpha, with acceptable and good internal consistency.

RESULTS

Table 1
Feeding Assessment Used by Occupational Therapists

Indicators	Weighted Mean	Verbal Interpretation	Rank
Parent- interview	3.63	Always	1
Observation during therapy sessions	3.03	Often	2
Standardized assessment tools	1.33	Never	3
Overall Weighted Mean	2.66	Often	

Table 2
Current Status of Feeding Assessment Tools

Indicators	Weighted Mean	Verbal Interpretation	Rank
Logistical Challenge: There are no available feeding assessment tool(s) in the clinic I work in.	3.40	Always	2

I rely on self-created assessments.	2.83	Often	5
There are less standardized assessment tools available that focus directly on the child's feeding skills.	3.37	Always	3.5
The majority of existing pediatric feeding assessments are based in behavioral theory and interventions.	3.57	Always	1
I feel that I lack of competency in administering assessment tools.	3.37	Always	3.5
Overall Weighted Mean	3.31	Always	

Table 3
Validity

Indicators	Weighted Mean	Verbal Interpretation	Rank
The assessment tool appears to measure the feeding skills of children with ASD.	3.80	Strongly Agree (Outstanding)	1.5
The purpose of its construction, objectives it covers, and dimensions it measures are clear.	3.80	Strongly Agree (Outstanding)	1.5
The skills included in the assessment tool are the skills needed for feeding.	3.77	Strongly Agree (Outstanding)	3
Overall Weighted Mean	3.79	Strongly Agree (Outstanding)	

Table 4
Consistency

Indicators	Weighted Mean	Verbal Interpretation	Rank
The assessment tool can be administered and scored by another occupational therapist.	3.67	Strongly Agree (Outstanding)	1.5
The assessment tool provides a stable and accurate results in assessing the feeding skills of children with ASD.	3.67	Strongly Agree (Outstanding)	1.5
Overall Weighted Mean	4.67	Strongly Agree (Outstanding)	

Table 5
Usability

Indicators	Weighted Mean	Verbal Interpretation	Rank
The assessment tool is easy to	3.80	Strongly Agree (Outstanding)	2

use.			
Items in the assessment tool are easy to comprehend.	3.77	Strongly Agree (Outstanding)	3
Items in the assessment tool are easy for administration and scoring.	3.87	Strongly Agree (Outstanding)	1
Overall Weighted Mean	3.81	Strongly Agree (Outstanding)	

Table 6
Feasibility

Indicators	Weighted Mean	Verbal Interpretation	Rank
The assessment tool is useful for pediatric occupational therapists.	3.90	Strongly Agree (Outstanding)	1
The assessment tool will benefit children with ASD.	3.83	Strongly Agree (Outstanding)	2
I will recommend the assessment tool to other colleagues in assessing feeding skills of children with ASD.	3.80	Strongly Agree (Outstanding)	3
Overall Weighted Mean	3.84	Strongly Agree (Outstanding)	

Table 7
Acceptability

Indicators	Weighted Mean	Verbal Interpretation	Rank
The assessment process and results are credible.	3.83	Strongly Agree (Outstanding)	2
The design of the assessment tool is appealing.	3.77	Strongly Agree (Outstanding)	3
Other occupational therapists will be able to utilize the assessment tool easily.	3.73	Strongly Agree (Outstanding)	4
Other occupational therapists can use the developed assessment tool in assessing feeding skills of their patients.	3.90	Strongly Agree (Outstanding)	1

Table 8
Summary Table of the Evaluation of Feeding Readiness Assessment Tool

Indicators	Weighted Mean	Verbal Interpretation	Rank
Validity	3.79	Strongly Agree (Outstanding)	4
Consistency	3.67	Strongly Agree (Outstanding)	5

Usability	3.81	Strongly Agree (Outstanding)	2.5
Feasibility	3.84	Strongly Agree (Outstanding)	1
Acceptability	3.81	Strongly Agree (Outstanding)	2.5
Overall Weighted Mean	3.78	Strongly Agree (Outstanding)	

