



How important are the influencing factors to the decision on whether to provide seafood in infant and young child feeding? [☆]



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ABSTRACT

Seafood is recommended as part of a healthy, balanced introductory diet however, consumption rates are low in young children. Research has previously investigated the influences to seafood consumption in consumers and non-consumers however the importance of these factors in mothers' decisions on whether to provide seafood for their child during the early years is unknown. This study aimed to measure the importance of factors that influence mothers' decisions on providing seafood for their child during infant and young child feeding (six months to four years). A mixed method Q methodology and cognitive interview approach was used with 32 mothers in Scotland. Despite a large consensus of opinion between mothers ($n = 20$) on the importance of factors on their decision-making, two viewpoints emerged highlighting an importance placed on food attributes and the infant, and convenience and family-centred. This study is the first to quantify the influences on the decision to provide seafood during early years' feeding and could be used to inform and tailor seafood-based dietary promotions and interventions for parents.

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1. Introduction

Providing a nutritiously balanced and varied diet during the early years is recommended in global infant feeding guidelines (World Health Organization, 2005). Within this healthful diet seafood (edible fish, shellfish, and crustaceans from wild and farmed sources) plays a role, together with meat and alternatives, in providing energy, protein and iron, amongst other nutrients which are required to meet the growing needs of the infant. The most recent UK Diet and Nutrition Survey in Infant and Young Children (DNSIYC) indicates that 34% of seven to nine month old children consumed fish over the recorded period compared to 40% having consumed meat (red e.g. beef and white e.g. poultry) and 12% consuming meat products (Department of Health, 2011), trends which mirror those of older children and adults (Public Health

England and Food Standards Agency, 2014). Evidence indicates that taste preferences can be developed during the early years (Birch, 1999; Harris, 2008; Kajiura, Cowart, & Beauchamp, 1992) and there is a suggestion that healthy eating patterns are established during this period (Schwartz, Scholtens, Lalanne, Weenen, & Nicklaus, 2011). The dietary trends evident in UK children are thus of great concern. Failure of the population to meet dietary recommendations to limit red and processed meat consumption (Scientific Advisory Committee on Nutrition, 2010), maintain current levels of white fish consumption and increase consumption of oil-rich fish to one portion per week (Scientific Advisory Committee on Nutrition, 2004) may continue in our youngest population and subsequently into their later life.

The consumption of seafood has been suggested to be driven more by perceived healthfulness and a moral obligation to provide this food than by taste and food preferences (Olsen, 2004). However, a perception that seafood is expensive often acts as a barrier to consumption and to frequent consumption (Bloomingdale et al., 2010; Neale, Nolan-Clark, Probst, Batterhan, & Tapsell, 2012; Olsen, 2004; Verbeke & Vackier, 2005). Furthermore, a lack of confidence and knowledge in preparing and cooking seafood (Leek,

* Includes complementary feeding, also known as weaning, and feeding of young children up to four years of age.

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Maddock, & Foxall, 2000; Olsen, 2004; Verbeke & Vackier, 2005), and the presence of bones and other physical attributes of seafood (Neale et al., 2012; Verbeke & Vackier, 2005) are often perceived as barriers to consumption. Previous research has also revealed that availability and confidence to cook seafood in addition to the preferences of the partner and children, influences provision of seafood to the family (McManus, Burns, Howat, Cooper, & Fielder, 2007). During infant and young child feeding (IYCF) parents commonly receive advice and information on feeding practices (Alder et al., 2004; Bryant, 1982; Carruth & Skinner, 2001; Hoddinott, Craig, Britten, & McInnes, 2010; Horodyski et al., 2007; Pridham, 1990). There is a lack of published work investigating the advice parents are provided on the inclusion of seafood for infant feeding, however a study with pregnant women has shown that messages on consuming seafood are often confusing and contradictory (Bloomingdale et al., 2010).

A large bank of literature has previously investigated the influences on seafood consumption in adult populations (Birch & Lawley, 2012; Birch, Lawley, & Hamblin, 2012; Birch & Lawley, 2014; Bloomingdale et al., 2010; Foxall, Leek, & Maddock, 1998; Leek et al., 2000; McManus et al., 2007; Myrland, Trondsen, Johnston, & Lund, 2000; Neale et al., 2012; Olsen, 2001, 2003, 2004; Pieniak, Verbeke, & Scholderer, 2010; Pieniak, Verbeke, Scholderer, Brunsø, & Olsen, 2007; Trondsen, Braaten, Lund, & Eggen, 2004a; Trondsen, Braaten, Lund, & Eggen, 2004b; Trondsen, Scholderer, Lund, & Eggen, 2003; Vardeman & Aldoory, 2008; Verbeke, Sioen, Pieniak, Van Camp, & De Henauw, 2005; Verbeke & Vackier, 2005; Verbeke et al., 2008). An investigation of the influences on mothers' decision to provide seafood to their pre-school age child has additionally been conducted (McManus et al., 2007). However, this study was conducted in only one urban area of Australia using focus group discussions to explore influences to seafood consumption but did not explore the importance mothers give to these differing factors, particularly during the introduction of solid foods (from 6 months of age) and the early years when taste preferences and food acceptance occurs. The findings of this study are, to our knowledge, the first to measure the influences on mothers in providing seafood during early years' feeding and could be used to inform and tailor seafood-based dietary promotions and interventions.

2. Methods

This study employed a mixed method of Q methodology with an accompanying cognitive 'think aloud' interview to quantify and put into context the influencing factors viewed by mothers' in the decision on whether to provide seafood into the diet of their young child. This methodology incorporates a Q sort technique which involves rank-ordering of a set of statements, providing participants with a decision-making task whilst allowing the researcher to observe and examine the decision-making process (Brown, 1980b). This mixed method incorporates a practical decision-making task providing a means to explore how each different influencing factor compares within context to others, an aspect lacking from the use of single aspect scales and questionnaires, such as Likert Scales.

2.1. Participants/sample

Mothers were recruited from pre-existing mother and baby/toddler groups identified from internet searches, from work-place intranet advertisements and further snowballing in the North East of Scotland. Thirty two participant interview sessions were conducted with a sample of mothers with a range of demographics including; - deprivation (measured using the Scottish Index of

Multiple Deprivation (SIMD) postcode look-up (Scottish Government, 2012c)), urban/rural classification (measured by The Scottish Urban/Rural Classification (Scottish Government, 2012a)), fishing/non-fishing communities (indicated from coastal locations and Scottish Sea Fisheries Statistics (Scottish Government, 2015)), and child age.

It was deemed ethically correct to recruit only mothers who were over the age of 16 years due to classification of any person under this age as a child. Primi- and multiparous mothers of children aged six months (or younger if weaning had already started) and up to and including four years of age were included to incorporate the weaning and early years' period. This age range incorporates the key period when solid foods are introduced to infants, taste preferences and acceptance and neophobia of different foods occurs. Multiparous mothers were asked to think and refer to the feeding of their youngest child during the interview and sorting task. This study recruited mothers only due to the suggestion of significant differences between genders for views on food and health (Beardsworth et al., 2002). Furthermore, evidence indicates that despite shared roles in meal planning and preparation, women are more likely to take the primary responsibility for these tasks and are also less likely than fathers to have no responsibility at all (Flagg, Sen, Kilgore, & Locher, 2014).

2.2. Q set development

The statements for the sorting task were taken from themes identified through thematic analysis of parenting internet discussion forums (popular parenting websites identified as being used from previous studies (Hoddinott et al., 2010; Skea, Entwistle, Watt, & Russell, 2008)) and focus group discussions carried out with mothers (n = 29) of young children across six different parent and infant/toddler groups in the North East of Scotland (themes published in Carstairs, Marais, Craig, & Kiezebrink, 2017). Statements were developed from each of the themes identified and piloted to ensure clarity and saturation of themes. Development of the Q set is an extremely important step in Q Methodology and can be achieved through a thorough review of the literature to identify themes however, information gathered during pilot studies, interviews and focus group discussions is often used (Watts & Stenner, 2005). Thirty five statements were originally piloted, the final Q set comprised 33 statements (Table 2) which were assigned a code number and typed onto separate cards.

2.3. Data collection

The Q sort and interview session (approximately 60 min) took place at the home of each participant and was conducted by one researcher (SC) between May and September 2015. A brief demographic questionnaire and informed consent form was obtained for each participating mother prior to the interview session. Instructions on how to complete the task were given by the researcher. Mothers were asked to sort the cards into three categories; - least important to me when choosing to give/not give my child seafood, neutral, and most important to me when choosing to give/not give my child seafood. Mothers were then asked to rank each statement card using a fixed quasi-normal distribution response grid on a scale of -4 (least important) to +4 (most important) (Fig. 1). Throughout the sorting and ranking tasks mothers were asked to 'think aloud' to verbalise their decision-making and provide context for the placement of each statement card. Each interview session was audio recorded with the consent of the mother. On completion of the sorting task the researcher recorded the positioning of each statement on a template response grid. The study received ethical approval from the University of

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