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Infant Food Security in New Zealand

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Introduction

Food security (FS) in infancy is associated with lifelong outcomes. New Zealand reports poor childhood nutrition-related health statistics, particularly among Māori and Pacific children and children living in more deprived households, yet has no measure of FS for these children. Using the infant food consumption, breastfeeding, and maternal food-related coping data collected at 9 months from mothers in the Growing Up in New Zealand cohort, we developed a FS index for New Zealand infants and examined its association with socio-economic and demographic covariates, and health outcomes.

Food Security is broadly defined as having enough of the right foods, every day, to lead a healthy and productive life, whereas a lack of consistent access to the right foods has negative repercussions that flow through to physical and mental health, wellbeing, and life-course outcomes. An age-inappropriate diet is also a form of food insecurity (FIS). New Zealand faces an enduring paediatric public health problem in conditions associated with FIS including undernutrition, respiratory infections, obesity, and poor oral health, yet has no child or infant FS measurement or assessment protocols in place.

Poor Food Security is evident among New Zealand children including the low consumption of vegetables, high consumption of energy-dense nutrient-poor (EDNP) foods, micronutrient deficiencies, and hospitalisation with nutritional deficiencies. In 2017, UNICEF reported that 11% of New Zealand children aged under 15 years live in food-insecure households, but until now there has not been a specific FS index for infants or children.

Developing the Index

This study used data from wave one of Growing Up in New Zealand (GUiNZ), a longitudinal cohort study of New Zealand children, collected in 2010 when the infants were 9 months old, and comprised of 6,385 mothers and 6,467 infants. The demographic characteristics of the mothers are comparable to those of all New Zealand parents with respect to key factors such as maternal age, ethnicity, parity and area level deprivation.

To assess the extent to which the data agrees with theories of FS, we examined aspects of diet quality and material hardship:

1. Sentinel food group consumption (selected staple or nutrient-dense foods),
2. EDNP consumption,
3. Maternal coping methods,
4. Breastfeeding.

With these data, we developed measures of daily consumption of food groups that were adapted from the World Health Organisation's Indicators.

Key Concerns:

- Child poverty
- Childhood obesity
- Child oral health problems
- Diet-related child health problems

Using individual experiences alone as proxy measurements of FIS without taking into account the social, cultural, and political contexts in which they occur is misleading. Likewise, viewing FIS solely from a food access or availability perspective, without taking into account food utilisation, results in an incomplete picture. We developed a model of New Zealand infant FS with a multidimensional perspective to understand it as being dependent on both infant food consumption and FIS experiences of the mother.

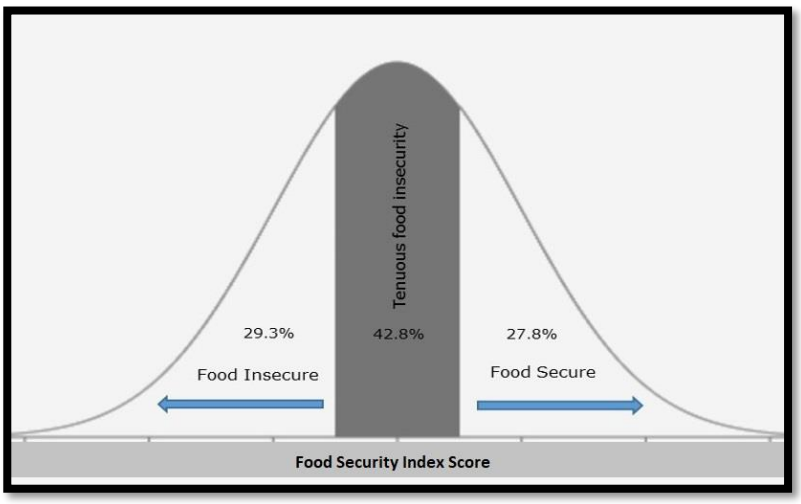
GUiNZ surveys mothers on their use of different coping methods. Of these, four are directly relevant to FS:

1. Forced to buy cheaper food
2. Foregoing the consumption of fruit and/or vegetables,
3. Receiving food assistance from a community organisation
4. Using food banks.

This food security measure is important as it covers socio-economic aspects of FIS, and captures concepts of accessibility. FS has both nutritional and non-nutritional pathways to well-being, and FIS includes uncertain, insufficient, or unacceptable availability, access, or utilization of food.

Results

Almost the entire cohort (96%) had breastfed at some point. By four months, nearly 10% of the cohort had commenced complementary feeding, and by six months, 70% were complementary feeding. The majority of infants were eating fruit and vegetables at least daily, although between 12% and 15% did not. Nearly 80% of the cohort reported consuming EDNP foods at least weekly, while 40% reported consuming these on a daily basis. For infants aged 9m, exposure to ENDPs was high. Thirty per cent had tried chocolate, 21% sweets, 20% crisps, 14% hot chips, and 5.4% had tried soft drinks by the time they were nine months old.



Half (54%) the cohort mothers reported using at least one of the coping methods, and one-fifth (18%) used two or more methods. The most commonly used coping method was buying cheaper food. Nearly half the cohort, whose scores fell within one-half standard deviation of the mean, classified as tenuously food insecure. At the extremes, **16% were highly or extremely food insecure**, while 15% were highly or extremely food secure.

Consistent with the results from other countries, ethnic inequalities are pronounced. We found higher odds of FIS among ethnic minority infants including Māori, Pacific, and Asian infants as compared to all other infants. Poverty and its proxies gave infants higher odds of experiencing FIS, as did household factors such as crowding. The strongest factor was maternal smoking, which increased infant odds of FIS four-fold.

From a policy perspective, the underlying elements of the index provide insight into the drivers of FIS. The consumption of fruit and vegetables at this age is both desirable and necessary. Of the infants ranked as tenuously food insecure, 80% could be shifted into the food secure category by consuming two portions of fruit or vegetables daily.

Facilitating access to a better diet through price policies could still change consumption patterns. For the poorest households, a 1% increase in price leads to a 1.09% reduction in demand. Given that the New Zealand sales tax (GST) is levied at 15%, this would equate to a 16.4% reduction in vegetable consumption for this group. From a policy perspective, a consideration of the role that GST plays in diet quality may be warranted.

Like other countries, New Zealand has been discussing the role of sugar taxes. Such tax could be considered as part of suite of measures to improve infant diets.

Rates and duration of exclusive breastfeeding are low in this cohort compared to international guidelines, possibly due to paid parental leave legislation. With a further increase to 26 weeks scheduled for 2020, this may increase national infant breastfeeding rates, which would help to improve infant FS.

Conclusion

This is, to our knowledge, the only infant food security index for New Zealand. The index is further unique in its multidimensional structure that allows for a targeted focus on infants. Food insecurity during the period of complementary feeding is a risk for a majority of infants, most particularly for Māori and Pacific babies. Food insecurity and its consequences is a problem for New Zealand infants and more work needs to be done on understanding it and preventing it.

Policy Implications:

- Review GST on fruit and vegetables
- Consider a sugar tax
- Parental leave and employment policy support for breastfeeding

To find out more about this research, please visit: https://www.preprints.org/manuscript/201810.0706/v1

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