DISCUSSION

1. Assessment Used by Pediatric Occupational Therapists in Assessing Feeding Skills of Children with ASD

Among the different assessments used by pediatric occupational therapists, the parent-interview ranked first which is always used in assessing feeding skills of patients with ASD. Sample child questionnaires must have to be filled out and completed by a parent or guardian who is well-versed in the child's health status (Tan, 2019). Parents are significant stakeholders in the fields of clinical practice, research, and policy development related to autism spectrum disorder (Jacobs, 2019). Ranking in second place is observation during therapy sessions which is often used by pediatric occupational therapists. In simpler cases of eating issues, a thorough history and clinical observation could be sufficient (Bryant-Waugh, 2019). Results revealed that the respondents never use standardized tools in assessing feeding skills of their patients. The availability of standardized assessment instruments that concentrate on the child's feeding is limited (Barrientos, 2023). According to a study by Zulkifli (2022), food-selective ASD children between the ages of three and eleven are likely to be persistent and their issue is unlikely to go away instantly. For this reason, a multidisciplinary healthcare team must implement a standardized screening protocol for food selectivity. Overall, pediatric occupational therapists often ($M=2.66$) use the identified assessments in assessing feeding skills in children with ASD.

2. Current Status of Feeding Assessment Tools

Pediatric occupational therapists always encounter situations where majority of existing feeding assessments are based in behavioral theory and interventions. Margari (2020) conducted a web-based evaluation wherein 35 out of 59 papers used a standardized instrument to examine eating patterns. Results from a study by Elsayed (2022) confirmed that feeding issues in children with ASD are related to sensory processing, which emphasizes the need for an assessment tool that assesses sensory processing in relation to feeding skills. The respondents always experience logistical challenge wherein there are no available feeding assessment tools in the clinics they are affiliated, and there are less standardized assessment tools available that focus directly on the child's feeding skills. This is congruent with a study by Barrientos (2023) where it was found that Filipino occupational therapists struggle to recall assessment tools for feeding due to unavailability. Pediatric occupational therapists always feel that they lack competence in administering assessment tools. Over time, allied health professionals' confidence in their ability to carry out evidence-based practice tasks decreases especially for those without postgraduate training (Klaik & Hains, 2018). Majority of the respondents in this study belong to the 25 years old and below age range, and with less than a year of experience which may affect their level of competence in administering an assessment tool. The respondents often rely on self-created assessments. Overall, pediatric occupational therapists always ($M=3.31$) encounter identified situations which revealed the current status of administering an assessment tool.

3. Evaluation of the Feeding Readiness Assessment Tool

Among the characteristics in the evaluation questionnaire, the developed feeding readiness assessment tool was rated the highest for its feasibility, having rated as outstanding ($M=4.84$). Overall, the feeding readiness assessment tool has been rated as outstanding ($M=3.78$). This indicates that the feeding readiness assessment tool has successfully met the functions it serves for its users, the Filipino pediatric occupational therapists.

Validity. The developed assessment tool has been rated as outstanding ($M=3.79$) in terms of its validity. Validity is the most crucial factor to take into account when assessing and choosing an evaluation tool. The population or sample that an instrument is used for, its internal characteristics, and its relationship to other variables are some of the aspects that determine its validity (Dunn, 2020). According to the definition of face validity, which other researchers define as the extent to which raters deem assessment instrument items appropriate for the targeted construct and assessment objectives, the respondents strongly agreed that the Feeding Readiness Assessment Tool appears to measure the feeding skills of children with ASD (Yusoff, 2019). The degree to which the items or tests are indicative of the behavior under study is known as content validity (Roebianto, 2023). The respondents strongly agreed that the purpose of the construction of the assessment tool, objectives it covers, and dimensions it measures are clear. They also strongly agreed that the skills included in the assessment tool are the skills needed for feeding.

Consistency. The Feeding Readiness Assessment Tool has been rated as outstanding ($M=4.67$) in terms of its consistency which describes the ability of a measure to distinguish between measurements within individuals (Wayne, 2021). The respondents strongly agreed that the assessment tool can be administered and scored by another occupational therapist, and that it provides a stable and accurate results in assessing the feeding skills of children with ASD which is in line with the definition of reliability or the ability of an instrument to produce consistent results under similar circumstances (Bull & Downes, 2019).

