



Difficulties in trying to eat healthier: descriptive analysis of perceived barriers for healthy eating

R Lappalainen¹, A Saba², L Holm³, H Mykkanen¹ and MJ Gibney⁴

¹A.I. Virtanen Institute, University of Kuopio, Box 1627, 70211 Kuopio, Finland; ²Instituto Nazionale della Nutrizione, Via Ardeatina, 546-00178 Rome, Italy; ³Research Department of Human Nutrition, The Royal Veterinary & Agricultural University, Rolighedsvej 25, DK 1958 Frederiksberg, Copenhagen, Denmark; and ⁴Institute of European Food Studies, Trinity College, Dublin 2, Ireland

Objective: To determine the factors which are perceived to be important barriers to healthy eating among European adults.

Design: A cross sectional study in which quota-controlled, nationally-representative samples of approximately 1000 adults from each country completed a face-to-face interview-assisted questionnaire.

Setting: The survey was conducted between October 1995 and February 1996 in the 15 member states of the European Union.

Subjects: 14 331 subjects (aged 15 y upwards) completed the questionnaire. Data were weighted by population size for each country and by sex, age and regional distribution within each member state.

Results: The study demonstrates a great variability in the perceived barriers to healthy eating between different EU countries. Lack of time was the most frequently mentioned difficulty among EU subjects for not following nutritional advice (24% of total EU sample). This barrier was frequently reported by the younger and the higher education people. Other frequently reported barriers were giving up favourite foods (23%) and willpower (18%). Thus healthy diets do not appear to be viewed as an easy or attractive alternative to current diets. There was wide geographical variation in the number of subjects mentioning price as an important barrier to healthy eating (15% in overall EU sample) ranging from less than 10% in Germany and Italy to 23% in the UK and 24% in Luxembourg. **Descriptors:** barriers; healthy eating; perceptions; demographics; EU

Introduction

Healthy eating may be attempted by many people after receiving information or advice from different sources. Also, after experiencing health problems many people make or least plan changes in their eating habits. However, many may revert to their previous eating habits because of difficulties encountered, and many others may not even try to change their eating habits because of anticipated difficulties or lack of interest.

Difficulties could be associated with social situations since eating is a social situation *per se* (Simmel, 1957) and many studies have demonstrated the significance of social factors in eating (Mennel *et al*, 1992) and the influence of the presence of other people on eating behaviour (de Castro, 1997). This view is supported by the observation that people who have changed their diet, report that their social relations can impede the maintenance of dietary changes (Holm, 1993). In a recent study it was shown that many cardiac patients following nutritional advice anticipated difficulties association with situations in which they were eating in company (Koikkalainen *et al*, 1997).

Taste may be another important barrier since humans show inherited preferences for sweet and salt taste (Birch, 1992; Logue, 1991), and some studies suggest that consumers presume that healthy diets are not palatable (Holm, 1993). It was observed in one study, that although patients attending a lipid clinic were well motivated, they experienced the present diet as boring and many of them reported

that they still wanted foods they were not allowed to consume (Wright, 1994). Nearly half of cardiac patients anticipate that a healthy diet will not taste good (Koikkalainen *et al*, 1997), and the majority of men having been hospitalized for a myocardial infarction have negative attitudes to the taste of a cardiac diet for cardiac patients (Barnes & Terry, 1991).

Difficulties in adopting healthy eating may also be associated with cost of food (Lloyd *et al*, 1995), amount of food present while eating (Koikkalainen *et al*, 1997; Rolls, 1985), and with difficulties in choosing foods in grocery stores (Barnes & Terry, 1991).

Level of education seems to be associated with obesity and health-related habits (for example, Aro *et al*, 1986; Bolton-Smith *et al*, 1991; Prättälä *et al*, 1992), and therefore lack of knowledge about healthy eating may also be regarded as one of the difficulties in adopting healthy eating patterns. However, barriers associated with disinterest or lack of knowledge were seldom reported as anticipated difficulties to healthy eating by cardiac patients in rehabilitation (Koikkalainen *et al*, 1997).

