

# DETECTING FEEDING PROBLEMS IN YOUNG CHILDREN WITH AUTISM USING A GENERAL SCREENER

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## Introduction

### Background

Roughly 44-89% of children with ASD have feeding problems (Seiverling et al., 2018). The most prevalent is **food selectivity**. Parents also report **disturbing feeding behaviors**, such as walking away from the table, whining, and yelling, throwing or dumping foods, difficulty eating at restaurants, aggression and tantrums during eating. Also, **food rituals and food anxiety** are reported, which can be related to compulsive rituals, avoidance of certain types of food, and the insistence on specific methods of food preparation, food types and mealtime rules. Additionally, **atypical ways of eating** are reported, such as gagging, pica, overeating, rapid eating, vomiting, regurgitation, and rumination (Ledford & Gast, 2006).

Feeding problems increase the risk of malnutrition (e.g., undernutrition), suboptimal or stunted growth, and developmental and cognitive delays. Caregivers show higher levels of parental stress, including parent-child conflict and parent-spouse stress (Kuschner et al., 2017). Without adequate diagnosis and treatment, feeding problems tend to persist throughout childhood and adulthood, and may lead to eating disorders (Westwood & Tchanturia, 2017). Because feeding problems in early childhood have such **aversive consequences for child development and family wellbeing**, early detection is important, also in children who are yet not diagnosed with ASD.

### Objectives

Evaluate the use of a **short general screener for feeding problems** (MCH-FS) in young children with ASD.

## Results

The internal consistency of the MCH-FS was good in both samples (ASD:  $\alpha = .828$ , Guttman's  $\lambda-2 = .839$ ; GPS:  $\alpha = .847$ , Guttman's  $\lambda-2 = .856$ ). In general, caregivers of children with ASD reported more feeding problems than from GPS (see table 1; Mann-Whitney U test;  $U = 73.358$ ,  $z = 4.826$ ,  $p < .001$ ). Also, the score distribution in ASD seemed to be much less positively skewed than in GPS (see violin plot in Figure 1).

When considering the total score on the MCH-FS of the children with ASD in relation to the 84.1, 95.0 and 97.5 percentile cut-off point calculated in the normative sample, 15 children fell in the category 'mild problems', 6 children in the category 'moderate problems', and 3 children in the category 'severe problems'.

The response patterns on the individual MCH-FS items was highly similar. There was a slight increase in feeding problems with age for the GPS ( $\chi^2(5) = 138.282$ ;  $p < .001$ ), but not the ASD sample ( $\chi^2(5) = 4.015$ ,  $p < .547$ ).

**Table 1** Descriptive statistics for the MCH-FS items for the general population sample and the clinical ASD sample

MCH-FS Item content	General population sample				Clinical ASD sample			
	M	SD	Range	Skewness	M	SD	Range	Skewness
1. Difficult mealtimes	2.84	1.38	1-7	1.38	3.99	1.47	1-7	0.00
2. Worries about feeding	2.19	1.45	1-7	1.45	2.67	1.72	1-7	0.83
3. Poor appetite	3.25	1.17	1-7	1.17	3.47	1.29	1-7	0.13
4. Start refusing food	3.48	2.00	1-7	2.00	4.90	2.06	1-7	-0.62
5. Long mealtimes	2.77	0.97	1-7	0.97	2.44	1.28	1-7	1.12
6. Bad behavior	2.86	1.48	1-7	1.48	3.85	1.56	1-7	-0.22
7. Gags/spits/vomits	1.72	1.20	1-7	1.20	2.26	1.81	1-7	1.26
8. Holding food in mouth	2.09	1.49	1-7	1.49	2.45	1.80	1-7	1.05
9. Follow around/distract	2.33	1.65	1-7	1.65	3.01	2.10	1-7	0.62
10. Force to eat	2.46	1.60	1-7	1.60	2.84	1.65	1-6	0.46
11. Poor chewing	1.63	0.97	1-7	0.97	1.87	1.16	1-6	1.49
12. Poor growth	1.71	1.16	1-7	1.16	1.66	1.17	1-7	2.21
13. Influence relation	1.75	1.13	1-7	1.13	1.96	1.20	1-6	1.17
14. Influence family relations	1.99	1.44	1-7	1.44	2.50	1.78	1-7	0.91
Total score	33.07	11.26	15-73	11.26	39.96	12.52	18-67	0.31

## Methods

Participants were the caregivers of two groups of children.

The first group ( $n = 80$ , 55 boys & 25 girls) consists of a **clinical sample** of caregivers of children between the ages of 1 and 6 years ( $M = 17.25$ ,  $SD = 4.8$  months) who were diagnosed with ASD by the young children expert team at INTER-PSY, a large mental health care institution in the North of the Netherlands. They had a mean total score of 14.75 ( $SD = 5.00$ ) on the ADOS-2 (cut-off score for diagnosing ASD is 7). The cognitive development of these participants at time of inclusion was slightly below average (IQ/developmental index on either the WPPSI, SON-R or Bayley Developmental Scales ( $M = 90.32$ ;  $SD = 18.25$ )). The data was collected from 2014 to 2017.

The second group of participants consists of caregivers from the **general population sample** ( $n = 1389$ , 706 boys & 676 girls; in 7 cases, 'sex' was left blank) of caregivers of children between the ages of 1 and 6 years. ( $n = 1389$ ;  $M = 14.12$ ,  $SD = 7.41$  months;  $n = 965$  are  $<3$  years). The data was collected in 2010 and 2018.

The Dutch version of the **Montreal Children's Hospital Feeding Scale** (MCH-FS; Ramsay et al., 2011; called the *Screeninglijst Eetgedrag Peuters/SEP*; see Van Dijk et al., 2011) was used to assess severity of feeding problems. This questionnaire, filled in by caregivers, measures seven main constructs: parental concern, family reactions, compensatory strategies, appetite, mealtime behaviors, oral sensory behavior, and oral motor behavior. Percentile cut-off points of 84.1, 95.0 and 97.5 represent 'mild', 'moderate' and 'severe' problems, respectively.

## Conclusions

The Dutch version of the MCH-FS – called the SEP – is very well suited to function as a general screening instrument in the diagnostic process, in populations that include children with ASD. The questionnaire has a **good internal consistency** in both the general population sample and the (clinical) ASD sample.

Caregivers of **children with ASD scored higher** on this questionnaire, evidencing more feeding problems in their children, as expected.

**Further research is needed** on the sensitivity and specificity of the instrument in this group. If significant feeding problems are found in children with ASD, it may be advised to use a more specific instrument focusing on more specific symptoms in this subgroup, such as the BAMBI and by collecting additional information from parents.

## References are published in

van Dijk, M.W.G., Buruma, M.E., & Blijd-Hoogewys, E.M.A. (2021). Detecting feeding problems in young children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 1-13.

**Fig. 1** Violin plots of the distribution of scores in both the clinical ASD sample and the general population sample

