

MODELS OF FOOD CONSUMPTION BEHAVIOR IN THE ELDERLY

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ABSTRACT

Aging is not only a challenge for food producers, but also provides a treasure trove of new opportunities for product development and innovations. We have designed a prototype model of food consumption of the elderly with the goal of calling the attention of producers and growers to the specific needs of this growing market segment. However, the food consumption habits of the elderly cannot be compacted into a single model, since this specific age group is not homogenous. By designing hypothetical models we are hoping to facilitate the further research of the issue. In the near future we want to test and try our general models in practice, involving the producers as well as the consumers. The models point at the specific needs of aging populations and their choice of food products based upon reasonable decisions and focusing on the future. Considerations of the future perspective are an important feature of this behavior, since it might significantly improve the quality of life and health awareness of the elderly, their decisions in the field of consumption, and ultimately their general health and welfare conditions.

Keywords: aging population, food consumption behavior model, longevity

INTRODUCTION

The *food consumption habits* represent a specific feature of the consumer's behavior in many respects. Firstly, they are directly or indirectly linked to the human existence; secondly, they result from historical, biological, social and cultural processes; and thirdly they represent one of *the most complex forms* of human beings. The rationality of eating habits is limited, since the information available to individuals and/or the public is not comprehensive: sometimes consumers have little information and sometimes they are flooded with too much. The limited ability of individuals to analyze and evaluate information, the reliability of information and the asymmetric information flow amongst the market actors just accentuate this fact. The specifics of decision-making in small communities make the overall mosaic even more colorful. The limited ability to absorb information (prior to, during and after consumption) and the consequent perception and observation (experience, knowledge, recollections etc.) lead to a distortion rather than a crystal clear rationality, and this distortion might even be further exacerbated by unconscious factors.

The differences between the consumption habits of the young, middle age and elderly generations are *undoubtedly clear* (Cseres-Gergeely and Molnár, 2008). Aging as a universal process has generated new requirements for food production and

processing, as well as for the production of cooking tools. Nevertheless, marketing has continued to focus *primarily on the younger generation* and has seldom noticed the demands of *the elderly*, even though they represent a great market potential. Developed countries have taken notice of the aging society and have started to adapt their strategies to their new needs by introducing “senior-friendly” products to the goods and services market (Pettigrew, 2005). These rapid changes have raised the question: to what extent will the goods aimed at the current seniors suffice the needs of *future seniors*. Expenditures in developed countries indicate that so far, foodstuffs have represented a major share in the overall consumption, but we can realize signs of a decreasing trend. We are living in a time of expanding goods and services not linked directly to simple subsistence. In general we can say that a part of income spent on foodstuffs (with some exceptions) has been decreasing and we are facing a quantitative saturation (Keszthelyiné, 2004; Lebot, 2004). The desire to preserve good health is a new phenomenon of growing importance. We can presume that the Hungarian society will also start paying more attention to the quality and origin of the goods it buys.

RESULTS AND DISCUSSION

Contemporary ageing: empirical evidence from Hungary

Ageing (statistical point of view, the increase of old people within the population) has been the most perspective demographic process since the end of the last century. We can anticipate with high probability that its deep and long standing effects entangle the whole society. Ageing process has a diffusive character. Since its emergence, ageing has been spreading spatially, too from highly developed countries to less developed ones (among them situated in Hungary). The diffusion of ageing is an uneven process. The timing and mechanisms of appearing, the development of the process varies countries to countries. In spite of the heterogeneity, the start of ageing process easily provable with data and in help of analogues of similar countries erected from the past we can forecast the near future trends. However, it should be noted that it is hard to prepare for the potential consequences. The continuous falling trend of total fertility rates in line with the growing life expectancies at birth and other ages play the fundamental role of the start of ageing process within a closed population. Whereas, the before mentioned processes might happen in the context of growing population number in absolute sense, at first sights the problem of ageing does not seem so grave. Ageing has potentially high policy relevance, but the long term effects of ageing it hard to convince the decision makers and generally the public opinion that it is time to make efforts in order to avoid the negative consequences of ageing.