Usability. The Feeding Readiness Assessment Tool was rated outstanding ($M=3.81$) in terms of its usability or the ease of use of systems (Muro-Culebras, 2021). Implementation and the translation of research into practice may be aided by screening tools with favorable pragmatic qualities, such as being brief, simple to administer and score, and free or affordable (Henrikson, 2019). Pediatric occupational therapists strongly agreed that items in the developed assessment tool are easy for administration and scoring, the assessment tool is easy to use, and that items are easy to comprehend. Six interdependent aspects were found to be necessary for usefulness, according to a qualitative analysis: practicality, ease of use, reliability, features and functions, user-friendliness, and speed and convenience of obtaining predictions (Gates, 2019).

Feasibility. The Feeding Readiness Assessment Tool was rated outstanding ($M=3.84$) in terms of feasibility. When evaluating the effectiveness of interventions like screening, determining the feasibility is an essential first step (Ambagtsheer, 2020). The respondents strongly agreed that the developed assessment tool is useful for pediatric occupational therapists. Children with ASD experience feeding issues at a considerably faster rate. This puts them at risk for harmful

health and social outcomes from poor feeding behavior, which may be reduced with early and proper intervention (Steinfeild, 2020). There is no agreement on how to evaluate for eating disorders in this population, despite the possibility that eating disorders are a corollary of an ASD diagnosis (Baraskewich, 2021). The respondents strongly agreed that the assessment tool will benefit children with ASD, and that they will recommend the assessment tool to other colleagues in assessing feeding skills of children with ASD.

Acceptability. The Feeding Readiness Assessment Tool was rated outstanding ($M=3.81$) in terms of acceptability or the subjective component referring to a user's satisfaction with a tool (Baker, 2020). The respondents strongly agreed that other occupational therapists can also use the developed assessment tool in assessing feeding skills of their patients, the assessment process and results are credible, the design is appealing, and the tool is easy to utilize. Acceptability is significant because it can forecast and explain critical outcomes, such as user involvement and the effectiveness of interventions (Perski & Short, 2021). The developed assessment tool was rated outstanding by pediatric occupational therapists as they perceive the process and results as agreeable, palatable, or satisfactory (Mettert, 2020).

4. Developed Feeding Readiness Assessment Tool

A Feeding Readiness Assessment Tool was developed to help pediatric occupational therapists in assessing feeding skills of their patients with ASD. This tool is aimed to assess motor and postural stability, oral motor skills, and sensory processing. This tool included assessing sensory processing aspects affecting a child's feeding skills, which was lacking in existing feeding assessment tools. The Feeding Readiness Assessment Tool is composed of the following pages: Demographic Information, Instructions, Steps of Eating sections, Summary, and Interpretation.

Demographic Information. This section requires occupational therapists to fill in their patient's name, birthday, age, date completed, therapist's name, and the food/drink used for evaluation.

Instructions. This section provides a reference for occupational therapists on how to administer the Feeding Readiness Assessment Tool. They will be asked to read each item and check the box that best describes how often their patient does the following actions or behaviors. They must choose one option for every statement. Guidelines on selecting the frequency, ranging from Almost Always to Almost Never was also provided.

Steps of Eating. The Feeding Readiness Assessment Tool is divided into 7 sections of steps of eating namely: Developmental Skills, Oral-motor skills, Tolerates, Interacts with, Smells, Touch, and Taste.

Summary. In this section, occupational therapists will be instructed to transfer the score for each section to the Section Raw Score Total Column, and plot each total by marking an "X" in the appropriate classification column.

Interpretation. This section provides the interpretation of the raw scores of each section, ranging from Not Ready, Approaching Readiness, to Ready. Maximum score minus minimum score divided by number of classifications was used to determine the range of scores for each classification (Khorsheed, 2019).

CONCLUSIONS

Pediatric occupational therapists often use identified assessments, with parent-interview as the most used assessment. Pediatric OTs always encounter situations where the majority of existing feeding assessments are based on behavioral theory, and interventions. It is the most often encountered situation. The Feeding Readiness Assessment Tool was rated outstanding in the evaluation. To address the need in assessing feeding skills of children with ASD, the Feeding Readiness Assessment Tool was developed to help pediatric occupational therapists assess motor and postural stability, oral motor skills, and sensory processing of their patients.

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