

Abstract

Objective:

To increase healthy eating practice and knowledge of post-primary school students in the Midland Health Board region, and at the same time assess the nutritional knowledge, eating habits, and foods available in these schools.

Design:

Anonymous self-completion questionnaire and innovative student centred project.

Setting:

Post primary school students in the Midland Health Board region of Ireland.

Participants:

Transition year students who surveyed all student years in school setting.

Main outcome measures:

Projects initiated, tuckshop and lunchbox changes, knowledge obtained.

Results:

Students created innovative means of promoting healthy eating, including: price manipulation in tuckshops; internet website; company involvement. Changes were noted between the pre- and post- SNAKS eating habits and purchases of students. It was apparent that there was a gender difference in smoking levels and weight satisfaction, with females being more likely than males to smoke and want to lose weight. Advertisements for chocolate were deemed to be the most influential on food choice, 'Friends' was the most popular TV programme, and 'sugar' the favourite magazine. Peer-led education seemed to lay a major role in the promotion of the healthy eating message, with novel student ideas capturing their peers attention.

Conclusions:

Post-primary school students seem to be influenced favourably by peer-led education in the area of health education and nutrition. The implementation of awareness raising projects by transition year students in their schools led to favourable changes in the habits of students and the foods available in the school setting.

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Executive summary:

Introduction:

School Nutrition Action and Knowledge Survey (SNAKS) was an initiative which was set-up in 1999, by the Midland Health Board (MHB) through the Midland Schools Health Project and the Community Nutrition Service (CNS) with Bord Bia and post-primary schools.

It was initiated as a response to feedback from the Midland Schools' Health Project, which determined, through post-primary school contact, that there was an urgent need for nutritional intervention in this setting, with teachers expressing concern regarding the nutritional status and habits of their pupils.

Aims & Objectives

The aim of the programme was to increase healthy eating knowledge and practice in the post-primary schools in the MHB region, and to gain insight into the nutritional knowledge, eating habits and foods available in this setting.

Nutritional intake during adolescence is important for growth, long term health promotion and the development of lifelong eating behaviours (Story & Alton, 1996). Despite the importance of healthy eating during adolescence, adolescent lifestyles, influenced by the desire to fit social norms, may not be conducive to encourage teens to eat in a manner that meets the increased and changing nutrition needs during this period (Neumark-Sztainer *et.al.*, 1999). This, together with a lack of sense of urgency regarding future health, may make nutrition a low concern among adolescents (Story & Resnick, 1986).

Interventions, in the past, aimed at the modification of adolescent eating behaviour have met with mixed success (Lytle, 1995). It is felt that this may be due in part to a lack of understanding of the factors associated with eating behaviours among adolescents and that these factors need to be addressed for interventions to be successful. (Neumark- Sztainer *et.al.*, 1999).

Methodology:

SNAKS involved transition year (TY) students. Schools were invited to participate in the study and twelve schools enrolled (n=7421) in the project. The study format was as follows:

- ◆ the induction of students with regard to study outline
- ◆ the administration of a self-report questionnaire, by transition year students in the classroom setting, to assess the nutritional knowledge and eating habits of students together with food services available in the school
- ◆ the collection of data from surveys and the implementation of a nutrition promotion project in the school.
- ◆ the re-surveying of students to assess if the project that was implemented had had any affect on the peer group.

Results:

Seven schools in total completed phase one of the project (n=4465), while only five schools completed survey one and two. (n=2871). Difficulty was encountered in the collection of data from school, therefore 13% random sample was taken from each set of surveys and results were hence calculated. The results suggest that eating habits were favourably effected by the implementation of SNAKS within the school setting.

◆ Foods eaten

Packed lunch contents changed following SNAKS intervention, with the level of fizzy drink and chocolate included in the lunch decreasing, and the level of yoghurt inclusion increasing. The foods available in tuckshops was favourably affected with the inclusion of more healthful foods, which was reflected in the foods that students reported buying from their tuckshop after SNAKS introduction i.e. overall increase in yoghurt and milk purchase, and decrease in fizzy drink and chocolate purchase. It was interesting to note that in the case of packed lunch and tuckshop crisp choice either remained constant or increased.

◆ Weight related issues

Weight related issues were looked at in the SNAKS study. Female students are more dissatisfied with their weight (56.2%) than their male counterparts (32.3%). Dissatisfaction with weight tends to increase from 1st year (28% males; 50% females) to sixth year (40% males;

54% females). The highest level of dissatisfaction with weight is seen in TY classes in both sexes. Of those who are unhappy with weight there is a gender-related trend: 85.5% females wish to lose weight, in contrast to males (53.9%) who want to gain muscle.

◆ Smoking levels

Current smoking levels were reported with levels for girls (29%) exceeding those for boys (24%), both of which exceed the national average of 21% (HBSC, 1999), and the regional Midland Health Board figures of 20% for boys and 18% for girls (HBSC, 1999). With such a large proportion of the female student population dissatisfied with their weight, trying to lose weight and smoking at such high levels, consideration must be given to the fact that these females may be using smoking as a method of weight control (Bernstein *et. al.*, 1996).

◆ Projects implemented by students

Projects implemented by students included: Internet website production; cost strategies in tuckshops; poster campaigns and competitions; healthy eating weeks; tuckshop openings. There was a positive feedback from students and teachers as to the benefits obtained from the project.

Observations and recommendations:

In the future more specific areas of nutrition could be targeted such as focusing on the importance of the nutrients calcium, iron or folic acid in adolescence. It would also be important to try and compare actual to perceived nutritional knowledge amongst school children. Students found that the workload of the project was immense, and in the future steps such as: using a representative survey sample only, commencing the project in the first term, and making the questionnaire shorter, would all reduce student workload and help ensure that data was collected, collated and entered into a database adequately.

The reasons for the complication that arose with regard to data collation and presentation was manifold. The information pack provided, for instance, seemed to be an inappropriate tool to help teachers through the project, as much confusion arose regarding issues that had been explained in detail in this pack. To help prevent complications that arose with regard to data coding and inputting, it would be very important that a research officer would be available throughout the project to meet with students and prevent data problems arising.

It would be recommended that if the project was to be carried out again that a MHB researcher would be involved throughout.

It can be said that SNAKS fulfilled its aim of increasing healthy eating knowledge and practice in post-primary schools. Perhaps one of the most important items learned is the effectiveness of peer-led education in this age group. It was established that this method of education is an effective device to disseminate information and bring about change amongst adolescents. This finding could be used in future, not only in nutrition intervention but also in other areas of health promotion activity for this target group.

1. Introduction:

School Nutrition Action and Knowledge Survey (SNAKS) was an initiative which was set-up in the Midland region between; the Midland Health Schools Health Project, Community Nutrition Service (CNS); Bord Bia (Irish Food Board); and post-primary schools.

The aim of the programme was:

- ◆ To increase healthy eating knowledge and practice in those post-primary schools involved, and to gain insight into the nutritional knowledge, eating habits and foods available in this setting.

The objectives that were determined at the outset of the project were as follows:

- ◆ To bring about positive change in the eating habits of adolescents in the schools that were taking part in the project.
- ◆ To gain baseline data with regard to eating habits, food choice and food availability in secondary schools.
- ◆ To obtain an insight into potential marketing strategies that could be used successfully to promote nutrition within this target age group.
- ◆ To increase nutritional knowledge amongst transition year competitors and their peers.
- ◆ To dispel myths that may surround some foods and nutrition; and to identify key problems that exist in schools with regard to nutrition i.e. lack of menu planning, choice, or services.

2. Background:

Nutritional intake during adolescence is important for growth, long term health promotion and the development of lifelong eating behaviours (Story & Alton, 1996).

Despite the importance of healthy eating during adolescence, it has been postulated that adolescent lifestyles which are influenced by the desire to fit social norms, may not be conducive for teenagers to eat in a manner that meets the increased and changing nutrition needs during this period (Neumark-Sztainer *et.al.*, 1999). This, together with a lack of a sense of urgency regarding future health, may make nutrition a low concern among adolescents (Story & Resnick, 1986).

Interventions, in the past, aimed at the modification of adolescent eating behaviour have met with mixed success (Lytle, 1995). It is felt that this may be due, in part, to a lack of understanding of the factors that are associated with eating behaviours among adolescents, and that these needs must be addressed through interventions for accomplishment to be attained (Neumark- Sztainer *et.al.*, 1999).

In recent times two large-scale studies looking at the issue of children/adolescents and nutrition have been carried out. The Children's Research Unit commissioned by the European Food Information Council (EUFIC) carried out a Pan-European Survey into children's views on food and nutrition to obtain a basic understanding of the perceptions of European children on food- and drink-related issues. Whilst the Health Behaviour in School-aged Children (HBSC) is a World Health Organisation collaborative study which obtains information on the eating habits of children and adolescents from twenty-nine different countries. Studies are also ongoing amongst young Dublin adolescents regarding eating habits and body weight (Ryan *et. al.*, 1997; Ryan *et. al.*, 1998; Flynn, 1997).

In 1995, the Nutrition Advisory Group for the Minister for Health published a report on recommendations for food and nutrition policy for Ireland (Nutrition Advisory Group, 1995). The report suggested that healthy eating should be promoted in schools through school policy and curriculum and in particular through the provision of healthy food choices in the tuck shop and canteen.

The SNAKS study was initiated following feedback from the Midland Schools' Health Project, a project which was set up to enable pupils to make healthier choices through social, personal and

health education. Through this project, and the contact that was made with schools, it was determined that there was an urgent need for nutritional intervention in the post-primary setting, with teachers expressing concern regarding the nutritional status and habits of their pupils.

3. Methodology:

3.1. Liaison with Bord Bia:

Communication was developed between the Midland Health Board and Bord Bia, with a view to commencing the project in December 1999. The project was supported by, the CNS and the Midlands Schools Health Project, of the Midland Health Board.

3.2. Questionnaire development:

In order to make it possible to investigate various aspects of intake, lifestyle and food knowledge in post-primary students, a questionnaire was developed and revised. The questionnaire was developed in association with the Department of Public Health Research Officer, and was based on the format of the Midland Health Board's Lifestyle questionnaire (1999). When the questionnaire was developed, it was piloted on a group of 20 post-primary students and necessary adjustments were made.

3.3. Recruitment of schools:

The recruitment process involved the Senior Health Education Officer for Secondary Schools writing to the Transition Year co-ordinators in all 51 post-primary schools in the Midland Health Board region inviting them to partake in the SNAKS project, i.e. a target population of approximately 19,037 students. Twelve schools responded to this invitation and were enrolled in SNAKS 2000, a response rate from overall Midlands schools of 23.5%. These 12 schools consisted of: five all-female schools; six mixed gender schools; and one all-male school. The total potential student population was 7421 students, therefore the potential population was 39%, representative of the total MHB student population.

3.4. Schools' induction day:

Upon enrolment in the SNAKS project ten Transition Year students from each school attended an induction day in Tullamore, Co. Offaly.

The purpose of the induction day was to familiarise students with:

- ◆ the aim of the project
- ◆ the questionnaire that they would be implementing in their respective schools
- ◆ the work which they would be expected to carry out during the course of the project.

On the day the Research Officer gave a lecture regarding data coding, collation, and collection. Students were given clear guidelines about administering the questionnaires, numbering and coding them and inputting the data onto computer.

Students were then divided into five groups. Each group participated in a series of five information sessions:

- ◆ nutrition information
- ◆ marketing skills
- ◆ focus group skills
- ◆ communication skills
- ◆ the media and influences.