In Europe and the rich part of the World the ageing process has been transforming a completely new stage. The temporary advantages of ageing disappeared and the negative consequences played the dominant role. Behind the deteriorating dependency ratio we can find the decrease of active population in line with the increase of inactive ones, and within the inactive population the share of children fell and the proportion of pensioners expanded. The highly rising social and health expenditures combined with the decreasing fertility and population loss.

From historical perspective in 1869 one in twentieth was 60 years and over during the first modern population census. After one and a half century one in fifth Hungarians was old in relative sense. The long term distribution of population by gender and five years age groups provides us a mosaic picture on the ageing process. From analytical angle the indicators help us more deeper understanding than simple shares. We can judge better the level of mortality with the use of average age, dependency ratios, index of ageing and life expectancy. All indicators have inevitable shortcomings. We chose among the indicators the life expectancy at birth and other ages in order to we concentrate on the more recent changes in longevity.

Table 1 shows the longevity has been increasing since 1949 except for the period of 1960's and 1970's in Hungary. At 2009 the life expectancy at birth was higher with nearly 13 years than 1949. However, the increase was uneven in the period investigated due to the epidemiological crises characterized the second half of the socialist epoch (Uzzoli, 2003; Daróczy, 2007; Pál, 2007). If we analyze the gender differences we can conclude that the female life expectancy at birth was over than male counterpart. Perhaps the most interesting findings that the four-year gap measured the initial period broadened out 8 years. Table 1 demonstrates that the epidemiological crises overtook males with higher extent than females. We can conclude that in medium term the life expectancies at 60, 70 and 80 ages increased significantly. We also find that the absolute values of growth naturally decreased (2.80; 2.54; 1.51). The increase between 60 and 70 ages was expressive and it was mainly caused by the improvement of women life expectancy. Men with exact age of 60's value increased slightly (0.79). All in all, the longevity as one of the component of demographic ageing has been spreading widely and the age structure of elders has been becoming older and older.

Table 1

Life expectancy at birth and other ages from 1949 through 2009 in Hungary

Year	At birth			60 year-old			70 year-old			80 year-old		
	male	female	together	male	female	together	male	female	together	male	female	together
1949	59.28	63.40	61.36	15.82	17.11	16.52	9.79	10.42	10.14	5.31	5.61	5.49
1960	65.89	70.10	68.03	15.60	17.55	16.67	9.40	10.39	9.96	5.03	5.45	5.27
1970	66.31	72.08	69.20	15.19	18.19	16.78	9.22	10.88	10.17	5.10	5.69	5.46
1980	65.45	72.70	69.02	14.58	18.32	16.56	8.88	11.19	10.17	5.03	5.92	5.59
1990	65.13	73.71	69.33	14.72	19.02	17.03	9.47	11.81	10.83	5.27	6.27	5.91
2000	67.11	75.59	71.33	15.29	20.04	17.90	9.94	12.59	11.59	5.85	6.90	6.53
2001	68.15	76.46	72.32	15.97	20.65	18.56	10.37	13.09	11.99	6.01	7.05	6.69
2002	68.26	76.56	72.43	15.98	20.74	18.61	10.39	13.12	12.01	6.05	7.05	6.70
2003	68.29	76.53	72.43	15.79	20.61	18.45	10.22	13.01	11.88	5.93	6.92	6.58
2004	68.59	76.91	72.78	16.06	20.86	18.72	10.46	13.24	12.12	6.01	7.03	6.68
2005	68.56	76.93	72.76	16.04	20.85	18.70	10.43	13.19	12.08	5.97	7.04	6.67
2006	69.03	77.35	73.21	16.30	21.13	18.97	10.73	13.49	12.38	6.08	7.18	6.81
2007	69.19	77.34	73.30	16.31	21.23	19.02	10.62	13.59	12.39	6.05	7.23	6.83
2008	69.79	77.76	73.83	16.58	21.44	19.27	10.90	13.75	12.61	6.19	7.33	6.94
2009	70.05	77.89	74.03	16.61	21.51	19.32	10.95	13.83	12.68	6.24	7.39	7.00

Source: Hungarian Statistical Office, Demographic Yearbook, 2010

The ageing process has become one of the main population challenges in Hungary (Józsan and Katona, 2003). The weight of the population problems depends on the authors' values and norms, too. In a widely quoted study of Valkovics and Tóth (1996) distinguished ten fundamental population problems in Hungary, in which the population ageing and its consequences was situated in the fourth place following the decrease of population number, the low fertility level and the relatively high mortality. Thereafter the level of mortality has been continuously falling (Józsan, 2006) so as to the ageing got somewhere the third place. According to our opinion the pure demographic process of ageing is not a problem regardless from the economical, social and political context. If the individuals are getting higher and higher ages, in general it is a joyful phenomena. Only some consequences of ageing can be judged as the source of tension or potential possibility in society. We can anticipate that among the potential possibilities the change in the structure of elderly consumption will be crucial challenge.