The majority of studies on barriers to healthy eating have been carried out on patient groups, and little is known of the barriers perceived to be important by the general population. Barriers perceived by the general population may be different from barriers perceived by patient populations. In addition, barriers may vary across countries due to different social factors and eating patterns. The purpose of this study was to describe perceived difficulties in trying to eat healthier among nationally-representative samples of adults in the 15 EU member states. It could also be expected that there might be sex, age and education level differences in barriers to healthy eating, and they could vary from state to state. It was thought that this information

could be applied in trying to promote healthy eating in EU countries.

Subjects and methods

Sample selection and questionnaire administration have been described elsewhere in the supplement (Kearney *et al*, 1997).

Subjects

Approximately 1000 adults, aged 15 y and upwards, in each EU-member state were selected to complete a face-to-face interview-assisted questionnaire (in Luxembourg 500 adults were selected and in Germany 1250 were selected, 1000 from former West Germany and 250 from former East Germany). The UK sample did not include adults from Northern Ireland. In each member state, subject selection was quota-controlled to make the samples nationally representative. The interviews were conducted as part of Eurobus, an international group of market research organisations offering Omnibus research in each member state. In total 14 331 subjects were interviewed across the 15 EU countries. Responses on perceived barriers were not obtained from 70 people, thus the data in the present paper includes 14 261 respondents.

Perceived barriers to healthy eating

Subjects were presented a list of 22 possible barriers (Table 1) and asked to select those they would perceive as major difficulties when trying to eat healthier. The statements were modified from those used by Koikkalainen *et al*, (1997) and Holm (1993) and further developed by the Project Management Group (Annex 1). In addition to the

list of barriers, the options 'no difficulty' and 'other' were presented. The barriers were grouped into nine categories shown in Table 1. In the results section, data on both the barrier categories and selected individual statements will be shown. More detailed analyses of the most frequently reported barriers and the direct statement of the resistance to change ('I do not want to change my eating habits') and its relation to knowledge about healthy eating ('not knowing enough about healthy eating') is also presented.

The effect of sex, age and education level differences within each member state were analyzed by χ^2 statistics. The results for individual member states were weighted for sex, age and national distribution. For the combined EU sample (EU mean) the values were weighted for population size in order to take into account differences in population sizes between different countries in the EU. Tests of statistical significance were not conducted on the total weighted EU sample owing to the large sample size (Kearney *et al*, 1997).

Results

Twenty-one percent of the subjects in the EU population reported that they did not have difficulties in trying to eat healthier. In Germany 34% of the respondents, and in Greece 30% of the respondents reported no difficulties compared to 7% in Luxembourg, and 9% in Italy and in Sweden. Thus 66–91% of the subjects in the EU reported at least one barrier to healthy eating.

The most common barrier categories (Table 2) reported by the total EU population were lack of time (including the statements 'irregular working hours' and 'busy lifestyle') and self-control (including the statements 'giving up foods that I like' and 'willpower'). Between the 15 member states a large variation in the number of respondents perceiving time as a difficulty was observed, with the percentage of respondents ranging from 48–50% in Luxembourg and in Sweden to only 16% in Germany (Table 2).

The barrier categories: cost of food, unpleasant foods, influence of other people, knowledge/expert consensus and selection influences were reported as difficulties to healthy eating by 14–15% of the EU population (Table 2). For these barriers, responses between the member states varied greatly. For example, knowledge/expert consensus (including the statements 'not knowing enough about healthy eating' and 'experts keep changing their minds') was mentioned as a major difficulty by 27% of the respondents in Luxembourg and 24% of those in Austria and Denmark, compared to only 5% in Italy, 9% in Netherlands and 10% in France. Similarly, 50% of the respondents in Luxembourg, 33% in Belgium and 31% in Sweden reported food preparation as a major difficulty compared to only 16% in Greece and 18% in Germany (Table 2).

Demographic analyses of the barrier categories indicated more women than men reported that influence of other people can prevent them from eating healthier (Table 3). An equal number of men and women perceived knowledge/expert consensus, food preparation, unpleasant foods and selection influences as barriers.