3.5. Student workload:

Transition year (TY) students in each school distributed the questionnaire, , to their peer group in the classroom school setting. Data was coded and inputted. Each school/TY class was then expected to develop an innovative project around nutrition in the school, in order to improve knowledge and practice.

Schools were then resurveyed by the students, with the same questionnaire, in order to determine whether the project implemented by TY students as part of SNAKS had effected a change in nutritional knowledge, eating habits, or services available in the school. Core curricular subjects were used to enhance the project.

3.6. School visitation:

Each school, was visited on two separate occasions by the Schools' Health Education Officer and Community Nutritionist. During each visit the progress of students work was assessed, and any student or teacher queries were answered.

During the first visit the following was looked at:

- ◆ whether the project was cross curricular

- ◆ if there was full class involvement
- ◆ if a plan of action/campaign was in place
- ◆ had the full initial survey been completed.

During the subsequent visit the following aspects of the project were ascertained:

- ◆ if the project was in fact ongoing
- ◆ had the students collated the data from the first survey
- ◆ whether a marketing strategy had been created and implemented by the students
- ◆ if an innovative strategy had been developed and employed.

3.7. Presentation day:

The participating schools were invited to present their projects before a panel of judges at the Bridge Centre Tullamore on 6th April 2000.

The method of project presentation was at the students own discretion. As part of this, however, they had to submit a written report containing their results and findings.

3.8. Collation of data and statistics

The final part of the SNAKS project required schools to make the raw data available for overall analysis. This proved to be problematic due to the inability to obtain this raw data from schools at the end of the project.

For this reason a 13% random sample of questionnaires was taken. Data was entered into Excel and statistical analysis was performed using SPSS (version 8).

3.9. Ethical issues:

It was made clear to all students who took part in the survey that all information given would be treated in the strictest confidence and that names were not to be added to questionnaires.

All data obtained was treated in a general manner, and individual schools were not identified.

3.10. Issues affecting response on day of survey:

As with all surveys involving students in the school setting, non attendance in school would have been largely responsible for low response on the day of the survey. Both surveys were carried out in the Spring term, when there would have been large numbers absent due to illness.

4. Results:

4.1. Student profile:

In total twelve schools enrolled in the school nutrition action and knowledge survey (SNAKS). Schools from each of the four counties in the Midland Health Board region took part with a mix of country and town based schools (table1).

Table 1 School location and setting

| | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |
|-----------|----|----|----|----|----|----|----|----|----|----|----|----|
| Laois | ✓ | ⊕ | | | | | | | | | | |
| Offaly | | | | | ✓ | ✓ | | | | | | |
| Westmeath | | | | | | | ⊕ | ✓ | ✓ | ✓ | ⊕ | ✓ |
| Longford | | | ⊕ | * | | | | | | | | |

*= country

✓= town

⊕=village

With 12 schools recruited there was a potential target population of seven thousand four hundred and twenty one students.

Table 2. Total number of students enrolled in study

| Sch. | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | Total |
|-------|-----|-----|-----|-----|-----|-----|------|------|------|------|-----|-----|-------|
| Freq. | 560 | 358 | 375 | 652 | 646 | 604 | 757 | 837 | 820 | 753 | 554 | 505 | 7421 |
| % | 7.5 | 4.8 | 5.0 | 8.8 | 8.7 | 8.1 | 10.2 | 11.3 | 11.0 | 10.1 | 7.5 | 6.8 | 100 |

Table 2 depicts the number of students in each school that enrolled in the SNAKS project. The schools' percentage contribution to the overall population is also denoted, i.e. school 02 has a population of 358 students which means that it has 4.8% of the total students population of 7421 students.

4.2. Response rate:

Although twelve schools enrolled in the SNAKS project, five schools did not complete the project (see appendix II).

Seven schools carried out and completed the first survey of their school population. Two schools did not carry out and complete the second round of the survey administration, which meant that only five schools carried out both round one and round two of survey administration.

Round 1:

Seven out of twelve schools completed one full survey of their entire school, which provided a sample number of 4465 students or a 60% response rate.(see table 3).

Round 2:

Five schools completed the second round of surveys, this precipitated a fall in the response rate from 60% to 39%. The sample size fell from 4465 to 2871.(see table 3).

Table 3. Response rate for 1st and 2nd rounds of SNAKS survey and how represent it is of response compared to total MHB student population.

| | Number of students | Response rate | Representative |
|------------------------------------|--------------------|-------------------|----------------|
| Total enrolled | 7421 students | [100% (proposed)] | 39% |
| 1 st round results | 4465 students | 60% (actual) | 23% |
| 2 nd round results only | 2871 students | 39% (actual) | 15% |

To provide an adequate random sample from each round of surveys it was decided to take a 13% random sample from each school which reflected the student numbers in each school. Tables 4 and 5 depict the number of surveys taken from each school to ensure a 13% representative random sample.

Table 4 Total student number in round 1 of survey and number of surveys taken to ensure 13% representative random sample

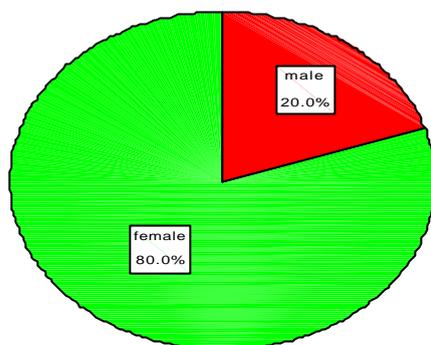
| School code | 01 | 02 | 05 | 07 | 08 | 10 | 11 | Total |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-------|
| 1 st round of survey | 560 | 358 | 646 | 757 | 837 | 753 | 554 | 4465 |
| 13% random sample | 73 | 46 | 84 | 98 | 109 | 98 | 72 | 580 |

Table 5 Total student number in round 2 of survey and number of surveys taken to ensure 13% representative random sample

| School code | 01 | 02 | 05 | 10 | 11 | Total |
|---------------------------------|-----|-----|-----|-----|-----|-------|
| 2 nd round of survey | 560 | 358 | 646 | 753 | 554 | 2871 |
| 13% random sample | 73 | 46 | 84 | 98 | 72 | 373 |

4.3. Gender and age of student population

Figure 1 Percentage gender of overall sample student population



Of the 13% representative random sample taken, 20% (209) were male and 80% (838) were female, a ratio of 1:5.

Table 6 Distribution of school population in school years in gender terms

| Gender | | Male | | Female | | Total | |
|-------------|----------------------|------|--------|--------|--------|-------|--------|
| School year | 1 st year | 28 | 13.4% | 144 | 17.2% | 172 | 16.4% |
| | 2 nd year | 34 | 16.3% | 126 | 15.0% | 160 | 15.3% |
| | 3 rd year | 50 | 23.9% | 151 | 18.0% | 201 | 19.2% |
| | 4 th year | 14 | 6.7% | 113 | 13.5% | 127 | 12.1% |
| | 5 th year | 48 | 23.0% | 166 | 19.8% | 214 | 20.4% |
| | 6 th year | 35 | 16.7% | 138 | 16.5% | 173 | 16.5% |
| | Total | 209 | 100.0% | 838 | 100.0% | 1047 | 100.0% |

The majority of male students were in third year 23.9% (50) whereas the majority of females were in 5th year 19.8% (166).

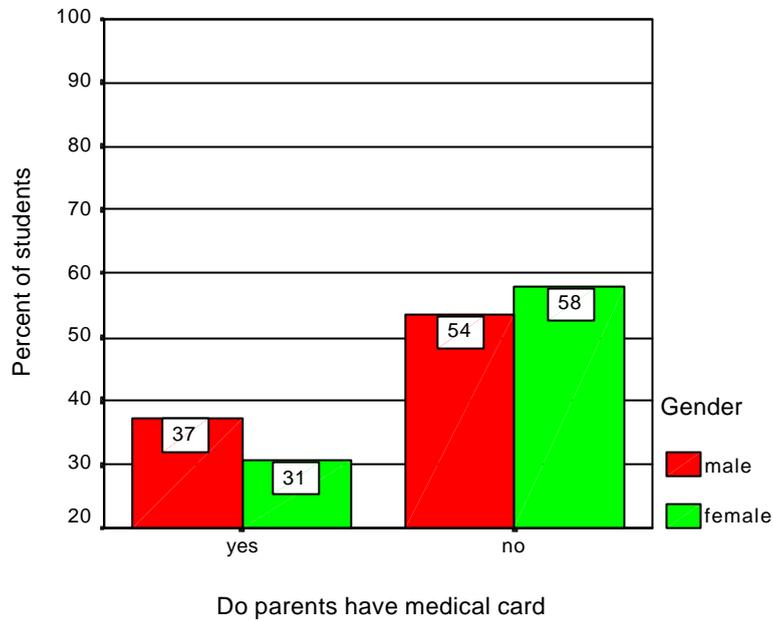
Table 7. Gender and age of student population

| Gender | | Male | | Female | | Total | |
|--------|-------|------|--------|--------|--------|-------|--------|
| Age | 10 | | | 1 | .1% | 1 | .1% |
| | 12 | 10 | 4.8% | 47 | 5.6% | 57 | 5.4% |
| | 13 | 24 | 11.5% | 122 | 14.6% | 146 | 13.9% |
| | 14 | 35 | 16.7% | 124 | 14.8% | 159 | 15.2% |
| | 15 | 41 | 19.6% | 173 | 20.6% | 214 | 20.4% |
| | 16 | 58 | 27.8% | 202 | 24.1% | 260 | 24.8% |
| | 17 | 30 | 14.4% | 113 | 13.5% | 143 | 13.7% |
| | 18 | 11 | 5.3% | 51 | 6.1% | 62 | 5.9% |
| | 19 | | | 5 | .6% | 5 | .5% |
| | Total | 209 | 100.0% | 838 | 100.0% | 1047 | 100.0% |

Age was recorded for all students. The ages ranged from 10 years to 19 years, with the average age for males and females being 15.12 years.

4.4. Gender and parents with medical cards

Figure 2 Percentage of students, by gender, whose parents have medical cards



Greater than ½ of male and female students (54% and 58% respectively) revealed that their parents did not have a medical card. Only approximately 1/3 of students of both genders stated that their parents had medical cards. This would lead to the assumption that the majority of this student population would be in the higher socio-economic strata.

4.5. The packed lunch:

Students who took a packed lunch to school were requested to identify their first choice and second choice in their packed lunch. Table 9 details the items chosen by students who take a packed lunch to school, both before the administration of the SNAKS study, and after the study was completed. 77% (810) students responded to taking a packed lunch to school.

