

Rattling the plate—reasons and rationales for early weaning

Annie S. Anderson, Carol-Ann Guthrie¹, Elizabeth M. Alder^{1,4},
Stewart Forsyth², Peter W. Howie³ and Fiona L. R. Williams¹

Abstract

To identify a range of attitudes and beliefs which influence the timing of introduction to solid food, five focus group discussions were undertaken within a maternity hospital setting. These sessions explored early feeding behaviour, stimuli to changing feeding habits and subsequent responses in 22 primiparous and seven multiparous mothers (mean age 27.0 ± 4.8 years) with babies aged 8–18 weeks (mean age 13.0 ± 4.2 weeks). One-third of the participants had introduced solid food to their infants (mean age of introduction 11.6 weeks, range 2–16 weeks). Mothers believed that the introduction of solids was baby led and initiated by some physical characteristic or behavioural action of the infant. All mothers were aware of current recommendations to avoid the introduction of solid food until 4 months. Few knew why this should be and concepts of long-term ill health were difficult to conceptualize. The conflict between rigid feeding guidelines and flexible advice from supportive health professionals created confusion over the importance of good weaning practices. The current findings high-

light issues relevant to the introduction of solid food, and provide a foundation for further research which can identify the relative importance of these factors and provide a rationale for the design of contemporary intervention strategies.

Introduction

Nutrition in the early years of life is a major determinant of growth and development, and it also influences adult health (Fall *et al.*, 1992). The advantages of breast feeding over formula feeding, such as protection against gastro-enteritis and respiratory infection in the first year of life, have been well documented (Howie *et al.*, 1990). Longitudinal data (Wilson *et al.*, 1998) suggest that breast feeding results in less respiratory infection and lower blood pressure at age 7–8 years.

Weaning practices also have significant implications for infant health, notably in relation to normal development, mineral balance and the development of obesity (Department of Health, 1994). Particular concern has been expressed over the relationship between initial introduction to solid food and the development of childhood allergies (Chandra, 2000). The timing of introducing solid food also appears to be an important confounding factor for subsequent health. Recent research by Wilson *et al.* have demonstrated that infants introduced to solid food early (before 4 months) had higher levels of morphometric features characteristic of cardiovascular risk such as increased body fat and body mass index (Wilson *et al.*, 1998). In addition, this work demonstrated that early introduction of solids was associated with more wheezy and respiratory

Centre for Public Health Nutrition Research, Department of Epidemiology and Public Health, ¹Department of Epidemiology and Public Health, ²Tayside Institute for Child Health and ³Department of Obstetrics, Ninewells Medical School, University of Dundee, Dundee DD1 9SY, UK

⁴Present address: Faculty of Health and Life Sciences, Napier University, 74 Canaan Lane, Edinburgh EH10 4TB, UK

illness in childhood. Current research suggests that the introduction of solid food after 4 months may confer benefit in families with a history of atopy or gluten enteropathy (Kelly *et al.*, 1989). Overall, these findings support current recommendations by the Department of Health (Department of Health and Social Services, 1994) that the majority of infants should not be given solid foods before the age of 4 months and call into question the appropriateness of examining the impact of early weaning only on the outcome measures of weight gain, growth in length or change in skinfold thickness in the first year of life (Wilkinson and Davies, 1978; Forsyth, 1993; Mehta *et al.*, 1998).

In the UK, 2% of babies are given solids by 4 weeks of age, 13% by 8 weeks, 56% by 3 months and 91% by 4 months (Foster *et al.*, 1995). Higher birth weight, lower social class of husband or partner and maternal smoking habits are associated with the earlier introduction of solid food (White *et al.*, 1992; Foster *et al.*, 1995). Recent Canadian research has suggested that the age of weaning is increasing, but there is still a significant proportion of babies who receive solid food before 4 months of age (Kwavnick *et al.*, 1999).

