

Dieting patterns and related lifestyles of school-aged children in the Republic of Ireland

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Abstract

Objective: The aim of this study was to identify differences in food habits and lifestyle behaviours by dieting status among young people in Ireland.

Design: Cross-sectional survey. Participants responded to a self-completion questionnaire designed by researchers on the World Health Organization's collaborative study – Health Behaviour in School Aged Children. Pupils were selected by school and classroom and the sample was stratified to be representative of the geographical distribution of school students in Ireland.

Setting: Data were collected by teachers from school pupils in their classrooms.

Subjects: Data were collected from 187 schools which included 8497 pupils (51% girls) aged 9–17 years.

Results: While a minority of pupils (12% of girls, 4% of boys) reported that they were on a diet to lose weight, a substantial proportion (28% of girls, 18% of boys) said that they should be on a diet. Dieters reported consuming unhealthy foods less frequently than non-dieters, but did not report an increased consumption of fruit and vegetables. Rather, some categories of dieters reported higher levels of coffee and tobacco use and lower exercise levels than non-dieters.

Conclusions: The results could indicate substitution of unhealthy foods by other unhealthy behaviours as opposed to an increased consumption of healthier foodstuffs, and suggest that both smoking and exercise need to be addressed alongside nutrition in youth health promotion.

Keywords
Adolescence
Nutrition
Dieting

Health-related behaviours and beliefs established during adolescence have been linked to patterns of behaviour in adulthood¹. Increasing evidence suggests that dietary habits established in youth are continued into adulthood and that dietary intake during childhood and adolescence influences the risk of major chronic diseases, such as cardiovascular diseases and cancers, in adulthood². Although it is generally accepted that healthy eating should begin in childhood, Nelson's³ review of school-children's diets in the UK concluded that children were not consuming sufficient iron, calcium or antioxidant vitamins and were consuming too much fat and sugar.

Evidence of deliberately restrictive dietary behaviours among young people suggests that significant numbers had recently reduced the consumption of either fat or sugar in their diets⁴. Indeed, children as young as 8 years have reported dissatisfaction with their bodies⁵. Adolescence is a time of rapid growth and adequate nutrition is of key importance in order to meet the requirements for normal growth and development. Reports of widespread dieting behaviour and disordered eating attitudes among

adolescents have shown that these behaviours are much more common in girls than boys⁶.

Gender differences in food intake appear first in early adolescence, where eating behaviours and body weight regulation suggest that pressures to be thin are present, particularly among girls⁷. A significant proportion of young women consider themselves to be overweight, and this has been illustrated amongst girls as young as 12–13 years of age⁸. The National Dairy Council⁹ reported that 78% of 14–18-year-old females said they had reduced their sugar consumption in the previous year. Concerns about weight control and body shape were the major motivations for dietary change. By late adolescence, up to 70% of girls have engaged in dieting behaviour^{9,10} and have demonstrated disordered eating attitudes¹¹. Many young girls are engaging in potentially harmful dieting practices from a very early age and are of the opinion that dieting is a healthy activity¹².

While there have been no previous national studies on the eating habits of Irish schoolchildren, the prevalence of the dieting behaviours previously reported suggests that

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the specific behaviours of this group of young people deserve attention and that analyses in this area should be gender-specific. In this context, it is important to remember that patterns and motivation around dieting are of great practical importance in health education and health promotion campaigns that aim to ensure that appropriate and balanced educational messages are developed.

Methods

Participants

This study is based on part of the Irish Health Behaviours in School Aged Children (HBSC) Survey; sampling procedures conform to the International protocol for this study¹³ and are described in detail by Friel *et al.*¹⁴. The sampling framework was constructed from lists of primary (ages 4–12 years) and post-primary (ages 12–19 years) schools in the Republic of Ireland provided by the National Department of Education and Science. The sampling unit was the individual classroom and the sample was stratified to be representative of the geographic distribution of school students across health authority regions within the country. A two-stage sampling process was adopted. Schools were randomly selected and subsequently individual classrooms within these schools were each randomly selected for inclusion.