Table 8 Items chosen as contents of packed lunch before and after SNAKS project by students who take a packed lunch to school.

| When | | Before | | After | | Total | |
|----------------------|-------------|--------|--------|-------|--------|-------|--------|
| 1 st item | Sandwich | 435 | 83.3% | 240 | 83.3% | 675 | 83.3% |
| | Yoghurt | 24 | 4.6% | 12 | 4.2% | 36 | 4.4% |
| | Fizzy drink | 24 | 4.6% | 11 | 3.8% | 35 | 4.3% |
| | Crisps | 24 | 4.6% | 14 | 4.9% | 38 | 4.7% |
| | Milk | 1 | .2% | | | 1 | .1% |
| | Chocolate | 7 | 1.3% | 6 | 2.1% | 13 | 1.6% |
| | Other | 7 | 1.3% | 5 | 1.7% | 12 | 1.5% |
| | Total | 522 | 100.0% | 288 | 100.0% | 810 | 100.0% |
| 2 nd item | Sandwich | 7 | 1.6% | 1 | .4% | 8 | 1.1% |
| | yoghurt | 82 | 18.5% | 71 | 28.0% | 153 | 21.9% |
| | Fizzy drink | 89 | 20.0% | 29 | 11.4% | 118 | 16.9% |
| | Crisps | 85 | 19.1% | 55 | 21.7% | 140 | 20.1% |
| | Milk | 17 | 3.8% | 9 | 3.5% | 26 | 3.7% |
| | Chocolate | 113 | 25.5% | 52 | 20.5% | 165 | 23.6% |
| | Other | 51 | 11.5% | 37 | 14.6% | 88 | 12.6% |
| | Total | 444 | 100.0% | 254 | 100.0% | 698 | 100.0% |

In the packed lunch a difference can be noted between before and after the SNAKS study, in the first choices and the second choices.

As a first choice sandwiches remained constant at 83.3%. Fizzy drink choice decreased from 4.6% to 3.8%, and yoghurt decreased slightly from 4.6% to 4.2%. Crisps as a first choice increased marginally from 4.6% to 4.9%, chocolate choice increased from 1.3% to 2.1%, and ‘other’ foods increased by less than 1% from 1.3% to 1.7%. Overall, in terms of first choice in the lunch box, the largest changes to take place were the decrease in the choice of fizzy drink and the increase in the choice of chocolate.

Larger more substantial changes can be seen between the ‘before’ and ‘after’ surveys when looking at the second item in the lunchbox. Yoghurt choice as second item increased almost 10% from 18.5% to 28%, crisps as a choice increased from 19.1% to 21.7% and ‘other items’ rose from 11.5% to 14.6%. Fizzy drink choice decreased by nearly 10%, from 20% to 11.4%;

and chocolate choice decreased by 5%, from 25.5% to 20.5%, whilst sandwiches as the second choice decreased marginally from 1.6% to 0.4%.

Overall, in the packed lunch, the largest change between 'before' and 'after' can be seen in the increase of nearly 10% in the choice of yoghurt as a second choice for the packed lunch.

4.6. The tuckshop:

As part of SNAKS students were questioned regarding their purchases from the tuckshop. Each student was surveyed, by way of a questionnaire, before and after the student intervention project, to establish whether the intervention project made any difference to produce bought in tuckshop. In all, 64%(666) students said that they bought food from the tuckshop.

Table 10 outlines the food and drink which students who used a tuckshop named as their 1st, 2nd, and 3rd choices when buying in the tuckshop. The ‘before’ and ‘after’ intervention project choices are also depicted.

Looking first at the first choice of students when buying from the tuckshop; sandwich choice rose slightly (21.65 to 23.2%), yoghurt as a choice also rose, by over 6% from 2.1% to 8.7%, ‘the choice of ‘other’ items from the tuckshop also rose, from 0.75 to 2.5%.

Fizzy drinks as a choice fell from 31.85 to 27.8%, crisps as a choice fell slightly from 25.4% to 24.9%, milk fell from 2.8% to 1.7%, and chocolate as a first choice fell most from 15.5% to 10.8%.

Moving on to the choice of a second item. Sandwiches, fizzy drinks and chocolate as choices all fell, after the student intervention project, (2.6%-1.7%; 14.2%-10.7%; 29.1%-24.9% respectively). On the other side however, yoghurt , milk and crisps as a choice increased, by 4.2%-5.1%; 41.1%-43.5%; 8.7%-12.4% respectively.

The third choice in the tuckshop seemed to follow the same pattern as the second choice, with a decrease in the choice of sandwiches, fizzy drinks and chocolate; and an increase in the choice of crisps and milk. The only difference was the fall off in the choice of yoghurt from 0.5% to 0%.

Overall the largest change that can be seen in tuckshop choices between the ‘before’ and ‘after’ intervention stages, is the 7% drop in chocolate as a third choice item, from 73.9% to 66.9%

Table 9 Items bought in tuckshop, before and after SNAKS project by students who access school tuckshop facility.

| When | | Before | | After | | Total | |
|----------------------|--------------|--------|--------|-------|--------|-------|--------|
| 1 st item | sandwich | 92 | 21.6% | 56 | 23.2% | 148 | 22.2% |
| | yoghurt | 9 | 2.1% | 21 | 8.7% | 30 | 4.5% |
| | fizzy drink | 135 | 31.8% | 67 | 27.8% | 202 | 30.3% |
| | crisps | 108 | 25.4% | 60 | 24.9% | 168 | 25.2% |
| | milk | 12 | 2.8% | 4 | 1.7% | 16 | 2.4% |
| | chocolate | 66 | 15.5% | 26 | 10.8% | 92 | 13.8% |
| | other | 3 | .7% | 6 | 2.5% | 9 | 1.4% |
| | Total | 425 | 100.0% | 241 | 100.0% | 666 | 100.0% |

| | | | | | | | |
|----------------------|--------------|-----|--------|-----|--------|-----|--------|
| 2 nd item | sandwich | 8 | 2.6% | 3 | 1.7% | 11 | 2.3% |
| | yoghurt | 13 | 4.2% | 9 | 5.1% | 22 | 4.5% |
| | fizzy drink | 44 | 14.2% | 19 | 10.7% | 63 | 13.0% |
| | crisps | 127 | 41.1% | 77 | 43.5% | 204 | 42.0% |
| | milk | 27 | 8.7% | 22 | 12.4% | 49 | 10.1% |
| | chocolate | 90 | 29.1% | 44 | 24.9% | 134 | 27.6% |
| | other | | | 3 | 1.7% | 3 | .6% |
| | Total | 309 | 100.0% | 177 | 100.0% | 486 | 100.0% |
| 3 rd item | sandwich | 4 | 1.8% | 2 | 1.4% | 6 | 1.7% |
| | yoghurt | 1 | .5% | | | 1 | .3% |
| | fizzy drink | 5 | 2.3% | 3 | 2.2% | 8 | 2.2% |
| | crisps | 12 | 5.4% | 16 | 11.5% | 28 | 7.8% |
| | milk | 8 | 3.6% | 8 | 5.8% | 16 | 4.4% |
| | chocolate | 164 | 73.9% | 93 | 66.9% | 257 | 71.2% |
| | other | 27 | 12.2% | 17 | 12.2% | 44 | 12.2% |
| | Total | 222 | 100.0% | 139 | 100.0% | 361 | 100.0% |

4.7. Meat consumption:

As part of this study students were asked to detail how many times a week they ate meat in their sandwiches, and if they ate meat at any other time.

Table 11 depicts the responses by students to these questions, and differentiates between responses before the intervention project and after the project.

Ninety-seven percent of students (1015) responded to the questions regarding meat consumption.

Table 10 Consumption of meat in sandwiches and at other times, before and after SNAKS project.

| When | | Before | | After | | Total | |
|-------------|----------|--------|--------|-------|--------|-------|--------|
| In s/ws | 1-2 days | 179 | 27.5% | 101 | 27.8% | 280 | 27.6% |
| | 3-4 days | 169 | 25.9% | 110 | 30.3% | 279 | 27.5% |
| | 5-6 days | 170 | 26.1% | 85 | 23.4% | 255 | 25.1% |
| | never | 128 | 19.6% | 65 | 17.9% | 193 | 19.0% |
| | Total | 652 | 100.0% | 363 | 100.0% | 1015 | 100.0% |
| other times | yes | 566 | 85.5% | 328 | 90.4% | 894 | 87.2% |
| | no | 93 | 14.0% | 33 | 9.1% | 126 | 12.3% |
| | Total | 662 | 100.0% | 363 | 100.0% | 1025 | 100.0% |

From the above table it can be seen that there are a few differences between the two surveys.

Meat in sandwich consumption on 1-2 days remained relatively constant, meat consumption on 3-4 days increased from 25.9% to 30.3%, an approximate 5% increase. Meat consumption in sandwiches decreased in the 5-6 day period, from 26.1% to 23.4%, whilst the proportion of those who never ate meat in sandwiches also fell, from 19.6% to 17.9%.

Those who never ate meat at other times fell by approximately 5% to 9% This 9% figure would account for the percentage of vegetarians in the population.

Table 12 denotes the different responses given by each gender to the questions relating to meat consumption.

One fifth of females report never taking meat in their sandwiches, this is in comparison to only 1/7 of the male student population.

Over 1/3 of males take meat in their sandwiches 5-6 days per week whilst only a little over 1/5 of females report the same consumption, in contrast to this a greater percentage of females, than males, report eating meat on 1-2 days and 3-4 days of the week.

Table 11. Gender related meat consumption in sandwiches:

| Gender | | Male | | Female | | Total | |
|-----------|----------|------|-------|--------|-------|-------|-------|
| Meat s/ws | 1-2 days | 51 | 25.5% | 229 | 28.1% | 280 | 27.6% |

| | | | | | | | |
|-------------|----------|-----|--------|-----|--------|------|--------|
| | 3-4 days | 48 | 24.0% | 231 | 28.3% | 279 | 27.5% |
| | 5-6 days | 71 | 35.5% | 184 | 22.6% | 255 | 25.1% |
| | never | 28 | 14.0% | 165 | 20.2% | 193 | 19.0% |
| | Total | 200 | 100.0% | 815 | 100.0% | 1015 | 100.0% |
| other times | yes | 186 | 91.2% | 708 | 86.2% | 894 | 87.2% |
| | no | 17 | 8.3% | 109 | 13.3% | 126 | 12.3% |
| | Total | 204 | 100.0% | 821 | 100.0% | 1025 | 100.0% |

4.8. Smoking:

Ninety-seven percent (1014) of students' responded to the question that was asked regarding current smoking levels.

Table 18 demonstrates the number and percentage of female and male students who are currently smoking.

A 5% difference can be seen between the current level of smoking in males and females, with 29% of females smoking, and 24% of males smoking, i.e. less than ¼ of males smoke in comparison to nearly 1/3 of females.

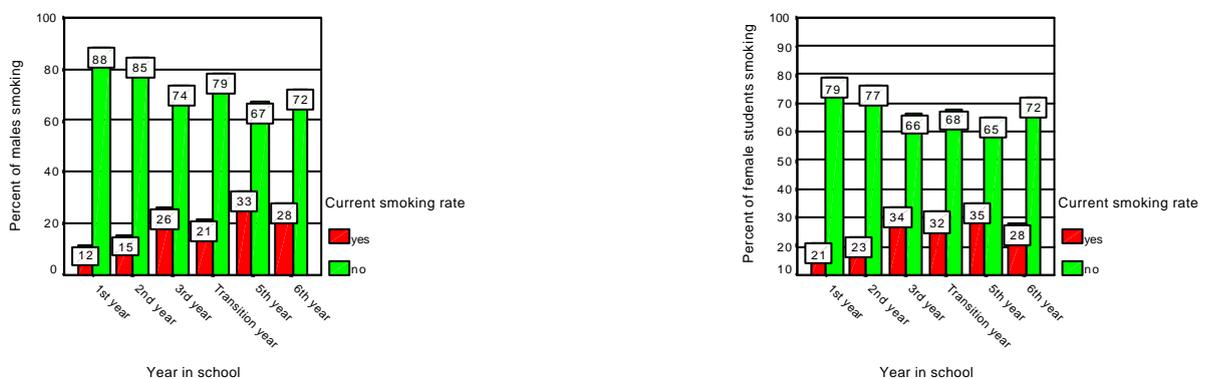
Table 12. Gender differences and smoking:

| Gender | | Male | | Female | | Total | |
|---------|-------|------|--------|--------|--------|-------|--------|
| Current | yes | 49 | 24.0% | 235 | 29.0% | 284 | 28.0% |
| | no | 155 | 76.0% | 575 | 71.0% | 730 | 72.0% |
| | Total | 204 | 100.0% | 810 | 100.0% | 1014 | 100.0% |

Figure 3 depicts the relationship between gender, year and smoking rate. It can be seen that 9% more females than males smoke in first year in school.