Ageing is not only a challenge for food producers and consumers, but also provides a treasure trove of new opportunities for the research of product development and innovations. We have designed three prototype models of food consumption of the elderly with the goal of calling the attention of producers and growers, as well as, consumers to the specific needs of this growing niche market segment. However, the food consumption habits of the elderly cannot be compacted into a single model, since this specific age group is not homogenous. By designing hypothetical models we are hoping to facilitate the further research of the issue. In the near future we will test our general models in practice, involving the producers as well as the consumers. In this paper a simplistic concept of model is used. It should be as complex as its mechanical analogue, which includes not only the elements and their inner connections but also that of forces and inertia.

The healthy food consumption has a big role in the continuous increase of average lifetime. The additional part of our study deals with the models of a supposed food consumer behavior of the elderly age, because the examined *age group manages unique food consumer qualities. Recognizing the fact of the elderly society there is need that the food producers and distributors are able to adapt to the new needs. They should create different friendly products for elderly and popularize them. The factors defining the elderly food consumption are modified. The health-consciousness and quality orientation is constantly growing in the elderly society. The elderly consumer beside the traditional products often looks for the organic foods and the functional foods, too. In the elderly consumer the food does not mean the essential element of his subsistence, but it is a part of a conscious health maintainer lifestyle.

Time related aspects of food consumption by the active elderly

The conceptual scheme in this chapter represents the time-related aspects of *food consumption by the active elderly* and the long-term changes in the habits of this same group in three different time periods: in the past, at present and in the future. The *Figure 1* also includes *the general factors* we consider relevant in this aspect.

The most *significant determinant* of food consumption in the *past* was the strong influence of experience and standards. Due to lack of *information, experiences and traditions* were inherited from fathers/mothers by sons/daughters. The under-developed delivery

and trading methods were not able to ensure unlimited access to food products originating from different geographical areas. Many food products were available only seasonally, since their shelf life was limited. The purchasing methods were also limited: most often the consumers bought products directly from the producers. Before the development of a global economy, there were only *local and/or regional markets*. However, the past factors were also an advantage for many reasons, e.g. buying directly from the producer in an open-air market made the buyers feel safe about the origin and the freshness of the product. In the past, consumers strived for extending the shelf life of products and in order to achieve this they used different procedures and storage chambers, according to actual experience and possibilities.

The *modern era* can be characterized by an unlimited flow of *goods and information*. The changes that have taken place in the food market in recent decades, as well as those to come in the near future, are resulting from the following processes: aging population, increase in the number of single-member households, improved health care, changed employment structure, rapid development of technology, increase in international traveling and the increasingly important role of the media.

Since the start of *first demographic transition* (i.e. the last quarter of the 19th century), life expectancy has increased significantly in Hungary. This process can be associated with the changed lifestyle and improved standard of living. In addition, the population is well informed by *medical scientists* about different factors causing diseases, and this logically has led to a change in our dietary habits (e.g. massive increase in allergies, sensitivity to foodstuffs, high mortality rates due to cardio-vascular diseases, gastroenterological disorders etc.). In many cases, however, one of the consequences of the efforts to extend the shelf life of products is the excessive use of preservatives in food products, which may cause allergic symptoms. One of the distinctive features of the present time is the unlimited food supply. The seasonality (the original indicator of the rhythm of life over the year) is slowly fading away. This is due to exporting and importing, and also to the fact, that irreconcilable distances no longer exist (*Simai, 2007; Nemes Nagy, 2009*). This is partly a result of increased *international traveling* (*Rátz et al., 2008*), and partly due to the expansion of food store chains, which offer a broad product selection throughout the year.