Measurement

The data reported here were collected by means of a self-completion questionnaire. The questionnaire was designed as part of the World Health Organization's collaborative study – Health Behaviours in School Aged Children, by researchers in all 30 participating countries^{14,15}. It comprises a set of core questions, which are employed in each country during sequential cross-sectional waves of data collection, along with optional questions included by any number of countries and questions that are country-specific. The data discussed below all stem from the core questions on consumption, exercise and body image. Students were asked how often they consume a variety of foodstuffs and were provided with a five-point Likert-type scale with the following response options: 'never', 'rarely', 'at least once a week but not daily', 'once a day' and 'more than once a day'.

In addition, students were asked whether they were on a diet to lose weight, with response options 'yes', 'no but I do need to lose weight' and 'no because my weight is fine'; and their perception of their body, with response options 'much too thin', 'a bit too thin', 'about the right size', 'a bit too fat', 'much too fat' and 'don't think about it'. They were also asked how frequently they exercise vigorously (so much that they get out of breath or sweat), with response options 'every day', '4–6 times per week', '2–3 times per week', 'once a week', 'once a month', 'less than once a month' and 'never'; and whether they smoked cigarettes,

and if so, how often, with response options 'every day', 'at least once a week but not every day', 'less than once a week' and 'I do not smoke'. All of these questions are core questions of the International HBSC study and have been detailed elsewhere^{14,15}.

Also included in these analyses were questions on self-reported height and weight. Students were asked to report how tall they were without shoes and how much they weigh without clothes, both questions piloted specifically for this study¹³ and reported by Currie¹⁵ and Lissau¹⁶. The questionnaire additionally contained an item on self-esteem, as measured by the Rosenberg Self-Esteem Scale^{17,18}, and an item on perceived general health: 'How healthy do you think you are?', with response options 'very healthy', 'quite healthy' and 'not very healthy'¹³.

Procedure

Self-completion questionnaires were distributed to all attending students during a specific class period (usually of 40 minutes' duration). Students were invited to submit their questionnaires in blank sealed envelopes and these were subsequently returned to researchers by FREEPOST. A classroom information sheet was also distributed for each participating classroom, to be completed by teachers, providing information on classroom composition and absentees and inviting other relevant information to be supplied.

Analyses

Analyses were conducted employing non-parametric methods including the Chi-square test for testing the significance of differences between groups and Spearman's rank order correlation coefficient to evaluate the extent of the associations between variables. Employing the classroom as the sampling unit, but the individual as the unit of analysis, has the potential to mask clustering effects. Design factors for a range of dependent variables included in this study vary from 1.00 to 1.43¹⁹. These should be considered in any further interpretation of the data presented here.

Results

In total, 8497 completed questionnaires were returned from 116 primary and 71 post-primary schools, reflecting a 72% classroom response rate. These students are representative of the general population of students based on geographic location, age, gender and parental social class¹⁴. Percentages of missing values vary by individual variable, with a range of 1.3 to 3% for the foodstuffs; thus the valid values for *n* in the tables below vary accordingly.

Overall, 12% of girls and 4% of boys reported already being on a diet. A further 8% of girls and 18% of boys said that they should be on a diet but were not, while 1.5% did

Table 1 Characteristics of respondents by gender and dieting status

Variable	Boys			Girls		
	Not dieting	Should diet	Dieting	Not dieting	Should diet	Dieting
<i>Number</i>	3204	716	172	2601	1177	500
Mean age in years (SD)	14.04 (1.79)	13.76 (1.71)	13.67 (1.67)	13.25 (1.81)	14.02 (1.79)	14.40 (1.69)
% Social classes 1 & 2	31.1	29.5	34.2	31.7	33.9	29.7
% Social classes 2 & 3	34.3	36.1	39.1	35.5	32.1	35.7
% Social classes 4 & 5	19.3	20.7	11.2	18.0	22.1	17.5
% BMI < 25 kg m ⁻²	76.6	48.4	44.7	83.7	43.5	41.5
% BMI = 25–30 kg m ⁻²	20.4	34.8	31.8	14.6	43.4	38.9
% BMI > 30 kg m ⁻²	3	16.8	23.5	1.7	13.1	19.6
Mean BMI in kg m ⁻² (SD)	22.5 (3.46)	25.32 (4.67)	26.54 (6.40)	21.83 (3.28)	25.36 (3.94)	26.16 (5.64)
% Perceived too thin	18.6	4.4	1.2	14.4	1.3	1.2
% Perceived about right	53.4	14.9	13.3	59.2	9.7	9.1
% Perceived too fat	7.4	69.6	78.3	14.4	84.6	88.2
% Don't think about it	20.6	11.1	7.2	12.0	4.4	1.4
Mean self-esteem (SD)	27.11 (6.44)	25.21 (5.97)	24.01 (7.78)	25.55 (6.28)	22.77 (6.13)	21.59 (7.19)
% Perceived very healthy	37.1	18.8	18.2	27.3	13.9	14.2

