

# Primary caregivers of young children are unaware of food neophobia and food preference development

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## Abstract

**Issues addressed:** This research explored primary caregivers' awareness of food neophobia and how food preferences develop in young children aged between 1 and 2.5 years.

**Methods:** This qualitative study used case study methodology and comprised interviews with 24 primary caregivers of young children aged between 1 and 2.5 years.

**Results and conclusions:** Primary caregivers of young children are unaware of food neophobia and food preference development in young children.

**So what?** Raising primary caregivers' awareness of food neophobia and how food preferences develop in young children may encourage caregivers to decrease their children's exposure to non-core foods.

**Key words:** food preference, neophobia, obesity, self-efficacy.

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## Background

Primary caregivers are pivotal in developing healthy eating behaviours in their young children,<sup>1</sup> and as such, an awareness of food neophobia and how food preferences develop in young children is central to their feeding practices.

Food neophobia is the reluctance to eat, or the avoidance of, new foods.<sup>2</sup> From the introduction of solids (at ~6 months of age), neophobia increases sharply as a child becomes more mobile, reaching a peak between 2 and 6 years of age.<sup>2</sup> From an evolutionary perspective, neophobia provides young children important protection. When young children begin to explore their environments and eat independently, it is beneficial they are suspicious of new foods.<sup>2,3</sup> Repeated exposure to a range of foods is the recommended method of increasing food acceptance and intake.<sup>4</sup>

Food preference is a major determinant of food intake<sup>5</sup> and of what foods are made available to young children.<sup>6</sup> A liking for both core and non-core foods\* is enhanced by repeated exposure.<sup>8,9</sup> Today, many children (as young as 16–24 months) have high levels of repeated exposure to non-core foods;<sup>10</sup> this is likely to influence their food preferences and food intake.

An aim of primary caregivers is that their young children *eat* core foods but not necessarily *like* core foods.<sup>11,12</sup> Primary caregivers' feeding practices often involve using non-core foods as bribes and rewards to encourage eating core foods,<sup>13</sup> which undermines developing a preference for core foods.<sup>14,15</sup>

Literature exploring primary caregivers' awareness of food neophobia and food preference development is notably absent.

## Methods

Following approval by the Human Research Ethics Committee [S/09/209], a qualitative study was conducted in 2009 using case study methodology.<sup>16</sup> Participants were primary caregivers of children aged between 1 and 2.5 years, an age range in which the effects of neophobia are increasing and therefore likely to be noticed by primary caregivers.<sup>2</sup>

## Participants and procedures

Participants were recruited by snowball sampling from childcare and medical centres. Eligibility for participation in the research required that the primary caregiver is the person (i) predominantly

\*Core foods are recommended for a healthy diet and include vegetables, fruits, grain foods, meats and alternatives, and dairy products; non-core foods are high in saturated fat and/or added sugar and/or added salt, such as pastries, confectionary and sugar-sweetened beverages.<sup>7</sup>

responsible for deciding what foods are provided to the young child; and (ii) who is mainly present when the young child eats.

Cases were purposively selected for diversity in socioeconomic status, family configuration and employment status of the primary caregivers.

Prior to interview commencement, consent forms were signed and demographic data obtained. Interviews, conducted by the principle author, ranged from 50 min to 1 h 30 min until data redundancy was achieved, resulting in 612 pages of transcribed verbatim data.

### Interview schedule

The interview schedule was framed by Bandura's (1990) Social Cognitive Theory.<sup>17</sup> Questions that explored food neophobia and food preference development were:

- (i) 'Tell me about the history of the child's eating.' (Details included breastfeeding duration, commencement of solids, reflux, allergies and intolerances, self-feeding status and current intake); and
- (ii) 'Tell me what you consider to be foods that should be provided to a child on an everyday basis . . . Now let's talk about the other foods.'

