Introduction

Many models have been developed to explain food choice behaviour (Yudkin, 1956; Pilgrim, 1957; Khan, 1981; Randall and Sanjur, 1981; Krondl and Lau, 1982; Booth and Shepherd, 1988; Furst et al., 1996) but little research has focused upon young people. The food choices and eating patterns of this group have raised concern among those aiming to promote a healthier lifestyle for the next millennium. In Northern Ireland deaths from coronary heart disease (CHD), in particular, are of major concern. The Province has the second highest rate of heart disease in the world and in 1992, 4,313 people died due to CHD.

It is during adolescence that many eating habits are established which may be difficult or even impossible to alter in later life (Davis, 1991). This has important implications for future health and as the National Forum for Coronary Heart Disease Prevention (1994) states “... the typical unhealthy diet increases the risk of a variety of health problems both in childhood and in later life ... Consequently, healthy eating habits should be started early”. Thus it is important to examine the factors which influence the food choice decisions of young people, in order to encourage them to make healthier food choices.

Factors influencing food choice decisions

“The diet of any individual, whether child, adult or adolescent, is the result of the intermeshing of a range of factors, many of which are complex and conflicting” (Shepherd and Dennison, 1996). This complexity increases when the focus is placed on young people, who are at a stage of development described as “turbulent” and characterised by major physical and psychological changes (Woodward, 1986). The development of food choice models has, in part, helped to highlight the various influences but has not provided a sufficient level of explanation or application (Shepherd and Sparks, 1994).

Social factors influence food choice and eating habits and the family remains the major
agency of socialisation from infancy to adolescence (Giddens, 1993). Sociologists have stated that “food is not simply a biological but also a social phenomenon” (Murcott, 1997) highlighting the impact of social factors. Rozin (1996) believes that early experiences shape and determine later preferences and Casey and Rozin (1989) indicate that “there is something to be learned from parents about the establishment of likes and dislikes”.

Conte et al. (1993) found the mother to be an important influence on the types of foods chosen and ultimately, the food consumed within the household. It is recognised that from the ages of five to eight parental influence has the most important effect on food choice, in spite of a growing awareness of other influences. As a child develops, other influences come into action which can reverse, modify or alter the behaviour established in the home.

Many parents feel that school marks a time when their child becomes more independent and their influence decreases, due to increased contact with peer groups. Duncker (1938), as cited in Birch et al. (1980), found that peer relations tended to result in an expanded range of food preferences. Birch (1980) also investigated the influence of peers on pre-schoolers and their preferences for vegetables and concluded that peers had a positive influence on the acceptance of certain vegetables. However, conflict between research exists and Williams et al. (1993) found few relationships between adolescent food choices and those of their peers, in a study in Tasmania.

In addition to family and peers, culture also affects food choice, “What food we buy, where we buy it and how we consume it is ultimately connected with the culture in which we have been brought up” (Bareham, 1995). Curry (1984) assessed the influence of culture on the diets of 521 young people between 11 and 16 from the UK (n = 149), New Zealand (n = 107) and the USA (n = 265). It was concluded that culture had an impact on diet and that the British culture had infiltrated into New Zealand and the USA due to historical connections. However, teenagers may rebel against cultural norms in an attempt to be different and also become exposed to other factors which may exert a stronger influence over food choice decisions.

Socio-economic status is also thought to have an effect on food choice. Higher income groups are considered to eat more of the foods classified as part of a healthy diet. However, McKenzie (1974) recognises that “prosperity creates problems in terms of diet and food choice” basically due to the dangers of developing “self induced” diseases. Shepherd et al. (1996) found that lower income groups have less to spend on food which has a negative impact on healthy eating practices.

Psychological behaviour, involving people’s beliefs and attitudes, also affects food choice. For example, people develop various beliefs about food, which may direct behaviour and alter their diets. Similarly, Bareham (1995) states that “attitudes shape behaviour” whereby a favourable attitude may encourage a product to be consumed. However, he maintains that “attitudes are also shaped by behaviour”, for example, where a “mistake purchase” could result in the development of a favourable attitude.

In addition physiological needs influence food choices. Demands for nutrients such as protein, calcium, iron and zinc are relatively high (NDC, 1995) due to the rapid “growth spurt” which occurs during this period, although many young people fail to choose the correct foods to meet these requirements. However, the diets of teenagers and children in the UK are usually high in fat and sugar. This study examined the food choices of children and teenagers between nine and 17 in Northern Ireland and the factors affecting their food choice decisions and eating habits.