There are several physical and psychosocial variables which could influence the timing of the introduction of solid food. A recent study of 98 mothers from Glasgow (Savage *et al.*, 1998) reported two main reasons for weaning: a perception that the infant was not satisfied with milk feeds and because the baby did not sleep throughout the night. They reported that the main reason for initiating solid feeding was the perception that weaning was 'necessary' to satisfy the infant. Beliefs about the relationship between length of sleeping and intake of solid food may also be strong influences (Walker, 1995). For example, it is perceived that bottle-fed babies sleep through the night at an earlier age than breast-fed babies and this may be an incentive to change the method of feeding (Drewett *et al.*, 1998). The introduction of solid foods may also be seen as a milestone in the infant's development and parents may welcome this as a sign of maturity in their baby.

It is also recognized that health professionals,

family and friends have a leading role to play in supporting and guiding mothers over feeding issues. Savage reported that 65% of women in their study received formal advice on weaning (mostly from health visitors) and that mothers who had received formal information tended to wean their infants later (Savage, 1998).

It is important to examine parental attitudes and beliefs in order to elucidate reasons for non-compliance with current weaning guidelines (Savage *et al.*, 1998; Tedstone *et al.*, 1998), but to date little research exists in the area of social and cultural attitudes towards weaning (Reid and Adamson, 1998).

The decision to introduce solid food depends on a complex interaction of social and psychological factors. An understanding of the process by which decisions are made is important before designing an intervention to change behaviour in line with current government recommendations. Social cognition models have been successfully used to predict health behaviour (Conner and Norman, 1996); the initial stages in this process require identification of relevant factors.

The aim of the present study was to identify a range of cultural and social norms and attitudes which were perceived by mothers as influencing their decisions about weaning, which could be used in a subsequent study in a structured questionnaire. This approach was novel in that contemporary attitudinal factors about weaning were collected from a potential target population rather than relying solely on existing literature and academic and professional perceptions. These results will be used to develop a questionnaire which will provide the basis of a quantitative, representative study on the relative importance of the social and psychological factors that influence the age at which infants are introduced to solid food. Ultimately, these results will be used to inform the design of dietary intervention programmes.

Methods

Five groups of women were recruited (three groups primiparous, one group multiparous and one mixed

primiparous and multiparous from more deprived backgrounds) to take part in focus group discussions. The inclusion criteria for these groups were women who were English language speakers, with no known mental or cognitive disabilities, who delivered their babies in Forth Park Maternity Hospital (Kircaldy and Fife) with babies aged between 8 and 18 weeks. The catchment area for the study encompasses all of Central and South Fife, and to a lesser extent Northeast Fife. At the last census, 99.3% of the population were white, 42% were between 16 and 44 years: 14% of men and 33% of women were economically inactive, and 38% did not own a car (General Registrar Office, Scotland, 1992).

Subjects were recruited through local Health Visitors who contacted mothers with babies aged 8 and 18 weeks, and invited them to participate in focus group discussions on 'feeding matters'. Subjects were contacted on consecutive bases (providing the inclusion criterion was met). No socio-demographic details were collected by health visitors prior to attempting to recruit and no records of numbers, characteristics or refusals were collected. No attempt was made to recruit a representative sample. In recruiting mothers for specific focus groups, parity was a key factor, particularly primiparous women whom it was felt may be reticent in the company of more experienced multiparous mothers. The researcher (C.-A. G.) who explained the procedure in more detail contacted mothers who expressed an interest in attending. Mothers who expressed a willingness to participate were then sent confirmation details and an information sheet.

The focus group discussions were held in a maternity hospital. A crèche was provided and all participants were offered travelling expenses. The group was lead by a psychologist research assistant (C.-A. G.) with another assistant present for note-taking and administrative duties. On the day of the focus groups, participants were met at reception, brought to the discussion room, offered tea or coffee, and asked to complete a short, structured questionnaire on their baby's feeding behaviour and demographic information. Data collected included:

parity, age of mother, age at leaving full-time education, employment details and age of introduction of solids. No details on birth (or current) baby weight were collected.

