NATIONAL ADULT NUTRITION SURVEY

Summary Report

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Irish Universities Nutrition Alliance

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National Adult Nutrition Survey

Summary Report on

Food and Nutrient intakes, Physical Measurements, Physical Activity Patterns and Food Choice Motives

Summary Report edited by Dr Janette Walton

Irish Universities Nutrition Alliance

THE RESEARCH TEAM

This fieldwork and the primary analysis of the survey presented in this report was carried out by the following teams from University College Cork and University College Dublin as part of the Irish Universities Nutrition Alliance (www.iuna.net):

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MAIN OUTCOMES

Food and beverages

Among the 1,500 adults aged 18 to 90 years who participated in the survey a wide variety of foods and beverages was consumed. Potatoes, breads, meat and dairy products are staple foods in the Irish diet, consumed by almost the whole adult population. While fruit and vegetables were consumed by the majority of the population, average intake (192g per day) was much lower than the World Health Organisation recommendation of 400g per day. The proportion of energy from food and drinks consumed outside the home was 24% for 18-64 year olds and 9% for adults aged 65 years and over.

Alcohol

Eighty nine percent of 18-64 year olds (men 92%, women 86%) and 72% of adults aged 65 years and over (men 77%, women 67%) reported that they were alcohol consumers. Among self-reported alcohol consumers, 29% of men and 24% of women aged 18-64 years and 24% of men and 10% of women aged 65 years and over reported consuming greater than the maximum recommended weekly alcohol intakes.

Energy and Macronutrients

Men had higher intakes of energy and all macronutrients than women. For both men and women, energy intake decreased with increasing age. Over half of energy intake in the adult population came from meats, breads, potatoes, dairy products and biscuits/cakes. Among 18-64 year olds, fat provided 37% of food energy on average, with 63% of the population exceeding the generally recommended upper limit of 35% food energy from fat. Carbohydrate provided 45% of food energy on average. The percentage of food energy obtained from fat and carbohydrate was similar in those aged 65 years and over. The main contributors to fat intakes were meat, spreads and milk and yoghurt and to carbohydrate intakes were breads, potatoes and breakfast cereals.

Dietary Fibre

The mean dietary fibre intake of the adult population was 19g per day. Breads, vegetables, potatoes, breakfast cereals and fruits provided over 75% of the dietary fibre consumed. Current intakes of dietary fibre are generally inadequate in adults, with over 80% not meeting the European Food Safety Authority (EFSA) recommendation of 25g/day.

Vitamins and minerals

Intakes of most vitamins and minerals were adequate in the adult population. Important sources of vitamins and minerals were dairy products, meats, vegetables, potatoes, fish, eggs, fruit, breads and breakfast cereals. Among 18-64 year olds, there was a a significant prevalence of inadequate intakes of vitamin A and calcium (in women) and a substantial proportion of the population had low vitamin D intakes. Among women of reproductive age there was a significant prevalence of inadequate intakes of iron and few women complied with the recommendation for daily supplemental intake of folic acid for the prevention of neural tube defects in infants. Among adults aged 65 years and over, in addition to low intakes of vitamin D, there was a significant prevalence of inadequate intakes of vitamin A, calcium, vitamin C, folate and vitamin B2.

Salt

Mean daily intakes of salt estimated from the sodium content of foods consumed during the recording period, but excluding discretionary salt added in cooking and at the table, exceeded the FSAI intake target (6g/day). Among 18-64 year olds, the mean daily intake of salt was 7.4g, with men (8.5g) having higher intakes than women (6.2g). Adults aged 65 years and over had a

mean daily salt intake of 6.3g, with men (7.3g) having higher intakes than women (5.4g). The main contributors to salt intakes in the population were breads, and cured and processed meats.

Obesity

Among 18-64 year olds, 39% percent of the population were in the normal weight range. However, a total of 24% were obese (men 26%, women 21%) and 37% were overweight (men 44%, women 31%). Within this age group, the percentage of the population classified as overweight or obese increased with increasing age. In those aged 65 years and over, 49% women and 59% men were overweight and 24% women and 25% men were obese.

The prevalence of obesity in 18-64 year old adults has increased significantly since 1990 from 8% to 26% in men, and from 13% to 21% in women, with the greatest increase observed in men aged 51-64 years. These results highlight that obesity remains a major public health problem in Ireland.

Physical Activity

Overall, physical activity levels of men and women were similar; however, men were approximately 1.5 times more active than women in occupational and leisure activities but women were 2.5 times more active in household tasks. The levels of physical activity decreased with increasing age, with over 65 year olds spending the least amount of time in occupational activities. Younger men (18-35 years) were 1.5 times more active in leisure activities than men aged 36-64 years and 2.5 times more active than men over 65 years. Women aged 36-50 years spent the most time in activities of daily living, but their overall activity levels were similar to younger women (18-35 years) and significantly higher than women aged over 65 years. On average, men and women watched approximately 18hr/week of television although 27% of subjects reported watching TV more than 25 hours/week. In contrast, significantly less time was spent in active recreational pursuits (5.3 hours/week).

Blood pressure

Over 20% of men and 7% of women aged between 18 and 64 years had a systolic blood pressure that is considered hypertensive according to WHO Guidelines. An additional 27% of men and 8% of women had a systolic blood pressure that is considered 'high normal'. Among those aged 65 years and over, 52% of men and 47% of women had a systolic blood pressure that is considered hypertensive, while 24% of men and 18% of women had a systolic blood pressure that is considered 'high normal'.

For diastolic blood pressure, 14% of men and 11% of women aged between 18 and 64 years were classified as hypertensive and 13% of men and 8% of women as 'high normal'. Among those aged 65 years and over, 22% of men and 15% of women had a diastolic blood pressure that is considered hypertensive, while 16% of men and 19% of women had a diastolic blood pressure that is considered 'high normal'.

Smoking

Among 18-64 year olds, 22% of males and 23% of females currently smoked, while 53% of males and 52% females had never smoked. Among those aged 65y and over, 9% currently smoked 46% of men and 54% of women had never smoked.

Food choice motives

Participants were asked to rank six food choice motives based on importance to them when making their food selections - taste, cost (price), health and nutrition, convenience, feel good (mood), and weight control. Taste (41%) followed by health and nutrition (36%) were considered the most important motives by the majority (77%) of adults. There were no significant differences between men and women, with the exception of weight control where more women said this was the most important consideration for them. These findings show that while many Irish consumers place high importance on health and nutrition, many others are reluctant to compromise on taste.

INTRODUCTION

This Summary Report describes the methods used and the main findings with regard to food and beverage consumption, nutrient intakes and, anthropometric, blood pressure, physical activity and food choice data from the National Adult Nutrition Survey (NANS). This survey investigated habitual food and beverage consumption, lifestyle, health indicators and attitudes to food and health in a representative sample (n=1500) of adults aged 18 years and over in the Republic of Ireland during 2008-2010. The extensive electronic database which has been compiled from this survey is the most complete and up-to-date collection of food consumption data available for adults in Ireland. It is also one of the most comprehensive of its kind in Europe. It represents a very valuable resource, which will be used by agencies concerned with public health policy and planning and consumer health protection in Ireland and Europe and by the food industry. The survey was carried out by the Irish Universities Nutrition Alliance (IUNA), a formal alliance of the academic nutrition centres at University College Cork, University College Dublin, Trinity College, Dublin and the University of Ulster, Coleraine which is committed to joint initiatives in research and teaching. It was funded by the Department of Agriculture, Fisheries and Food as part of the Food Institutional Research Measure under the Food for Health Research Initiative (FHRI). A detailed description of the methodology used and the data obtained from the survey will be made available on the internet at www.iuna.net.

BACKGROUND TO THE SURVEY

Food consumption databases are developed in almost all EU member states and are central to evidence-based analysis of issues pertaining to food safety and nutrition. The importance of these analyses is evident when one considers the integral role of the European Food Safety Authority in food safety and public health nutrition at an EU level and of the Food Safety Authority of Ireland, *safe*food, the Health Service Executive and the Departments of Health and Children and, Agriculture, Fisheries and Food at a national level. Previous representative surveys of food consumption at the individual level in Irish adults (the Irish National Nutrition Survey carried out by the Irish Nutrition and Dietetic Institute in 1990[1] and the North/South Ireland Food Consumption Survey carried out by the Irish Universities Nutrition Alliance (IUNA) in 1997-99; www.iuna.net) are now somewhat dated.

The National Adult Nutrition Survey is designed to provide up-to-date quantitative, habitual food consumption data separately for all eating occasions over each of four days at the level of the individual and is suitable for a wide range of applications related to food safety and nutrition. These include assessment of exposure to chemical and biological hazards in foods, development and implementation of food and nutrition policy, and food product development and promotion. The relationship between diet and health is complex and it is recognised that health is influenced by interactions between diet and other factors, including body weight and body fat content and distribution, lifestyle and physical activity levels. In addition, educational level and attitudes to food and health are important influences on eating behaviour and dietary change. For these reasons the survey was designed to include the collection of data on habitual physical activity levels, measurements of weight, height, hip and waist circumferences and body fat , blood pressure, smoking habits, socio-economic factors, and educational level. Comprehensive data on food choice and attitudes to diet and health were collected. Furthermore, blood and urine samples were collected for the analysis of nutritional status and metabolic indicators.

Data collected in this project will also feed into a sister project, the 'National Nutrition Phenotype Database' (Joint Irish Nutrigenomic Organisation (www.ucd.ie/jingo)) for further analysis of nutritional status and metabolic indicators. Collectively, this complement of data will position Ireland at the forefront of research on food consumption and health in the EU.

[1] Irish Nutrition and Dietetic Institute (1990) Irish National Nutrition Survey. Dublin

SAMPLING AND RECRUITMENT PROCEDURES AND METHODS OF DATA COLLECTION

A sample of 1500 adults (men 740, women 760) aged between 18 and 90 years from across the Republic of Ireland took part in the National Adult Nutrition Survey (NANS). Individuals were selected for participation from the Data Ireland (An Post) database of free-living adults in Ireland. Each individual who was selected was contacted by mail and followed up shortly afterwards with a visit from a researcher. Eligible persons (adults aged 18 years and over, excluding women who were pregnant or breast-feeding) were invited to participate and a consent form was signed. The response rate was 60%. Demographic analysis of the sample has shown it to be representative of adults in Ireland with respect to age, gender, social class, and urban/rural location when compared to Census 2006.

Food intake was determined using a four day semi-weighed food record. Participants were asked to record detailed information on the amount and type of all foods, drinks and nutritional supplements consumed over four consecutive days in a food diary. To ensure accuracy of recording, a researcher visited participants in their homes or workplaces three times during the recording period. Participants were asked to weigh as many foods as possible. A photographic food atlas was also used to assign weights to foods. Participants were encouraged to keep food packaging to provide further detail on foods consumed.