The barrier categories: lack of time, self-control and food preparation were more frequently reported by the younger than older respondents, but the barrier categories lack of knowledge/expert consensus and resistance to change were not related to the age of the respondents (Table 3).

Table 1 The 22 barrier statements presented in 9 categories included in the survey on 14 331 European adults on consumer attitudes to food, nutrition and health

- | | |
|---------------------------------------|--|
| 1. Lack of time | Irregular working hours |
| | Busy lifestyle |
| 2. Self-control | Giving up foods that I like |
| | Willpower |
| 3. Resistance to change | I do not want to change my eating habits |
| | Too great a change from my current diet |
| 4. Food preparation | Cooking skills |
| | Healthy foods are more perishable |
| | Lengthy preparation |
| | Storage facilities |
| | Limited cooking facilities |
| 5. Cost of food | Price of healthy foods |
| 6. Unpleasant foods | Unappealing food |
| | Strange or unusual foods |
| 7. Influence of other people | Feeling conspicuous amongst others |
| | Taste preferences of family and friends |
| 8. Lack of knowledge/expert consensus | Not knowing enough about healthy eating |
| | Experts keeping changing their minds |
| 9. Selection influences | Limited choice when I eat out |
| | Healthy options not available in shop or canteen or home |
| | Healthy food more awkward to carry home from shops |
| | Not enough food to satisfy hunger |

Table 2 Perceived barriers towards healthy eating in the 15 EU member states (% respondents)

State	n	Lack of time	Self-control	Resistance to change	Food preparation	Cost of food	Unpleasant foods	Influence of other people	Knowledge	Selection influences
Austria	867	37	48	23	28	19	15	19	24	15
Belgium	800	46	37	24	33	16	23	21	15	23
Denmark	1000	35	30	21	23	17	9	11	24	9
Finland	971	32	42	15	25	15	15	13	13	15
France	970	32	35	21	19	19	14	14	10	14
Germany	1231	16	25	22	18	9	5	14	16	5
Greece	1001	23	30	25	16	13	16	18	13	16
Ireland	1009	30	50	20	19	17	13	22	15	13
Italy	1019	44	25	17	10	7	14	9	5	14
Luxembourg	507	50	53	35	50	24	35	31	27	35
Netherlands	974	39	30	24	19	16	14	14	9	14
Portugal	1012	39	31	27	25	21	23	18	17	23
Spain	1009	37	33	19	20	16	27	13	13	27
Sweden	1000	48	43	18	31	21	14	15	22	14
UK	961	38	45	20	21	23	15	13	20	15
EU (weighted for population size)		33	33	21	19	15	14	14	14	14

Respondents with lower education level mentioned resistance to change more often as a barrier compared to those with higher educational background (Table 3). Those with higher education level, more frequently reported barriers related to lack of time, self-control and food preparation, but level of education was not associated with the categories: cost of food, unpleasant foods, influences of other people, knowledge/expert consensus and selection influences.

'Irregular working hours' was the most frequently reported individual barrier (24%), followed by 'giving up foods I like' (23%), 'willpower' (18%) and 'busy lifestyle' (17%). 'Price of healthy foods' was selected by 15% of the respondents as a barrier to healthy eating. On the other hand, a small minority selected 'experts keep changing their minds' (8%), 'availability of healthy foods' (7%), 'cooking skills' (7%) and 'not knowing enough about healthy eating' (7%) as difficulties to healthy eating.

'Irregular working hours' was mentioned more frequently as a barrier by men than by women (27% vs 22%, Table 4). This difference was seen in half of the member states (Austria, Belgium, France, Germany, Greece, Netherlands and United Kingdom). Practically in all member states (except for Luxembourg and in Sweden) 'irregular working hours' was more frequently cited difficulty by the highly educated than by the less educated people.

In 14 of the states, there was no sex difference for the barrier 'giving up foods that I like' (the second most frequent barrier, 23%). In Finland, Greece, Netherlands and in United Kingdom the younger respondents reported this barrier more frequently than the older respondents. In three of the 15 member states (Finland, Greece and United Kingdom) the highly education subjects selected 'giving up foods that I like' more frequently as a barrier compared to the subjects with less education.