SD – standard deviation.

not respond to this question. Correspondingly, 46% of girls and 26% of boys perceived themselves to be too fat. Table 1 presents the children's sociodemographic characteristics, body mass index (BMI) groups based on self-reported height and weight, and perceived body image broken down by gender and dieting status.

The Spearman rank order correlation coefficient between social class classification and dieting status was almost non-existent ($r_s = -0.001$; $P =$ not significant

(NS)). Similarly, the correlation between age and dieting status was very low ($r_s = 0.082$; $P =$ NS).

Table 2 shows slightly different patterns of dietary behaviour for boys and girls. For both genders, those who reported being on a diet were less likely to report frequent consumption of sweets, cakes and pastries and potato crisps than those not on diets. Dieters were also more likely to report frequent low-fat milk and less likely to report frequent high-fat milk consumption. Amongst girls,

Table 2 Percentage of respondents reporting that they consume certain foodstuffs by gender and dieting status, either daily or more often or more than once daily

	Girls				Boys			
	Dieting	Should diet	Not dieting	<i>P</i>	Dieting	Should diet	Not dieting	<i>P</i>
<i>Number</i>	500	1177	2601		172	716	3204	
% Fruit daily or more	80	74	78	*	72	66	69	
% Fruit more than daily	43	37	40		31	28	31	
% Raw vegetables daily or more	28	25	26		25	18	21	
% Raw vegetables more than daily	8	7	6		6	6	5	
% Cooked vegetables daily or more	72	71	74		71	63	65	
% Cooked vegetables more than daily	15	15	17		17	17	17	
% Sugared soft drinks daily or more	53	58	55		62	73	70	*
% Sugared soft drinks more than daily	28	32	31		37	41	39	
% Sweets (inc. chocolate) daily or more	62	78	77	***	62	76	78	***
% Sweets (inc. chocolate) more than daily	29	40	40	***	28	37	41	***
% Cakes or pastries daily or more	15	19	23	***	20	23	29	**
% Cakes or pastries more than daily	4	4	6	**	8	7	8	
% Potato crisps daily or more	40	55	57	***	46	58	58	*
% Potato crisps more than daily	15	18	20	*	14	22	23	*
% Chips/fried potatoes daily or more	16	17	20	*	27	29	30	
% Chips/fried potatoes more than daily	4	4	5		9	10	9	
% Hamburgers, sausages daily or more	9	8	11	*	21	16	20	
% Hamburgers, sausages more than daily	2	2	2		7	6	6	
% Whole wheat/rye bread daily or more	47	39	42	**	46	39	43	
% Whole wheat/rye bread more than daily	18	13	15	*	20	15	18	
% Low-fat milk daily or more	42	28	24	***	46	30	26	***
% Low-fat milk more than daily	29	19	15	***	31	18	16	***
% Whole-fat milk daily or more	49	60	63	***	56	65	68	***
% Whole-fat milk more than daily	29	37	41	***	37	43	49	**
% Coffee daily or more	24	18	16	***	16	16	16	
% Coffee more than daily	14	9	7	***	12	9	7	*
% Alcohol weekly or more	22	18	15	**	27	27	26	

*, $P < 0.05$; **, $P < 0.01$; ***, $P < 0.001$.