Participants were asked to complete three self-administered questionnaires to provide information on social and demographic variables, employment status, attitudes to food and health, supplement use, alcohol consumption, smoking and habitual physical activity levels.

Further information on physical activity was obtained by asking participants to wear an actigraph (a small device to digitally record energy expenditure) over the survey period. Weight, height, waist and hip circumference, body composition and blood pressure were measured by the researcher.

Participants were asked to provide a fasting blood sample and first void urine sample to a nurse at a designated centre within the survey area after the diary recording period had ended. The blood samples were used to assess the nutritional status of the population and metabolic indicators of health. The urine samples were used to estimate sodium intake, which is difficult to estimate from food intake data alone. Blood and urine data were compiled into a database which was merged with the food intake database for further analyses.

Fieldwork on the NANS commenced in October 2008 and ended in April 2010, giving a seasonal balance to the data collection. A number of quality control procedures were implemented throughout the collection, processing and compilation of data. The survey was structured to allow for comparisons with the North-South Ireland Food Consumption Survey (2001) (www.iuna.net).

A more detailed description of the methodology used and further data obtained from the survey will be made available on the internet at www.iuna.net.

FOOD CONSUMPTION

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During the course of the survey, participants recorded 2552 individual food items into the four day food diary. Each of these foods was allocated to one of 68 food groups. Table 1 summarises average food group intakes in the total population and in consumers only.

Table 1: Food group intakes (g/day) in the total sample, percentage consumers of food groups and food group intakes (g/day) in consumers only for 18-64 year olds and those aged 65 years and over

		18-64 y (n=1274)					≥65 y (n=226)				
		Population		Consumers only			Population		Consumers only		
		Mean	SD	%	Mean	SD	Mean	SD	%	Mean	SD
1	Rice & pasta, flours, grains & starches	35	51	49	71	53	15	36	27	54	52
2	Savouries (e.g. pizzas)	31	54	47	66	62	9	24	24	38	35
3	White breads & rolls	51	52	78	66	50	43	54	66	66	54
4	Wholemeal & brown breads & rolls	52	54	73	71	51	61	57	75	82	51
5	Other breads (e.g. scones, croissants)	12	25	33	36	32	15	32	31	49	40
6	"Ready to eat" breakfast cereals	24	30	61	39	29	16	24	48	34	25
7	Other breakfast cereals (e.g. porridge)	33	79	24	138	105	74	100	47	155	90
8	Biscuits (including crackers)	13	19	62	21	21	10	13	55	17	13
9	Cakes, pastries and buns	17	29	43	38	32	20	32	48	42	34
10	Whole milk	102	169	61	169	190	79	122	58	137	133
11	Low fat, skimmed and fortified milks	93	143	51	181	155	105	147	51	206	147
12	Other milks and milk based beverages	17	65	14	126	132	12	46	10	122	86
13	Creams	1	4	11	10	8	2	7	15	12	14
14	Cheeses	14	18	66	21	18	11	17	55	20	18
15	Yoghurts	31	51	42	75	55	37	57	44	84	59
16	Ice-creams	6	15	21	27	20	6	14	23	25	17
17	Puddings & chilled desserts	8	20	22	36	28	11	26	28	40	36
18	Milk puddings (e.g. rice pudding & custards)	4	18	8	50	40	14	38	19	74	56
19	Eggs & egg dishes	16	24	50	33	24	18	24	57	32	24
20	Butter (>80% fat)	3	8	34	10	11	5	16	34	16	24
21	Low fat spreads (<40% fat)	3	9	26	13	14	7	15	34	20	19
22	Other spreading fats (40-80% fat)	7	12	53	13	13	9	17	45	19	20
23	Oils*	<1	2	11	3	4	<1	1	10	3	3
24	Hard cooking fats	0	0	<1	12	n/a	0	0	1	3	1
25	Potatoes (boiled, mashed, baked)	71	74	74	96	71	99	78	89	111	74
26	Processed & homemade potato products	6	18	17	33	31	3	13	11	31	27
27	Chipped, fried & roasted potatoes	43	51	65	66	49	22	36	45	50	38
28	Vegetable & pulse dishes	20	42	46	44	53	14	30	31	44	39
29	Peas, beans & lentils	18	29	50	36	32	14	21	46	30	22
30	Green vegetables	13	23	42	31	26	19	25	54	35	24
31	Carrots	13	19	50	27	19	17	19	63	27	18

		18-64 y (n=1274)					≥65 y (n=226)				
		Population		Consumers only			Population		Consumers only		
		Mean	SD	%	Mean	SD	Mean	SD	%	Mean	SD
32	Salad vegetables (e.g. lettuce)	21	28	62	33	29	21	32	63	34	34
33	Other vegetables (e.g. onions)	26	32	70	37	32	27	33	71	38	33
34	Tinned or jarred vegetables	3	11	16	20	20	2	14	8	29	41
35	Fruit juices	50	90	39	128	103	46	72	43	108	74
36	Bananas	26	41	43	61	42	30	40	50	60	37
37	Other fruits (e.g. apples, pears)	49	73	56	88	77	68	92	61	111	96
38	Citrus fruit	14	41	20	73	65	22	54	25	90	76
39	Tinned fruit	2	11	7	24	36	5	19	12	44	33
40	Nuts & seeds, herbs & spices	3	9	23	13	16	2	8	15	12	18
41	Fish & fish products	23	34	47	48	35	34	42	67	51	42
42	Fish dishes	4	19	7	63	40	3	15	5	59	29
43	Bacon & ham	21	25	73	28	25	22	25	73	30	24
44	Beef & veal	19	31	38	49	32	16	27	36	44	29
45	Lamb	4	15	11	40	23	10	22	25	40	26
46	Pork	6	15	16	36	20	9	23	19	46	33
47	Chicken, turkey & game	29	38	58	51	37	22	30	49	46	27
48	Offal & offal dishes	<1	3	1	27	15	1	5	3	26	9
49	Beef & veal dishes	34	56	36	94	57	30	56	29	103	56
50	Lamb, pork & bacon dishes	5	23	7	68	52	8	35	6	125	77
51	Poultry & game dishes	25	51	29	87	60	13	36	14	89	50
52	Burgers (beef & pork)	9	23	22	43	31	2	8	5	36	12
53	Sausages	10	18	39	26	21	7	14	31	22	17
54	Meat pies & pastries	3	14	8	44	29	5	21	8	63	39
55	Meat products (e.g. processed meats)	18	29	47	38	32	9	18	30	31	22
56	Alcoholic beverages	330	579	60	553	663	133	336	39	342	470
57	Sugars, syrups, preserves & sweeteners	10	15	65	15	16	16	21	77	21	22
58	Chocolate confectionery	10	16	52	20	17	3	8	25	13	10
59	Non-chocolate confectionery	4	11	23	16	17	1	5	10	11	13
60	Savoury snacks	7	12	41	17	14	1	3	5	12	9
61	Soups, sauces & miscellaneous foods	56	67	86	65	68	62	76	77	80	77
63	Teas	422	410	81	519	396	579	357	94	617	335
64	Coffees	129	219	47	271	250	99	169	43	230	191
65	Other beverages (e.g. water)	564	617	82	685	616	321	425	68	474	441
66	Carbonated beverages	82	159	37	223	193	8	30	9	88	56
67	Diet carbonated beverages	24	79	14	176	142	7	71	2	339	378
68	Squashes, cordials and fruit juice drinks	12	41	16	74	77	3	15	5	49	45

Food group 62 = Nutritional supplements
***Does not include oils consumed in recipes**

FOODS

Potatoes, breads, meat and dairy products are staple foods in the Irish diet, consumed by almost the whole adult population regardless of age and gender.

Potatoes are an important part of the Irish diet with 93% of 18-64 year olds and 96% of those aged 65 years and over consuming potatoes (including chipped and processed). The average intakes among consumers were 125g and 129g respectively.

Bread was consumed by over 98% of the population. The proportion of the population consuming brown/wholemeal bread was similar to that of those consuming white bread. The average intake for both types of bread was equivalent to approximately two slices of bread per day.

Meat (including meat products and dishes) was consumed by 98% of the population. The average intake of fresh meat among consumers was similar for both 18-64 year olds (71g) and those aged 65 years and over (67g). Bacon and ham are the most commonly consumed meats (73%) followed by poultry (57%).

Fish was consumed by half of 18-64 year olds and two thirds of those aged 65 years and over. The average daily intake of fish in consumers was approximately 50g.

Dairy products (including milk, cream, cheese and yogurts) were consumed by 98% of the population. The average daily intake among consumers was 263g in 18-64 year olds and 251g in those aged 65 years and over. Just over half (51%) of the population consumed reduced fat milks.

Dairy spreads were the most common type of fat spread used followed by butter and low fat spreads. Those aged 65 years and over had higher intakes of spreads compared to their younger counterparts. Low fat spreads (<40% fat) were consumed by one quarter of 18-64 year olds and one third of those aged 65 years and over. This is similar to that found in the NSIFCS.

Breakfast cereals were widely consumed in the whole population. Ready to Eat Breakfast Cereals were more widely consumed by 18-64 year olds (61%) than those aged 65 years and over (48%). An increase in consumers of porridge from 15% to 24% was seen in the 18-64 year age group since the NSIFCS.

Fruit and vegetables were consumed by the majority of the population. The average combined intake of fruit and vegetables (excluding composite dishes and fruit juice) was 192g per day. The World Health Organisation recommends a daily intake of 400g of fruit and vegetables. This recommendation was met by only 9% of 18-64 year olds and 15% of those aged 65 years and over.

Confectionery including chocolate, sweets and savoury snacks were widely consumed among 18-64 year olds. However, among those aged 65 years and over, the proportion of the population consuming these food groups was noticeably less. In particular, savoury snacks such as crisps were consumed by only 5% of those aged 65 years and over, compared to 41% of 18-64 year olds.

Consumption patterns of biscuits, cakes and pastries were similar for 18-64 year olds and those aged 65 years and over, with three quarters of the population consuming these foods.

BEVERAGES

Tea was the most commonly consumed beverage in the whole population, consumed by 81% of 18-64 year olds and 94% of those aged 65 years and over. Of those who drank tea, the average daily intake was 519g (18-64 years) and 617g (65 years and over). Approximately half of 18-64 year olds were coffee drinkers. This is unchanged since the NSIFCS.

The proportion of the population consuming carbonated beverages (both diet and non-diet) has decreased since the NSIFCS. However, among consumers, the average daily intake of non-diet carbonated beverages has increased from 158 to 223g. Over three quarters (78%) of 18-64 year olds and 62% of those aged 65 years and over drank water as a beverage.

ALCOHOL

Questionnaire data from the sample, which estimated usual alcohol intake, found that 89% (men 92%, women 86%) of 18-64 year olds were alcohol consumers. Sixty-two per cent of this group (men 63%, women 62%) recorded alcohol consumption in the food diary during the four day survey period. Questionnaire data from the NSIFCS found that 80% (men 81%, women 79%) of those surveyed were alcohol consumers, with 65% (men 70%, women 61%) recording alcohol consumption during the seven day survey period. In the current survey, 72% (men 77%, women 67%) of those aged 65 years and over described themselves as alcohol consumers. Forty-three per cent of this group (men 54%, women 33%) recorded alcohol consumption during the four-day survey period.