In the overall EU sample more men than women selected the individual statement 'I do not want to change my eating habits', but in many member states (Belgium, Greece, Italy, Luxembourg, Netherlands, Portugal and Spain) no differences in resistance to change were observed between the sexes. Older respondents in seven of the member states (Austria, Belgium, Denmark, Greece, Ireland, Italy and Netherlands) more frequently reported that they did not want to change their eating habits than younger subjects (Table 5). The level of education was associated with resistance to change in the majority of the EU countries (Table 5), those with lower education background showing more resistance. Only in six states (Austria, Belgium, France, Luxembourg, Portugal and Sweden) was there no effect by level of education observed.

In the overall EU sample, 'not knowing enough about healthy eating' was not a frequently selected barrier (vary-

Table 3 Demographic analysis of barrier categories towards healthy eating in the 15 EU member states (% respondents indicating barriers)

State	n	Lack of time	Self-control	Resistance to change	Food preparation	Cost of food	Unpleasant foods	Influence of other people	Knowledge/expert consensus	Selection influences
Sex										
Male	6702	35	32	23	18	13	14	10	14	14
Female	7614	31	34	19	19	17	14	17	13	14
Age										
15-34 y	5341	42	37	20	24	16	16	15	15	16
35-54 y	5057	38	32	20	18	15	13	14	13	13
over 55 y	3918	15	28	23	13	14	13	10	13	13
Education level										
Primary	4685	20	29	24	16	13	14	12	14	14
Secondary	6849	40	34	20	19	16	14	14	14	14
University	2228	45	37	15	23	15	12	14	13	12

Missing data: age group 15 subjects; education level 169 subjects

Table 4 The percentage of respondents indicating irregular working hours as a barrier towards healthy eating classified by sex, age and education level in 15 EU member states

State	Sex			Age				Education			
	Male	Female		15-34 y	35-54 y	Over 55 y		Primary level	Secondary level	Tertiary level	
Austria	36	27	**	36	40	16	***	23	32	43	***
Belgium	40	30	***	45	43	12	***	11	33	47	***
Denmark	21	21		25	24	9	***	13	24	23	**
Finland	21	17		24	23	6	***	12	25	18	***
France	26	19	*	32	27	7	***	13	27	26	***
Germany	15	9	***	16	14	2	***	10	14	19	**
Greece	18	9	***	20	12	2	***	6	14	22	***
Ireland	18	16		19	19	9	**	10	19	24	***
Italy	36	36		44	42	18	***	18	42	50	***
Luxembourg	43	38		49	42	26	***	39	43	37	
Netherlands	30	24	*	32	31	13	***	16	29	26	**
Portugal	29	26		37	31	11	***	22	36	48	***
Spain	30	30		37	34	18	***	22	42	49	***
Sweden	27	23		30	28	12	***	22	26	27	
UK	30	21	**	31	33	11	***	9	29	26	***
EU (weighted for population size)	27	22		31	28	11	***	15	30	31	

* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$, on χ^2 analysis.

ing from 15% in Austria and in Sweden to 4% in Italy and 5% in Finland and in Netherlands). No sex differences were observed in the total EU population, but in four member states (Austria, Belgium, Finland and Italy) more men than women reported lack of knowledge as a barrier. In the majority of the states, the barrier 'not knowing enough about healthy eating' was not associated with age of respondents. However, in five states (Austria, Finland, Germany, Greece and United Kingdom) the younger respondents more frequently selected this barrier than the older people. This barrier was not related to education level in the overall EU population, but in four states (in Austria, Greece, Ireland and The Netherlands) the respondents with lower education level reported lack of knowledge more frequently as a barrier to healthy eating than those with higher educational background.

