

How to Encourage Individual Contributions to Reduce Food Borne Risks

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Abstract: Many areas of precautionary health policy require cooperation of citizens, e.g. avoiding health risks through an adequate diet. A common approach to achieve the necessary cooperation is providing people with information on risk and, consequently, encouraging them to change their behaviour.

This paper explains the limits of such educational approach. The analysis is based on in-depth interviews; the results are presented as costs and benefits of perceiving and processing information. This helps to identify driving factors as well as obstacles for implementing information into behaviour.

As a result, this paper recommends improving the efficacy of the educational approach in particular by (1) adapting information better to consumers' needs, and (2) using attractive images to point out the benefits of behavioural changes. Another way to facilitate a healthier diet is to offer products, which hardly require a change in behaviour, e.g. functional food or "healthy" fast food.

Table of Contents

[1. Introduction](#)

[2. Empirical Results](#)

[2.1](#) Key results of the study on consumers' reception and processing of information

[2.2](#) Key results of the study on improving the supply of folic acid

[3. Other Approaches for a Reduction of Food Borne Risks](#)

[3.1](#) Improving diet related information

[3.2](#) Changing circumstances instead of behaviour

[4. Summary](#)

[References](#)

[Authors](#)

[Citation](#)

1. Introduction

Many areas of precautionary health policy require cooperation of citizens, e.g. avoidance of obesity or other health risks through an adequate diet. A common approach to achieve the necessary cooperation is to provide consumers with information on risks and that way make them change their behaviour. [1]

This "educational" approach is based on the implicit assumptions that

- people want to be informed and that they benefit from making use of information,
- information helps them to detect their own interests and to behave accordingly,
- people feel that a healthy diet is in their own interest. [2]

This approach is supported by a nutrition-study carried out in Austria in 1998: 64% of men and 82% of women state that they are interested or very interested in information on nutrition (DIEHL 2000, p.6). [3]

To analyse the prospects of success of the educational approach, it is necessary to gain insights into how consumers receive and process information and how information influences behaviour. Based on these results, different instruments for encouraging individual contributions to reduce food borne risks can be evaluated. [4]

2. Empirical Results

In order to explore the full range of factors influencing the processing of information, in-depth interviews were applied and carried out by specially trained psychologists. With this approach a deep insight into the motivational structure could be achieved and elements influencing expected costs and benefits could be detected. [5]

The empirical results presented in this paper especially refer to:

- a study on basic factors that influence consumers' reception and processing of information and the link between information and eating behaviour (HÄRLEN, SIMONS & VIERBOOM 2004). These factors were analysed by means of 30 in-depth interviews and two group discussions with ten participants each;
- a study on improving the supply of folic acid (LENSCH forthcoming). This project concretises the basic factors elaborated in the first analysis by the help of information on folic acid. Due to the close connections between the objectives of both studies, just three additional group discussions were necessary to explore the particularities of information on folic acid. This

project was amended by a quantitative, standardised questionnaire with 1,026 women.¹ [6]

The results of the studies are presented within a framework of costs and benefits which is common in economic welfare analysis.² But the word "cost" does not only refer to monetary and time costs, but also to mental costs. Thereby the interpretation of the interviews focuses on the overall utility consumers expect from informing themselves and from changing their behaviour. Though consumers do not make that explicit trade-off, the analytical framework helps to systematise different effects of information and education. Additionally, it helps to evaluate different strategies for precautionary health policy. [7]

2.1 Key results of the study on consumers' reception and processing of information

The basic study on reception and processing of information reveals that consumers not always benefit from informing themselves and from knowledge about the impact of food and nutrition on health. The results can be summarised as follows: [8]

1. There is a strain between informing oneself and the tendency to enjoy the pleasure of abundant food supply without thinking about the impact on health. On the one hand information and knowledge can disturb that pleasure by making aware of negative impacts that food and eating habits can have. Information and knowledge can cause confusion and fear and even ailment due to psychosomatic reasons. On the other hand—against the background of food scandals, discussions on food borne risk, the ideal of a healthy and good looking body or overweight—knowledge is necessary to reconcile the different targets of nutrition. In terms of cost and benefit: Consumers profit from informing themselves with respect to health but this benefit can be opposed by costs in deriving from a decrease of pleasure, confusion, fear, or even illness. [9]

Though there is a lot of information available, it is very difficult for consumers to develop unambiguous advice for their every day life:

- Reports containing scientific information are very difficult to understand for lay people. The special problems that are under discussion within the scientific community and the specialised language with a lot of technical terms are unfamiliar to consumers.
- Consumers perceive scientific results as inconsistent and arbitrary. They recognise contradictory statements and recommendations as well as the

1 The standardised questionnaire was concentrated on women to represent the important influence of folic acid during pregnancy. Additionally, the majority of women take care of the food purchase in family households.