The content of the discussions initially focused on infant health and growth, and led on to descriptions of dietary, sleeping and behaviour patterns, and their perceived inter-relationships. Participants were directed towards the relevant research question if it did not occur spontaneously. The discussions examined the meaning of common phrases and words to ensure that terminology related to weaning and feeding were universally understood by the group. Items to focus the discussions on food, rather than breast or bottle feeding, were prepared for the sessions, but only used as an initial prompt. These materials were examples of weaning foods (both homemade and shop bought, and included savoury, sweet, organic, packet and jars) and weaning utensils. Statement cards presented as phrases other people have used about weaning (e.g. 'Other people told me when it was time to introduce solids', 'I had more time to do other things once my baby was eating solids') were used to stimulate discussion if these issues were not raised spontaneously in the groups.

Each focus group lasted for approximately 1.5 h and the researchers completed a debriefing sheet after each meeting. The group communications were taped and transcribed. Two researchers (C.-A. G. and A. S. A.) then independently read the scripts, and identified common themes and areas of confusion or uncertainties about weaning.

Results

Five focus groups (with six, five, five, seven and six participants, respectively) were conducted over a period of 2 months with 29 primigravidae. Twenty-two primiparous and seven multiparous mothers (mean age 27.0 ± 4.8 years) participated in discussions about their babies' (mean age 13.0 ± 4.2 weeks) feeding habits. In terms of social characteristics, one-third of the participants had completed their education at age 15 or 16 and a further seven had done so by age 20. Nine were

on paid maternity leave and 14 did not currently have paid employment. Seven of the 29 women reported smoking whilst they had been pregnant. Ten of the 29 participants reported they had already introduced solid food to their infants at a mean age of 11.6 weeks (range 2–16 weeks).

Four main issues arose in all groups:

- Current feeding habits.
- Participant's views and decisions about when to introduce solids.
- How participants felt when the baby had its first solid feed.
- Knowledge and attitudes to current weaning guidelines.

During the course of the first discussion group it became clear that the term 'introducing solids' was usually interpreted as anything the baby ate from a spoon rather than first experience of non-milk foods. This finding led the researchers to redefine the behaviour as feeding the baby with any items other than milk or fluids (i.e. rusks, babyrice) irrespective of how it was delivered (e.g. bottle, spoon, cup) and to include occasions where solids may have been given as a one-off experience.

Within the results section, quotes in italics indicate actual words and phrases used by participants

Current feeding habits

Feeding styles ranged from exclusive breast feeding, basic baby milk, '*hungry milk*' (high casein modified milks), to combined milk and solids. Solid food was presented in the following formats: foods mixed with milk (examples mentioned were rusks, biscuits, rice and sugar), home-made pureed food, confectionery (e.g. '*he's fast becoming the Milky Bar kid*'), fresh fruit, commercially prepared meals (e.g. '*cheese and vegetable bake*') and two-course dinners with a range of items (e.g. '*potatoes, carrots, chicken, gravy, yoghurt and babyjuice*'). The main factors which determined the choice of solid foods given were rarely nutritional, and included factors relating to consistency (e.g. fish with bones were considered unsuitable), establishing '*good habits*' (e.g. feeding savouries rather

than sweets), introducing a varied diet (e.g. '*you can't give them the same thing every day*'), fitting in with babies perceived food preferences ('*likes and dislikes*') and general consumer trends (avoiding genetically modified foods and seeking organic options). In addition, the use of certain foods was discussed in relation to solving problems of constipation (e.g. puddings).

Participants views and decisions about when to introduce solids

The discussions clearly indicated that the participants believed that the introduction of solids was baby led as shown by some physical characteristic or behavioural action of the infant. Some participants who had not yet introduced solids said they were still waiting for their babies to show the 'signs' or waiting until the baby told her that she was '*needing them*'.

Physical and chronological characteristics which could be independently assessed included the baby reaching the recommended age of 4 months, reaching a pre-defined weight or subjective size (perceptions of a '*big baby*' or baby being '*so small*'), starting teething, increased saliva production and the development of constipation. One participant mentioned a guideline of 12 weeks or 12 pounds in weight.

