Introduction

Weaning, defined as the transition from milk to solid food during the first year of life, is a process important for not only nutritional and developmental reasons, but also for its potential influence on life-long feeding patterns and health. It is currently recommended that the weaning process commence around six months of age, when the volume of milk ingested by exclusively breastfed infants becomes insufficient to meet their nutritional requirements. Such weaning practices may increase the risk of childhood obesity, the seriousness of which stems from its association with cardiovascular disease, type II diabetes mellitus, and cancer. Ireland has high rates of childhood obesity, with a quarter of children aged four to sixteen years being overweight or obese. Furthermore, children are not equipped to handle the prejudice and stereotyping associated with obesity, resulting in adverse social and psychological functioning. As such, this is a critical period for developing obesity, but equally an opportune time to intervene on, or preferably prevent, it.

The food environment must be considered when addressing the burden of obesity and associated chronic disease. The food environment is determined by direct (micro-level) and indirect (macro-level) influences such as food availability, price, marketing, and societal issues. The increasing burden of childhood obesity essential that parents have the correct knowledge to make positive food choices on behalf of their children with the introduction of legislation. The introduction of mandatory sources of haem iron from six months of age to coincide with the depletion of iron stores from birth is an important infant feeding issue. Iron deficiency anaemia has been reported as an issue of concern amongst infants in Ireland with mild anaemia in infancy can adversely affect long-term mental and psychomotor development.

Methods

The study sample was obtained in three urban and two rural shopping centres across Dublin and Laois. Census data used to categorise each shopping centre location according to relative deprivation in Ireland. The resulting categories were: Disadvantaged Inner City Area, Affluent City Area, and Socioeconomically Mixed Rural District. The survey stand who appeared to be of child-bearing age were invited to participate if they had an infant less than 30 months of age. A standardised, pilot-tested questionnaire obtained information on the age of the youngest child, mothers age group, and age of first non-milk food. The inclusion of 9 common dietary sources of iron from six months of age to coincide with the depletion of iron stores from birth is an important infant feeding issue. Iron deficiency anaemia has been reported as an issue of concern amongst infants in Ireland. Evidence suggests that even mild anaemia in infancy can adversely affect long-term mental and psychomotor development.

A scan of commercial infant foods marketed by infant food companies in supermarket multiples in Ireland was conducted. Information such as the product name, meal category, age grouping, presence of gluten, and available nutritional information per 100 grams of product was tabulated. Information was gathered from products on supermarket shelves, and web, telephone, and email services offered by manufacturers. All products were compared with European Union legislation 2006/125/EC to ensure compliance with essential composition. Commercial infant desserts and snacks which were not fruit- or dairy-based and commercial infant foods containing cured meats were listed as being at variance with best practice infant feeding guidelines, which advise minimal added sugar and fat and no added salt. SPSS Statistics version 18.0 was used. Statistical significance was p<0.05. Normally distributed categorical data were analysed using cross-tabulations and chi-squared statistical tests. Independent-samples t-tests assessed considerations mothers had on providing milk to an infant.
Results

Social and demographic characteristics

The demographic characteristics and weaning practices of study participants (n=195) are presented in Table 1. Twenty-three per cent (n=44), 36% (n=71) and 41% (n=80) of mothers were surveyed in the Disadvantaged Inner City Area, an Affluent City Area, and a Socioeconomically Mixed Rural District respectively. Most infants in this study (97%, n=190) were born in Ireland. Two percent (n=3) of infants were consuming a vegetarian diet. The public health nurse was regarded as the most useful source of infant feeding information, as reported by 29% (n=57) of mothers. Of the total group, 82% (n=159) of mothers felt that there should be more information available on weaning infants onto solid foods.