Table 3 Percentage of boys reporting various health behaviours by age group and dieting status

Variable	9–11 years			12–14 years			15–17 years		
	Dieting	Should diet	Not dieting	Dieting	Should diet	Not dieting	Dieting	Should diet	Not dieting
<i>Number</i>	29	123	586	100	395	1568	38	192	994
% Drinking coffee daily or more	11	12	12	18	15	15	18	20	20
% Drinking alcohol weekly+	24	19	19	23	20	20	37	47	38
% Smoking weekly+	10*	1	2	13	15	12	14	25	25
% Exercising 4+ times per week	52	50	72***	64	61	67*	42	40	56***

*, $P < 0.05$; **, $P < 0.01$; *** $P < 0.001$.

dieters also reported significantly lower consumption frequencies of chips or fried potatoes and hamburgers or sausages and higher consumption of whole wheat or rye bread than those not on diets. Dieters were also more likely to report frequent coffee consumption and, among the girls, more likely to report weekly alcohol consumption than were the non-dieters.

Self-reported frequency of smoking increased with age ($r_s = 0.25$, $P < 0.05$), but correlations between age and the reported frequencies of consuming the individual food items were low (range $r_s = -0.09$ to 0.08). Tables 3 and 4 illustrate age- and gender-specific analyses which reveal that younger boys (ages 9–11 years) who were dieting were more likely to report current smoking and dieting girls (ages 12+ years) were more likely to report regular coffee and tobacco consumption. They also indicate no general increase in exercising amongst dieting children with the exception of the older (ages 15–17) girls, while dieting boys in each age group were less likely to report increased frequency of exercise.

Discussion

This study reports on the first nation-wide survey of health-related behaviour amongst Irish schoolchildren, and the data presented here represent the first attempt to characterise dieting children and adolescents in this context. Dieting children reported higher BMI values and were more likely to report themselves as too fat. In addition, they were more likely to report lower self-esteem and less likely to report that they were very healthy. Interestingly, boys on diets were slightly less likely to report parental occupations that were characterised as social class 5 & 6, and an age by gender interaction is

evident across dieting status. Dieting boys were slightly younger than non-dieting boys, and dieting girls were slightly older than their non-dieting counterparts. Nevertheless, the correlations between dieting status and age or social class are non-significant and therefore neither sociodemographic variable can be employed as an explanatory factor.

These data on dieting behaviour concur with data²⁰ illustrating a high level of dissatisfaction with body weight amongst Irish schoolgirls. Although fewer young respondents are dieting, these data do confirm that children as young as 9 years engage in restrictive eating behaviours²¹. In addition, these data concur with other studies in that fewer boys than girls are engaging in slimming diets⁶. The percentage of girls reporting dieting to lose weight (12%) in this study is substantially lower than that reported by Roberts *et al.*¹², who found that the incidence of dieting amongst girls of a similar age was 35%. There are a number of potential explanations for this, including the context and design of the two studies. Nevertheless, 28% of girls felt that they should be on a diet, and the inclusion of this response option may indeed be an influencing factor here. It may be that in the context of questions about a wide range of health-relevant behaviours and attitudes, respondents are more likely to exercise their option to indicate that they are not actually following weight-reducing diets even though they feel they should be. This interpretation is supported by the similarities in relation to reported BMI, body image and perceived health between those reporting being on a diet to lose weight and those who report that they should be, as indicated in Table 1.

In relation to the reported consumption of those who are on weight-reducing diets, these findings are similar to those reported by Crawley and Shergill-Bonner²², who

Table 4 Percentage of girls reporting various health behaviours by age group and dieting status

Variable	9–11 years			12–14 years			15–17 years		
	Dieting	Should diet	Not dieting	Dieting	Should diet	Not dieting	Dieting	Should diet	Not dieting
<i>Number</i>	56	192	649	237	560	1300	200	412	610
% Drinking coffee daily or more	12	11	11	25***	15	15	26	23	22
% Drinking alcohol weekly+	14	15	11	17	13	13	28	26	25
% Smoking weekly+	6*	2	1	23***	12	9	36**	30	24
% Exercising 4+ times per week	66	62	58	52	45	51	39***	22	27