The less clearly defined characteristics were those which were interpreted as signifying hunger. The '*baby having a hungry cry*' was the most commonly acknowledged reason for believing the baby was hungry. A lot of the participants agreed that it was simply '*motherly instinct*' that allowed them to identify a '*hungry cry*', but when pressed they could name certain factors that helped in the identification process. These factors included the timing of the baby's last feed, the time of the day, the amount of physical activity the baby may have done (e.g. '*kicking legs and laughing*'), and trial and error ('*you have a list, try one thing on it and if it works stick with that*'). Clearly, hunger was a concept that the participants thought about from birth and one participant claimed that the reason her baby was born 2 weeks early was because he was hungry. Other signs of hunger included the

baby looking at the food others are eating, the baby *'looking for more milk'*, taking the milk *'too quickly'*, starting to suck air from the bottle when it was finished, starting to need feeding more frequently during the day, *'chewing hands'*, changing sleep patterns, taking food *'fast and furiously'*, and more vague concepts such as *'when bottle doesn't satisfy them'* and *'baby responding to the smell of food'*.

One common tactic participants reported in response to a perceived need to change their babies' feeding behaviour was to offer the baby an increased amount of milk and, if this failed to allay hunger, then to offer the baby *'hungry milk'*, which is casein rather than whey based. If the change in milk did not satisfy the baby then they tried introducing solid feeding.

There was, however, also a recognition that babies may be fed when they are not hungry and that feeding can be used to settle them (e.g. *'it was easy to feed them when they cry because it settles them, like comfort food. If you give a baby food they will eat it'*). In addition, it was clear that when solids were introduced because of changes in sleeping that it also enabled the participants to sleep better as well as the baby.

Other reasons associated with introducing solids included the attractiveness of solid foods (*'the jars look brilliant'*) and eagerness to observe this stage in development (*'I couldn't wait for him to start solids and I was really looking forward to it'*).

How participants felt when baby had first solid feed

When participants were asked how they felt when their babies first had solid food a number of them did comment that they felt *'proud'*. They explained that they felt this pride because *'it was a big achievement for a baby to eat solids'* and *'it feels like he is getting big'*. However, there was also pride expressed in achieving a healthy, happy strong baby solely on breast milk.

One of the main acute aims of introducing solids was *'to settle the baby so that the baby was more contented and happier'*. If the baby became content and did not suffer any obvious ill effects after

solids were introduced this reassured participants that the correct course of action had been taken and provided evidence that the baby needed the food. A quote from one participant highlights this belief *'you are supposed to stick to cereal but he's alright, I would have noticed something if he wasn't'*. Confirmation that feeding solids had been an appropriate action included views that *'baby prefers solids'* and that the baby was *'more content'*, or participants could see *'the look in their eyes'* or signs of *'being satisfied'* such as *'heavy breathing'*.

Some participants said *'that other'* people (such as mother or mother-in-law) had remarked on the baby being more settled after receiving solids. Comments such as *'no doubt that he needed that'* provided the participant with further proof that she was right to introduce solids when she did. Observations made after solids were introduced included signs associated with enjoyment (smiles more, gets excited when sees solid food) and preference for solids (*'forces drink out with tongue as it is not what they are looking for'*). The baby wishing to eat less often was also taken as an indication that solids were satisfactory.

There did seem to be an underlying suggestion that you should enjoy feeding your baby (this was evident in the discussions on breast feeding and bottle feeding into which the mothers often lapsed) and that if it was not a pleasurable experience then some adjustment to feeding should be undertaken. Many of the participants reported that seeing their babies eat solids was exciting for them as illustrated by the following range of statements *'baby looks cute'*, *'amazing to see your baby eating with a spoon'*, *'I could hardly wait to see what he would do'*, that it was fun to watch (*'see baby getting excited'*, *'watch baby laugh'*, *'baby rattles plate'*). However, it was also clear that some participants who had not yet introduced solids were sometimes fearful of doing so.