The percentage of males and females smoking increases until third year in school, there then seems to be a dip in 4th year, and it then increases again in the 5th year with a fall off in 6th year. Fifth year seems to have the highest rate of smoking in both sexes with 33% of males, and 35% of females smoking in their 5th year in school.

Figure 3 Gender, year and current smoking rate amongst school attendees



4.9. Weight issues:

Ninety six percent (1003) of students reported their feelings towards their weight. Table 13 depicts the satisfaction which males and females have with their weight.

It can be seen from this table that there is a difference in weight satisfaction between females and males. Over 2/3's of males are happy with their weight and this is in contrast to less than half of females.

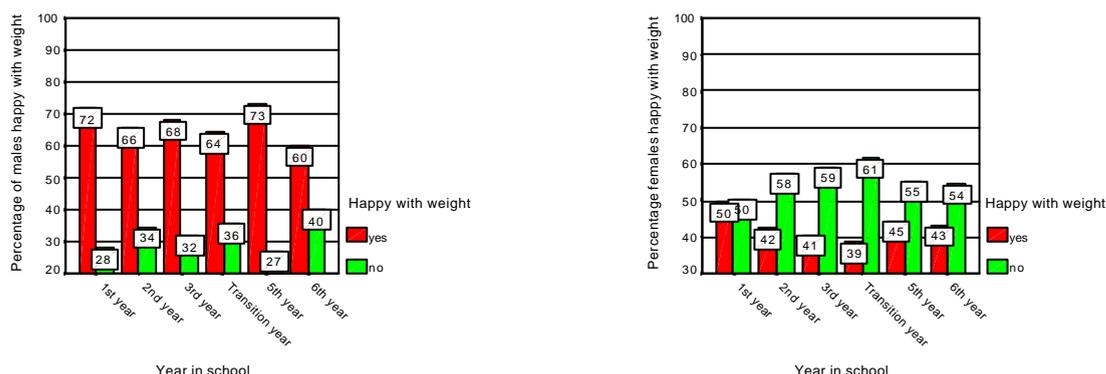
Table 13. Gender and level of happiness with current weight:

| Gender | | Male | | Female | | Total | |
|----------------|-----|------|--------|--------|--------|-------|--------|
| Happy with wt. | yes | 136 | 67.7% | 348 | 43.4% | 484 | 48.3% |
| | no | 65 | 32.3% | 451 | 56.2% | 516 | 51.4% |
| Total | | 201 | 100.0% | 802 | 100.0% | 1003 | 100.0% |

The relationship between gender, year in school and satisfaction with weight can be seen in figure 4. Happiness with weight is greatest in first year in both sexes (72% males; 50% females).

Satisfaction can be seen to decrease more rapidly amongst female students, however, with satisfaction levels having declined by transition year to 39% (a drop of 11%) amongst girls, compared to only 68% in boys (a drop of 4%). Levels of satisfaction with weight seem to increase again in both sexes in their fifth and sixth year, though neither retain their original satisfaction level, i.e. sixth year boys (60%) and sixth year girls (43%).

Figure 4 Gender, year in school and satisfaction with weight



The desires of those female students who wished to change their weight can be seen in table 14. In overall terms greater than 85% of females want to lose weight, in comparison to only 9% who wish to gain weight and 5% who wish to gain muscle

The majority of those females who wished to change their weight wish to lose weight, this varies from 76.5% of 2nd years to 93.9% of 5th years. There does not seem to be any relationship to year in school and weight loss desire. A very low percentage of females indicated a desire to gain weight or gain muscle, with the highest percentage wishing to gain weight in 2nd year (16%), and gain muscle in 6th year (11%), both of these figures represent less than a fifth of this population..

Table 14 Females unhappy with weight and action desired, by year

| Year | | 1 st | 2 nd | 3 rd | 4 th | 5 th | 6 th | Total |
|--------|---------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|
| Action | ↓ wt. | 70 | 62 | 80 | 63 | 92 | 59 | 426 |
| | | 85.4% | 76.5% | 87.0% | 87.5% | 93.9% | 80.8% | 85.5% |
| | ↑ wt. | 8 | 13 | 11 | 3 | 4 | 6 | 45 |
| | | 9.8% | 16.0% | 12.0% | 4.2% | 4.1% | 8.2% | 9.0% |
| | ↑muscle | 4 | 5 | 1 | 6 | 2 | 8 | 26 |
| | | 4.9% | 6.2% | 1.1% | 8.3% | 2.0% | 11.0% | 5.2% |
| Total | | 82 | 81 | 92 | 72 | 98 | 73 | 498 |
| | | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Table 15 depicts the relationship between males who wish to change their weight, their year in school, and the action they desire.

Overall, greater than ½ of all males who wish to alter weight, wish to gain muscle, whilst ¼ of males wish to lose weight and only a 1/5 wish to gain weight.

The majority of males in each year wish to gain muscle, and this ranges from its lowest level in 6th year (38.1%) to its highest level in 5th year (76.2%).

First years are the year which report the strongest desire to lose weight(45.5%), whilst 5th years have the strongest desire to gain weight (33.3%).

Table 15 Males unhappy with weight and action desired, by year

| Year | | 1 st | 2 ⁿ | 3 rd | 4 th | 5 th | 6 th | Total |
|--------|---------|-----------------|----------------|-----------------|-----------------|-----------------|-----------------|-------|
| Action | ↓ wt. | 5 | 8 | 5 | 1 | 1 | 6 | 26 |
| | | 45.5% | 42.1% | 20.0% | 20.0% | 4.8% | 28.6% | 25.5% |
| | ↑ wt. | | 1 | 8 | 1 | 4 | 7 | 21 |
| | | | 5.3% | 32.0% | 20.0% | 19.0% | 33.3% | 20.6% |
| | ↑muscle | 6 | 10 | 12 | 3 | 16 | 8 | 55 |
| | | 54.5% | 52.6% | 48.0% | 60.0% | 76.2% | 38.1% | 53.9% |
| Total | | 11 | 19 | 25 | 5 | 21 | 21 | 102 |
| | | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

When looking at tables 14 and 15 it can be noted that there is a large difference in the actions which both sexes would like to take in relation to their weight. Eighty five percent of females

want to lose weight as against only 25% of males; in contrast 54% of males want to gain muscle compared to only 5% of females.

4.10. Eating habits:

Students were asked, both before and after SNAKS project intervention, whether they had ever changed their eating habits, and if so what method has they used to change these habits.

Table 16 outlines the difference between the 1st and 2nd questionnaire responses when student males were asked whether their eating habits had been changed. There seems to be virtually no difference in response, with approximately 1/3 saying that they have ever changed their eating habits.

Table 16 Male students and, whether eating habits were changed before and after SNAKS project intervention

| When | | Before | After | Total |
|--|-------|---------------|--------------|---------------|
| Eating habits ever tried to be changed | yes | 57 33.5% | 10 33.3% | 67 33.5% |
| | no | 113 66.5% | 20 66.7% | 133 66.5% |
| | Total | 170 100.0% | 30 100.0% | 200 100.0% |
| | | | | |

Table 17 demonstrates that a much higher proportion of females have ever tried to change their eating habits, in comparison to males 72% versus 33%. It also demonstrates that the response after SNAKS showed an increase in changes in eating habits of 5%

Table 17 Female students and, whether eating habits were changed before and after SNAKS project intervention

| When | | Before | After | Total |
|--|-------|---------------|---------------|---------------|
| Eating habits ever tried to be changed | yes | 342 70.8% | 242 75.2% | 584 72.5% |
| | no | 138 28.6% | 78 24.2% | 216 26.8% |
| | Total | 483 100.0% | 322 100.0% | 805 100.0% |

Table 18 depicts gender and changes in eating habits. It can be seen that in overall terms, the majority of students who changed eating habits did so by counting calories (25.6%).

Males were more likely than females to cut starchy foods (18.6% v's 4.6%) or meat and dairy products (11.4% V's 9.1%), whilst females were more likely than males to have done other things (59% V's 48.5%) or counted calories (26.2 V's 21.4%).

Table 18. Gender related changes in eating habits:

| Gender | | Male | Female | Total |
|-----------------------|-------------------------|--------------|---------------|---------------|
| Action has been taken | counted calories | 15 21.4% | 153 26.2% | 168 25.6% |
| | cut starchy foods | 13 18.6% | 27 4.6% | 40 6.1% |
| | cut meat & dairy prods. | 8 11.4% | 53 9.1% | 61 9.3% |
| | others | 34 48.5% | 346 59% | 380 58% |
| | Total | 70 100.0% | 585 100.0% | 655 100.0% |

The effect of SNAKS intervention on changes in eating habits can be seen in Table 19. After SNAKS intervention a decline in the counting of calories (27.4%-22.9%), the cutting out of starchy food (7.2%-4.3%), and meat and dairy products(10.0%-8.3%)can be seen, whilst in tandem there is a rise in the level of other interventions from 54.2% to 64%.

Table 19. Time related changes in eating habits

| When | | Before | After | Total |
|-----------------------|------------------------|---------------|---------------|---------------|
| Action has been taken | counted calories | 110 27.4% | 58 22.9% | 168 25.6% |
| | cut starchy food | 29 7.2% | 11 4.3% | 40 6.1% |
| | cut meat & dairy prods | 40 10.0% | 21 8.3% | 61 9.3% |
| | others | 218 54.2% | 162 64.0% | 380 58.0% |
| | Total | 402 100.0% | 253 100.0% | 655 100.0% |

4.11. Influences on Students:

Students were asked to list their top three favourite television programmes. Figure 5 depicts the top T.V. programmes nominated as 1st, 2nd, and 3rd choice by students. The most favourite first and second and third choice was Friends (49.3%, 26.9%, 17.8% respectively).