Among 18-64 year olds, the average daily intake of alcoholic beverages in drinkers was 553ml (men 820ml, women 274ml). This is similar to that reported in the NSIFCS for this age group. Of those aged 65 years and over, the average daily intake among consumers was lower at 342ml per day (men 473ml, women 113ml).

The Department of Health and Children has recommended that men consume no more than 21 standard drinks (units of alcohol) weekly and women no more than 14. The questionnaire data show that among 18-64 year olds, 74% of men and 80% of women complied with these recommended ranges. Among alcohol consumers of this age group, 29% of men and 24% of women reported consuming greater than the maximum recommended weekly alcohol intakes.

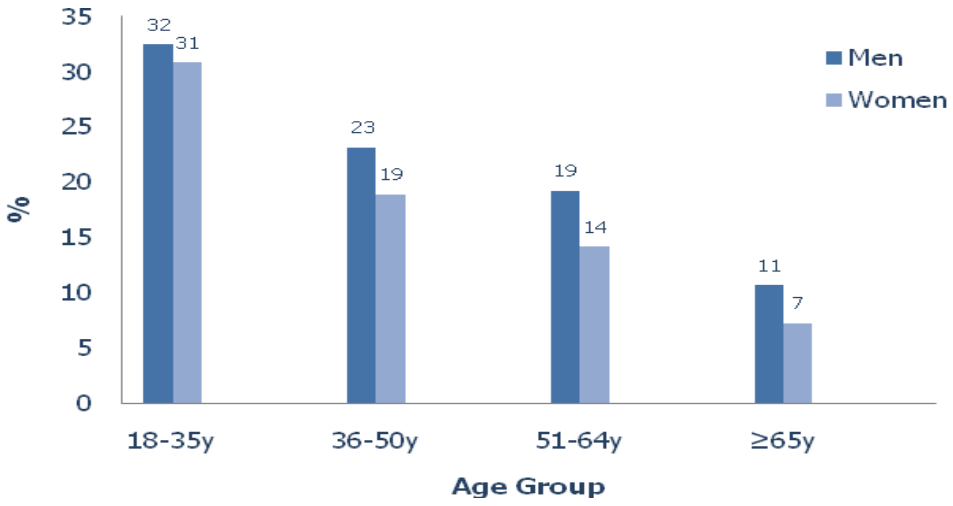
Of those aged 65 years and over, 82% of men and 95% of women consumed alcohol in quantities that were within the recommended weekly ranges. Among alcohol consumers of this age group, 1 in 4 men (24%) and 1 in 10 women (10%) reported consuming greater than the maximum recommended weekly alcohol intakes.

The HSE defines 'binge drinking' as the consumption of six or more units of alcohol (or standard drinks) on one occasion. Binge drinking is a harmful form of drinking that increases the risk of accidents, injuries and poisoning from alcohol. Thirty-one per cent of 18-64 year olds (men 41%, women 21%) consumed six or more units of alcohol on at least one of the survey days, which is likely to represent an occasion of binge drinking. Data from the NSIFCS found similar results with 34% of adults (men 46%, women 23%) consuming six or more units of alcohol on at least one of the survey days. Eight percent of those aged 65 years and over (men 17%, women <1%) consumed six or more units of alcohol on at least one of the survey days.

EATING OUT

It has been shown previously that food consumption patterns are different when food is prepared out of the home ('eating out') compared to being prepared at home ('eating at home'). For each eating occasion, participants were asked to record in the food diary where their meal was prepared. Among 18-64 year olds, 76% of eating/drinking occasions were at home, 21% were in a restaurant/shop/takeaway/deli and 3% were prepared in someone else's home. Despite a small increase in the proportion of eating occasions at home since the NSIFCS (68%), there was no change in the percentage of energy consumed 'at home' or when eating out (73% and 24%), respectively. For both men and women the percentage energy consumed from 'eating out' decreased with age (Figure 1). For those aged 65 years and over, the majority (91% of total energy) of their food and drink was prepared at home.

Figure 1: Percent total energy from food/beverages consumed outside the home



SUPPLEMENT USE

Nutritional supplement use was recorded along with food consumption in the four day food diary. Among 18-64 year old participants, 28% (men 22%, women 33%), recorded consumption of a nutritional supplement over the recording period. A greater proportion of women consumed supplements compared to men in all age groups. In particular, in 51-64 year olds, 46% of women recorded taking a supplement compared to 27% of men. Supplement use increased from 23% as reported in the NSIFCS. A greater prevalence of supplement use was found in those aged 65 years and over with 37% (men 31%, women 43%) of this age group consuming at least one nutritional supplement over the four day recording period. Of the 211 different supplements consumed, 30% were multivitamin/mineral combinations, 12% were multivitamins, 11% were single vitamins, 8% were single minerals, 5% were multi-minerals, 20% were fish oils, 9% were other oils (including primrose/starflower oils) and 5% were categorised as 'other'.

NUTRIENT INTAKES

ENERGY AND MACRONUTRIENTS

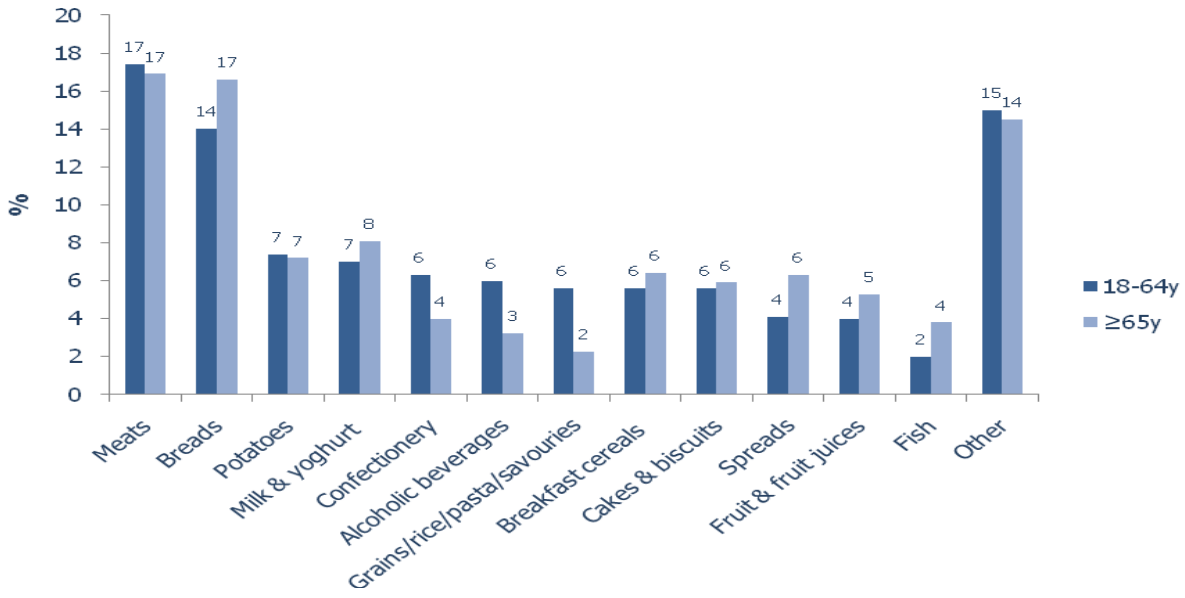
Mean daily energy and macronutrient intakes and the percent of food energy (excluding alcohol) from macronutrients for men and women are presented in Table 2. Men had higher intakes of energy and of all macronutrients than women. For both men and women, energy intake decreased with increasing age. Among 18-64 year olds, fat provided 37% of food energy, with 63% of the population exceeding the generally recommended upper limit of 35% food energy from fat. Carbohydrate provided 45% of food energy. The percent of food energy obtained from fat and carbohydrate was similar in those aged 65 years and over. Figure 2 displays the percent contribution of food groups to energy intake in 18-64 year olds and those aged 65 years and over. 'Meat', 'bread', 'potatoes' and 'milk and yogurt' are primary contributors to energy intake, contributing 46% of total energy in adults aged 18-64 years and 49% in those aged 65 years and over.

Table 2: Mean and SD of energy and macronutrients and the % of food energy (excluding alcohol) from macronutrients

		18-64y (n=1274)						≥65y (n=226)					
		Total		Men		Women		Total		Men		Women	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Energy	(MJ)	8.6	2.8	10.1	2.7	7.2	2.0	7.4	2.3	8.3	2.6	6.5	1.6
Protein	(g)	85.2	28.6	100.2	28.4	70.4	19.8	76.8	22.4	85.2	24.1	69.4	17.8
	(%FE)	18.0	4.0	18.5	4.1	17.6	3.8	18.5	3.5	18.8	4.2	18.3	2.8
Fat	(g)	79.7	30.2	91.9	31.5	67.6	23.2	68.6	29.0	77.6	34.3	60.6	20.4
	(%FE)	36.9	6.0	37.1	6.1	36.8	5.9	35.9	6.9	36.5	7.0	35.5	6.9
Carbohydrate	(g)	232.6	80.1	265.9	84.3	199.7	59.6	205.3	68.0	225.8	78.7	187.3	50.6
	(%FE)	45.4	6.3	45.0	6.7	45.8	5.9	45.6	6.6	45.2	7.4	46.0	5.9
Alcohol	(g)	17.1	25.5	23.0	31.3	11.4	16.2	7.6	14.9	12.7	19.2	3.1	7.0

FE: Food Energy

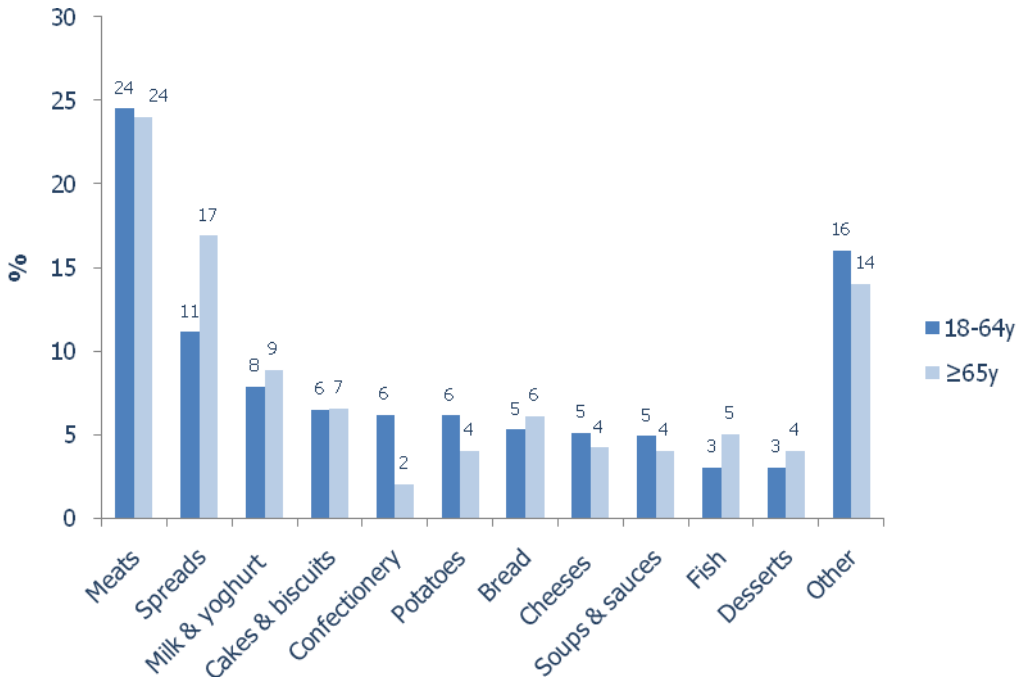
Figure 2: Percent contribution of food groups to energy intake