Methodology

A variety of research methods were implemented. Observation was carried out in five schools, during lunch breaks in school cafeterias and lunchrooms, to give an indication of the types of foods being chosen. The schools were selected according to location and educational ability (secondary schools in Northern Ireland are segregated according to academic attainment at the age of 11) to include a range of socio-economic groupings. The observation was mainly non-participant although selected students were approached if their choice of food was considered to be worthy of further investigation, for example,
exceptionally high in fat and/or sugar. This observation led to a more detailed study using a questionnaire.

Questionnaires were distributed in ten schools throughout Northern Ireland (both rural and urban communities) to further investigate food choices, adopting the same selection criteria as before. The schools were all co-educational with four primary schools (ages 9-11) and six secondary schools (ages 11-17) taking part. A pilot study was carried out to ensure that the wording of the questions was correct and appropriate for children. A range of questions were asked (Warwick et al., 1997) which were mainly in closed format, defined as “questions in which a number of alternative answers are given” (Wilson and McClean, 1994), in an attempt to focus the child and reduce the risk of misinterpretation. A questionnaire was also distributed to parents containing similar questions to enable a comparison of responses and to assess whether parents were aware of their children’s food choices and eating habits. Following the pilot study, 764 questionnaires were completed by young people with 516 parents responding, giving a response rate of 67.5 per cent. The results were analysed by the Statistical Programme for Social Sciences (SPSS) for Windows and the chi-square test ($\chi^2$) used to analyse the association between the test variables.

The quality of young people’s diets was further assessed via in-depth case studies on 14 young people between nine and 17 years of age. The candidates were members of youth organisations in two different areas of Northern Ireland, an inner urban area in Belfast and a rural community approximately 20 miles west of Belfast. These two areas represented various socio-economic groupings and facilitated comparisons. Each of the candidates had to record their diet, including all snacks, for one week, on five separate occasions, during a one-year period. As the aim was to consider the types of foods being chosen and not the nutritional wellbeing of each individual, food intakes were not weighed. However, as the programme progressed the candidates were requested to indicate the cooking methods used and to provide more detail concerning the types of food or drink consumed, for example, whole or semi-skimmed milk. The programme involved a training week to eradicate any possible problems and to ensure that the young people understood the procedure. On completion of the training the candidates then had the option of leaving the case study programme.

Results and discussion

Observation

The observation highlighted the popularity of foods such as French-fried potatoes (chips), hamburgers, hot-dogs, potato crisps, confectionery and carbonated drinks. It was noted that younger males, in particular, were more inclined to choose chips as part of their lunch, whereas older females tended to be more “health conscious”. One 11-year-old boy observed selected a portion of chips, one doughnut, one Mars bar and a carbonated (fizzy) orange drink. When approached the child revealed that this was his choice of school lunch every day. The observations also indicated that the educational ability of the child, broadly differentiated by the type of school, had little influence on choices made. These trends were further substantiated by the questionnaire.

Questionnaires

Age

In total 764 children completed the questionnaire with all ages (9-17 years) being represented. These were classified into three categories: 9-11-year olds, 12-14-year olds and 15-17-year olds to enable cross-tabulation using SPSS. Overall, the results indicated that age did have a significant association with food choice and eating habits. The 12 to 14-year olds and the 15 to 17-year olds were more inclined to eat school meals with 59.0 per cent and 50.6 per cent respectively compared to 27.4 per cent of 9 to 11-year olds ($p < 0.001$). The trend was reversed when the consumption of packed lunches was viewed. This can be partly explained by the introduction of the cash cafeteria system into secondary schools (11+ years) whilst the traditional set school meal remains in primary schools. The cash cafeteria system undoubtedly provides a wider choice for the child as they are allowed to select the items that are preferred from a range of foods.

The effect of this choice was again evident when the options for lunch were analysed. 44.9 per cent of 12 to 14-year olds and 37.0 per cent of 15 to 17-year olds chose chips
compared to only 16.4 per cent of nine to 11-year olds \( (p < 0.001) \). In addition to this, the percentage opting for a piece of fruit for lunch was greater among the younger group at 26.5 per cent \( (p < 0.001) \). This group are still at the stage where food consumption, at lunch times, can be influenced by either parental or educational control; thus overall food choices appeared to be healthier. However, it must be noted that the crisp and confectionery consumption was also slightly higher among this group. In general terms, lunch-time choices among 9 to 17-year olds were a cause for concern due to the low percentages choosing the healthier options such as baked potatoes (3.0 per cent), fruit (14.5 per cent) and salads (3.8 per cent) compared to chips (34.8 per cent), confectionery (25.9 per cent) and crisps (18.5 per cent).