*, $P < 0.05$; **, $P < 0.01$; *** $P < 0.001$.

found that teenage dieters had significantly lower intakes of breakfast cereals, confectionery, whole milk, meat and meat products, chips and savoury snacks than non-dieters. Intakes of cereal products were significantly lower amongst dieters, and this included significantly lower intakes of both bread and breakfast cereals. However, the lack of an increase in healthy foods is of particular concern, and it is interesting that this does not emerge even when only the more than daily consumption response options are employed as dependent variables. In this context it should be noted that the proportions reporting frequent consumption of more healthy food-stuffs are mid-range and did not attain a ceiling effect whereby more frequent consumption in one or more groups would be difficult to identify.

The results could indicate substitution of unhealthy foods by other unhealthy behaviours as opposed to an increased consumption of healthier foodstuffs. Indeed, the data suggest that dieting may comprise part of a more adverse lifestyle including smoking, coffee consumption and, in the case of boys particularly, lack of exercise. While any such hypothesis would require further testing, these national data illustrate that the expression of such a pattern may vary by age group and gender. The general patterns are more pronounced in girls than in boys. While this could, in part, be due to increased statistical power in the sample associated with the higher absolute number of girls dieting, the absolute differences between the girls are more substantial and these are likely to be indicators of important gender issues regarding dieting behaviour for these age groups.

Given the importance of lifestyle behaviours such as smoking and exercise, the findings in relation to these variables are of particular interest. The high prevalence of smoking found in these data for dieting girls is also in keeping with the finding that more fashion-conscious Irish teenage girls, but not boys, are more likely to report smoking²³ and that smoking is positively related to weight concerns, dieting and purging amongst 9–14 year olds²⁴. Similarly, 19% of Dublin schoolgirls reported employing smoking as a method of weight control¹⁸. These data also support the conclusion by Flynn²⁵ that fear of fatness is associated with unhealthy behaviours carrying long-term health risks, for example smoking.

The overall rates of exercise participation are relatively low for both boys and girls and this may, in part, be explained by the question employed, which refers only to getting out of breath or sweating, out of school time and so does not include any physical education classes. It may also be influenced by the cut-off point employed, which was four or more times per week. Nevertheless, the finding that increased exercise participation is associated with dieting status in older girls is potentially very useful. For all girls, the drop-off in exercise by this age group is substantial, down to 27%¹⁴ reporting participation in vigorous exercise four or more times per week.

Nevertheless, while the data suggest that dieting status may positively influence exercise, these girls are not eating in a healthier way commensurate with increased calorie expenditure. Indeed the potential benefits of increased exercise for some girls²⁵ must be balanced with the potential for growth failure and retardation associated with dietary restriction^{26,27} even amongst obese girls²⁸.

Although the data are based entirely on self-reports, previous work suggests that this is an appropriate method of data collection from this age group^{13,14,16} and that adolescents can accurately report on parameters like height and weight, there being a correlation of 0.95 between measured and self-reported height and weight²⁹. It would, however, be useful to further explore risk behaviour and health-damaging behaviour as associated with dieting, and in such a context provide a wider range of response options for the consumption questions. This may assist in the clarification of some of the interpretative issues arising here.

Explorations of gender differences in dieting, eating and dietary behaviour are discussed by Rolls *et al.*⁷, who conclude that girls experience more food-related conflict than do boys. Girls have been found to be less successful than boys at negotiating social pressures to be thin³⁰. Thus gender-specific interventions may be most appropriate. It is vital that nutrition education be extended into personal and social education to help negotiate these pressures. Within such a setting, it is important for school health programmes to include healthy methods of weight maintenance (e.g. increased exercise participation) and to dispel the notion of tobacco use as a method of weight control. As it has been found³¹ that children can have the required knowledge about healthy eating but do not necessarily act on it, it is therefore appropriate to adopt intervention programmes that allow for greater participation by children and which attempt to focus on behaviours, attitudes, perceived social norms and values as well as knowledge. In this context, it may be necessary not just to focus on the issues for girls, but to address both genders in the process. A balanced message around lifestyle generally rather than a negative focus on some foods will almost certainly be preferable.

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