MACRONUTRIENT SOURCES

Figures 3-5 show the percent contributions of food groups to fat, carbohydrate and protein intakes in adults aged 18-64 years and 65 years and over. The greatest contributors to fat intakes in adults aged 18-64 years were meat (24%), spreads (including butter and oils) (11%) and milk and yoghurt (8%) (Figure 3). The same food groups were the main contributors to fat intakes in those aged 65 years and over; however, spreads made a greater contribution (17%) in this age group. The greatest contributors to carbohydrate intakes in adults aged 18-64 years were breads (24%), potatoes (including processed potatoes and dishes) (11%), breakfast cereals (9%) and confectionery and savoury snacks (9%) (Figure 4). Breads, potatoes and breakfast cereals made similar contributions to carbohydrate intake in those aged 65 years and over; however, fruit and fruit juices (including smoothies) (10%) contributed more, while savouries (3%) contributed less. The greatest contributors to protein intakes in 18-64 year olds were meat (41%), breads (12%), milk and yoghurt (10%) and fish (6%) (Figure 5). These food groups made similar contributions to protein in those aged 65 years and over.

Figure 3: Percent contribution of food groups to fat intake



MACRONUTRIENT SOURCES

Figure 4: Percent contribution of food groups to carbohydrate intake

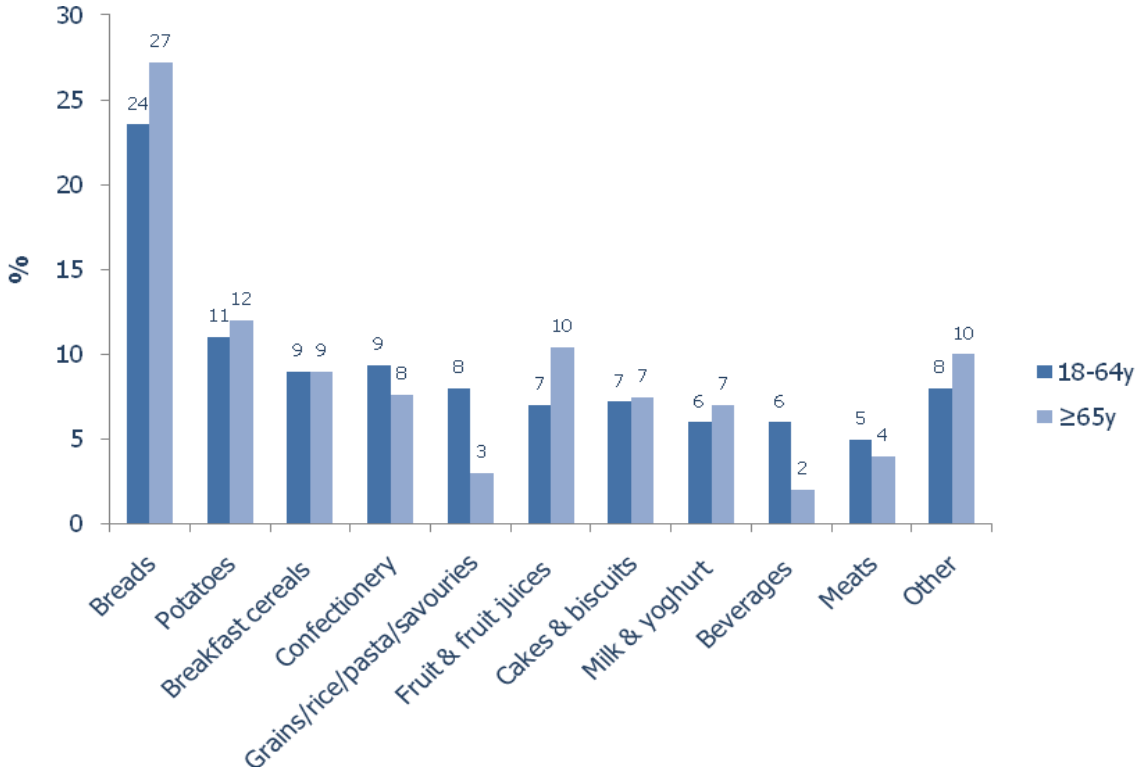
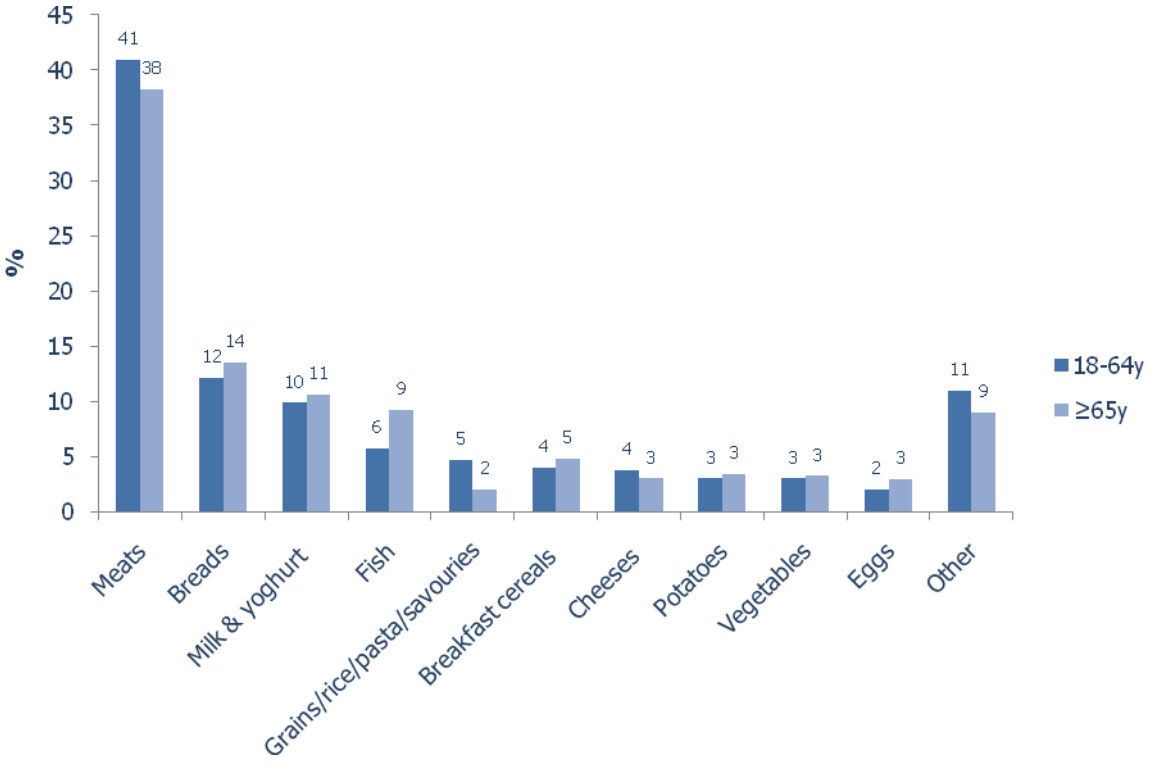


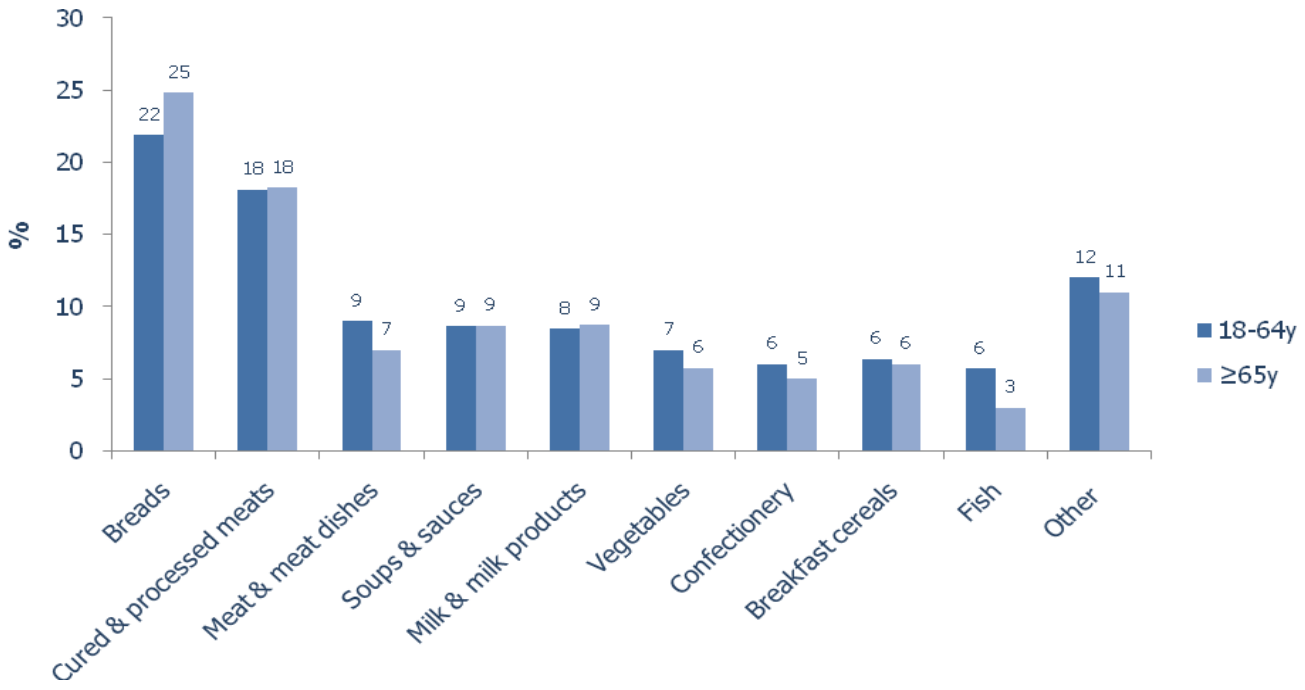
Figure 5: Percent contribution of food groups to protein intake



SALT

High intakes of dietary sodium (salt) are associated with an increased risk of high blood pressure and cardiovascular disease. Salt intakes were estimated based on the sodium content of foods consumed during the recording period. Discretionary salt such as that added in cooking and at the table is not included in the estimates. Among 18-64 year olds, the mean daily intake of salt was 7.4g, with men (8.5g) having higher intakes than women (6.2g). Mean daily salt intakes were slightly lower in the current survey when compared with the NSIFCS (8.3g). Adults aged 65 years and over had a mean daily salt intake of 6.3g, with men (7.3g) having higher intakes than women (5.4g). Even when discretionary salt is excluded, mean daily salt intakes of 18-64 year olds and those aged 65 years and over exceeded the FSAI intake target (6g/day). Among 18-64 year olds, the largest contributor to sodium intake was 'meat and fish' (30%), of which 18% came from cured/processed meats (Figure 6). Bread contributed a further 22% of the mean daily sodium intake. 'Soups and sauces', 'milk and milk products' and 'vegetables' contributed 9%, 8% and 7% respectively. The main sources of sodium in the diet of those aged 65 years and over were similar to that of 18-64 year olds.