Figure 5 Students' top 3 favourite television programmes:

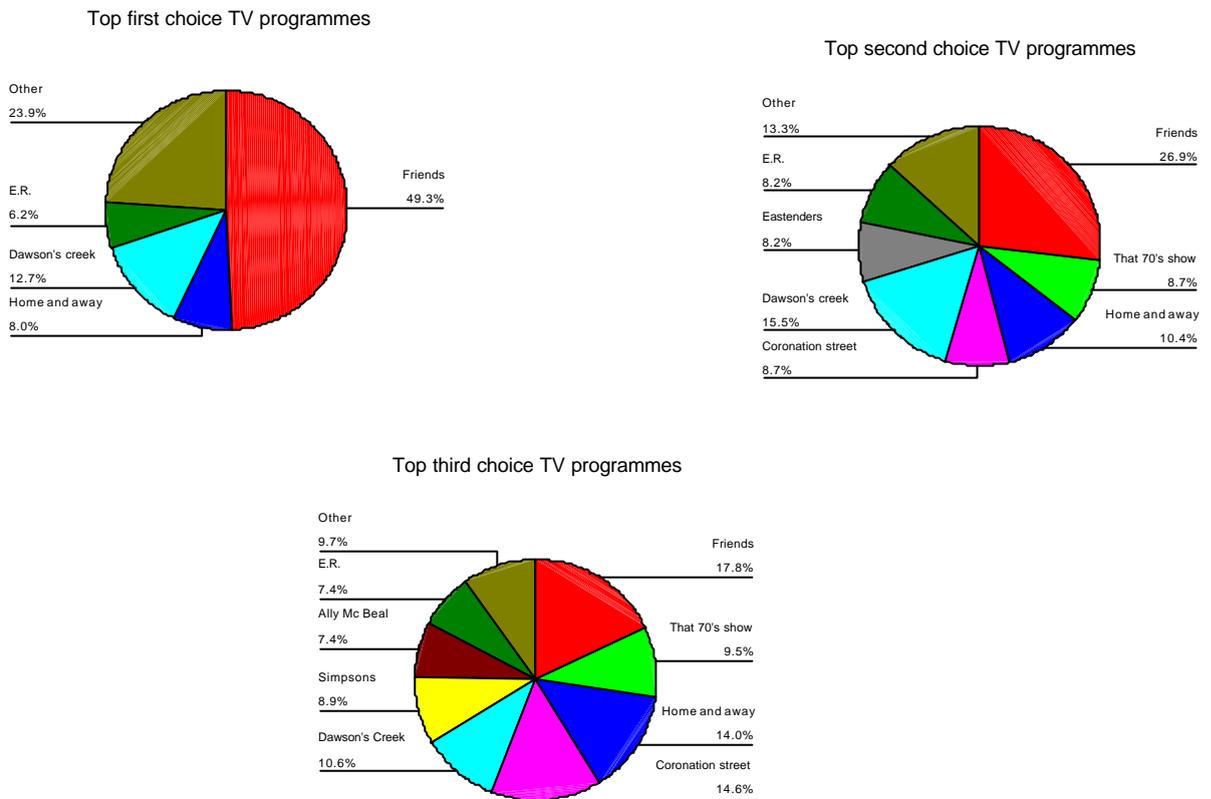
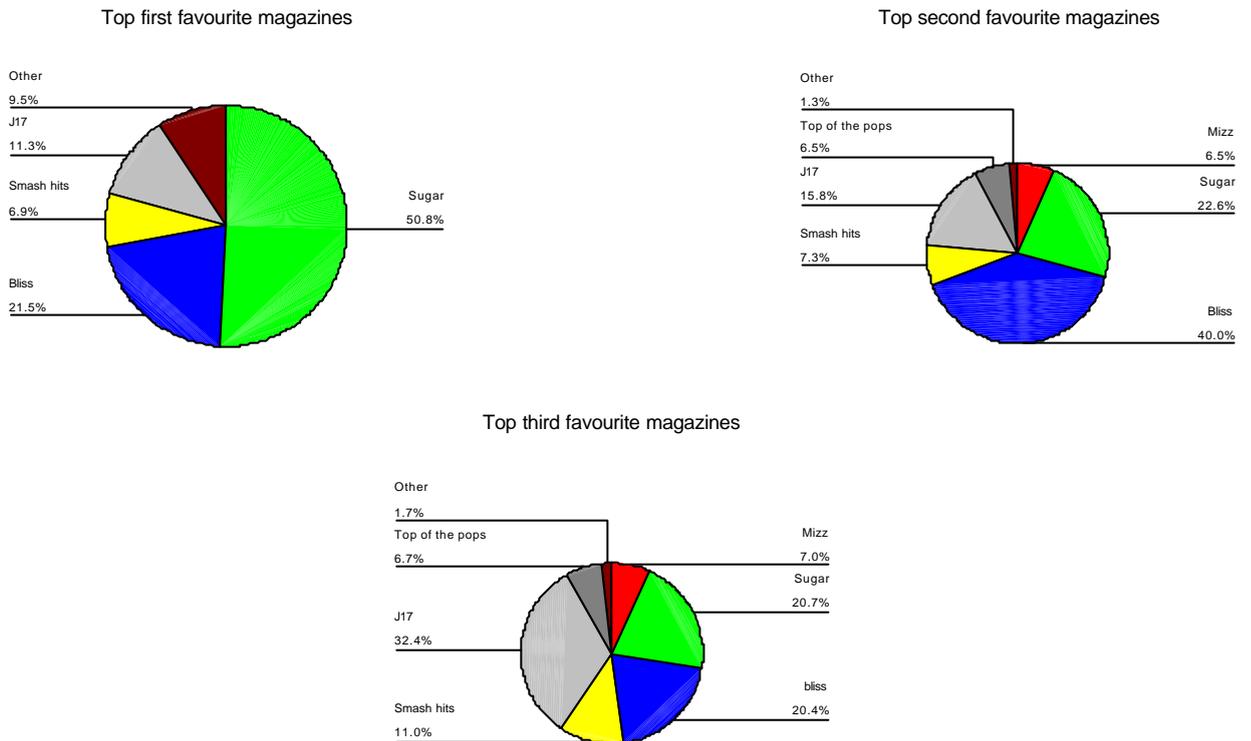


Figure 6 demonstrates the top 3 favourite magazines of students. Sugar is the favourite first choice of students at 50.8%. The favourite second choice is Bliss with 40% of students choosing it as their second choice. Just seventeen is the most favoured third choice of magazine with 32.4% of students choosing it.

Figure 6 Top 3 favourite student magazines:



Students were asked which advertisements most influence their food choice. Table 20 depicts the responses given. The majority of students described chocolate advertisements (44.4%) as having the greatest impact on food choice, whilst approximately 1/5 of students reported fast food, 1/5 reported cereal advertisements and 14% reported milk advertisements.

Table 20 Advertisements which students deem most influential on their food choice

| | Frequency | Percent |
|--------------|-----------|---------|
| Fast food | 50 | 20.7% |
| Chocolate | 107 | 44.4% |
| Milk/yoghurt | 36 | 14.9% |
| Cereal | 47 | 19.5% |
| Total | 241 | 100.0% |

4.12. Projects that were undertaken as part of SNAKS:

Table 28 lists the projects that were created and undertaken by TY students as part of SNAKS. The objective of these projects was to heighten awareness of nutrition and food related matters.

Table 21. Projects developed and implemented by students

| | |
|---|--|
| Development of website | Opening of tuckshop |
| Price restructuring within tuckshop | Healthy eating days and weeks |
| Advertisements | Leaflet production |
| Drama production | Cookery demonstrations |
| Company promotions | Drama serials in art form |
| Videos | Focus group discussions |
| Art competitions | Introduction of healthy food and drink |
| Keyrings and placemats depicting food pyramid | |

5. Discussion:

5.1. Baseline data:

The 'school nutrition action and knowledge survey' was initiated in October 1999 and ran until April 2000. It was set up by the Midland Health Board in association with Bord Bia, and support was provided to the participating schools throughout the project by MHB staff.

The aim of SNAKS was to increase healthy eating knowledge and practice in post-primary schools and to gain insight into the nutritional knowledge, eating habits and foods available in this setting. The study was student focused, it involved students collecting information regarding their peers, and using the knowledge to effect nutritional change within the school setting.

5.1.1. Issues with methodology:

Twelve schools out of the total MHB regions' 51 post primary schools enrolled in the SNAKS project, a 39% response rate overall, it must be remembered, however, that not all post-primary schools in the region have transition year. This response is quite low in comparison to that reported by the National HBSC study (79%) in 1999. However when one looks at the HBSC study in detail it can be seen that only 14 schools in the Midland region were contacted and 11 of those participated in the study.

It could be said that the reason the response rate in the HBSC study was larger was because the HBSC study was a National study and would have commanded more interest from schools. Another reason for the poor response to SNAKS, may be that SNAKS came to schools' attention so soon after HBSC, and there may have been an element of survey fatigue amongst schools. Within the actual study the response rate of enrolled students varied from survey to survey. The response rate in the first round of the survey collection was 60% (n=4465) of the initial student enrolment. This was due, in part, to five schools who were unable to complete the first round of surveys or incorporate the nutrition project.:

- ◆ one school never attended induction day
- ◆ two schools did not complete questionnaire retrieval and collation
- ◆ one school pulled out of the competition due to ill health of TY co-ordinator.

◆ one school did not complete intervention project and so pulled out

Another reason for the low response rate may have been absent on the day of surveying, however it was not possible to obtain these details as they were not recorded by many comprehensively by schools.

The response rate for the second round of survey completion fell to 39% (n=2871) of the initial student population. This was due to the fact that only 5 schools managed to complete the second round of surveys. Two schools were unable to do so, due to the large workload placed on them, i.e., both schools had very large numbers and very small TY classes.

5.2. Future study:

To prevent a low response rate, there are many areas of the SNAKS project that would need to be addressed if, in the future, the study were to be carried out again. The following are recommendations made to improve further study.

5.2.1. Questionnaire

◆ Length of questionnaire

Feedback from students and teachers involved with SNAKS points to the recommendation that if the project was to be carried out in the future the questionnaire should be shorter.

TY students remarked that their peers, especially in the junior cycle, had difficulty in following the questionnaire, which led to spoiling of results. The length also made it more arduous for TY students to collate data, which may have contributed to their difficulty in completing data retrieval. Teachers pointed out that TY students have many other projects to complete and a shorter questionnaire would make workload easier to manage.

◆ Number of students surveyed

To lighten TY student workload it is suggested that a random sample of students from each school is picked to survey, rather than surveying all students in their school.

5.2.2.Data collection and collation:

One of the objectives of SNAKS had been to obtain an excel spreadsheet from each school containing coded data which concerned each student surveyed. Only one school submitted data in this form, although at the induction day, and in the information pack, details were given to each school regarding the way in which data and results were to be submitted.

◆ Difficulties encountered:

The difficulties experienced in collecting data from schools were as follows:

- ◆ results were submitted as hard copy without supporting computer disks
- ◆ some data submitted was incomplete
- ◆ only one school submitted coded data in an excel spreadsheet form

Collected questionnaires, were, in most cases; in no order, un-coded, or miscoded, which made it extremely difficult to use these questionnaires to follow up information.

The enormous confusion in schools at the end of the project regarding results/data to be submitted, would lead to the assumption that, the information pack given to students and teachers during the induction day was not an effective information/teaching tool for this group.

Although each school was questioned regarding computer facilities at the outset of the project, teachers also advised MHB staff, after the project, that a reason for the lack of data collation was inadequate computer facilities,.

◆ Recommendations:

In the future, if the project was to be repeated, firm instructions must be given to teachers and students regarding:

- ◆ data coding and inputting
- ◆ the importance of excel spreadsheet database formation
- ◆ the importance of data such as, total number in whole school and in each year, should be impressed upon teachers and students, as this information was missing in 60% of cases.
- ◆ Ensuring that all databases should be submitted with the written report before judging takes place, and these checked and marked accordingly.

It would be very beneficial for students and teachers if a Research Officer was available throughout the project to visit schools and assess how data coding and collation was being carried out.

5.2.3. Induction Day:

The purpose of the induction day was to teach students and teachers what was involved in the project, and prepare them for the task they were about to undertake.