Our objective is to outline a possible scenario of the future based upon present considerations (*Nováky, 2006*). In all likelihood, the change in the structure of consumption will continue. Focus on the near *future* (as a key factor of behavior) will be a *typical feature of elderly consumers*. This can have a very serious impact on their health awareness, health-related decisions and the development of their health conditions. Information on food and nutrition based on the most recent facts might become an important sector of mass media activities, since once provided with the necessary information one could actively contribute in the preservation of his/her own health.

In general we can state that a new wave of purchasing and consuming habits is unfolding and influencing the behavior of the middle-age generation, and in time, it will integrate into the everyday habits of the elderly consumers. The *key characteristics* of this new wave are the following:

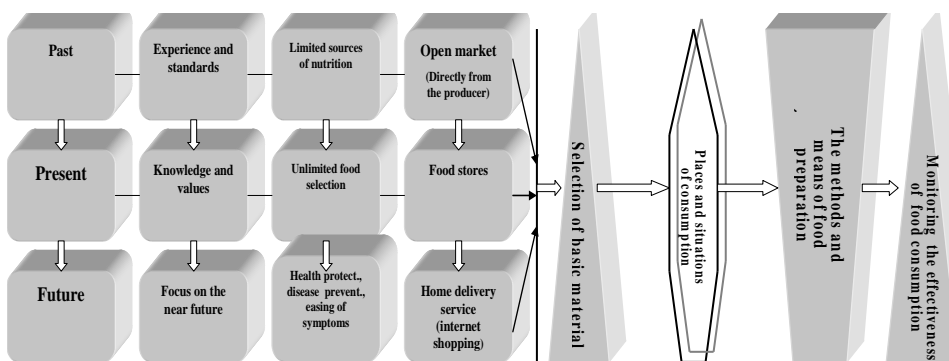
- Increasing popularity of natural products (“bio”);
- Increasing demand for functional food products;

- Increasing interest in the healthy life style (i.e. physical activity, diet...);
- Increasing sale of “convenient” products with short preparation time;
- Lessening of time spent shopping;
- Possible increase in the time spent preparing food;
- Preferring “at one place, once a week ” shopping;
- Increase in eating out options.

The last phase of the conceptual scheme depicted in *Figure 1* indicates “usefulness” as one of the aspects of food consumption by the elderly. In the past, this factor was not the focus of attention, when the goal was mere nutritional survival. However, in the present and in the future, the improvement of the quality of life will become increasingly more important. The priority for the consumer will be to rank the product characteristics by usefulness and effectiveness. These can be determined upon the previous information and experience the buyer had available. The key characteristics of food products are specifically important, including taste, freshness, healthiness and also the price. In regards to the uncertainty factors, we need to understand, that it is not possible to define elderly consumers in general, because this age group is highly heterogeneous. In addition, the mental state, income situation, health condition of a person varies and, depending on these factors, one may often reconsider the usefulness and effectiveness of food products. Therefore if we want to maximize the value of a product, we need to carefully monitor the changes in the consumption habits of this fragmented target group, as well as the characteristics of the products intended for it.