The popularity of carbonated drinks was evident from the questionnaire, especially among the 15 to 17-year olds (64.8 per cent, \( p < 0.001 \)). A trend was also noted in the decreasing consumption of pure orange and milk among this group which is perhaps worrying, especially in relation to vitamin C and calcium intakes respectively. Figure 1 indicates the consumption of carbonated drinks, pure orange and milk among the three age categories.

Snacking was also prevalent among all age groups with significant associations evident in relation to snacking choices and the different age groups, as indicated in Table I. The 9 to 11 year olds appear to consume a wider variety of snacks and may, for example, consume two to three choices together, as one snack. Overall, the total percentage indicated the popularity of crisps, chocolate and sweets as snack selections in comparison to fruit. These findings are in line with previous research indicating the sustained popularity of high fat and/or sugar snacks (McGuffin, 1983; Collings, 1994).

Young people are inclined to miss breakfast (Webster, 1995), with Bartlett (1993) suggesting 58 per cent of young people leave the house in the morning without eating. The questionnaire indicated that the figure for Northern Ireland was lower at 32 per cent. However, the trend of adolescents being the most likely to miss breakfast was substantiated with 79.6 per cent of 9 to 11-year olds, 65.9 per cent of 12 to 14-year olds and 56.8 per cent of 15 to 17-year olds eating breakfast \( (p < 0.001) \). This trend was also related to snacking on the way to school with 15.7 per cent of 12 to 14 and 11.1 per cent of 15 to 17-year olds most likely to eat as they travelled to school \( (p < 0.01) \).

Given these results age does appear to be significantly associated with food choices.

![Figure 1](image.png)

**Figure 1** Consumption of carbonated drinks, pure orange juice and milk among 9 to 11, 12 to 14 and 15 to 17-year olds

### Table I Age and its association with snack choices

<table>
<thead>
<tr>
<th>Age</th>
<th>Crisps per cent</th>
<th>Fruit per cent</th>
<th>Chocolate/sweets per cent</th>
<th>Biscuits/cakes per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-11</td>
<td>72.1</td>
<td>62.8</td>
<td>63.3</td>
<td>41.6</td>
</tr>
<tr>
<td>12-14</td>
<td>70.7</td>
<td>39.9</td>
<td>57.2</td>
<td>33.2</td>
</tr>
<tr>
<td>15-17</td>
<td>61.1</td>
<td>50.0</td>
<td>67.3</td>
<td>30.2</td>
</tr>
</tbody>
</table>

**Significance level**

- \( p < 0.05 \)
- \( p < 0.001 \)
- \( p < 0.05 \)

**Total per cent**

- 69.1
- 48.8
- 61.1
- 35.1

**Key**

- **9 to 11**
- **12 to 14**
- **15 to 17**

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The 12 to 14-year olds were the group who were most likely to eat chips and least likely to consume fruit. However, it is difficult to conclude which group is most at risk of an “unhealthy” diet, as each group revealed worrying trends. It can, however, be concluded that 9 to 17-year olds in Northern Ireland must review their food choices and in particular reduce confectionery and potato crisp consumption and increase fruit intake.

Gender
The research confirmed that females generally have a slightly “healthier” diet than males, consuming more salads (5 per cent compared to 2.5 per cent (\( p < 0.05 \))), more fruit (15.2 per cent compared to 13.8 per cent) and less confectionery and carbonated drinks. However, the associations between gender and food choices were not as significant as those between age and food choices.

The investigation into age revealed that milk consumption was low and it was further confirmed as being lower among females with only 4.4 per cent drinking milk compared to 7.9 per cent of males. Although this result was not significant it is still of importance due to the risk of osteoporosis in females in later life (NDC, 1992) which has been linked to low intakes of calcium in earlier years. Consumption of breakfast was significantly associated with gender; 58.7 per cent of females in comparison to 78.5 per cent of males consume breakfast; therefore it can be concluded that older females are more likely to miss breakfast. Figure 2 highlights breakfast consumption when both age and gender are taken into consideration. It can be noted that consumption decreases with age in both genders but more so with females (\( p < 0.001 \)).