In the future the induction day content and structure should be modified, as it was felt that the confusion that exists amongst teachers and students may, inadvertently, have stemmed from this day

On evaluation, students appeared to have learned from the day, and expressed an interest in the content. However they felt that all TY students should have been allowed to attend rather than just a representative

The following are suggestions that may improve the induction day in the future:

- ◆ decrease the number of schools involved and allow all students from TY, who will be doing project, to attend
- ◆ avoid mixing schools and leave them in their school groupings
- ◆ carry out group sessions, as before, but ensure that co-ordinating teacher is present at each session with own class
- ◆ ensure that a group session is carried out with each school regarding data coding, collation and presentation, unlike this instance when only one large session attended by all schools, was carried out
- ◆ Have a time slot at the end of the day when each group can sit and discuss their impressions, brainstorm ideas, and access health board staff to ask questions.
- ◆ Have an induction day for teachers, facilitate teachers regarding project, and visit students and teachers in own environment to assess progress.
- ◆ Carry out induction day on school site

5.2.4. Project Logistics:

◆ Timing of project:

The following issues may have contributed to the difficulties that were encountered by TY students when carrying out the SNAKS project:

- ◆ on evaluation, co-ordinating teachers expressed a concern that the second term in the TY calendar is extremely busy
- ◆ schools, at this time, are beginning mock state exams, which makes the logistics of questionnaire collection difficult with 3rd and 6th year classes..

For these reasons it would seem more appropriate that in the future SNAKS should be commenced in the first term, with an induction day, for example, in Mid September, project commencing early October, and running until the end of January.

◆ Judgement of projects:

In retrospect, it was felt that the structure of the judgement and presentation day, where projects were presented and judged on one day, meant that there was insufficient time to ascertain all details of the projects properly

It would be important, therefore, that in the future, completed projects including;

- ◆ computer disk with spreadsheet containing raw data
- ◆ students collated data; and written report
- ◆ should be collected from each school at least 1-2 weeks prior to the presentation day.

Preliminary judgement should be made on projects in the 1-2 weeks prior to the presentation day, and should include marks allocated to students, for progress, during visits by MHB staff. The last, i.e. 5% only, of marks should be awarded on the presentation day for posters, foods introduced into schools videos, website creation, models etc. The presentation day should purely be a forum for schools

It may be useful and stimulating to the students involved to get the winning teams, or all teams, to present their projects during National Healthy Eating Week, and try to obtain National coverage via radio, press or television..

5.2.5. Nutritional information

Although much baseline data was collected, the data regarding nutritional intake and status of students was very general, and therefore little is still known about actual overall nutritional intake.

If, in the future, more specific data were required it would be important to include a dietary assessment tool i.e. 7day diet history or 24 hour recall, as well as the self-reported questionnaire. This assessment tool would have to be administered by skilled professionals, i.e. by a qualified Dietitian . For this reason, and to reduce workload on students, only a random sample of students should be tested.

5.2.6. Nutritional knowledge:

Although all TY groups were asked to administer a nutritional knowledge questionnaire to their peers, only 2 groups did this, and these were not coded or submitted as a database, so results were not available. This is a pity, as it would be interesting to find out the actual level of knowledge amongst this age group compared to the perceived level. It would be interesting to look at this in the future.

5.3. Changes in eating habits:

One of the objectives of the SNAKS project was to see whether the implementation of a healthy eating initiative by students in their own school would have any impact on the eating behaviour or food choices of the students within the school. Transition year students, therefore, carried out an initial survey to collect baseline data regarding habits and foods eaten. Then, after the implementation of their healthy eating initiative, they resurveyed their school population to record any changes in habits or food choices which may have taken place in the intervening period..

5.3.1. Packed lunch:

Students were asked whether they took a packed lunch to school, and if they did what their first and second preferences were for food inclusion.

Looking at the results section, and particularly table 8, the packed lunch choices can be seen. There is a definite difference visible between the percentage of food and drink chosen at baseline, and those chosen after the SNAKS project. It could, therefore be deemed that the changes seen may be due to interventions made by TY students in their schools.

The increase in the choice of yoghurt and the decrease in the choice of both fizzy drink and chocolate would reflect favourably on the project, and suggest that healthy eating messages spread by TY students may have altered student food choice. It is interesting to note that the sandwich is still the most favoured first choice for the packed lunch, and if the sandwich was of good quality it could provide a very nutritious part of the students' diet.

Crisp inclusion in the packed lunch actually rose, both as a first and second choice, it would appear that students find it difficult to cut down on this high fat food as there is no other organoleptic alternative which can be eaten in the same manner, i.e. hand held.

Milk was not taken as part of the packed lunch to any great extent, and this is probably due to the difficulty that is encountered in keeping milk fresh and cold, unless students have access to a fridge. The fact that calcium containing foods are being encouraged in this age group to reduce the risk of osteoporosis in later life begs the question, why milk is not provided for sale in schools, from a suitably refrigerated source, to encourage intake, in preference to i.e. fizzy drinks.

5.3.2. The tuckshop:

As part of SNAKS TY students were encouraged to modify foods available to their peers in the school setting. Many TY groups made large changes to their tuckshops and canteens. Students introduced otherwise unavailable healthful foods and drinks, they then promoted sales by advertising the changes that they had made, and by altering price structure to favour healthy food sale and dissuade students from choosing the unhealthy alternative.

The results that are available regarding tuckshop food purchases indicate that TY student healthy eating projects have led to a positive change in purchases from tuckshops.

Looking at table 9 of the results section, there was an overall increase in sandwich, yoghurt and 'other' purchase, with a tandem overall decrease in fizzy drink, crisp, milk and chocolate purchase.

The increase in the purchase of healthy foods such as yoghurt, and the decrease in the purchase of unhealthy food such as chocolate, and milk fizzy drinks, coincides with the TY healthy eating interventions. This shift in food purchase coincides with the introduction of healthy food into the tuckshop, which was not there previously. It could be postulated that the provision of a choice may have led to an increase in healthy food choice in preference to unhealthy food. This finding is important as it shows us that it allows the student to choose the healthy option if they so wish. It could be said that the increase in healthy food was purely as the food was novel, and the initiative new and interesting, therefore it would be important to carry out this study in a longitudinal manner to see whether healthy food choices would remain high, such as the study carried out by Nicklas et.al.(1998), which looked at a high school programme to increase fruit and vegetable intake over a 2 year period.

The pricing structure seemed to make a large impact on the purchases made by students, the manipulation of price in one school led to a large increase in the amount of healthy food sold in comparison to unhealthy food.

5.3.3. Meat consumption:

It was decided to include questions on meat consumption because in the past it has been hypothesised that there is an increased popularity of meat avoidance amongst teenage girls and that this may be associated with a desire to reduce body weight (Ryan *et. al.*, 1997₁).

The SNAKS study showed a high incidence of meat consumption both in sandwiches and at other times.

In sandwiches, girls are approximately:

- ◆ 4% more likely than boys to have meat 1-2 days of the week
- ◆ 2% more likely than boys to have meat 3-4 days of the week.
- ◆ 6% more likely than boys to never have meat

Whilst boys are approximately 13% more likely to have meat in their sandwiches 5-6 days of the week

The figure for meat avoidance in girls is similar but slightly above the 10% avoidance reported by Ryan *et. al.* (1997₁), with females having a higher level of total meat avoidance (13.3%) than boys (8.3%).

It is recommended that each adolescent/adult should be having at least 3-4 days which contain meat in order to achieve adequate iron and protein levels. From this survey it could be said that approximately 50% of female students who do not eat meat in sandwiches 3-4 days of the week may be having an inadequate intake, as it is impossible to say what percentage of these have adequate amounts of meat at other times

The difference between baseline data on meat consumption and data obtained after TY intervention is recorded in table 10.

Interestingly the percentage number of students taking the recommended amount of meat in their sandwiches, i.e. 3-4 days, rose by approximately 4%, whilst the percentage of those never taking meat or taking meat 5-6 days fell, each by approximately 3%. The amount of students that reported total avoidance of meat also fell by 5% from 14% to 9%.

It could be said that the increase in meat inclusion in the recommended quantities and the fall off in those totally avoiding meat, is as a result of the healthy eating messages TY students gave to their peer group. Messages regarding the importance of adequate iron and protein intake broadcast to their school mates could have led to the increase in meat eating.

5.4. Nutrition associated factors:

Students were also questioned about issues surrounding nutrition such as weight, smoking, and methods used to alter eating habits. These questions were asked to try and obtain information on students' habits and desires and to try to ascertain what impact, if any, these issues would have on students' nutritional habits.

5.4.1. Weight issues:

When questioned whether they were happy with their current weight, 67.7% of males said that they were happy, compared to only 43.4% of females. Ryan *et. al.* (1997) reported a similar figure for female weight dissatisfaction, with only 41% of TY adolescent girls in Dublin reporting happiness with their weight.

It has been proposed that there is a link between age and the onset of weight dissatisfaction. Year in school also seems to have an effect on happiness with weight. Both males and females seem to be happiest with their weight in their first year of school and this happiness decreases

with the lowest state of happiness being reported in 4th year. Happiness with weight from 1st to 4th year seems to decrease more rapidly in females (11% drop) than in males (4% drop). Levels of satisfaction with weight take an upward turn in 5th and 6th year in both sexes, however, by 6th year neither boys nor girls report the same happiness with weight as do their 1st year counterparts.

The impact that school year has on weight is a worrying one. Is the decline in satisfaction a result of peer pressure, influence of the media, or due to the onset of adolescence? In young females the onset of adolescence leads to an accumulation of 'unwanted' adipose tissue, and in young males it leads to thin stature and a desire to gain muscle and weight, both changes may lead to weight dissatisfaction..

Of those students in SNAKS who were dissatisfied with their current weight 85.5% of females expressed a desire to lose weight in comparison with only 25.5% of males, this represents a 60% gender difference. The HBSC survey, in contrast, states that only 32% of females and 18% of males in the Midland Health Board region report that they should be on a weight reducing diet, percentage figures which are much lower than those which have been reported in SNAKS.

It is interesting to note that there is also a marked gender difference in the percentage of males who want to gain muscle (53.9%) when compared to females (5.2%). It can therefore be said that the majority of female weight dissatisfaction seems to be due to their perception that their weight is too high, whereas the majority of males are dissatisfied with their weight in terms of muscle, in that they would prefer to have greater muscle.

5.4.2. Eating habits:

In the SNAKS study only 33.5 % of males have reported changing eating habits in contrast to 72.5% of female students...The figure for females can be linked to studies in the past which have shown that up to 70% of adolescent girls have attempted to lose weight (Moses *et. al.*, 1989; Fox, 1991), and that body weight dissatisfaction arising from a fear of fatness is widespread (Flynn, 1997).

Flynn, (1997), states that the most popular slimming method used by this female group is self-imposed dieting, whilst Ryan *et. al.* (1997) described girls who were slimming while at the same time describing themselves as 'underweight' or 'normal weight'.

Although it was not asked in SNAKS why students had changed their eating habits the study it did show that females were indeed more likely than boys to count calories, and that an alarming number of both sexes were cutting out starchy foods, and meat and dairy products as well. Comparing baseline data, to 2nd survey data, it could be seen that there was in fact a shift away from the three methods listed in the survey and a higher reported use of other 'changes'. Unfortunately many students did not state these 'other' changes but from some of the responses that were given, it could be said that the SNAKS intervention project led to more sensible changes, such as cutting down on fatty foods and sweets and eating more fruit, vegetables and starchy foods. This is important, as it reflects again, as with the packed lunch and tuckshop choices, that peer led education within the school setting did seem to have an impact on food choice and eating habits.

5.4.3. Smoking:

It has been noted that with the possible exception of black teenagers, peer pressure seems to play an important role in smoking initiation. (Pererz-Stable & Fuentes- Afflick, 1998). Morgan & Grube, (1994) stated that group membership dramatically influences whether an adolescent will use tobacco. and social pressures for popularity continue to induce smoking behaviour among teenagers, particularly before the age of 16.