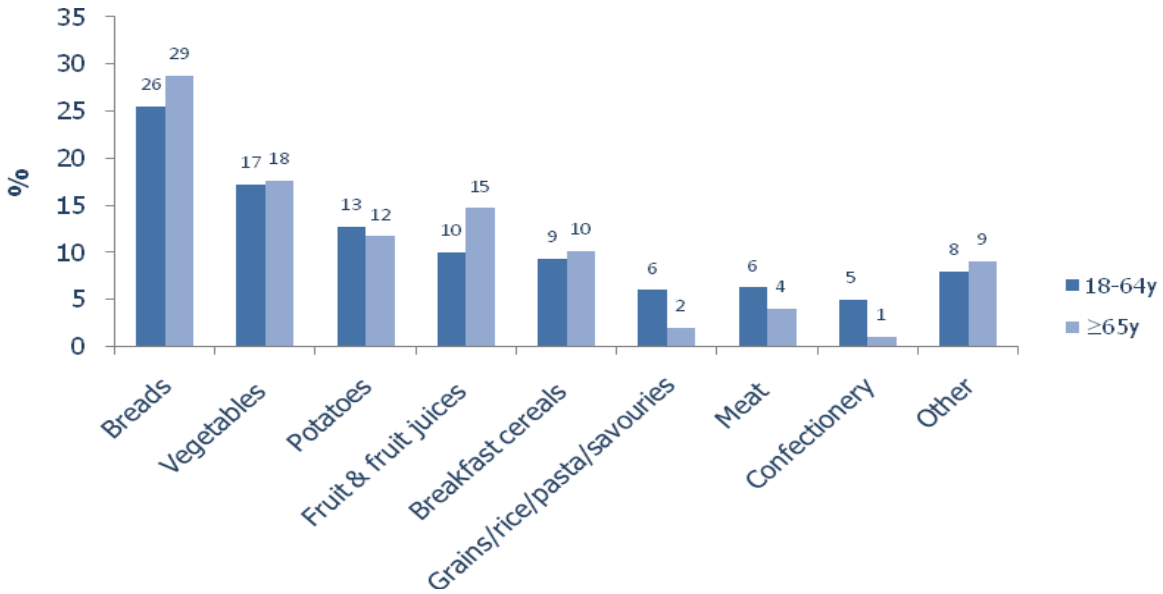
Figure 6: Percent contribution of food groups to sodium intake



DIETARY FIBRE

Among 18-64 year olds, the average daily intake of dietary fibre was 19.2g (men 21.1g, women 17.3g), similar to that reported in the NSIFCS (20.2g). Intakes of dietary fibre among those aged 65 years and over were also similar (18.9g) Figure 7 shows the main food sources of dietary fibre among 18-64 year olds and those aged 65 years and over. Among 18-64 year olds, the main food groups contributing to dietary fibre intake are breads (26%), potatoes (13%) and vegetables (17%), similar to that reported for the NSIFCS. Fruit and fruit juices and breakfast cereals contributed a further 10% and 9%, respectively. Similar foods contributed most to dietary fibre in those aged 65 years and over. The current intakes of dietary fibre are generally inadequate, with 81% of 18-64 year olds and 80% of those aged 65 years and over not meeting the European Food Safety Authority (EFSA) recommendation of 25g/day. This is similar to the findings of the NSIFCS, in which 77% of the population were estimated to have inadequate fibre intakes. Inadequate fibre intake can lead to impaired bowel function and constipation, which in turn may contribute to increased risk of gastrointestinal disease.

Figure 7: Percent contribution of food groups to dietary fibre intake



VITAMINS AND MINERALS

Table 3 shows the mean daily intakes of vitamins and minerals in men and women aged 18-64 years and those aged 65 years and over. Figures 8 to 13 show the main food contributors to intakes of vitamins A, C ,D folate, calcium and iron in these age groups. Overall, the contribution of supplements to the mean daily intakes of vitamins or minerals was less than 9%. An exception to this was vitamin D in those aged 65 years and over, where 17% of intake came from nutritional supplements.

Vitamins

In 18-64 year olds, intakes were adequate for most vitamins as indicated by the low percentage of the population with intakes below the estimated average requirements (EAR). However, a significant prevalence of inadequate intakes was observed for vitamin A (men 21%, women 15%) and folate in women (11%). In Ireland, the Department of Health and Children recommends that women of reproductive age take a supplement containing 400μg of folic acid prior to conception and for the first twelve weeks of pregnancy to reduce the risk of Neural Tube Defects (NTDs) in the baby. Only 2% of women aged 18-35 years and 1% of women aged 36-50 years consumed the recommended intake of 400μg from supplements. Mean daily intakes of vitamin D among 18-64 year olds are slightly higher (4.2μg) than estimated in the NSIFCS (3.7μg). A substantial proportion of 18-64 year olds had low vitamin D intakes, with 72% of men and 78% of women having average daily vitamin D intakes of less than 5μg, and over 90% having daily intakes of less than 10μg.

Among those aged 65 years and over, over half (men 59%,women 58%) had mean daily intakes of vitamin D less than 5μg, with 87% of men and 77% of women having daily intakes of less than 10μg.

In men aged 65 years and over, 17% had inadequate intakes of vitamin C and 14% had inadequate intakes of Vitamin A. Thirteen per cent of women aged 65 years and over had inadequate intakes of folate. Mean daily intakes of vitamin B2 less than the EAR were observed in 15% of men and 11% of women in this age group.

Minerals

Almost half (48%) of women aged 18-64 years had inadequate intakes of iron. Women aged 18-50 years have higher iron requirements due to menstrual losses; however, 61% of women in this age group had inadequate iron intakes. Over 10% of the women aged 18-50 years took an iron-containing supplement and the prevalence of inadequate intakes was much lower among those who took supplemental iron (20%) compared to those who did not (80%). Seventeen per cent of women aged 65 years and over had inadequate intakes of iron. Calcium intakes were below the EAR in 16% of women aged 18-64 years and in 13% of women aged 65 years and over. Inadequate calcium intake may contribute to reduced bone mass and increased susceptibility to osteoporosis.

Table 3: Mean and SD of daily intakes of micronutrients for men and women aged 18-64 years and those aged 65 years and over

	18-64y (n=1274)				≥65y (n=226)			
	Men		Women		Men		Women	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Vitamins								
Retinol (μg)	530	801	423	663	639	632	638	1020
Carotene (μg)	3660	3197	3629	3317	4178	3150	4402	3160
Total Vitamin A (μg RE)	1140	995	1028	896	1335	827	1371	1213
Vitamin D (μg)	4.6	7.1	3.9	5.2	5.2	4.5	8.5	13.6
Vitamin E (mg)	11.6	23.5	12.5	30.8	9.8	6.7	18.9	52.2
Thiamin (mg)	2.9	5.8	3.4	10.8	2.1	2.5	3.5	12.1
Riboflavin (mg)	3.2	6.0	3.3	9.2	2.0	1.4	3.7	11.4
Pre-formed Niacin (mg)	32.9	15.7	24.7	22.8	23.7	12.9	29.2	57.3
Total Niacin Equivalents (mg)	53.3	19.7	38.8	24.2	41.0	16.0	42.8	57.7
Vitamin B6 (mg)	4.1	5.4	4.2	10.9	3.1	1.9	5.4	20.7
Vitamin B12 (μg)	7.3	6.9	8.0	45.3	6.4	4.5	6.5	6.9
Folate (μg)	407	209	339	388	427	533	357	271
Biotin (μg)	51	37	57	358	47	34	149	1096
Pantothenate (mg)	8.6	11.9	7.4	12.7	6.4	2.6	7.9	9.4
Vitamin C (mg)	114	152	141	304	102	146	132	333
Minerals								
Calcium (mg)	1060	407	824	356	908	384	995	573
Magnesium (mg)	336	112	255	93	285	103	262	132
Phosphorus (mg)	1623	467	1174	337	1427	470	1173	364
Iron (mg)	15.0	9.0	13.7	18.4	18.1	27.6	13.8	24.1
Copper (mg)	1.4	1.0	1.3	1.9	1.2	0.6	1.1	0.8
Zinc (mg)	11.8	5.6	9.0	5.9	10.2	4.2	10.7	17.8