Projective technique drawings were of (i) a crying child in a trolley in a supermarket, the mother frustrated and a stranger looking on; and (ii) a child in a high-chair making a mess with food at a table with a man and a woman. The projective technique was introduced with a request to describe the scenario, not necessarily being themselves nor their own child, not necessarily being what they considered 'the right thing to do'. For each drawing, prompts such as 'What is happening?', 'What could happen after that?', 'Why would s/he do/say that?' were used.

### Data analysis

Data from multiple sources – observation, notes, interviews and projective technique – were triangulated. Data analysis was aided by the use of NVivo 8. The interview transcripts were initially coded by response to interview questions; other data were coded into detailed categories and associated categories were then merged into themes. Cross-case analysis was conducted using the variables from the data to identify patterns, similarities and differences between the cases.<sup>16,18</sup> Assessments recommended by qualitative researchers<sup>16,19,20</sup> found the data to be valid and reliable.

### Results

Twenty four participants were interviewed, of which 23 were females. Average age of participants was 33 years (ranging from 24–44 years) and were drawn from both high ( $n=11$ ) and low ( $n=13$ ) SEIFA (Socioeconomic Indexes for Areas). The majority worked part-time and had a partner with whom they usually resided full-time. The average age of the young children was 21 months. Details of study participants and their young child are summarised in Table 1.

Two main themes discussed are: (i) primary caregivers' awareness of food neophobia; and (ii) primary caregivers' awareness of food preference development.

#### Primary caregivers' awareness of food neophobia

It was found that primary caregivers' were unaware of food neophobia. Five primary caregivers reported that the young child had a change in eating behaviour at around 12 months of age. The word 'neophobia', however, was never mentioned. Indeed, a change in the young child's eating behaviour was unexpected, and when it did occur primary caregivers were puzzled by it and considered it problematic.

#### Primary caregivers' awareness of food preference development

Not all, but most, primary caregivers expressed a lack of awareness of how food preferences develop in young children.

First, some primary caregivers, such as Savannah, pressured their young child to eat core foods:

We've always said, 'That's not enough'. Um, if Jane comes to me with her sausages and potato and says, 'I've had enough' and she's only had two spoonfuls and I'll say, 'No you haven't'. So she comes back and normally finishes it.

Second, the majority of participants used non-core foods as a bribe to quieten a crying young child when in a social setting. As Lindy described:

Um, OK. Yes, I think it might be Chocolate Frog time! (laughs)

When probed as to why foods *should not* be used as a bribe or reward, participants' typical response was that the young child would come to expect a food reward for performing desired behaviours. The notion that non-core food when used as a bribe or reward was likely to give rise to a liking for 'reward' foods was not forthcoming from the participants.

Third, primary caregivers gave numerous justifications for why non-core foods *should* be provided to young children, thus increasing the likelihood of repeated exposure to non-core foods. Every young child had been exposed to or was regularly being provided with non-core foods. Primary caregivers who considered their young child to be a poor eater or whose child was not meeting their expectations of food intake had a general view that eating 'something is better than nothing'. The extent to which primary caregivers will go to achieve this was expressed by Regina:

We'll get some KFC but we'll have to go to McDonalds and get them nuggets! (laughs) So they'll eat nuggets but they don't eat cheeseburgers or anything like that, so I'd rather them eat something than nothing.

Fourth, the most common reason stated for *not* providing non-core foods was because of the effect they had on the young child's behaviour – *not* that the young child may develop a preference for them. As Kelsie explained:

**Table 1. Study participants**

Names of participants have been changed to protect their identity; ^SEIFA (Socioeconomic Indexes for Areas) scores used to indicate socioeconomic status in this research; Education level: <incl. Yr12 (up to and including Year 12); R (tertiary education considered relevant included Bachelor Degrees in Human Services (Mother, Child and Family), Special Education, Early Childhood, Education, Nursing, Science (Food Science and Technology) and other recognised Child Care training); NR (tertiary education considered not relevant included Honours or Bachelor Degrees in Arts, English, Business Administration, Social Work, Adult Education and Training, Financial Planning, Business, Marketing and Marine Science and Diploma or Certificate 3 level training in Journalism, Office Administration and Nursing); Working status: not working (NW), working from home, part time (H (PT)), working away from the home, part time (NH (PT)) or full-time (NH(FT))

Case	Interviews No. of interviewees	Age (years)	Primary caregiver (n = 24)				Child	
			Gender	Education level	Employment	Partner present	Age (months)	Gender
<b>High socioeconomic area – SEIFA<sup>^</sup> score 1070</b>								
Candice	1	32	Female	R	NH (PT)	FT	19	Male
Don	1	39	Male	NR	NH (FT)	FT	27	Male
Helga	1	34	Female	<incl. Yr12	NW	FT	22	Male
Heather	1	44	Female	R	NW	FT	27	Male
Jinny	2	41	Female	R	NW	FT	26	Female
Leslie	1	37	Female	NR	NH (PT)	FT	17	Male
Lillian	1	25	Female	NR	NH (PT)	FT	18	Female
Raven	2	30	Female	<incl. Yr12	NH (PT)	PT	27	Female
Raelene	1	39	Female	<incl. Yr12	NH (PT)	FT	27	Female
Reanna	1	33	Female	NR	NH (PT)	FT	16	Male
Sally	1	33	Female	NR	H (PT)	FT	12	Female
<b>Average</b>	<b>1</b>	<b>35</b>					<b>22</b>	<b>5/11 F</b>
<b>Low socioeconomic area – SEIFA<sup>^</sup> score 888</b>								
Andrea	1	34	Female	R	NH (PT)	FT	29	Male
Jacki	1	31	Female	NR	H (PT)	FT	13	Male
Jeannie	1	36	Female	NR	NW	FT	23	Male
Karly	1	38	Female	NR	H (PT)	None	17	Female
Kate	1	40	Female	NR	NH (PT)	FT	12	Female
Kelsie	1	33	Female	R	NW	FT	14	Male
Kerry	1	27	Female	R	NH (PT)	FT	24	Female
Lindy	1	36	Female	NR	NW	None	26	Female
Nita	2	24	Female	NR	NW	FT	28	Female
Regina	1	29	Female	<incl. Yr12	NH (PT)	FT	13	Female
Savanna	1	24	Female	<incl. Yr12	NH (FT)	FT	20	Female
Tania	1	28	Female	NR	NW	None	18	Female
Teresa	1	33	Female	NR	H (PT)	FT	26	Male
<b>Average</b>		<b>32</b>					<b>20</b>	<b>8/13 F</b>

It's not that I do or don't have a major problem with his having, like ... I don't, wouldn't want them to have sweet things every day ... it sends him hypo [hyperactive].

Finally, the notion of repeated introduction of core foods was mentioned by almost half of the primary caregivers; however, reference to the concept that repeated exposure to non-core foods may enhance their liking was minimal.

## Discussion

Overall, the results indicated that primary caregivers lack awareness of food neophobia and food preference development in their young children. Further research is warranted to address the impact of these findings.

Without awareness of how food preferences develop in young children, primary caregivers repeatedly expose their young children to non-core foods and may unwittingly inculcate unhealthy

eating behaviours. Additionally, the unexpected changed eating behaviour in young children due to food neophobia may prompt primary caregivers to introduce non-core foods.

This study confirmed that primary caregivers have a primordial objective for their young children to eat;<sup>12</sup> however, although primary caregivers' preference is for their young children to eat core foods, this study, unlike any other, suggests that when combined with an unawareness of food neophobia the resultant introduction of non-core foods is considered acceptable to meet their objective.

This research has limitations inherent to qualitative research impacting the generalisability of the findings; such as being cross-sectional and being conducted in a single geographic region of Australia.

In conclusion, the findings of this study prompt consideration that primary caregivers of young children lack awareness and understanding of what food neophobia is, and how food

preferences develop. It is recommended that primary caregivers receive education regarding food neophobia and food preference development so that their feeding practices of young children support decreased exposure to non-core foods.