2 This approach is based on the thesis that people do not possess all information and the provision of information is associated with costs (cp. STIGLER 1961). As the issue of information economics it explains why people are not fully informed in contrast to the assumption of a homo oeconomicus. The costs of information include time, effort, opportunity, and paid costs (KAAS 1991, p.358).

change of scientific knowledge and statements over time³ (VOGELSANG 1996, p.270).

- Beyond the level of scientific information and recommendation, there is a lot of advice for consumers related to individual food or beverages given by the media, acquaintances, friends, and family members. This advice often points out a single feature of a product and its impact on health while other features of the product are neglected. For example consumers are advised against drinking red wine because of its alcohol content; at the same time they are advised in favour of red wine because of its content of phenols that is supposed to have a positive effect on the cardiovascular system. [10]

Against this background consumers are confronted with the problem of an overload with inconsistent information and advice. To simplify the daily decision on food and beverages, they normally develop a set of simple rules of thumb that seem to lead to a balanced diet. Looking at the problem of information overload in terms of cost and benefit, gathering and processing information can lead to high costs. Even if information is available for free, it requires time to cope with information. At the same time the benefit for every day life may be small. [11]

2. If consumers have developed rules of thumb to cope with the information overload, they face the problem of integrating them into their everyday life. The process of eating is not only a health related behaviour but also a pattern which is highly influenced by the social and cultural environment, personal preferences, and long term daily habits. Thus eating includes much more aspects than just the nutritional one. Changing behaviour depends on the overall trade-off between these different aspects of eating and not only on the health aspect. Taking this into account, integrating advice is more likely if no or only little change in behaviour is necessary. Therefore changing one's habits can be regarded as costs for a healthier diet. [12]

2.2 Key results of the study on improving the supply of folic acid

The second study aims at investigating the reception of educational information related to a healthy diet and its impact on behaviour. Thereby the results of both studies can complement one another. To analyse impacts of education, folic acid is an adequate example because of the reasons given below:

- Folic acid has an impact on cardiovascular diseases as well as on neural tube defects arising during pregnancy. A discussion on this twofold effect allows separating the impact of information in every day life and in a situation characterised by the special responsibility of a mother for her unborn child.
- The relevance of folic acid in the context of cardiovascular diseases is nearly unknown to consumers. Therefore it is confirmed that the participants were confronted with new information.

3 Compare ROHMAN and RENN (2000, p.16), BELTON (2003, p.3); POWELL and LEISS (1997, p.27).

- Although folic acid is a B-vitamin, the unfamiliar name impedes the identification as a vitamin⁴. [13]

Additionally, supply with folic acid is of relevance for German precautionary health policy as 60% of the population lack folic acid, so there is an urgent need to improve supply (BURGER et al. 2004, p.318). [14]

To analyse the effect of information, the participants were given a leaflet with a detailed description of the characteristics of folic acid, its relevance for human beings, and necessary daily intake. Furthermore foods and beverages high in folic acid were mentioned. The reactions can be divided into the perception of the educational advice and the reaction to it. Related to the former, the following effects were identified:

- The presentation of new information makes consumers insecure. This applies in particular to information on vitamins because people tend to estimate their knowledge about vitamins as high (VOGELSANG 1996, p.269). The effect may be amplified if feeling insecure is not limited to the single nutrient: The new information can question a lot of the perceived knowledge on nutrition. This is valid especially for those consumers who think they are adequately informed about nutritional issues.
- Primarily those consumers who evaluate their own diet as well balanced feel criticised by educational information. The perceived criticism does not only refer to information activities but also to eating behaviour. Thereby the self-perception may be hurt if eating is a relevant part of life for the consumer.
- Education that uses diseases to strengthen its impact on behaviour can frighten consumers. Particularly dreadful and unknown diseases lead to an increase of fear and of the perceived risk of becoming ill (BARTH & BENGEL 1998, pp.27-29). Even if consumers are confronted with threats they do not know, pure words can form images in their minds and affect them strongly (KROEBER-RIEL & WEINBERG 2003, p.355)⁵. In case of folic acid, young women were especially scared by images of neural tube defects⁶, so folic acid becomes closely related to the fear of getting a disabled baby. [15]