Discussion

The present study demonstrates great variability in the perceived barriers to healthy eating between the different

EU countries. The percentage of the sample reporting at least one barrier to healthy eating ranged from 66 (Germany) to 91 (Luxembourg). This figure is in accordance with the data obtained from a group of Finnish cardiac patients using a face-to-face interview (Koikkalainen *et al*, 1997). It should, however, be observed that this study described the perceived barriers or difficulties to healthy eating rather than actual barriers.

Lack of time was the most frequently mentioned difficulty in not following nutritional advice. This barrier was frequently reported by the younger and by the highly educated subjects. Since food preparation was also reported more frequently as a barrier by these groups, these data suggest that the younger and the highly educated people think that they do not have time to prepare healthy meals. In the present study, 'giving up liked foods' was among the most frequently selected barriers. This is in accordance with earlier studies (Koikkalainen *et al*, 1997); (Wright, 1994) which report taste as an important factor in dietary compliance. Thus, healthy diets do not appear to be attractive alternatives to current diets.

Table 5 The percentage of respondents indicating resistance to change as a barrier towards healthy eating classified by sex, age and education level in 15 EU member states

State	Sex			Age				Education			
	Male	Female		15-34 y	35-54 y	Over 55 y		Primary level	Secondary level	Tertiary level	
Austria	18	13		16	11	20	**	15	17	12	
Belgium	19	15		16	13	22	*	17	17	15	
Denmark	21	13	**	13	17	26	***	25	16	15	**
Finland	14	6	**	11	9	10		14	8	9	*
France	20	12	**	16	16	16		18	16	13	
Germany	19	13	**	14	16	19		18	12	13	*
Greece	17	14		19	12	15	*	14	19	10	**
Ireland	18	10	**	15	10	21	**	24	12	6	***
Italy	12	11		8	13	15	*	17	10	7	**
Luxembourg	14	11		13	10	14		16	10	7	
Netherlands	20	19		15	18	30	***	35	19	14	***
Portugal	15	17		14	18	16		18	12	16	
Spain	12	14		11	12	16		15	9	8	*
Sweden	15	7	**	11	10	14		14	9	11	
UK	18	13	*	14	14	20		26	16	6	***
EU (weighted for population size)	17	13		13	14	18		18	14	11	

* = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$, on χ^2 analysis.

Almost one fifth (185) of subjects in the EU mentioned that 'willpower' was an important barrier to healthy eating. This would suggest that many people regard healthy eating as difficult to achieve and that it requires great psychological effort to maintain a healthy diet. Indeed such a belief may even inhibit some people from ever initiating or adopting healthy eating changes.

Overall, a minority of the EU sample reported that they did not want to change their diets, perhaps suggesting that many Europeans are open to the idea of eating more healthy diets. In addition, a minority reported that a lack of knowledge and conflicting opinions of experts were barriers to healthy eating. An interesting finding from the survey was that there was no relationship between the educational level of subjects and the selection of the barrier 'lack of knowledge instead of expert consensus'. This suggests that efforts in attempting to improve the general public's eating patterns should not concentrate solely on the provision of nutritional information but should also attempt to improve the public image of healthy eating perhaps in terms of time and taste factors. However, lack of knowledge may still be important for some population groups, for examples males in Austria, Belgium, Finland and Italy.

Males and subjects with lower levels of education appeared more likely to resist dietary changes than other subjects in most EU countries. In fact 'resistance to change' was the only barrier category in which the subjects with lower levels of education differed from subjects with higher levels of education. More research is needed to clarify the reasons for the above.

The cost of food as well as selection difficulties (for example, 'availability of healthy foods') were reported as barriers by only 1 out of 7 respondents approximately, with greater variation between the member states than between demographic groups. Thus although price and availability of healthy foods would not be serious problems for a pan-EU nutrition policy, price would have to be considered in countries such as Luxembourg, Portugal, UK and Sweden, but not in Germany or Italy. Selection influences do not appear to be important in Denmark and Germany. The reasons for this require clarification by future research.