Figure 1

Time-related aspects of food consumption by the active elderly



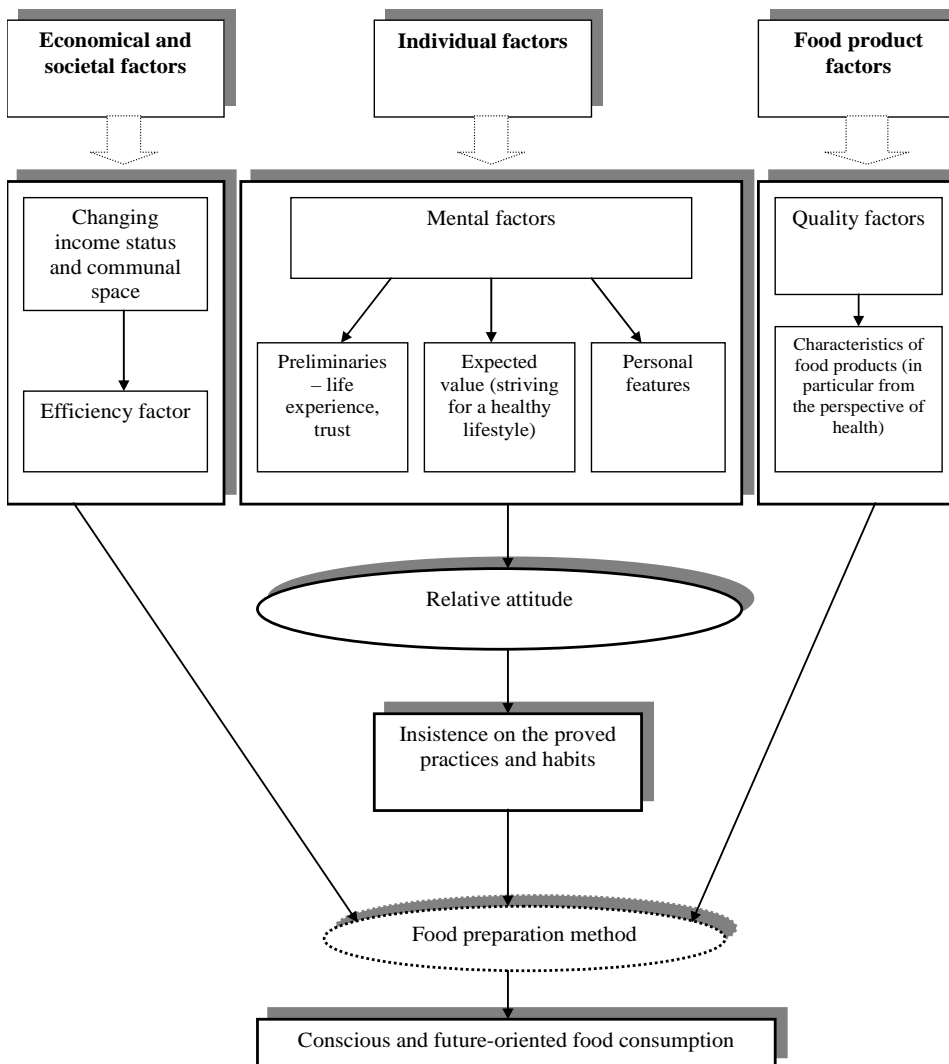
The future oriented model of quality and healthy food consumption behavior by the elderly

The model represented in *Figure 2* has three fundamental starting points:

- Economic and societal (cultural) factors;
- Individual factors;
- Food product factors.

Figure 2

The future-oriented model of quality and healthy food consumption by the elderly



The model has been elaborated based upon the classic *Pilgrim* (1957) model of *food consumption behavior*. The fundamental determinant of this model is perception. The model starts from the mental and chemical characteristics of a food product influencing the physiological needs. While shopping and eating, one is striving for a balance between the perceived reality and objective reality (cognitive dissonance). This indicates that there is often a difference between what we think in relation to food consumption and what we actually do.

Analyzing the *economic and societal factors*, it is important to take into consideration the changing income situation of the elderly and their relationships with spouses and any household members. Given this changing situation, the elderly have to be efficient and balance consumption with income.

The *health condition* of the Hungarian population had alarmingly worsened before the change of the political regime (Gaal, 1998). Interestingly, since the mid-1990's, there has been an unexpected improvement in the Hungarian mortality rates (Józsan, 2008), which has stabilized and indicates the improvement in the general health state of the population. The accelerating speed of life also requires education about what constitutes a healthy lifestyle. To a great extent, maintaining good health results from conscious efforts, since a person is not only a passive sufferer of outer conditions that make him/her feel good/bad, but also is central in creating these conditions.

The *individual factors* are evidently mental factors. We defined three subcategories in our research: the specific cognitive factors, perception factors, and the influencing factors including motives. The fundamentals of the specific *cognitive factors* are the importance of health (relative importance), external health control, and the perceived health condition. The mental factors are associated with relative attitudes towards a product, i.e. they indicate the relation of the consumer to the food product (Hofmeister-Tóth, 2006; Törőcsik, 2006). Since the shaping of *attitudes and how* they can be changed precede knowledge and learning, marketing can play an important role. The effective use of communication along with personal habits rooted in a cultural context can draw attention to the importance of the methods of preparing food. The information flow facilitates food consumption in line with healthy lifestyle standards and considerations of rational values (Szántó, 1998).