In terms of costs and benefits, the discussions revealed once more that perceiving new information can be accompanied by confusion and fear of illness. Confusion and insecurity is not necessarily limited to a single nutrient but it can refer to the whole diet and thus increase the costs of information. In addition, information processing is time intensive. Again a close relation to everyday life was revealed as a necessary condition for a benefit of information. [16]

4 The questionnaire identifies 84% of women who did not know that folic acid is a vitamin.

5 The fact that information can be memorised as images is called imagery (KROEBER-RIEL & WEINBERG 2003, p.351). Imagery occurs both at perceived pictures and abstract stimuli like words and sounds. The clearer and more vital the images, the stronger they affect behaviour.

6 In German the popular name for neural tube defects is "open back" (*offener Rücken*). Even those participants who had never seen a real picture formed a frightening image out of these words.

In case of pregnancy, an improvement of supply is commonly accepted. But there is no need for a significant change in behaviour as the high demand for folic acid during the first month of pregnancy is normally met by help of supplements in form of tablets which allow sticking to previous patterns. [17]

In case of cardiovascular diseases, different strategies could be identified to overcome the problems of information overload and the persuasive character of education. These strategies can be described according to the three steps of the information process: 1. reception, 2. processing/judging, and 3. implementation.

1. In the stage of reception, consumers can ignore or alter education.
 - Consumers select information due to their attitude, nutritional conviction, and eating behaviour. Against the background of information overload and ambiguous information, it is easy to ignore new information.
 - Consumers can postpone a decision by requiring more information. This strategy especially occurred in the quantitative questionnaire. 73% wanted more information on the unknown folic acid. However, it seems unrealistic that all of them tried hard to get further information later on. With this strategy they do not have to deny the problem but they do not have to change their behaviour, either.⁷
2. While processing and judging the content of educational advice, consumers employ several defence strategies against persuasiveness.
 - Consumers do not question the overall risk but they deny personal relevance. Other people with a less healthy diet are supposed to be affected by that problem.⁸ In group discussions participants mentioned e.g. Americans, young or less educated people eat fast food. A strategy of denying personal relevance allows to accept the information without being forced to change behaviour⁹.
 - Consumers classify the information as less important. It is put into perspective with information on other risks and other advice in the scope of ambiguous information and the need for the media to find news. This way, the perceived importance of the looming risk can be reduced and it might appear as just another trend in nutrition which will disappear soon.
 - Consumers try to cope with the risk by intellectual deliberation. Collecting information and processing it intensively makes consumers feel that they know how to handle the risk and how to control the underlying problem.

7 A high percentage of respondents who requested more information are in line with other questionnaires. But it lacks face validity. So it seems an adequate interpretation that people want to be informed but do not try hard to become informed.

8 These results are in accordance with those in the field of preventive health behaviour. Unrealistic optimism occurs as a typical strategy against the personal relevance of food related risks. People underestimate their own risk of becoming ill compared to the average risk (SCHWARZER 2004, pp.30-31; BARTH & BENGEL 1998, pp.29-32). The optimistic bias can depend on false information or on defence against fear and the protection of the self-concept. It may often be functional for every-day life but it is assumed to damage health in the long run (SCHWARZER 2004, p.32).

9 Compare BARTH and BENGEL who classify perception of personal health risk as a necessary, but not effectual condition for intending precautionary behaviour (BARTH & BENGEL 2004, p.29).

Perceived knowledge can lead to the impression that knowledge based reactions are possible even in case of harm.