Cigarette use is detrimental to health and longevity, and has been estimated to increase the risk of coronary heart disease by 150% and lung cancer by 2000% (Renaud & de Lorgeril, 1993).

Teenage girls, however, have been reported to fear the immediate possibility of gaining weight, post cigarette cessation, far more than the remote likelihood of serious disease and premature death that may result from smoking-related illnesses (Califano, 1995). Furthermore many females actually report using smoking as a weight-control strategy (Bernstein *et. al.*, 1996)

The level of smoking amongst teenagers in the SNAKS study was 29% for females and 24% for males. These figures are both much higher than the HBSC figures for the Midland region.(girls 18%, and boys 20%), and the national HBSC figures, (21%). However a study carried out in 1996 in the MHB showed that 34% of second level students were current smokers and 10% ex-smokers, whilst a study carried out in the Mid western Health board in 1998 demonstrated that 28.6% of second level students were current smokers.

In SNAKS, the relationship between age and smoking can be seen by studying the trend in smoking with school year. As age increases so too does the level of smoking, which corresponds to the general trend seen in the HBSC study.

There is a general trend amongst both sexes to increase smoking with age, smoking levels do fluctuate slightly, with levels falling in transition year and 6th year in both sexes.

It can be seen, however, that girls have a higher rate of smoking all the way through school. Starting in first year 21% of female students are smoking in comparison to only 12% males. This high level of smoking amongst females corresponds to that alluded to by Pierce *et. al.* (1994), and it is a cause of concern. With such a large proportion of the female student population dissatisfied with their weight and trying to lose weight, consideration must be given to the fact that these females may be using smoking as a method of weight control (Bernstein *et. al.*, 1996)

With such a high proportion of first year students smoking one must question whether these students started to smoke before they entered post-primary education, and if this is in fact the case then should more work be carried out into the targeting of primary schools with smoking prevention programmes.

The reason for increase in smoking with age/year in school is also very relevant, is it purely as a result of peer pressure, or do other factors such as stress of state exams, student workload play a role?

5.5. Potential marketing strategies:

Adolescents view their health differently than do their parents or their physicians (Millstein, 1993). If interventions to promote healthy lifestyles are to be successful, they must be based on a thorough understanding of adolescents' perspectives within their own frame of reality (Frenn & Porter, 1999). Food choice is a complex behaviour that is determined by interplay of environmental, personal and biological factors (Lewis, *et. al.*, 1989).

One of the objectives of SNAKS 2000 was the development of a successful marketing strategy that would appeal to an adolescent age group, as at this moment there is no vehicle through which it is possible to access nutrition information to this age group. For this reason it was decided to question students about their favourite magazines, TV programmes and ask them which advertisement would most influence their food choice. From this information, it was

hoped, to glean an idea of the type of language that students prefer to listen to, and the type of actors which this age group may use as role models, and in so doing obtain an insight into strategies which could be used to access this group in years to come.

5.5.1. Magazines:

When asked to note their top three favourite magazines, the results made for very interesting reading. Sugar (50.8%) was the top first choice magazine, followed by Bliss (40%) as the favoured second choice, and Just Seventeen (32.4%) the most favoured third choice.

The language used, and the topics covered in these magazines would be quite specific. Given the popularity of these magazines the attraction of them to this audience should be studied.

Would it be possible to harness their popularity in order to carry out health promotion, i.e. use the language of these magazines in leaflets, or place advertisements for healthful foods, or practices in these magazines.

5.5.2. Television Programmes:

Students were asked what were their top three favourite TV programmes. 'Friends' was voted the most popular first (49.3%), second (26.9%) and third choice (17.8%) when it came to viewing.

With such a popular programme the characters in this TV programme must be assessed in terms of the influence they may have on teenagers today. The rapid weight loss of two of the leading characters in recent times is very noticeable and has even been remarked upon in the press. This loss in weight together with the adoration that is shown to all slim young women by the male characters should be marked. It must be considered when noting these facts that it is possible that some adolescents watching this programme may subliminally use these characters as role models or feel that to be accepted as beautiful or attractive to men, one must be very slim.

Given the popularity of this programme should some way be obtained of harnessing its obvious popularity and channelling it to helping health promotion, i.e. viewing time surrounding it be used to promote health for teenagers, i.e. healthy food advertisements or smoking prevention advertisements.

5.5.3. Food advertisements:

When asked which TV advertisements would be most influential on food choice, advertisements for chocolate came out as the most influential (44.4%). Advertisements for fast food (20.7%) and cereal advertisements (19.5%) were deemed influential as were advertisements for milk/yoghurt (14.9%).

It is somewhat surprising that milk/yoghurt advertisements came out as the fourth most influential advertisement. Due to the apparent lack of dairy food consumption amongst this age group.

In looking at these advertisements, one must ask why these advertisements are so appealing to teenagers, and why they are so successful in influencing food choice in this age group.

What sets them apart from other food and drink advertisements in terms of their influence? If this question could be answered would it then be possible to harness their appeal and use it to promote more healthy foods or increase the popularity of cereals and milk?

5.6. Issues raised

5.6.1. Intrusion:

Many students expressed a dislike to the questions on the questionnaire regarding parents employment status, and medical card status. Students seemed to find these questions intrusive, and in many cases they were not answered. Transition year students reported that even when the reason behind the question was explained, fellow students still stated that they felt these questions had no place in a survey related to nutrition.

5.6.2. Services:

It has been recommended that lunch should provide one third of an adolescents daily requirements (Lachance, 1977), and that hunger and malnutrition can seriously impair the learning process (Read, 1973). The Food Advisory Group has recommended that healthy eating should be promoted in schools through school policy this finding is worrying.

It was found that services for food provision varied from school to school and that the acceptability of the provision of healthy foods in some schools was very low. A conflict of interest exists in these schools. There is an assumption that to make a profit one has to sell junk foods, and that the selling of healthy food would lead to a loss of revenue for the school. This

revenue is used to carry out tasks in the school such as cleaning; therefore the conflict exists between profit for the school and healthy food for the students.

SNAKS demonstrated that it was possible to maintain revenue in tuckshops when selling healthy foods, but should the selling of healthy food in the school setting have to be justified?

In the future it would be a very worthwhile exercise to attempt to promote the adoption by schools of school policy regarding nutrition and healthy eating.

5.6.3. Peer led education:

The power of peer led education was very evident in SNAKS. As the project progressed it became clear that the influence which TY students had over their peers was far greater than any influence a health professional or teacher may have had.

5.6.4. The internet:

There is currently no nutrition information leaflet targeted at adolescents and students during the study felt that it would be an inappropriate method of nutrition education or food promotion. The production of a nutrition website by one TY team served to heighten the importance that information technology can have in promoting nutrition. Many students, and indeed teachers, were extremely interested in this method of nutrition promotion.

5.6.5. Nutritional knowledge:

Nutritional knowledge amongst students was heightened by poster campaigns, information sessions, focus groups, quizzes, videos, cookery demonstrations and product demonstrations. Student knowledge was not measured, however it could be said that the change in foods purchased may reflect a change in knowledge regarding healthy eating and food.

5.7. Innovative projects introduced by TY students:

As already mentioned as part of SNAKS, students were required to think of exciting and novel ways to promote healthy eating and nutrition in their school, the following are an overview of projects created.

5.7.1. Development of a website:

The transition year students who won first prize in the competition, which was part of the SNAKS study, developed a website. The students used the website to display their schools' SNAKS questionnaire findings and to outline the work that they had undertaken to promote healthy eating. The website can be found at www.athloncc.ie. The idea of a website was an innovative one, and it was felt to have potential as a tool that would be useful in accessing this age group with nutritional messages.

5.7.2. Tuckshop development:

The presence or absence of a tuckshop varied from school to school, as did their contents, in fact many students expressed some confusion over the term 'tuckshop', as it meant different shop type in different schools. Overall the availability of healthy foods in the tuckshops seemed to be quite low.

Students in each school approached the promotion of healthy food in their tuckshops in different ways:

- ◆ food made in home economics class, was sold in the tuckshop one day per week
- ◆ cost price fruit was obtained from fruit shops
- ◆ price structure in tuckshop was manipulated to cut the cost of healthy food and increase the cost of unhealthy food
- ◆ healthy food that was available in shop was advertised using different methods such as posters
- ◆ announcements over the intercom
- ◆ nutritional facts regarding food available in shops was advertised i.e. only source of iron in tuckshop was in raisins that students had introduced as part of SNAKS
- ◆ a tuckshop was set up that had not been in operation
- ◆ introduction of milk and negotiation with distributor to obtain refrigerator for milk
- ◆ introduction of rolls into school in competition with external chip supplier leading to fall off in demand for chips and complaint from chip supplier.

The following are a list of food and drinks that students introduced into their school tuckshops as a result of SNAKS

| | |
|-------------|-----------------|
| Milk | Diet minerals |
| Meusli bars | Raisins |
| Yoghurts | Nuts |
| Yop | Baked potatoes |
| Rolls | All fruit types |
| Popcorn | Trail mix |
| Pizza | Orange juice |

5.7.3. Video production:

At the induction day students were advised that there was no tool available to promote healthy eating in their age group. As a result of this four schools decided to produce videos to promote healthy eating. Each group produced a video that had a different approach to nutrition promotion.

1. A video containing advertisements made for television. In these, healthy foods were identified in a fun way that was appealing to teenagers.
2. A short drama was produced, which portrayed a scenario about the fate of a teenager who did not eat healthy food.
3. This video depicted healthy and unhealthy food, and gave an insight into the food that had been available in the school before SNAKS, and the food introduced as a result of the project.
4. The role of focus groups was detailed with this group using a focus group approach to promoting healthy eating amongst first years, and demonstrating the impact this approach had made.

5.7.4. Art competitions:

Many schools used art as a vehicle to promote healthy eating. Some transition year (TY) groups produced their own posters to; advertise healthy eating, the contents of their tuck shop, or advise their peers of nutrition facts. Alternatively, some TY groups ran competitions throughout the school and offered prizes for the best poster promoting healthy eating. One such school awarded fruit baskets as its prizes and was delighted to observe that winners enjoyed their unusual tokens.

5.7.5. Unusual creations:

Novel ideas were the mantra of this project. One school made and produced laminated keyrings, wallet inserts and placemats depicting the colour food pyramid, and reported that in house much interest was expressed in these items.

5.7.6. Company involvement:

Students were very diligent in obtaining help from outside organisations. Many schools wrote to various organisations for information. Others went further still and invited companies such as Dawn Dairies, Moate, Co. Westmeath, and the National Dairy Council to speak and carry out demonstrations to both TY and other students in their schools. Following on from this, some schools made a determined effort and enticed extra bonuses from companies, by increasing sales, i.e. a refrigerator from Glanbia when enough milk was being ordered each day.

5.7.7. Healthy Eating:

Students in a number of schools took the opportunity to arrange healthy eating days and weeks, in their school to promote the nutritional knowledge of their peers. Innovative marketing strategies included:

- ◆ having a healthy eating day at the beginning of lent and demonstrating to peers that healthy food, as a substitute could be delicious
- ◆ preparation of fruit as fruit cocktails and handy snacks
- ◆ sending healthy eating leaflets to parents with information from school
- ◆ Having a nutrition stand at first year and transition year parents' evening, to inform parents about the importance of nutrition.
- ◆ Interactive poster for valentine's day and coinciding healthy eating day with the first day of Lent.