Some participants reported feeling guilty because they knew they were introducing solids earlier than the recommended time of 4 months. However, this group of participants went on to justify their behaviour by saying that *'the baby*

enjoyed it', 'sleeps longer at night', 'couldn't drink any more but was still hungry so had to try solids'.

Knowledge and attitudes to current guidelines

All of the participants present at the focus group discussions were aware that the guidelines recommended not introducing solids before 4 months, but almost half had (or were planning to) introduce solids prior to this age.

When asked what the basis for this recommendation was, only one participant was aware of the current health issues associated with early weaning. Most participants had a vague, but unclear and incomplete understanding of why they were being recommended to wait until 4 months. Reasons given included: *'feeding solids blocks the goodness of [breast] milk', 'bowel develops differently if give solids early'; 'digestive system is not mature enough'; 'they get immunity from infections for the first 3 months'; 'if given before 4 months their lung might collapse'* (mother referring to her premature baby) and *'antibodies'* (nobody expanded further on what this meant). One participant mentioned that her husband was now suffering an illness which she was concerned could be traced back to the early introduction of solids.

Competing with this lack of understanding is the suggestion that current recommendations might be incorrect. For example, most of the participants reported that their partners and friends said that they had been given solids before 4 months, and appear alive and well. It is perfectly conceivable that the participants based their feeding decisions on evidence that they can see (i.e. themselves being healthy and their babies being happy) rather than recommendations which often have an element of inconsistency. A number of participants mentioned that the pre-1994 guidance highlighted 3 months as an appropriate age for weaning.

Many of the participants discussed the inappropriateness of having a rigid guideline, an approach which contrasted with health advice from many health professionals which focussed on the principle that every baby is different and that every baby is an individual. The following quotes illus-

trate the frustration with these contrasting approaches to advice: *'I think it is all very well them saying until 6 months but every baby's different. I mean Alan's starving all the time', '4 months is guideline only and if baby is hungrier earlier then they are ready', 'babies are individual, some hungry all the time, some sleep all the time so guidelines have to be flexible'.*

Discussion

The current work was undertaken as formative research to explore contemporary issues about the timing of introducing solid food to babies in a Scottish population. A qualitative methodology was employed in order to identify definitions and language around current feeding practices, and to explore the range of factors influencing feeding decisions (Greenbaum, 1998). Given the context in which the group discussions were held, care was taken to avoid undue emphasis on the role of health professionals. To some extent, responses were guided by the discussion leader who was familiar with the academic literature in this field (to assist historical sensitivity (Silverman, 1998) and it is recognized that, inevitably, the subjective experiences of the researcher will have influenced the interpretation of results (Mays and Pope, 1995).

The results were analysed specifically to identify appropriate content domains in an interview schedule. It is recognized that the categories identified have overlap and other secondary themes can be flagged, but it is unclear whether inclusion of all interacting factors could be used in the following interview schedule. Whilst the relative importance of the weaning issues identified (or how these should be prioritized in the design of intervention approaches) cannot be ascertained from the current work, they do provide a basis for the content of questions which can be designed within a theory-based structured interview schedule for use in a representative sample of new mothers.

Participants were a convenience sample and not meant to be representative of the population as a whole. We are unable to comment on the characteristics of non-participants, but the demographic

profile of our subjects provides some indication of the background profile of participants. Primiparous women were selected for study in order to explore a wide range of views on weaning and identify some of the insecurities that may arise in less experienced mothers. Multiparous women were also included (but in a separate group) to allow for reflection of the impact of previous experience and how that might alter with the new baby. It was also recognized that mothers from more deprived areas may have different life circumstances influencing health behaviours and attempts were made to capture some of these issues by carrying out one focus group selected on area of residence.

The specific findings which will usefully inform interview design include definitions of weaning, baby characteristics and social pressures which act as perceived stimuli to alter feeding habits, parental actions and rationale over feeding behaviour, and views and attitudes about current recommendations.