## References

- Dattilo AM, Birch L, Krebs NF, Lake A, Taveras EM, Saavedra JM. Need for early interventions in the prevention of pediatric overweight: a review and upcoming directions. *J Obes* 2012; 123023. doi:10.1155/2012/123023
- Dovey TM, Staples PA, Gibson EL, Halford JCG. Food neophobia and 'picky/fussy' eating in children: a review. *Appetite* 2008; **50**: 181–93. doi:10.1016/j.appet.2007.09.009
- Wertz AE, Wynn K. Selective social learning of plant edibility in 6- and 18-month-old infants. *Psychol Sci* 2014; **25**: 874–82. doi:10.1177/0956797613516145
- Daniels LA, Mallan KM, Battistutta D, Nicholson JM, Perry R, Magarey A. Evaluation of an intervention to promote protective infant feeding practices to prevent childhood obesity: outcomes of the NOURISH RCT at 14 months of age and 6 months post the first of two intervention modules *Int J Obes (Lond)* 2012; **36**: 1292–8. doi:10.1038/ijo.2012.96
- Drewnowski A. Taste preference and food intake *Annu Rev Nutr* 1997; **17**: 237–53. doi:10.1146/annurev.nutr.17.1.237
- Campbell KJ, Crawford DA, Hesketh D. Australian parents' views on their 5–6-year-old children's food choices. *Health Promot J Int* 2007; **22**: 11–18. doi:10.1093/heapro/dal035
- Australian Government National Health and Medical Research Council. Australian dietary guidelines. Canberra: NHMRC; 2015. Available from: <http://www.eatforhealth.gov.au>. [Verified 26 June 2015].
- Wardle J, Cooke L. Genetic and environmental determinants of children's food preferences *Br J Nutr* 2008; **99**(Suppl 1): S15–S21. doi:10.1017/S000711450889246X
- Birch LL. Development of food preferences. *Annu Rev Nutr* 1999; **19**: 41–62. doi:10.1146/annurev.nutr.19.1.41
- Webb KL, Lahti-Koski M, Rutishauser I, Hector DJ, Knezevic N, Gill T, Peat JK, Leeder SR. Consumption of 'extra' foods (energy-dense, nutrient-poor) among children aged 16–24 months from western Sydney. *Aust Pub Health Nutr* 2006; **9**: 1035–44. doi:10.1017/PHN2006970
- Moore SN, Tapper K, Murphy S. Feeding strategies used by mothers of 3–5-year-old children. *Appetite* 2007; **49**: 704–7. doi:10.1016/j.appet.2007.07.009
- Carnell S, Cooke L, Cheng R, Robbins A, Wardle J. Parental feeding behaviours and motivations: a qualitative study in mothers of UK pre-schoolers. *Appetite* 2011; **57**(3): 665–73. doi:10.1016/j.appet.2011.08.009
- Galloway AT, Fiorito L, Lee Y, Birch LL. Parental pressure, dietary patterns, and weight status among girls who are 'picky eaters'. *J Am Diet Assoc* 2005; **105**: 541–8. doi:10.1016/j.jada.2005.01.029
- Galloway AT, Lee Y, Birch LL. Predictors and consequences of food neophobia and pickiness in young girls. *J Am Diet Assoc* 2003; **103**: 692–698. doi:10.1053/jada.2003.50134
- Newman J, Taylor A. Effect of a means-end contingency on young children's food preferences. *J Exp Child Psycho* 1992; **53**: 200–16. doi:10.1016/0022-0965(92)90049-C
- Yin RK. Case study research: design and methods. Thousand Oaks, CA: Sage, 1994.
- Bandura A. Human agency in social cognitive theory. *Am Psychol* 1989; **44**(9): 1175–84. doi:10.1037/0003-066X.44.9.1175
- Eisenhardt KM. Building theories from case study research. *Acad Manage Rev* 1989; **14**: 532–50.
- Healy M, Perry C. Comprehensive criteria to judge validity and reliability of qualitative research within the realism paradigm. *Qual Mark Res* 2000; **3**(3): 118–26. doi:10.1108/13522750010333861
- Lincoln YS, Guba EG. Naturalistic inquiry. Beverly Hills, CA: Sage, 1985.