Introduction and consumption of iron-containing foods in the first year of life

Of the 97 infants aged over 12 months, 68% (n=66), 39% (n=38), and 52% (n=50) of infants received beef, pork and lamb respectively before 12 months. Half of these infants also received sausages (51%, n=49) and ham (53%, n=51) before 12 months of age. A quarter of infants (n=24) received none of the recommended red meats (beef, lamb and pork) before 12 months of age. Mothers of infants under 12 months (n=98) reported planning to introduce iron-containing foods at 8.1 – 1.8 months. The majority of mothers (89%, n=86) with infants over 12 months of age (n=97) reported deliberately delaying feeding particular iron-containing foods to their infant during the first year of life (Table 2). Most mothers who delayed recommended red meats did so because they considered them to be inappropriate for infants (Beef: 75%, n=21; Lamb: 77%, n=13; Pork: 47%, n=7). "Inappropriate foods" encompassed mothers’ concerns regarding the infant’s dentition, ability to swallow meat, and fragile digestive system.

Mothers’ knowledge influenced the introduction of iron-containing foods

Less than a third of mothers (31%, n=60) from the whole group reported the correct age at which iron is important in infant diets. These mothers (n=60) introduced recommended red meat significantly earlier (mean age of 7.1 – 1.5 months) than mothers who were not aware of this age (n=135; mean age 8.4 – 2.5 months, p=0.006).

Mothers’ considerations regarding red meat introduction may impact the timing of red meat introduction

The most common considerations mothers had about introducing red meat into their infant’s diet was the perceived ‘risk of choking’ (59%, n=115) and the belief that meat ‘texture is too tough’ (47%, n=92). The mean age of red meat introduction was significantly different (p=0.03) between mothers who reported that the tougher texture of meat was a consideration (8.4 – 2.3 months, n=70) and those who did not (7.5 – 2.3 months, n=54).

Scan of commercially available infant foods

The scan of commercial infant foods identified 448 such foods available in Ireland. The nutritional composition provided on the label of each product complied with European Union Commission Directive 2006/125/EC. Some foods (15%,
n69) did not emulate best practice infant feeding guidelines (Table 3), as they were intrinsically high in sugar, fat, or contained added salt. Over two-thirds (68%, n113) of mothers surveyed used commercial baby foods, and 32% (n69) did not emulate best practice infant feeding guidelines (Table 3), as they were intrinsically high in sugar, fat, or contained added salt. The potentially negative influence of these foods on infant feeding practices should be recognised, since a third of mothers reported using such foods as ideas for homemade meals.

It is also important to recognise the role of non-haem iron food sources such as fortified cereals and follow-on formulas, especially in infant diets lacking haem iron food sources. Regular consumption of these foods can help to prevent iron deficiency. Therefore, measures at the family level must be matched by changes in the larger environment, such as changes in industry and legislation, to help sustain positive health choices made by parents on behalf of their children.

Parental education on best practice in infant feeding is needed to promote suitable food choices on behalf of children. However, nutrition education in isolation has minor and short-lived effects at best. Therefore, measures at the environment were deemed inappropriate. Finally, this study is not nationally representative, and its design does not permit inference about causality from the results obtained.

This study highlights areas of concern regarding infant feeding in Ireland; however, a number of study limitations must be acknowledged. It was not possible to ask all women of child-bearing age passing the stand to participate in the survey. As such, sampling bias must be considered. Additionally, mothers socioeconomic status was categorised according to the location of the shopping centre in which they were surveyed. No other measures of socioeconomic status were assessed since requesting this sensitive information in a shopping environment was deemed inappropriate. Finally, this study is not nationally representative, and its design does not permit inference about causality from the results obtained.

Parental education on best practice in infant feeding is needed to promote suitable food choices on behalf of children. However, nutrition education in isolation has minor and short-lived effects at best. Therefore, measures at the family level must be matched by changes in the larger environment, such as changes in industry and legislation, to help sustain positive health choices made by parents on behalf of their children.

A gap in parents knowledge on infant feeding has been identified in this study. The possible influence of commercial baby foods which are at variance with best infant feeding practice is a concern in terms of obesity and chronic disease. Therefore, whilst education is essential to inform parents, the commercial baby food industry equally has a role to play in creating a more supportive environment for best practice in infant feeding.

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References

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