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Using the Behavioural Paediatric Feeding Assessment Scale to Identify Fussy Eaters, and Their Adherence to Dietary Guidelines

A thesis presented in partial fulfilment of the requirements for the degree of

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Abstract

Background: Childhood feeding issues range from problems with few immediate health risks to significant problems requiring medical intervention. Fussy eating is implicated in low critical nutrient intake and poor eating habits that could risk later chronic disease. A simple tool to assess fussy eating is not available and it is unknown whether fussy eaters risk subsequent poor adherence to dietary guidelines. The Behavioural Paediatric Feeding Assessment Scale (BPFAS) is a parent-response tool designed to measure feeding issues in children. DICE was developed to measure adherence to NZ Ministry of Health (MoH) food and nutrition guidelines.

Aims: Primary aim: To determine whether the BPFAS can be used to identify young children who are fussy eaters and at risk of not adhering to MoH food and nutrition guidelines. Secondary aim: To identify risk factors for poor adherence to MoH food and nutrition guidelines, and higher incidence of problem mealtime behaviours. Objectives were to a) determine whether a higher score on the BPFAS facilitates the identification of young children as fussy eaters, b) to determine whether a higher score on the BPFAS and/or parental perception of their child as a fussy eater relates to poor adherence to MoH food and nutrition guidelines and c) to identify risk factors for poor adherence to MoH food and nutrition guidelines as measured by DICE, and higher incidence of problem mealtime behaviours as measured by the BPFAS.

Methods: 1959 parents of New Zealand 2 to 4 year old children were recruited through online- and print-media to complete an online questionnaire about their child's eating. 570 were excluded based on age, place of residence and lack of consent. Data was collected on: incidence of problem mealtime behaviours using the Total Frequency Score (TFS) from BPFAS; adherence to Ministry of Health (MoH) food and nutrition guidelines using the Dietary Index for a Child's Eating (DICE); parental perceptions of fussiness; and medical history and dietary restrictions related to feeding problems. Pearson's chi-square tests were used to examine associations between BPFAS and parental perceptions of fussiness and the association of DICE with BPFAS and parental perceptions of fussiness respectively. Children were stratified into those with and without risk factors for feeding issues and independent t-tests and Mann-Whitney U tests were conducted to ascertain if

any significant differences between groups existed with regard to DICE and BPFAS scores.

Results: 22.7% of children scored 81 or more on the TFS (range: 36-141) and were stratified into the clinical feeding problem group. TFS for normative and problem groups were 62.6 ± 9.98 and 92.4 ± 10.5 respectively. The problem group had poorer DICE (range: 49-114) scores (81.9 ± 12.3) than normative group (91.8 ± 9.23). There were overall moderately strong inverse correlations ($r = -0.45$, $p < 0.001$) between DICE and TFS, and between DICE and parentally-perceived fussiness score ($r = -0.42$, $p < 0.001$). A strong positive correlation between TFS and parentally-perceived fussiness score ($r = 0.72$, $p < 0.001$) was also found. These relationships remained significant when analysis was repeated only on the normative group. TFS was worse in children who had: problems breastfeeding (72.1 ± 16.5 vs 67.8 ± 15.5) and starting solids (77.6 ± 19.2 vs 68.3 ± 15.3); autism (85 ± 25.0 vs 69.2 ± 15.9); medical problems affecting feeding (80.9 ± 18.2 vs 69.2 ± 16.0) and not affecting feeding (75.5 ± 17.0 vs 69.1 ± 15.9); eating difficulties (84.9 ± 19.4 vs 69.1 ± 15.8); parental perception of underweight (77.8 ± 17.9 vs 68.0 ± 15.2 and 67.0 ± 16.2 for average and overweight); and parental concern about weight (82.1 ± 18.1 vs 67.8 ± 15.0), than those who did not. DICE was worse in children who had: problems starting solids (84.9 ± 11.5 vs 90.1 ± 10.7); developmental delay (82.8 ± 12.9 vs 89.7 ± 10.9); eating difficulties (80.9 ± 14.5 vs 89.8 ± 10.8); parental perception of underweight (86.0 ± 11.9 vs 90.12 ± 10.7 and 90.7 ± 10.0 for average and overweight); and parental concern about weight (84.7 ± 12.9 vs 90.2 ± 10.5), than those who did not.

Conclusion: These results indicate that children with higher TFS have higher incidences of problem mealtime behaviours and adhere less to MoH food and nutrition guidelines than normative eaters. Children in the higher end of the normative range for TFS are also classed as fussy eaters by their parents, suggesting the BPFAS can be used to identify fussy eaters.

Problems with breastfeeding and starting solids, autism, medical problems, eating difficulties, parental perception of underweight, and parental concern about weight appear to be red flags for problem mealtime behaviours. Indicators for poor adherence to guidelines may be: breastfeeding problems, developmental delay, eating difficulties, parental perception of underweight and parental concern about weight.

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Abbreviations

AGHE	Australian Guidelines for Healthy Eating
BPFAS	Behavioural Paediatric Feeding Assessment Scale
CEBQ-FSS	Children's Eating Behaviour Questionnaire Fussiness Sub Scale
CFS	Child Frequency Score
CPS	Child Problem Score
DGI	Dietary Guideline Index
DGAA	Dietary Guidelines for Australian Adults
DICE	Dietary Index for a Child's Eating
DSM	Diagnostic and Statistical Manual of Mental Disorders
ECE	Early Childhood Education
FHQ	Food Habits and Attitudes Questionnaire
FFQ	Food Frequency Questionnaire
HEAT	Health Equity Assessment Tool
LTIS	Likert Type Item Score
MoH	New Zealand Ministry of Health
NNS	Australian National Nutrition Survey
NRV	Nutrient Reference Values
NZ	New Zealand
OECD	Organisation for Economic Co-operation and Development
PBM	Peak Bone Mass
PFS	Parent Frequency Score
PPS	Parent Problem Score
PPFussiness	Parental Perception of Fussiness
RDI	Recommended Daily Intake
TFS	Total Frequency Score
TPS	Total Problem Score
UNICEF	United Nations Childrens' Fund
US	United States
WHO	World Health Organisation
YES	Young Childrens' Eating Study