The large variability between the EU member states suggests that conclusions drawn from the 'EU mean values' may not be generalized to all member states. For example, 'the barrier profile' of Austria differs from other EU countries in that a greater number of Austrian men and older subjects resisted changes as compared to women and to the younger respondents. In addition, a lack of knowledge of healthy eating was reported more frequently as a barrier by Austrian men, and also by younger subjects and lower educated subjects compared to the general EU population or populations in other EU countries. It appears that each EU member state has its own 'barrier profile', and any attempts to take into account these difficulties in healthy eating programmes should be based on within country analysis of barriers followed by a country specific plan to act on these difficulties.

These data suggest that one general EU-wide policy of healthy eating taking into account the anticipated difficulties may not be justified in Europe. However, some barriers are common among certain groups across countries. For example, irregular working hours are more frequently reported by men than women in Austria, Belgium, France, Germany, Greece, Netherlands and in UK and perhaps common approaches to encouraging males to have a healthy diet could be applied to these countries.

Taken together, this survey suggests that formulation of healthy eating promotion campaigns should take into account that majority of people do not report knowledge of healthy eating as a barrier. Thus, all efforts should not be concentrated on the provision of information on healthy eating. Instead, campaigns should have a broader perspective in the promotion of health eating. If programmes in the future can concentrate on portraying healthy eating as something which can be achieved through everyday eating, that it is not more time-consuming than 'other forms of eating' and that it does not entail the total exclusion of favourite foods, perhaps more subjects could be encouraged to adopt good nutrition practices. More research is also needed to clarify why men and lower educated people show greater resistance to changes compared with women and highly educated people.

References

- Aro S, Räsänen R & Telema R (1986): Social class and changes in health related habits in Finland in 1974–1983. *Scan. J. Soc. Med.* **14**, 39–47.
- Barnes MS & Terry RD (1991): Adherence to the cardiac diet: Attitudes of patients after myocardial infarction. *J. Am. Diet. Assoc.* **91**, 1435–1437.
- Biroh LL (1992): Children's preferences for high-fat foods. *Nutr. Rev.* **50**, 249–255.
- Bolton-Smith C, Smith WCS, Woodward M & Tunstall-Pedoe H (1991): Nutrient intakes of different social-class groups: Results from the Scottish Heart Health Study (SHHS). *Br. J. Nutr.* **65**, 321–335.
- de Castro JM (1997): Socio-cultural determinants of meal size and frequency. *Br. J. Nutr.* (in press).
- Holm L (1993): Cultural and social acceptability of a healthy diet. *Eur. J. Clin. Nutr.* **47**, 592–599.
- Kearney M, Kearney JM & Gibney MJ (1997): Methods used to conduct survey on consumer attitudes to food, nutrition and health on nationally representative samples of adults from each member state of the European Union. *Eur. J. Clin. Nutr.* **51**, Suppl 2, S3–S7.
- Koikkalainen M, Lappalainen R & Mykkänen H (1997): Why cardiac patients do not follow the nutritionist's advice: barriers in nutritional advice perceived in rehabilitation. *Disabil. Rehabil.* (in press).
- Lloyd HM, Paisley CM & Mela DJ (1995): Barriers to the adoption of reduced-fat diets in a UK population. *J. Am. Clin. Nutr.* **95**, 316–322.
- Logue AW (1991): *The Psychology of Eating and Drinking*. New York: Freeman and Company.
- Mennel S, Murcott A & van Otterloo AH (1992): *The Sociology of Food Eating, Diet and Culture*. London: Sage Publications, pp 1–150.
- Prättälä R, Berg M-A & Puska P (1992): Diminishing or increasing contrasts? Social class variation in Finnish food consumption patterns: 1979–1990. *Eur. J. Clin. Nutr.* **46**, 279–287.
- Rolls BJ (1985): Experimental analysis of the effects of variety in a meal on human feeding. *Am. J. Clin. Nutr.* **42**, 932–939.
- Simmel G (1957): In *Soziologie der Mahlzeit*, ed. G Simmel. Brücke und Tür. Stuttgart, pp 243–250.
- Wright CA (1994): Preliminary survey of attitudes to, and factors affecting, perceived success or failure among adults attending a hospital lipid clinic. *J. Human Nutr. Dietet.* **7**, 153–159.