Socio-economic grouping
To determine the socio-economic grouping the occupations of the parents were requested and were classified according to the Registrar-General’s Five-Point Occupational Scale (Foxall, 1986; Bareham, 1995). The children with parents in the lower socio-economic groupings (unskilled workers and the unemployed) were more likely to eat school meals with 62.5 per cent and 52.9 per cent respectively (\( p < 0.01 \)). There were significant associations between socio-economic grouping and the consumption of chips and fruit. The children with parents in professional positions (higher socio-economic groupings) consumed less chips (22.8 per cent) than children with unemployed parents (40.2 per cent), (\( p < 0.05 \)). Similarly, the trend was reversed when fruit consumption was investigated with 25 per cent of the children in the higher group eating fruit compared to only 8.9 per cent of the children in the lower group (\( p < 0.01 \)). These trends are in line with previous research indicating that higher socio-economic groups eat more foods which could be classified as being part of a healthier diet (Gerhardy et al., 1995).

Parental questionnaire
The questionnaire administered to the parents was used as a comparison for the results received from the children. It was interesting to note the following differences:

- More parents than children identified fruit as being consumed (29.5 per cent parents compared to 14.5 per cent children (\( p < 0.001 \))).
- More parents than children stated that breakfast was eaten (75.8 per cent compared to 58.7 per cent).
compared to 68.1 per cent ($p < 0.05$)).

- Fewer parents than children admitted to confectionery consumption (68 per cent compared to 74.1 per cent ($p < 0.05$)).

- Fewer parents than children stated that snacking occurred on the way to school (4.1 per cent compared to 12.7 per cent ($p < 0.001$)).

- Fewer parents than children identified the consumption of chips as part of an evening meal (30.2 per cent compared to 38.1 per cent ($p < 0.001$)).

These differences may be explained by:

1. the parent wishing to perceive that their child’s diet is healthier than it really is; or
2. a lack of knowledge concerning what their child actually eats.

It is important to note that the age group in question are at a stage of development where they may desire greater independence and resist parental control; thus the second explanation is both possible and understandable.

**Case studies**

The observation and questionnaires raised concern as to the types of foods being chosen by young people and ultimately the quality of their diet during these years. The case studies investigated the diets of 14 young people in greater depth, and highlighted the differences between the two locations. Tables II and III illustrate the diets of two of the candidates, recorded over a two-day period. Both were nine year old females with candidate 1 living in a rural area approximately 20 miles north west of Belfast and candidate 2 from an inner city district in a lower class area of Belfast.

Candidate 2’s diet indicated a lack of fruit and vegetables, apart from peas, and a limited fibre intake. This pattern was in fact consistent across the study. In contrast candidate 1 had a variety of fruit, vegetables, cereals and wholemeal bread included in her diet, again a trend which was noted throughout the study. Although the example given would suggest that candidate 1 was vegetarian, the remaining diet sheets indicated otherwise. Also a difference in the consumption of confectionery was noted with candidate 2 consuming a considerable quantity of sweets and having a bottle/can of Coca-Cola every day. In comparison to candidate 1’s diet the diet of candidate 3 (Table IV), a nine-year-old male from the same area, highlighted the differences between male and female diets, as indicated in previous results. Although the form lacked detail on occasions, the candidate was interviewed informally and he admitted to eating a vast amount of snack foods, especially confectionery and very little fruit.

An interesting finding was observed when a 15-year old female (candidate 4) from the rural district was investigated. Table V highlights her diet which was low in fruit and vegetables and high in fat and sugar products. This diet was not consistent with the other female diets recorded in the rural area but it was revealed that the child had only recently moved to the area and was originally from an inner city area – an observation perhaps worthy of further investigation.

**Conclusion**

In the light of previous research and considering the amount of information now

<table>
<thead>
<tr>
<th>Table II Candidate 1 diet recall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day</strong></td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Monday</td>
</tr>
<tr>
<td>Tuesday</td>
</tr>
</tbody>
</table>

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available on healthy eating, it is disappointing to note that the diet of the younger generation is still a cause for concern. The poor diet of many young people today has implications for the health status of the adult population in the twenty-first century, especially as future health is often established in the early years of life. It would appear that the general population has received sufficient information on diet and how to establish healthy food choices but this seems to have had little long term impact. The young people surveyed did reveal a knowledge of healthy eating practices but still failed to put this knowledge into practice. Many factors influence food choice and the age, gender and socio-economic grouping of the child all have an effect. Hunton (1994) highlights that healthy eating has to be sold as a “fun ticket and not a health ticket” which may have a more positive influence on food choice among young people. If a reduction in health-related diseases is to occur and food choices are to improve, change is necessary but facilitating this change remains a challenge. Young people have to start now to make the right food choices for lifelong health.
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