VITAMIN SOURCES

Figure 8: Percent contribution of food groups to vitamin A intake

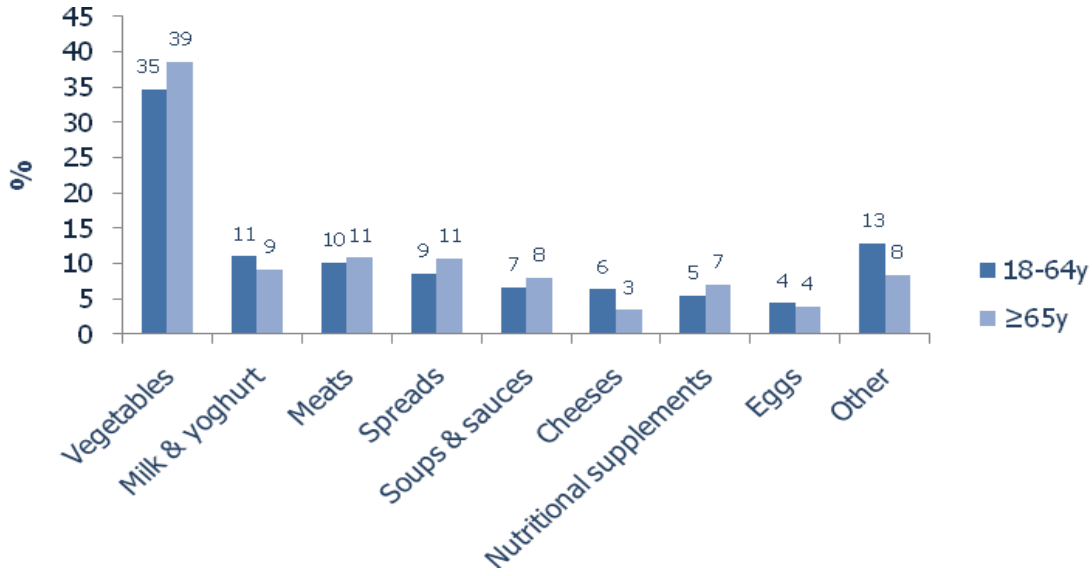
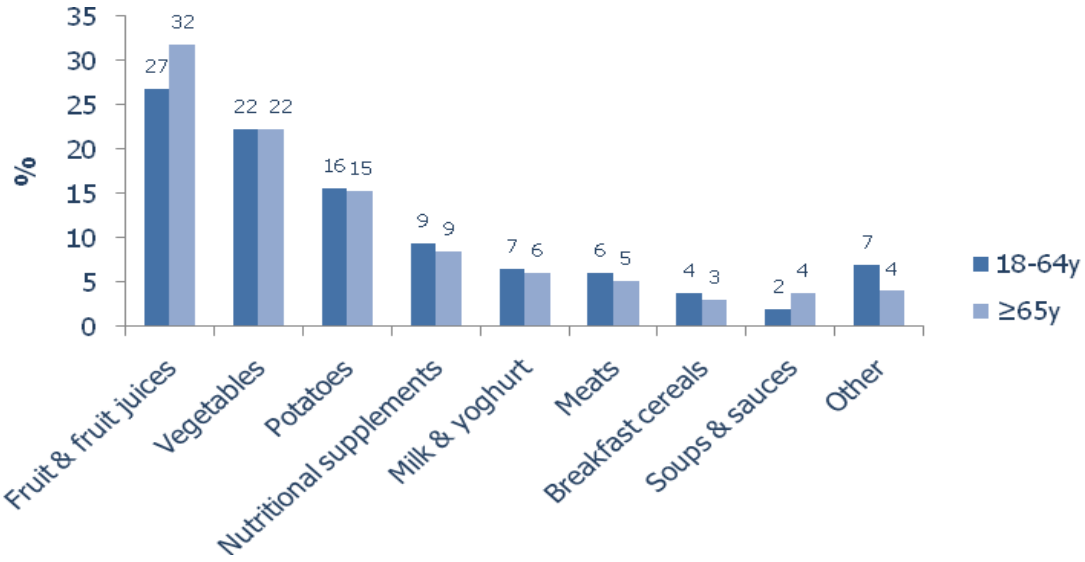


Figure 9: Percent contribution of food groups to vitamin C intake



VITAMIN SOURCES

Figure 10: Percent contribution of food groups to vitamin D intake

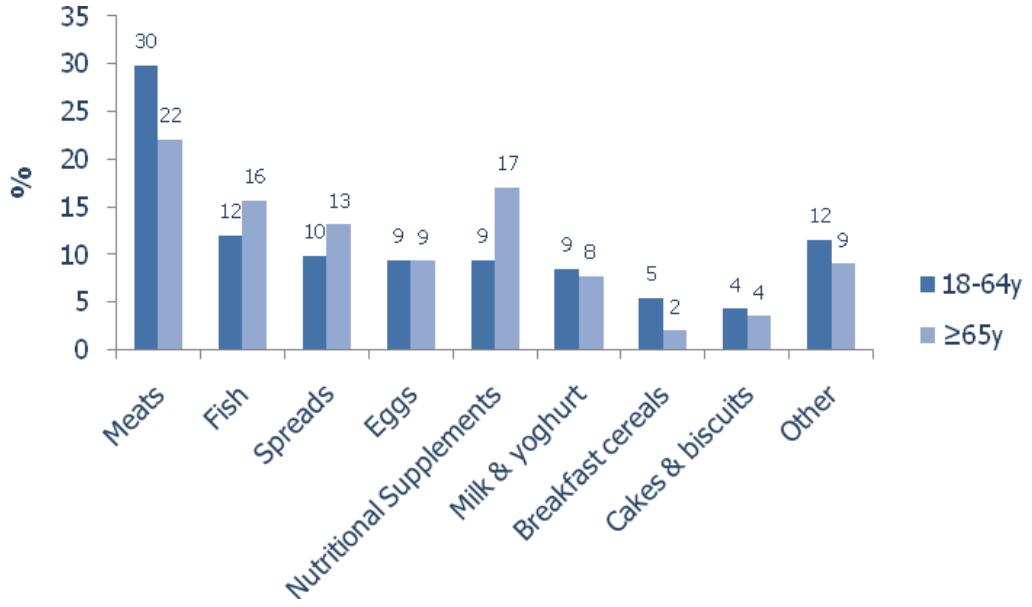
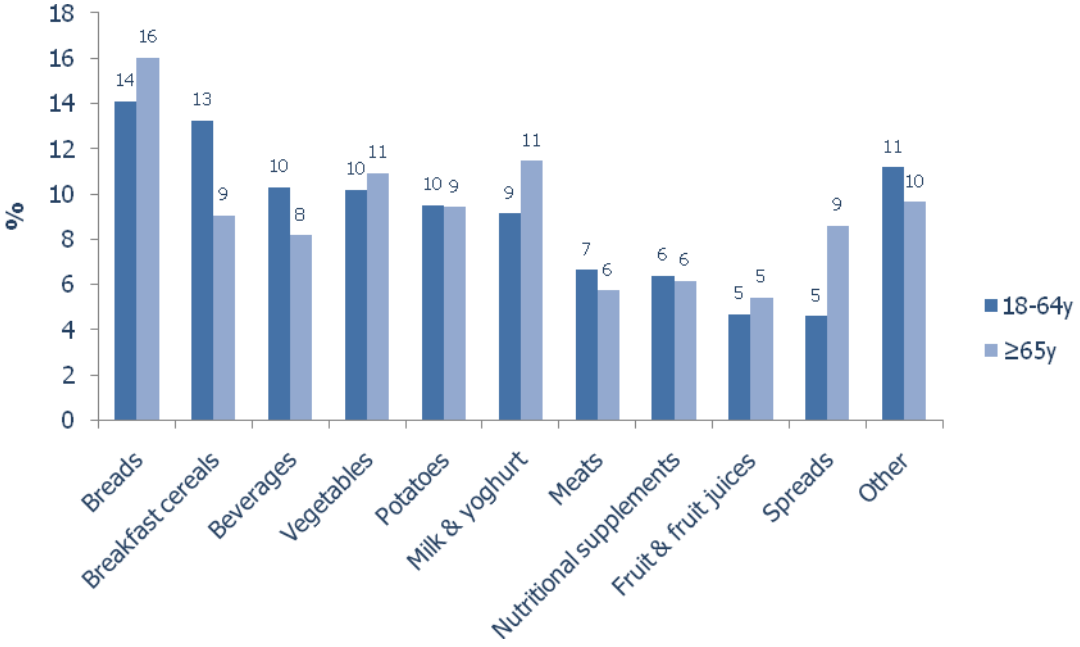


Figure 11: Percent contribution of food groups to folate intake



MINERAL SOURCES

Figure 12: Percent contribution of food groups to calcium intake

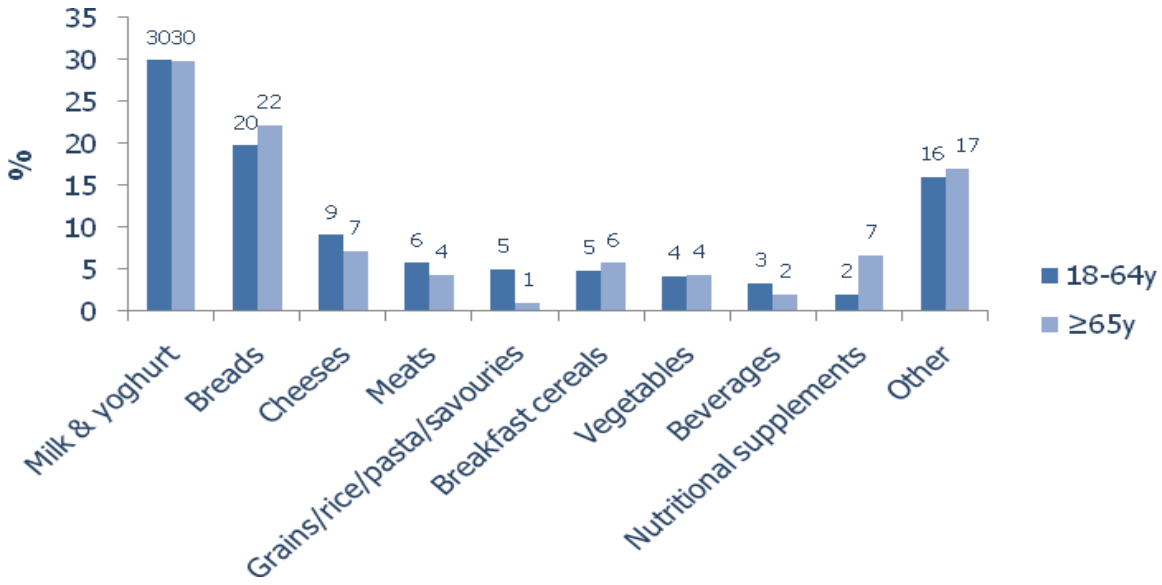
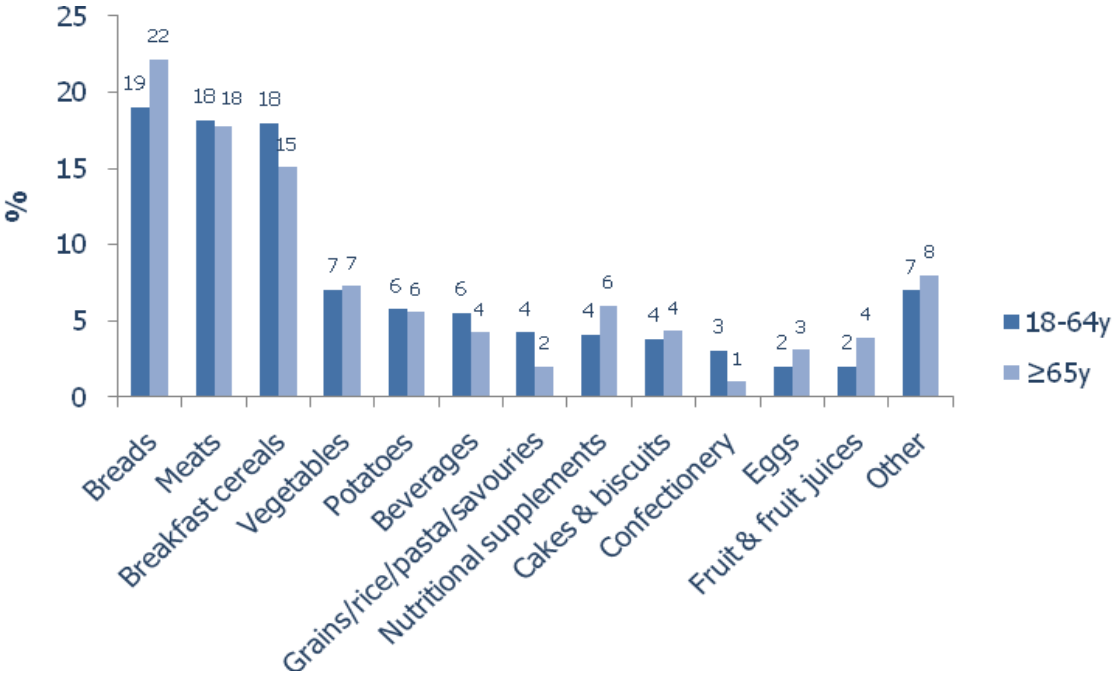


Figure 13: Percent contribution of food groups to iron intake



PHYSICAL MEASUREMENTS

ANTHROPOMETRY

Anthropometric data including weight, height, waist circumference, hip circumference and body fat are shown in Table 4. Body Mass Index (BMI; body weight in kilograms divided by body height in metres squared) which is the standard measure of relative body weight was calculated using weight and height data.

