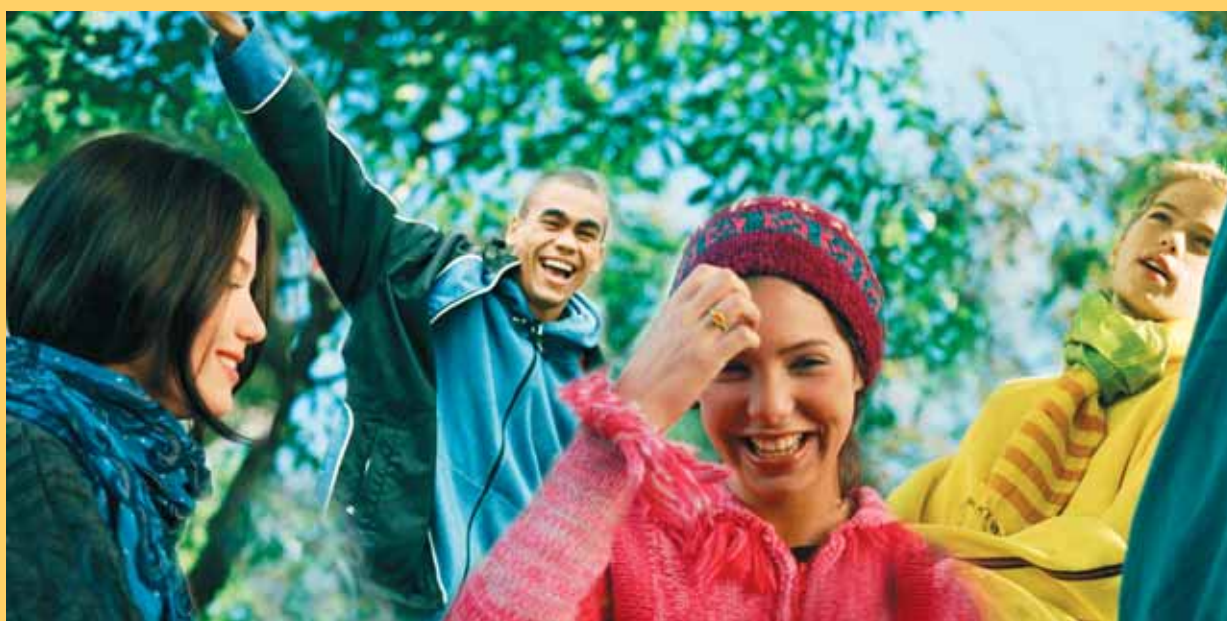


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Why consumers eat what they do: An approach to improve nutrition education and promote healthy eating

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Summary

There is a general scientific agreement that diet and nutrition are important factors in the promotion and maintenance of good health throughout the entire life. It is currently estimated that an unhealthy diet and a sedentary life may be responsible for over 4 million deaths per year in Europe due to cardiovascular diseases. Although people seem to become aware of what healthy eating means, and healthy eating seems to be regarded positively in terms of benefits by general population this may not be translated into practice. Different studies have demonstrated that there is a low level of perceived need among European population to alter their eating habits for health reasons, mainly because people believe that their diets are already adequately healthy. The current article discusses the major barriers to the adoption of a healthy diet and the main factors that influence individual food choice. Different approaches and actions to be taken for modifying consumer's food intake in the direction of healthy eating are discussed.