3. A strategy to avoid the implementation of information and advice is to delegate responsibility for an adequate nutrition. This strategy can be observed between married couples or between parents and children. It allows consumers to stop the information process and to delegate the change of diet to somebody else. This behaviour conforms to the basic principle of enjoying eating without thinking and is not connected to any mental costs. [18]

The strategies described above show that parts of consumers do not obtain a net utility from being informed and interrupt the implementation process. The qualitative results are in line with several nutritionists who admit that nutritional education has failed (cp. VAN EIMEREN & MIELCK 1995, p.253; DIEHL 2000, p.5; PUDEL 2003, p.46).¹⁰ [19]

Nevertheless, these results do not deny advantages of providing detailed information. Consumers can benefit from satisfaction of information needs and from signalling that recommendation is based on scientific research and thus reasonable. This is in particular valid for those consumers who are involved in health, nutrition, or foods. But the results show that information is not essential for consumer benefits. [20]

3. Other Approaches for a Reduction of Food Borne Risks

To achieve the objectives of a precautionary health policy, it does not seem necessary that people know anything about nutrition if they choose the right food.¹¹ Taking this into account, education is just one of the possible strategies to make people buy foods and beverages that have a positive influence on their health. Other strategies can aim at simplifying and selecting information in order to facilitate information processing and change of behaviour. Those strategies consider that a lot of people lack motivation and ability to process food related information that aims at changing behaviour.¹² Furthermore, altering food products can help consumers to improve their diet. [21]

3.1 Improving diet related information

The empirical results reveal opportunities to lower the costs and to increase the benefit that consumers expect from informing themselves. Based on the results

¹⁰ Even on the 50th anniversary of the German Nutrition Society, whose aim is to coordinate and assure the quality of nutrition education in Germany (DGE 2004), PUDEL (2003, p.46) concluded that education has not reached the intended objective.

¹¹ This is supported by the Low-Involvement-Theory of KRUGMAN which explains that information is able to alter behaviour without the intermediate steps of processing the information intensively and changing attitudes (SCHENK et al. 1990, p.20).

¹² The Elaboration-Likelihood-Model by PETTY and CACIOPPO assumes that attitudes can be changed by a systematic elaboration of the presented arguments as well as by heuristics and conditioning without intensive processing. Which kind is chosen depends on the motivation and ability to elaborate (cp. PETTY & CACIOPPO 1986).

of both studies, the following aspects should be taken into account when designing information campaigns:

1. Precise tips on how to integrate recommended foods into the diet lower the cost of information and raise the benefit. The more concrete the specification of foods, portions, and preparation the less confusing it is for consumers.¹³
2. The way information on foods is presented has an influence on costs. Compared to pure education, nutritional entertainment attracts more attention and raises the willingness to cope with nutritional issues. This approach is already realised, particularly in German private mass-media. "Edutainment" can be both a way to illustrate consumers' healthy eating habits and a solution for nutritionists and consumer advisors to present important information.
3. Using attractive pictures helps to emphasise the benefits of a healthy diet. Information on nutrition can point out the impact on desirable feelings like vitality, fun, and well-being. Thereby, it links a healthy diet to an attractive target whereas a strategy that focuses on preventing diseases connects eating to illness, lowers the pleasure, and causes mental costs.¹⁴ The willingness to cope with a healthy diet depends on the images that are attached to information.¹⁵ [22]

Simplifying and selecting information as well as connecting a healthy diet to attractive images cause the problem of credibility. Edutainment and advertising in favour of some foods may be perceived as a marketing trick. Therefore it requires trusted institutions to enhance the success of these strategies.¹⁶ [23]

3.2 Changing circumstances instead of behaviour

Another alternative to improve precautionary health policy is to influence the composition of convenience products. According to this approach, a change of diet is possible without a significant change of behaviour. Two examples illustrate the scope of improvement: [24]

1. Functional food. Consumers have the opportunity to choose healthier food that is comparable to the food they have chosen before with respect to usability and taste. So there is no need to change consumption habits. The rising market share of functional food indicates the acceptance of functional food for improving diet (cp. DUSTMAN 2004). The questionnaire on folic acid also validates the overall

13 Those findings of the group discussions are comparable to PUDEL's statement proposing the design of more concrete and attractive nutrition information (PUDEL 2003, p.46).

14 Consumers who do not know folic acid create a negative image based on the words folic and acid: They associate it with something foul and acidic. The preference could be increased by using the term "the vitamin folic acid". Thus consumers will be able to classify it as a "good nutrient" and the image will be improved. This becomes important when folic acid is labelled on foods.

15 A good example for the effectiveness of attractive images is advertising in which emotionalising of products is an established strategy for provoking behaviour (BÄNSCH 2002, p.13; KROEBER-RIEL & WEINBERG 2003, p.128).

16 The issue of trust in institutions is broadly dealt with in the context of risk perception and food safety.

acceptance of enriched food. One out of two consumers is willing to purchase foods enriched with folic acid although the vitamin does not fit into all the products (Figure 1). At least 85% of women are willing to purchase one of the suggested foods.¹⁷

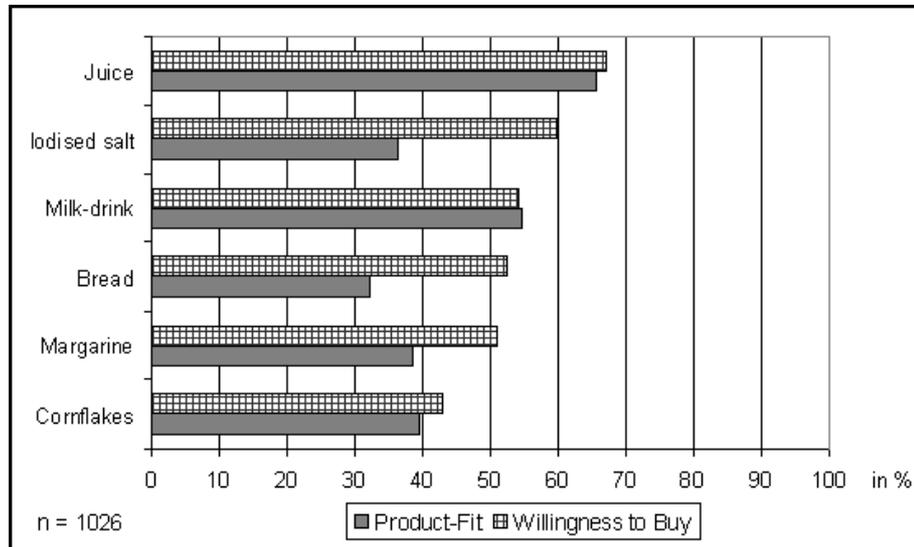


Figure 1: Product-fit and willingness to purchase selected foods enriched with folic acid (Source: own survey, 2003) [25]

2. A slightly new trend in Germany can be observed in the field of junk food. Fast food companies have modified their range by promoting salads, fat-reduced burgers, and fruit bags (DEAK 2004, p.471). This facilitates the choice of healthier food without moving to another restaurant. For example, the company Subways competes with burgers by offering sandwiches associated with a healthier image. [26]

Consumers can neither evaluate the impact of a single product on their health nor can they control the validity of advertising and claims. As a consequence, there is an enormous scope of fraud on the side of companies and mistrust on the side of consumers. To make consumers buy those products, producers have to build up credibility and reputation in any case. In addition, public institutions can control product features and claims¹⁸ in order to reduce the probability of fraud.¹⁹ [27]

17 In the context of the research on folic acid we surveyed nutritionists with regard to their attitude to functional food and dietary supplements. The results show that particularly those nutritionists who work for publicly funded institutions do not support functional foods and supplements because they allow people to stick to their unhealthy habits. But against the background of information overload and the reluctance to change behaviour it may be better to achieve small efforts to reduce health risks compared to failing to achieve a big effort.

18 The public responsibility of the government is expressed in the Proposal for a Regulation on Nutrition and Health Claims on Foods by the European Commission.

19 In economic literature the underlying problems arising from missing market transparency due to asymmetric information with respect to product features as well as the instruments to cope with that problem are described among others by AKERLOF (1979), NELSON (1970) and DARBY and KARNI (1973).

Public institutions can be a help for food companies with respect to improved credibility and reputation. Hence, public institutions could also influence research and development of the food industry. [28]

4. Summary

This paper analyses several aspects of information on nutrition within a framework of costs and benefits for consumers. Information can help consumers to act according to their health. On the other hand the analysis reveals that there are a lot of costs for informing oneself, e.g. reducing the pleasure of eating, confusion, fears, or insecurity. Since the costs often exceed the benefits, consumers implement nutritional information insufficiently into their dietary patterns. With respect to changing behaviour it has to be considered that eating is a multidimensional activity and does not just refer to health. Consequently the success of an educational approach to precautionary health policy is limited. [29]

Strategies to improve precautionary health policy can lower the cost and stress the benefit of changing the diet. This can be achieved by selecting and simplifying information and by adjusting them to the needs of consumers. Another approach is to change the composition of products and thus to facilitate a healthier diet without significant changes in behaviour. The successes of these strategies depend on credibility of and trust in public institutions and companies. [30]

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