Table 4: Anthropometric measurements (mean values) for men and women by age group

	Men					Women				
	18-64y	18-35y	36-50y	51-64y	≥65y	18-64y	18-35y	36-50y	51-64y	≥65y
Weight (kg)	86.2	82.5	88.2	90.7	82.4	70.0	67.4	70.5	73.6	68.1
Height (m)	1.77	1.79	1.76	1.75	1.71	1.63	1.65	1.63	1.60	1.58
BMI (kg/m^2)	27.5	25.8	28.5	29.7	28.1	26.4	24.8	26.7	28.8	27.3
Waist Circumference (cm)	95.5	89.2	98.0	103.7	102.5	86.3	82.1	87.6	91.9	90.5
Hip Circumference (cm)	104.6	102.7	105.4	107.1	106.9	102.7	100.3	103.3	106.0	103.9
Waist to Hip Ratio	0.91	0.87	0.93	0.97	0.96	0.84	0.82	0.85	0.87	0.87
Body Fat (%)	23.3	19.2	25.6	27.8	28.5	33.9	31.0	34.9	37.6	36.7

Table 5: Percent men and women in each age group in each of the BMI categories from the NANS, NSIFCS and the INNS

	Men				Women			
	18-64y	18-35y	36-50y	51-64y	18-64y	18-35y	36-50y	51-64y
NANS 2011								
Underweight	0.3	0.0	1.1	0.0	1.0	2.1	0.5	0.7
Normal	30.0	47.5	17.8	13.5	46.8	59.4	43.5	29.5
Overweight	43.8	39.6	49.2	44.4	30.9	25.1	32.2	38.8
Obese	25.8	12.9	31.9	42.1	21.3	13.4	23.8	30.9
NSIFCS 2001								
Underweight	0.3	0.8	0.0	0.0	1.1	2.3	0.4	0.7
Normal	33.3	44.6	26.7	25.0	50.4	64.2	47.0	32.9
Overweight	46.3	41.3	48.9	50.6	32.5	24.5	37.7	36.8
Obese	20.1	13.3	24.4	24.4	15.9	9.1	15.0	29.6
INNS 1990								
Underweight	0.4	0.8	0.0	0.0	2.7	3.6	1.1	2.7
Normal	41.0	58.1	23.7	26.8	56.0	69.3	56.4	25.7
Overweight	50.8	37.1	64.5	62.5	28.4	20.5	33.0	40.5
Obese	7.8	4.0	11.8	10.7	12.9	6.6	9.6	31.1

The World Health Organisation (WHO) BMI cut-off points were used to estimate levels of underweight (<18.5 kg/m^2), normal weight (18.5-24.9 kg/m^2), overweight (25.0-29.9 kg/m^2) and obesity (≥30.0 kg/m^2).

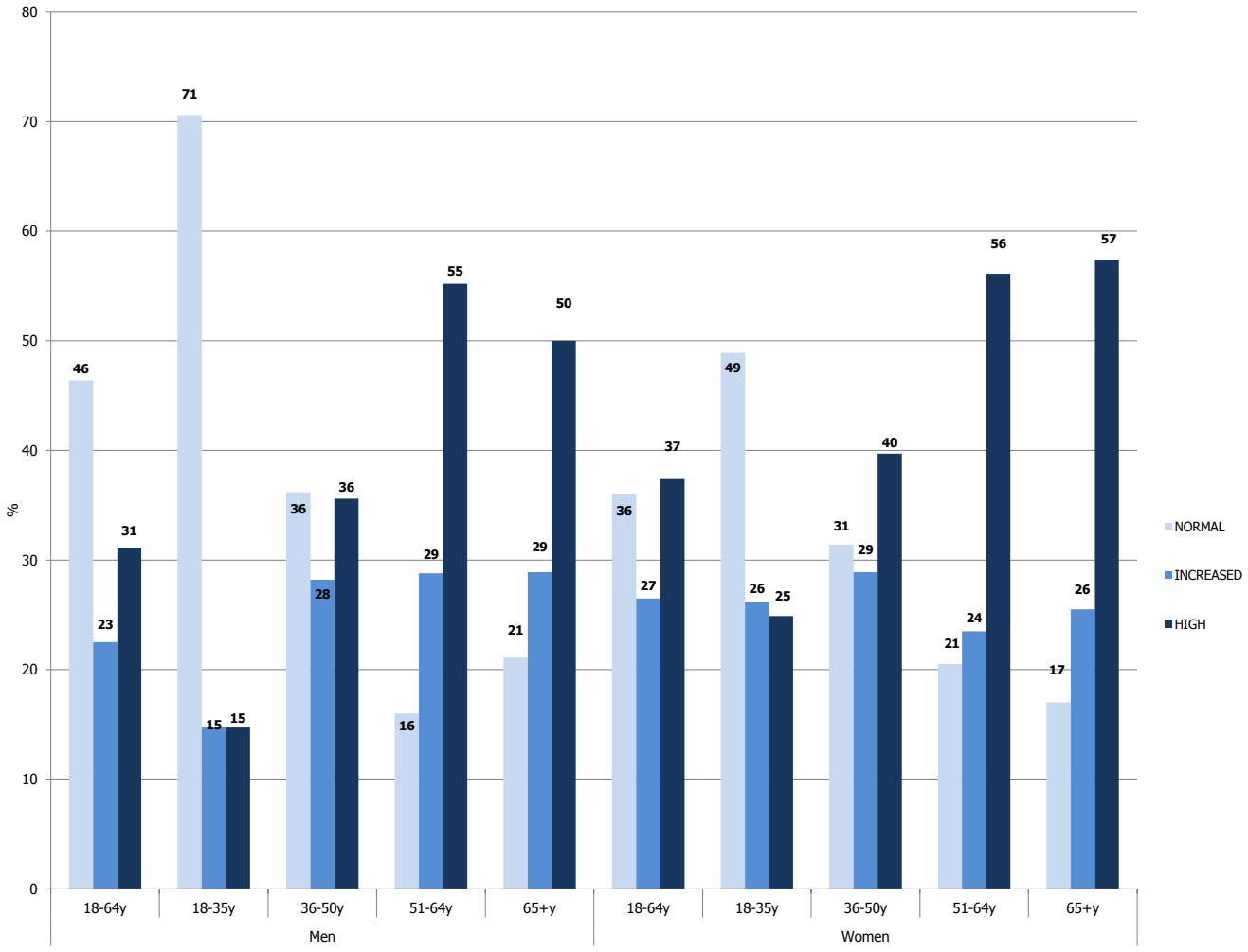
Table 5 shows the percent distribution of BMI by gender and age group among 18-64 year olds. Overall, less than 1 % of individuals were underweight, 39% were in the normal weight range, 37% were overweight and 24% were classified as obese (according to WHO definitions). A higher percent of women (47%) compared to men (30%) were of normal weight and a higher percent of men (44%) compared to women (31%) were overweight. Overall, 26% of men and 21% of women were obese. In those aged 65 years and over, 1% of individuals were classified as being underweight, with 49% of women and 59% of men overweight and 24% of women and 25% of men obese.

Among 18-64 year olds, the percent of the population classified as overweight or obese increased with increasing age. As can be seen in Table 5, 13% of both women and men aged 18-35 years were classified as obese, rising to 31% of women and 42% of men aged 51-64 years. About 2% of women aged 18-35 year were underweight to a level that corresponds with chronic energy deficiency by WHO standards; this is similar to what was reported in 2001 in the NSIFCS. The prevalence of obesity in 18-64 year old adults has increased significantly between 1990 and 2011, from 8% to 26% in men, and from 13% to 21% in women, with the greatest increase observed in men aged 51-64 years.

This continuing increase in the prevalence of obesity has significant health implications. Obesity is associated with increased risk of a number of chronic diseases, including cardiovascular disease (CVD), hypertension, diabetes (type 2), and certain cancers, while being overweight is associated with increased risk of diabetes (type 2). These results highlight that the prevalence of obesity remains a major problem within Ireland.

Body fat distribution is recognised as an important indicator of disease risk. Furthermore, increased levels of fat deposition in the central area of the body, measured by waist circumference and waist to hip ratio, is associated with increased risk of chronic diseases. Cut-off points established for waist circumference and waist to hip ratio identify 23% of men and 27% of women as being associated with an increased risk of CVD, which is similar to what was observed in the NSIFCS. However 31% of men and 37% of women were shown to be at a high risk for CVD risk factors compared to 23% observed in both men and women in the NSIFCS. This increase in the percent of individuals falling into this higher risk category for CVD is an important consideration for public health.

Figure 14: Percent of men and women in each group with increased risk for cardiovascular disease, identified by waist circumference.