1- The role of nutrition in a healthy lifestyle

Health is a condition of physical, mental and social well-being and implies the absence of disease (ILSI, 1998). Health is not simply the absence of illness or injury, and is an important part of well-being, of how people feel and function, and also contributes to social and economic well-being. Many factors determine and influence health, a combination of modifiable and non-modifiable risk factors. While age, sex and genetic susceptibility are non-modifiable; many of the risks associated with age and sex are modifiable. Such risks include lifestyle or behavioural factors (including smoking, type of diet, alcohol consumption and lack of physical activity), biological factors (e.g., hypertension, overweight) and many other aspects of their social and cultural environment, which include a complex mixture of interacting socio-economic, cultural and other environmental parameters (WHO, 2003). While, standards of living have improved, food availability has expanded and become more diversified, and the access to services has increased, there has also been significant negative consequences in terms of inappropriate dietary patterns (towards a higher energy density diet, reduced intake of complex carbohydrates, and reduced fruit and vegetable intake), decreased physical activities and increased tobacco use-often referred to as the "nutrition transition". In short, nutrition is being emphasised as a major modifiable determinant of chronic diseases, restating the idea that chronic diseases are largely preventable diseases.

1.1- Definition of healthy eating: experts and public views

Traditionally, recommended dietary allowances have focused on adequate and safe intakes to avoid deficiencies and to ensure that energy is adequate for the needs of nearly all adults, and for the growth development and activity of children. More recently, however, dietary recommendations and guidelines reflect growing concern about diet-related non-communicable diseases, and recommendations now frequently include alerts and notes regarding intake of those dietary components that are associated with increased/decreased risk of these diseases. According to the basic guidelines in many developed countries, individuals should eat a balanced and a varied diet, decrease the consumption of total fat, increase the consumption of fruit, vegetables and cereals grains and maintain energy balance.

On the other hand, for the majority of EU-15 population (lay people) “less fat”, more “fruit and vegetables” and “balance and variety” were amongst the most frequently mentioned items by respondents when asked to name food characteristics that would form the basis of a healthy diet (Lappalainen *et al.*, 1998). Although people seem to become aware of what healthy eating means, and healthy eating seems to be regarded positively in terms of benefits by general population this may not be translated into practice. Indeed, it is estimated that at least one third of premature deaths from cardiovascular disease are attributable to unhealthy diets. This means that every year in Europe approximately 60,000 premature deaths could be saved by dietary changes (Eurodiet, 2000).

2- Perceived barriers in adopting a healthy diet

Changing food consumption is not an easy task, even for those who have actual personal health reasons for doing so, because of personal, social, economical and environmental factors. In fact, according to the pan-European survey, conducted between October 1995 and January 1996, 71 % of Europeans believe that there is no need to change their diets, as they are already healthy enough (Kearney, M. *et al.*, 1997). Other authors have reported such a high level of satisfaction with current diets among different countries (Mendelson, 2002; Worsely and Crawford, 1985). This “optimistic bias” (optimism in self-perception of diet quality) suggests that people believe that healthy eating messages are targeted at people more vulnerable than themselves and do not see such advises as personally relevant. In other words, a perceived need to undertake change is a fundamental requirement for initiating dietary change. Indeed, it has been shown that people tended to underestimate their fat intakes, with most subjects regarding their diets at lower fat levels than they actually were (Lloyd *et al.*, 1995) and overestimate their vegetable and fruit consumption (Lechner *et al.*, 1997; Bogers *et al.*, 2004).

Once the need for change is recognised, there are many reasons why nutritional advice may not be followed. These difficulties can be related with lifestyles and personal behaviours. Taste preferences consistently represent a barrier to healthier eating, in the sense that people experience difficulties to give up their favourite food. On the other hand, lack of time, busy lifestyle and food preparation factors are frequently mentioned as a difficulty in following nutritional advice (Lappalainen *et al.*, 1997; Kearney and McElhone, 1999). People with perceived time pressure may think that

they do not have time to prepare healthy meals and may seek out convenience foods (such as frozen main courses or ready-made meals, take-away meals, eating out) rather than cooking from basic ingredients.

As a result, it is necessary to understand the major perceived influences on individual food choice, in order to investigate the most effective approaches for influencing dietary patterns and to promote health.

3- Individual determinants of food choice

Food choice is a complex behaviour and it is influenced by many interrelating factors. These factors may be categorised as: those related (i) to the food, (ii) to the individual making the choice, (iii) and to the external economical and social environment within which the choice is made (Shepherd, 1999). In fact, some of the chemical and physical properties of the food are perceived by the individual in terms of sensory attributes (e.g., taste and texture), and the liking of these attributes influences the choice of the food product. Other chemical components in the foods (such as amount of protein or carbohydrate) will have physiological effects, such as the reduction of hunger. The environmental domain include factors such as: (i) family and peer pressure, cultural, religious and demographic variables, (ii) marketing variables, and (iii) economical considerations and political values (Furst *et al.*, 1996; Nestle, *et al.*, 1998; Bellisle, 2005). Within the limitations of those dietary domains, personal preference is most often concerned with the more immediate aspects, such as taste, energy-density, convenience, well-being (health), variety, monetary constrains and self-expression (Drewnowski, 2002). That is, individual food choice determinants range in scope from sensory preferences and psychological (mood, stress and guilty) to practical reasons (convenience, price/income, variety) and personal concerns (well-being, self-expression), and all together are interrelated.

3.1- Sensory attributes

The biological drive that impels individuals to search for food is hunger. In fact, humans need energy and nutrients in order to survive. Researchers interested in the control of intake tend to assume that eating is controlled by internal physiological mechanisms, reflecting either nutrition deficit or surfeit and consequently involved in the regulation of body weight (Woods *et al.*, 1998). The energy regulation system regulates energy intake (that indicates our energy deficit) and is complemented by an innate ability to sense and prefer two characteristics that within nature come associated with high energy density: sweet taste and fatty texture. Sensory responses to taste are consistently reported as a major influence on food behaviour (Steptoe and Pollard, 1995; Glanz *et al.*, 1998; Eertmans *et al.*, 2001; Alves *et al.*, 2005). These results come in agreement with the fact that concerns about reductions in the “taste quality” of the diet are the most often mentioned obstacles to adopting an healthful diet, as discussed previously (see § 2). That is, individuals do not eat solely based on hunger.

Palatability is a subjective measure of the pleasantness of food. It is dependent on the sensory attributes of the food such as taste. In general, foods that are described as more palatable tend to be more energy dense (calorie/g) than foods that are not. Foods with

lower energy density (raw vegetables and fruits) invariably contain more water per unit weight. In contrast, foods with higher energy density tend to present a higher fat content. Energy-dense foods are highly preferred across all geographical, ethnic, and cultural boundaries, suggesting that sensory preferences for sugar and fat may be under physiologic control. However, according to current theories, high energy density foods tend to be palatable (chocolate, cookies and cakes) but not satiating, whereas low energy density foods yield a marked satiating power, while less palatable (Drewnowski, 1998). Not surprisingly, these considerations are consistent with the principles of the basic guidelines of healthy diet (see § 1.1), however, few consumers are willing to sacrifice palatability in the pursuit of an energy-dilute diet.

3.2- Monetary considerations

According to neoclassical microeconomic theory, demands for different goods are interrelated due to the generally limited budget and may therefore not be considered separately from each other. In fact, whether price of food is affordable or not depends fundamentally on household's income and socio-economic status. In fact, although food prices affect everyone, the issue of food cost as a barrier to dietary change is particularly relevant to low-income families (Lloyd *et al.*, 1995; Dibsdall *et al.*, 2003). Indeed, their food consumption pattern is characterised by a low consumption of fruit and vegetables and a high consumption of cereals (Krebs-Smith and Kantor, 2001; Blisard *et al.*, 2004). Two main reasons could explain this unhealthy eating pattern: the low price of higher energy-dense foods (often containing refined grains, added sugars, and vegetable fats) and its taste preference for high-fat energy dense foods, as discussed above. Generally speaking, diets based on added sugar, oil, shortening, margarine and refined grains are more affordable than the recommended diets based on lean meat, fish, fresh vegetables or fruit (Drewnowski and Specter, 2004). This is economically logical, because cereals, added sugars and fats, which are dry and tend to have a stable shelf-life, are easier to produce, process, transport, and store than are perishable meats, dairy products or fresh produce, with high water content. Thus, paradoxically, economic constraints, by inducing the selection of energy dense diets (a deliberate strategy to save money), could be indirectly responsible for the high prevalence of obesity in low-income groups in industrialised countries (WHO, 2003).

3.3- Physical factors

Convenience is a major concern in food purchases, particularly by members of urbanised societies. According to Darian and Cohen (1995), convenience in food can be categorised along two dimensions: (i) the type of convenience (what kind of effort is being reduced: time, physical energy or mental energy?) and (ii) the stage of the consumption process at which convenience is obtained (these stages include: deciding what to eat, purchasing, preparation, consumption and cleaning up). That is, consumers' convenience orientation not only relates to physical activities but also to thinking activities involved in meal preparation (culinary skills). Considering that women continue to become increasingly important in workplace and that they are still the "food gatekeeper" at home, the extra income from working wives enables the household to purchase convenience goods and many new technologies for the kitchen.

Additionally, younger housewives have grown up with almost no experience of foods in a raw state, and with only limited exposure to certain food types. Candel (2001) found that convenience orientation was negatively related to the use of self-prepared warm meals, and positively to the use of restaurants and the use of take-away meals. Eating in restaurants takes out the burden of food preparation and cooking, and of dish washing, while the use of frozen foods demands for planning.

3.4- Variety

Humans are omnivorous, meaning that they can consume and digest a wide selection of plants and animals found in their surroundings (Rozin, 1999). Dietary diversity or dietary variety (defined as the number of different foods or food groups consumed over a given reference period) has long been recognised by nutritionists as a key element of high-quality diets (see § 1.1). Increasing the variety of foods across and within food groups is recommended internationally by most dietary guidelines (WHO, 1996), because it is thought to ensure adequate intake of essential nutrients and thus to promote health. However, particularly in the urban context with the abundance of processed foods, increasing dietary variety could be counter productive in terms of the aim of this recommendation, particularly in relation to increasing high-fat and high-caloric foods. In other words, the proliferating “variety” in the supermarkets does not reflect an equivalent biological variety (Gussow and Clancy, 1986). McCrory *et al.* (1999) found that high variety is associated with fatness when the variety comes from foods with high energy content (sweets, snacks, condiments, entrees and carbohydrate food groups). Inversely, increased amounts of low-energy vegetables, prompted by high variety, may replace rather than supplement intakes of higher-energy items, lead to an overall decrease in energy intake, and hence of body fatness.

3.5- Attitudes, beliefs and knowledge about food and psychological factors

There still exists a gap between dietary recommendations and actual food use at the general population level in many Western countries (see § 2). Although health is not the only factor affecting food choice, many studies conducted in Europe and in the United States have shown health-related attitudes to be an important factor affecting food choice (Steptoe and Pollard, 1995; Bowman, 2005; Alves *et al.*, 2005). According to Roininen (2001), one can choose a healthy diet for many reasons, among them to prevent chronic diseases, to reduce weight or for ideological reasons.

Concerning the benefits from healthy eating among Europeans (EU-15), the pan-European survey found that the most selected benefits were “stay healthy” (67 %) and “prevent diseases” (66 %), and more than half of the subjects selected “be fit” (53 %) and “control weight” (53 %). In addition, the main driver of the growth for organic products is the public concern for health: consumers believe that organic foods are healthier than conventional foods (Cunha e Moura, 2004).

Otherwise, there is a greater concern among Western women about weight, body shape and appearance. Rozin *et al.* (1999) found that females in all countries studied (US, Japan, Belgium and France) had higher scores across issue of worries about food and nutritional associations as opposed to the savouring of food (culinary associations to

food). This might be the result of accumulating practical and emotional pressures that have been most exposed to the discourse of health and the glorification of the slim body. Although females have more positive attitudes towards eating healthily, they have the higher ratings on the craving for sweet (Grogan *et al.*, 1997).

Nevertheless, other factors such as ideological reasons (concern of ecological welfare, political values or religion) can also change behaviour into a healthy eating pattern. According to Lindeman and Stark (1999), eating vegetarian, healthy or non-fattening food may nowadays serve as a similar basis for identity, social categorization and moral valuation, as religions characteristically have served before. However, at a higher level the driving-forces that engage consumers to choose a healthy diet are, moderated by the motivation that they have in following this orientation, which in turn, are related to nutrition knowledge and perceived present state of health. In fact, consumers had never such an abundance of nutrition information as they do today, yet they remain challenged to use the information in making decisions about food and nutrition. Two main reasons explain this behaviour: the effectiveness of the sources of consumer information and the credibility of these sources. Considering that mass media are the primary sources of consumer information related to food and nutrition, particularly the television, consumers hear the message transmitted but do not heed it, because of the distracted state in which the audience receives many of the messages (Krugman, 1965). Moreover, the media sources that consumers most trust are those that are less used by them. According to the pan-European survey, the main sources of information on healthy eating most frequently mentioned in the EU-15 were (TV/radio, magazines and newspapers) were the least trusted sources. That is, the nutrition behaviour change requires much more complex motivators than simple information.

The motivation may come from one's present state of health (a nutrition related disease, such as diabetes or food components allergy) or one's awareness of present behaviour and its implication on health in future (Roininen, 2001). In this case, when a person is motivated, then the knowledge of dietary recommendations can affect his/her behaviour.

Conclusions

Diet related diseases became a public health issue due the large number of related deaths and to the increased budgetary burden occurring all over Europe. Thus, it is clear that reducing risk via improved nutrition and an increase in physical activity is of paramount importance. However, individuals do not feel they need to change, because they feel that their diets are already healthy. This "optimistic bias" suggests that people believe that healthy eating messages are targeted at people more vulnerable than themselves and do not see such advises as personally relevant. Moreover, the gains of health oriented dietary changes are mostly related to the far future, uncertain and hardly perceivable. In contrast, losses induced by dietary change are certain and immediately perceivable. Thus, efforts in attempting to improve the public's eating patterns should help people to evaluate their own diets correctly and thereby recognise the possible need to alter their diets. In addition, intervention measures need to convince people that the modification of their diets provide substantially higher gains

than losses and messages about positive benefits must continually outweigh the barriers to making and maintaining the dietary behaviour change.

Considering that taste preference consistently represent a barrier to healthier eating, it is also important to convince people that healthy eating does not have entailed strange or unusual foods, neither it necessarily means entailing the total exclusion of favourite foods; for instance, it should be stressed the pleasant taste of fruit and the enjoyable texture of vegetables. Moreover, given that energy-dense foods (high-fat and high-sugar) tend to be more palatable, the promotion of the consumption of low-fat, high-fibre and low-energy- dense foods to the public must be accompanied with the dialogue with food suppliers and producers in order to make these types of foods as inexpensive and palatable as possible, while advertising and packing them aggressively to increase their appeal and convenience. In this context, restaurants in general and fast-food restaurants in particular should make an effort to offer lower fat/calories menu alternatives.

Otherwise, considering that low-income households and individuals with lack of time for food preparation are targeted to following a less healthy diet, health policy should supply those households with information regarding the importance of consuming a healthy large variety of foods. Additionally, nutrition education programmes should be implemented in order to provide individual instructions on how to identify low-cost nutritious foods, how and where to make food purchases, and how to store and prepare foods. On the other hand, for the food-processing industry, it could be a challenge to offer a larger variety of convenience products adjusted to the specific needs of the households.

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