In every case that healthy alternatives were sold as part of promotions, supply out reached demand and students had to buy and prepare extra healthy food.

6. Observations:

6.1. Commendation:

The Board of Management in one school commended in written form the work of the TY students in the SNAKS project, and congratulated them on their success in opening a tuckshop and making it viable.

Parents were reported to be delighted with the project, and feedback from parents at TY and first year open nights, in which TYs were involved, was very positive regarding the project and the influences that it had on students. One parent commented that their daughter, who for years refused to eat healthy food, is the instigator of healthy eating in the household as a result of working with SNAKS.

6.2. Conflict of interest:

An issue that arose on more than one occasion was that there seemed to be a conflict of interest in schools. Food sold in tuckshops, in some instances, provided much revenue for the school, which would be used for cleaning etcetera. Resistance to changing foods on sale was apparent in several school settings due to the perceived fear that healthy food sale would lead to a fall off in income for the school. This situation must be questioned. Should policy and funding not be put in place within the state that would prevent this situation occurring in the future?

6.3. Personal development

Teachers and students expressed finding that the project had contributed to personal development of students.

Students learned a lot from the experience: self-confidence in what they could achieve; confidence in being able to approach teachers when wanting to survey class, or principal when asking permission; the ability to work as part of a team and the benefits of doing so; and finally the confidence to address class groups, a task which can be quite arduous.

6.4. Cross-curricular in nature:

Teachers and students both commented on the cross-curricular nature of the project. An objective of SNAKS was to ensure that many subjects were used in the project process. Students commented that they felt that they had learned a lot about marketing, use of computers and business issues.

6.5. Empowerment and motivation regarding own health and eating habits:

Many TY students commented that they had learned a lot about their own eating habits, and had started to think about what they ate everyday. Some commented that until they started the project they had not been aware of how badly they or their peers had been eating.

6.6. Healthy eating can be very expensive and money is an issue for students:

Student manipulation of pricing structure in one school depicted the importance of price in what a student will buy. Increasing the price of 'junk' food in juxtaposition to lowering the price of healthy food led to an increase in the uptake of healthy food.

6.7. Peer-led education:

SNAKS has led to the belief that peer-led education in this age group seems to be very important. The use of focus groups, art and competitions seemed to be a very important tool in raising nutritional awareness in schools. Transition year students commented that they had learned more from their own involvement than from any other work on nutrition they had done.

7. Issues and recommendations

The following points have been collated as areas that should be noted. Recommendations for further study have also been stated.

7.1. Peer led education and food intake:

- ◆ Peer led education coincided with favourable decrease in ‘unhealthy’ food intake and increase in ‘healthy food’ intake.

7.2. Smoking:

- ◆ 5% higher smoking amongst females than males
- ◆ level of smoking rises in both genders as time passes
- ◆ even in 1st year smoking amongst girls is higher than boys.

7.3. Weight issues:

- ◆ females more dissatisfied with weight than males (56.2% V's 32.3%)
- ◆ decreased happiness with increase in school year
- ◆ greater /quicker decrease in happiness with females
- ◆ females wish to lose weight whilst males wish to gain muscle.

7.4. Eating habits:

- ◆ SNAKS - no effect on male eating habits and very low level of changes to eating habits ever made. (30%)
- ◆ Females more likely to have changed eating habits in past (71%) and to have increased changes in eating habits after SNAKS (5% increase)
- ◆ Overall decrease in number of students counting kcal, cutting starchy foods, meat, dairy foods, and an increase in those who were using other methods to change eating habits.

7.5. Media influence:

- ◆ Most favourite TV Programme – ‘Friends’
- ◆ Most favourite magazine - ‘Sugar’
- ◆ Most influential advertisement on food intake: chocolate (44%)

7.8. Areas for further research:

- ◆ Conflict of interest between schools, lack of resources and impact on nutrition
- ◆ Innovative ideas produced - -i.e. Internet, price manipulation
- ◆ Personal development and cross-curricular nature of project – more than just learning re: nutrition
- ◆ Healthy eating **can** be expensive, will students choose the cheaper options always, irrespective of food type, i.e., should healthy food be subsidised in shops? – carry out longitudinal study to determine whether healthy food would be chosen in the long term.
- ◆ Harness benefits of peer-led education and use in other areas of health promotion
- ◆ Promotion of introduction of nutrition policy into schools by school authorities
- ◆ Audit into Midland schools nutrition policy
- ◆ Use of context and type of messages that are in magazines, programmes and advertisements that students cited as influential and see if this helps to promote messages in health promotion.

8. Conclusions:

As far back as 1995, the Nutrition Advisory Group for the Minister for Health report suggested that healthy eating should be promoted in schools. It said this should be done through school policy, curriculum, and in particular, through the provision of healthy food choices in the tuck shop and canteen. Five years later SNAKS 2000 was set up in response to a need expressed by teachers in Midland Health Board schools, where it was felt that post-primary school students had not got access to healthy food in school and as a result students were eating inadequately during the school day.

SNAKS confirmed the fears expressed by teachers, with the lack of healthy food and the conflict of interest that perpetuates this, very apparent. However it was encouraging to observe the impact that TY peer led education had on student eating habits, and see the changes that were made in tuckshops by the competitors.

Although the project was centred around nutrition it also encouraged students to: develop life-skills, such as self confidence, team work and innovation; and it allowed students to apply in practice knowledge learned in school, i.e. business studies, marketing.

The importance of good nutrition during adolescence is very apparent and it is an issue which must not be allowed to slip from the agenda in the future. For a long time health professionals have found it quite difficult to target this adolescent age group with health messages, as appropriate vehicles for message transmission have been lacking. Armed with the knowledge of the forms of media which most influence students today and that peer led education can be very effective, it is hoped that in the future health professionals will be able to work with this group in partnership to further empower them regarding nutrition.

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Appendix I

Participating schools

- Athlone Community College, Athlone, Co. Westmeath.
- Our Lady's Bower, Athlone, Co. Westmeath.
- Cnoc Mhuire Secondary School, Granard, Co. Longford.
- Loretto College, Mullingar, Co. Westmeath.
- The Community College, Church Street, Moate, Co. Westmeath.
- Brigidine Convent Secondary School, Mountrath, Co. Laois.
- The Community College, Moyne, Co. Longford.
- St. Joseph's Secondary School, Rochfortbridge, Co. Westmeath.
- Sacred Heart School, Daingean Road, Tullamore, Co. Offaly.
- Scoil Chríost Rí, Portlaoise, Co. Laois.

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Appendix II

Reasons why five schools failed to complete SNAKS.

| School code | Reason for abstention |
|-------------|------------------------------|
| 03 | Did not complete surveys |
| 04 | Did not complete surveys |
| 05 | Did not attend induction day |
| 09 | Completed wrong surveys |
| 12 | Co-ordinator unavailable |

Appendix III

Coding guide

Age:

As on questionnaire

Male or female:

1. Male
2. Female

Ability to buy food & drink in school:

1. Yes
2. No

Where do you mostly buy food/drink?

1. tuck shop
2. vending machine
3. canteen

Which does tuck shop mostly contain?

- | | | |
|------------|---------|------|
| A. fruit | yes =1; | No=2 |
| B. scones | yes =1; | No=2 |
| C. milk | yes =1; | No=2 |
| D. juice | yes =1; | No=2 |
| E. popcorn | yes =1; | No=2 |

Which does vending machine mostly contain?

- | | | |
|------------|---------|------|
| A. fruit | yes =1; | No=2 |
| B. scones | yes =1; | No=2 |
| C. milk | yes =1; | No=2 |
| D. juice | yes =1; | No=2 |
| E. popcorn | yes =1; | No=2 |

Which does canteen mostly contain?

- | | | |
|---------------|---------|------|
| A. salad | yes =1; | No=2 |
| B. potatoes | yes =1; | No=2 |
| C. fruit | yes =1; | No=2 |
| D. roast | yes =1; | No=2 |
| E. vegetables | yes =1; | No=2 |

Space to sit to eat lunch:

1. yes
2. no

Main lunch location:

1. go home
2. packed lunch
3. canteen
4. Tuck shop
5. Town

What is it at home?

1. sandwich
2. meat, veg. & potatoes
3. yoghurt
4. fizzy drink
5. crisps
6. milk
7. chocolate
8. nothing

Packed lunch:

1. sandwich
2. yoghurt
3. fizzy drink
4. crisps
5. milk
6. chocolate
7. other

Canteen food:

1. sandwich
2. meat, veg. & potatoes
3. yoghurt
4. fizzy drink
5. crisps
6. milk
7. hotdog
8. sausage & chips
9. pizza
10. fish
11. other

Tuckshop purchases:

1. sandwich
2. yoghurt
3. fizzy drink
4. crisps
5. milk
6. chocolate
7. other

Lunch in town:

1. sandwich
2. fizzy drink
3. crisps
4. milk
5. chocolate
6. burger
7. chips
8. hotdog
9. sausage & chips
10. pizza
11. fish
12. other

Quantities:

Use quantity/number of items as answer, i.e. 4 bars of chocolate therefore the code would be 24

(a) 4.

- a) Chocolate
- b) Biscuits
- c) Packets of crisps
- d) Sweets
- e) Yoghurts
- f) Fizzy drinks
- g) Meat
- h) Fruit

Meat in sandwiches:

1. 1-2days
2. 3-4 days
3. 5-6 days
4. never

Eating of meat at other times:

1. yes

2. no

Frequency of meat consumption at other times during week:

1. everyday
2. 3-6days
3. twice a week
4. once a week

Reason for not eating meat:

1. to lose weight
2. do not like taste
3. animal welfare
4. friends doing it
5. other

Time of stopping meat consumption:

1. this year
2. 1 year ago
3. 2 years ago
4. 3 years ago
5. 4 years ago
6. 5+years ago

Influences:

Use rank number as answer to question:

- (a) parents
- (b) what friends have
- (c) what is thought to be healthy
- (d) amount of money to spend
- (e) other

Awareness of healthy eating:

1. yes
2. no

Q27, 28 & 29:

Answer as that given on questionnaire

Smoking:

1. yes
2. no

Why begin Smoking:

Answer as on questionnaire

(a) Happy with weight:

1. yes
2. no

(b) If no – which would be preferred:

1. lose weight
2. gain weight
3. gain muscle

Tried to change eating habits:

1. yes
2. no

Which was done to try and change eating habits:

1. counted calories
2. cut out all bread, potatoes & rice
3. cut out all meat & dairy products
4. other

father's occupation

As on script

mother's occupation

As on script

Medical card

1. yes
2. No.

Appendix IV

Feedback from teacher whose TY class won the SNAKS competition

“As a teacher involved in the SNAKS 2000 project, I feel it was an excellent task for transition year students. I certainly hope that the students are more aware of healthy eating.

The aims and objectives of the survey were very clear and carefully thought out. Students enjoyed the project; in particular the efforts made to promote healthy eating in school. I intend to have a healthy eating week in the school next year as part of the transition year programme.

I feel a few improvements could be made for future surveys. I think the project should be given to students in September, I felt we did not have enough time. It would be better to focus on smaller numbers rather than the whole school, maybe a random sample throughout the school or to focus on one particular year. It would be of enormous benefit if students were provided with a computer programme in which they could collate their results.

In summary, it was an excellent idea, and I would be very interested in getting involved in a similar project in the future.”

Appendix V

A selection of posters produced by students

Appendix VI

A selection of photographs taken at the presentation day.

Appendix IX

An example of a nutrition information leaflet produced by
TY students