BLOOD PRESSURE

Guidelines on the management of hypertension (high blood pressure) issued by the World Health Organisation (WHO) indicate that both hypertension and 'high normal' blood pressure pose a threat to health. According to the guidelines, blood pressures are classified as follows:

Hypertension: 140/90 mmHg or above

High normal blood pressure: between 130/85 mmHg & 140/90 mmHg

Normal blood pressure: less than 130/85 mmHg

Optimal blood pressure: less than 120/80 mmHg

Table 6: Percent distribution of blood pressure by classification and by age and gender of respondent

Blood pressure (mmHg)	Men (n=644)					Women (n=671)				
	18-64y	18-35y	36-50y %	51-64y	≥65y	18-64y	18-35y	36-50y %	51-64y	≥65y
Systolic										
Optimal (< 120)	23.7	29.3	20.7	17.3	11.6	69.1	85.8	68.3	40.9	16.8
Normal (120 – 129.9)	29.6	33.3	34.6	15.8	11.6	15.6	11.2	17.1	21.2	18.8
High normal (130 – 139.9)	26.9	25.2	27.4	29.3	24.4	8.4	1.7	9.3	18.9	17.8
Hypertension (≥140)	19.9	12.2	17.3	37.6	52.3	6.8	1.3	5.4	18.9	46.5
Diastolic										
Optimal (< 80)	55.7	71.5	46.9	38.3	44.2	65.4	78.5	62.0	47.7	51.5
Normal (80 – 84.9)	17.4	14.6	21.8	16.5	17.4	15.6	10.7	18.0	20.5	14.9
High normal (85 – 89.9)	12.5	7.7	15.6	17.3	16.3	8.4	6.9	8.8	10.6	18.8
Hypertension (≥ 90)	14.3	6.1	15.6	27.8	22.1	10.5	3.9	11.2	21.2	14.9

SYSTOLIC BLOOD PRESSURE

Overall, 20% of men and 7% of women aged 18-64 years had a systolic blood pressure that is considered hypertensive. An additional 27% of men and 8% of women had a systolic blood pressure that is considered 'high normal'. Men and women aged 51- 64 years were more likely than those in the younger age groups to have a systolic blood pressure that is classified as hypertensive. Of those aged 65 years and over, approximately half (men 52%, women 47%) had a systolic blood pressure that is considered hypertensive. An additional 24% of men and 18% of women in this age group had a systolic blood pressure that is considered 'high normal'.

DIASTOLIC BLOOD PRESSURE

Overall, 14% of men and 11% of women aged 18- 64 years had a diastolic blood pressure that is considered hypertensive. An additional 13% of men and 8% of women had a diastolic blood pressure that is considered 'high normal'. Men and women aged 51- 64 years were more likely than those in the younger age groups to have a diastolic blood pressure that is classified as hypertensive. Among those aged 65 years and over, 22% of men and 15% of women had a diastolic blood pressure that is considered hypertensive. An additional 16% of men and 19% of women in this age range had a diastolic blood pressure that is considered 'high normal'.

SMOKING

Smoking is a well established risk factor for coronary heart disease, stroke and cancer and tobacco related disease is responsible for approximately 7,000 deaths a year in Ireland. Of the 18-64 year olds who responded to the smoking habits question (n=1261), 22% of men and 23% of women currently smoked. These figures are lower than those reported in the NSIFCS, where it was reported that 33% of men and 32% of women were smokers.

Approximately one quarter of 18-64 year olds in the NANS used to smoke but have since quit. Over a half (men 53%, women 52%) of this age group had never smoked. In men and women, the incidence of smoking decreased with increasing age group. In men, 23% of 18-35 year olds smoked compared to 14% in the 51-64 year old age category. In women, almost 30% of those in the 18-35 year old age group smoked compared to 15% of those in the 51-64 year old age group. In the NSIFCS, the same trends of smoking were observed across age groups with 41% of men and 42% of women in the 18-35 year age group being smokers compared to 27% of males and 17% of women in the 51-64 year age group.

Among those, aged 65 years and over who responded to the smoking habits question, 9% currently smoked. In men and women, 47% and 36% reported smoking in the past, but had quit and 46% of men and 54% of women in this age group had never smoked.

PHYSICAL ACTIVITY

PHYSICAL ACTIVITY

The World Health Organisation's (WHO) "Global Recommendations on Physical Activity for Health" (2010) highlights the importance of physical activity in relation to the prevention of cardiovascular diseases, diabetes, obesity, bone health, breast and colon cancer and depression. In addition, increased time spent in sedentary activities e.g. television viewing and computer use, are well known risk factors in the development of obesity.

Typical physical activity levels over the previous year were determined using a self-administered questionnaire developed by the Medical Research Council's Epidemiology Unit, Cambridge. This questionnaire was used in the NSIFCS and aims to provide a detailed assessment of the amount and intensity of daily physical activity (occupational activity, activities of daily living and leisure time activities). Each activity is assigned a metabolic energy equivalent (MET score), that is the amount of energy expended during an activity multiplied by hours per week.

Overall, activity levels of men and women were similar, however men were approximately 1.5 times more active than women in occupational and leisure activities but women were 2.5 times more active in household tasks. The levels of physical activity decreased with increasing age, with those aged 65 years and over spending the least amount of time in occupational activities. Younger men (18-35 years) were 1.5 times more active in leisure activities than men aged 36-64 years and 2.5 times more active than men over 65 years. Women aged 36-50 years spent the most time in activities of daily living, but their overall activity levels were similar to younger women (18-35 years) and significantly higher than women aged 65 years and over.

On average, men and women watched approximately 18 hours/week of television although 27% of subjects reported watching TV more than 25 hours/week. In contrast, significantly less time was spent in active recreational pursuits (5.3 hours/week) (Table 7). Television viewing also increased slightly with age, at the expense of active recreational pursuits which decreased with increasing age. The most popular recreational activity was walking with 62% women and 44% men participating at least once per week. Overall, men spent significantly more time than women in vigorous physical activity (54 minutes/week vs 18 minutes/week), with younger men (18-35 years) spending the most time in vigorous recreational activities (3 hours/week). In contrast 50% of 51-64 year olds spent no time in vigorous activities and this increased to approximately 70% in respondents aged 65 years and over.

There was no significant difference in total activity by BMI category (Table 8). However normal weight (BMI $<25 kg/m^2$) men and women expended more energy in recreational activities, spent more time in vigorous activities and less time watching television. Approximately 36% of obese men and women reported watching TV for more than 25 hours/week, compared to 25% of those classified as normal or overweight.

Since the health benefits of physical activity are linked principally to the total amount of energy expended, the type of activity performed is of less significance. Consequently, the more holistic assessment of physical activity made in this study has helped to highlight the complex, multidimensional nature of activity and, in particular, has revealed important and subtle differences in the respective physical activity patterns of men and women and a decline in physical activity with age.

Table 7: Median amounts of time spent by participants in different age categories watching television and participating in vigorous recreational activities

	18-64y	18-35y	36-50y	51-64y	≥65y
			Median		
Total (n=1224)					
Television viewing (hr/week)	18.0	18.0	17.5	18.5	21.0
Recreational activities (hr/week)	5.3	6.3	4.4	5.1	4.2
Vigorous recreational activities (hr/week)	0.6	1.6	0.2	0.0	0.0
Men (n=607)					
Television viewing (hr/week)	18.0	18.0	18.5	18.0	19.5
Recreational activities (hr/week)	6.9	8.5	5.6	5.8	4.6
Vigorous recreational activities (hr/week)	0.9	3.0	0.3	0.0	0.0
Women (n=617)					
Television viewing (hr/week)	17.5	18.0	16.0	18.8	23.8
Recreational activities (hr/week)	4.2	4.3	4.0	4.5	3.4
Vigorous recreational activities (hr/week)	0.3	0.8	0.1	0.0	0.0

Table 8: Median amounts of time spent by participants in different BMI categories watching television and participating in vigorous recreational activities

	Normal weight		Overweight		Obese	
	n	Median	*n*	Median	*n*	Median
Total						
Television viewing (hr/week)	*512*	17.5	*540*	18.0	*313*	21.0
Recreational activities (hr/week)	*512*	5.5	*540*	5.2	*313*	4.4
Vigorous recreational activities (hr/week)	*512*	0.7	*540*	0.3	*313*	0.1
Men						
Television viewing (hr/week)	*194*	17.5	*309*	18.5	*161*	20.0
Recreational activities (hr/week)	*194*	7.5	*309*	6.8	*161*	5.6
Vigorous recreational activities (hr/week)	*194*	1.8	*309*	0.7	*161*	0.1
Women						
Television viewing (hr/week)	*318*	16.0	*231*	17.5	*152*	23.0
Recreational activities (hr/week)	*318*	4.4	*231*	4.1	*152*	3.4
Vigorous recreational activities (hr/week)	*318*	0.5	*231*	0.1	*152*	0.0

FOOD CHOICE MOTIVES

FOOD CHOICE MOTIVES

Awareness of the relationship between health and nutrition has increased significantly in the general population in the last decade. However, this is not always reflected in everyday food choices of the Irish population. Identifying and understanding salient motives underlying individuals' food choices is needed to inform the promotion of healthy eating behaviours.

Attitudinal and motivational drivers of food choice in the Irish adult population were measured using a food choice questionnaire.. Participants were asked to rank six food choice motives based on importance to them when making their food selections. The motives presented to them included taste, cost (price), health and nutrition, convenience, feel good (mood), and weight control. Taste followed by health and nutrition were considered the most important motives by the majority (77%) of this sample (Table 9). Forty one percent ranked taste as most important, while 36% ranked health and nutrition first. There were no significant differences noted between men and women, with the exception of weight control where more women said this was the most important consideration for them. These findings show that while many Irish consumers place high importance on health and nutrition, many others are reluctant to compromise on taste.

To gain better insights into the drivers of food choice among Irish adults, attitudes and behaviours with regard to food and health were measured. These measures included attitudes towards healthy eating, healthy eating habits, intention to change diet and food life satisfaction. The mean scores are presented in Table 10. Scores could range from 1 to 7 and a higher mean score signified a more positive view. Positive attitudes towards healthy eating were displayed across all age groups. However, relative to the total population, older consumers (≥65 years) had higher scores. In contrast however, 18-35 year olds displayed lower scores for healthy eating habits and attitudes. Relative to the total population, those aged 65 years and over were the most satisfied with their current food choices and showed a lower intention to change their diet. Younger age groups (18-35 years, 36-50 years) displayed slightly lower levels of satisfaction relative to the total population; however, despite this, intention to change their diet was only moderate.

Table 9: Importance of food choice motives

Motive	% Ranking 1st Most Important (n=1240)
Taste	41%
Health & Nutrition	36%
Cost (price)	9%
Convenience	7%
Weight control	5%
Feel good (mood)	2%

Table 10: Mean attitudes and behaviour scores

	Total (n=1210) Mean (SD)	**18-35y (n=470)** Mean (SD)	**36-50y (n=370)** Mean (SD)	**51-64y (n=234)** Mean (SD)	**≥65y (n=139)** Mean (SD)
Attitudes	4.8 (1.2)	4.7 (1.2)	4.8 (1.2)	5.0 (1.2)	5.2 (1.2)
Health habits	4.7 (1.3)	4.4 (1.3)	4.7 (1.4)	5.0 (1.2)	5.4 (1.1)
Intention	4.6 (1.3)	4.8 (1.3)	4.5 (1.3)	4.5 (1.3)	4.1 (1.3)
Food life satisfaction	4.9 (1.1)	4.8 (1.0)	4.8 (1.2)	5.1 (1.0)	5.4 (0.9)

Notes: