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# **Determining the Validity and Reproducibility of a Feeding Assessment Tool to Assess Complementary Food Group Intake in New Zealand infants aged 9-12 months**

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

Masters of Science

In

Nutrition and Dietetics

Massey University, Albany

New Zealand

Ashleigh Jackson

2016

## Abstract

**Background:** Collection of information that reflects the dietary intake of infants is challenging. Food frequency questionnaires are commonly used to assess habitual dietary intake, as they are quick and easy to administer. Food frequency questionnaires are used within many studies to assess this aspect of an infant's diet, yet very few have been validated.

**Objectives:** This study aimed to investigate the relative validity and reproducibility of a complementary food questionnaire designed to assess food group intake in infants aged 9-12 months.

**Methods:** Participants were a convenience sample of caregivers of infants aged 9-12 months who completed the complementary food questionnaire (CFQ) at baseline (CFQ-1) and four weeks later (CFQ-2) to assess reproducibility. A 4-day weighed food record (4DWFR) was completed between these assessments to determine the validity of CFQ-1. Foods appearing in the 4DWFR were classified into the same 49 food items as the CFQ. Foods from both the 4DWFR and the CFQ were further classified into main food groups (breads and cereals; fruits; vegetables; dairy products; meat and protein; and occasional foods). Agreement between the two methods for intake of main food groups (frequency and grams eaten) was assessed using paired t-tests, correlation coefficients, cross-classification, the weighted  $\kappa$  statistic and Bland and Altman analysis.

**Results:** For grams of food groups consumed, validity correlations ranged from 0.15 (fruit) to 0.65 (vegetables), with an average correlation of 0.36. Correlations were significant for all food groups with the exception of fruit. Correct classification into the same tertile from the CFQ-1 and 4DWFR ranged from 38.7% (vegetables) to 65.2% (breads and cereals). Misclassification into opposite tertiles ranged from 2.0% (occasional foods) to 16.3% (vegetables). Reproducibility correlations were significant for all six food groups and ranged from 0.37 (fruit) to 0.84 (occasional foods), with an average correlation of 0.58. When comparing CFQ-1 and CFQ-2, participants correctly classified into the same tertile ranged from 48.9% (meat and protein) to 72.6% (breads and cereals). Misclassification ranged from 3.9% (breads and cereals) to 11.8% (meat and protein).

**Conclusion:** The feeding assessment tool appears to have reasonable validity and good reproducibility for assessing complementary food group intake in infants aged 9-12 months. The CFQ could be used in future research as a simple way to assess complementary food group intake, where it is not feasible or appropriate to employ weighed food records.

**Keywords:** assessment; diet; infant; nutrition; questionnaire; valid

## Acknowledgements

This research could not have been completed without the support and input of a number of people. Firstly, I would like to thank the volunteers involved in this research for completing study questionnaires in a timely and efficient manner, without their participation this would not have been possible.

I would like to thank my two main supervisors for their input: Cathryn Conlon and Kathryn Beck. Both of whom have shared their knowledge and skills throughout the research process including the statistical analysis, interpretation and presentation of study results. I am truly grateful for the endless support and advice from each. Chris McKinlay thank you for your assistance with the questionnaire and feedback in the final editing of the thesis. Owen Mugridge for the assistance with recruitment and administration of study questionnaires. Thank you to Sarah and Sue for all your help and support with all the administrative side of my project.

I would also like to thank Rachel Blair and Emily Sycamore for your support, lengthy discussions and cups of tea that were always needed throughout our projects and to get to the end. Thank you for making my days in Auckland fun – it has been a pleasure working alongside you.

My family: Mum, Dad, Granny, Gramps, Matt and Tim. The support over the last two years, and every year before that, has been endless and I am extremely thankful. Thank you for all your endless support both emotionally and financially to achieve my goals, for letting me explain everything to you, for you pretending to understand and for offering advice you know I will ignore. To my wonderful group of friends, in particular Kerri Loughhead – for the motivation and encouragement throughout, you were never more than a phone call away, your moral support has made this thesis possible, I am exceptionally lucky to have you all.

To my partner Troy, thank you for all your encouragement, always making me smile and reminding me of what is most important in life.

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## Abbreviations list

24HR	Twenty-four hour recall
3DEFR	Three day estimated food record
4DWFR	Four day weighed food record
CI	Confidence Intervals
CFQ	Complementary Food Questionnaire
cm	Centimetre
DLW	Doubly labelled water
e.g.	example
EFR	Estimated food record
FFQ	Food Frequency Questionnaire
g	Gram
GUINZ	Growing up in New Zealand
ID	Identification
k	Weighted Kappa statistic
Kg	Kilogram
LOA	Limits of Agreement
MoH	Ministry of Health
n	number
NDNS	National diet and nutrition survey
NZ	New Zealand
NZEO	New Zealand European and Others
r	Pearson's correlation coefficient
SD	Standard deviation
SFFQ	Semi-quantitative food frequency questionnaire
SPSS	Statistical Package for the Social Sciences
TBSP	Tablespoon
tsp	teaspoon
WFR	Weighed food record
WHO	World Health Organisation
>	Greater than
<	Less than