The results illustrate that health professionals and parental definitions and meanings of 'weaning' clearly vary. The addition of solid food to bottles, for example, may be perceived as 'milk feeds' by parents, but would be defined as part of the weaning process by professionals because such actions may have implications for allergies and other medically related conditions. A proposed definition of weaning for use in a questionnaire should then focus on 'any food items other than milk' irrespective of the route of delivery.

The present results highlight the complex nature of feeding options that may be considered by new parents, and stretch far beyond simple issues of when to give solids, how much and what the food should be. Previous workers have reported a range of weaning practices around changes in milk feeding such as use of skimmed milk, full-fat cows milk diluted with water, and the addition of cereal and crushed biscuit to milk drinks (Retallack *et al.*, 1994). However, the present data show that in addition to these issues there are a myriad of options parents have to consider over weaning foods including the format of products (jars,

packets), the perceived healthiness of products (free from genetically modified foods, organic options, use of additives), concepts of baby taste preferences, concepts of variety (differing items in one course, one meal or one day) and longer-term issues (e.g. establishing eating habits) which highlight the need to identify the priority placed on these factors by parents (as opposed to professionals).

As previous work has shown (Rajan, 1986; Harris, 1988; Walker, 1995), the infant's behaviour appeared to be the main stimuli for changing feeding practices. The current study suggests that some parents are alert to watching for perceived signs of 'hunger' and are aware that these will vary on an individual basis. Recognizing and responding to hunger also appears to be related to milk options (and the way in which they are promoted). The ability to describe individual baby characteristics seems to be accompanied by a need to be able to interpret their meaning and assume a response is necessary. From the current data it is not clear whether parents who delay the introduction of solid food respond differently to such stimuli or whether these characteristics are actually less evident or absent. The use of food to 'comfort' a baby rather than to relieve hunger illustrates one of the non-nutritional uses of food which are used as parental coping strategies. Similar reports from the US (Baughcum *et al.*, 1998) suggest that mothers use food to influence children's behaviour by trying to calm babies and as a reward.

It was clear that weaning had been discussed with a range of people including the wider family and friends, and that the development of beliefs relating to weaning were also influenced by factors such as personal experience, health professionals, and written lay and professional communications. The current findings are consistent with those of Savage *et al.* who describes an extensive list of personal and written information about weaning (Savage *et al.*, 1998). From this small sample the rationales used to support particular actions were often relatively simple and based on lay concept of 'evidence'. The most frequent justification cited

was short-term signs of 'health', mostly perceived as signs of contentment or happiness and absence of immediate 'disease' or 'distress'.

'Enjoying' parenting seems to be an important assessment of parenting skills, which relates to feeding behaviour, but also to maternal sleep requirements. This perceived societal feedback may play a considerable role in infant nutrition and, indeed, Murphy suggests that infant feeding carries 'considerable moral baggage' (Murphy, 1999), but as yet the importance of this has not been fully ascertained.

In this sample, current advice on avoiding solids until the baby was 4 months of age appeared to be of somewhat limited relevance in comparison to individual babies' perceived developmental stage. In addition, a low awareness of the evidence base for the current recommendation that is relevant to current health and possible inconsistencies in dietary advice from lay advisors compared to professional advisors may add to confusion over how important the timing of weaning really is in infant health and development. Additionally, low confidence in government recommendations on food and health may cloud decisions about what is perceived as the 'correct action to take' and undermine motivation to comply with current dietary guidelines.

The dilemma of developing a flexible approach to child care behaviour and being advised to follow rigid guidelines on avoiding solid feed till 4 months clearly presents a problem, particularly for health professionals who may find their credibility called into question (Walker, 1995). The result from this formative work suggest that a range of stimuli and outcomes to introducing solids before 4 months are relevant (e.g. values associated with baby being content, reaching developmental mile-stones, long-term health), as are normative influences (e.g. partner, health professionals, mothers) and attitudes to current advice (e.g. correct, stupid, impossible). Further research is in progress using a quantitative approach to identify the relative importance of these variables for use in the design of future intervention programmes.

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