Developments and process expected in the near future

The *fundamental factors relating* to food products include food quality factors and food product characteristics. When designing their quality model, Csete and Láng (1999) tried to capture all distinctive dimensions of quality. According to their interpretation, quality is the result of a complex and multi-faceted process with various different aspects, including biological, technical, technological, health, consumption, marketing, nutritional, environmental, food safety etc. In a concise wording: Quality is the suitability for the purpose.

It is increasingly characteristic for the category of consumers with a higher level of health awareness to draw back from mass-produced goods and to demand products with a higher added value and special quality meeting their specific dietary needs. When we talk about quality, firstly we refer to advantages of nourishment, and secondly to the natural origin, value for the consumer and reasonable price – briefly the marketability (Lakner and Sarudi, 2004). Food producers develop *functional food products and modify their composition* - some ingredients are decreased, others are increased. Such food products can positively influence a number of physiological functions, which will improve health and general wellbeing and decrease in the risk of certain diseases (Szakály and Berke, 2004). In addition to nutrition, the purpose of functional food products is to improve immunity, prevent certain diseases (e.g. high

blood pressure, diabetes), facilitate the recovery from certain diseases, maintain good physical and mental condition and modify the process of aging.

Evidence of the aforementioned interrelations is currently available. For example it is generally known that fruits and vegetables of different color contain the most antioxidants, which improve the *immunity system* and *life expectancy*, but they do not slow down the aging process. A strict diet (1,500 calories a day) consisting of mainly fruits and vegetables not only decreasing the body temperature and eliminates the feeling of hunger, but also slows down aging (*László and Falus, 2002*). The aforementioned examples indicate the specific needs of the elderly and help us to arrive at the shaping of a conscious and future-oriented choice of food products. Orientation to the future (as a behavioral element) is an important factor (*Hideg, 2007*), because it (as a mental attitude) can have extremely serious implications on the health awareness of the elderly, their health related decisions and thus also on their *progressive health condition*.

CONCLUSION

Global development and prosperity will result in the rapid aging of populations in countries that have recently experienced a demographic boom, which makes aging a “global challenge”. The elderly period of life is not simply a qualitatively new situation nor only important for those concerned, but it is a challenge for the entire society. This new situation can be characterized for example by different needs of the elderly consumers associated with their new situation in life, increasing need for special nutrition products and ultimately the change in their structure of consumption.

In essence, aging is a positive process and an excellent indicator of social and economic development. The drop in the number of children and juveniles in societies going through a transformation from traditional demographic development to a current type of society relieves the productive-age generation from the burden of being the breadwinners, increases the level of their professional activity and favorably affects the supply of labor. This phase of life can thus be experienced as prosperous and joyful.

The behavior of food consumers has a special position within the general consumers' behavior for several reasons: firstly, it is directly or indirectly associated with the survival of mankind; secondly, it results from long-lasting biological, social and cultural processes; and thirdly, it is one of the most complex human behaviors. The difference between consumption by young, middle-age and elderly generations is indisputable. The universality of the aging process brings about new criteria for food products. In regards to the interest in new food products we can observe the development of two parallel directions: interest in the consumption of bio-products and enriched and fortified foods. At first glance these refer to two different categories of society. Consumers of bio-food support eco-farming and the protection of health and environment. The customer preferring fortified and/or functional foods presumably accepts genetic modification, since the most intensive effects can be achieved that way. They consider themselves to be modern people requiring the latest scientific achievements.

Factors directly affecting food consumption behavior include biological, mental, sociological, anthropological, demographic, economic and political factors. Due to

globalization and accelerated lifestyle it is not sufficient any more for production companies to have a general knowledge of the market. Much more important is to identify the specific market segments of customers. The rapidly growing number of the elderly requires food producers to give priority to the specific needs of this market segment. This is closely connected to the fact that the needs of the elderly differ from those of other age categories, and their needs represent the foundation for targeted marketing. Health awareness and a focus on quality keeps increasing and providers have to face new challenges every day. Consumers (including the elderly) receive a broad range of information on what constitutes a healthy lifestyle and pay special attention to the prevention of illnesses, which also affects their attitude towards food products.

The question we raised during our survey was aimed at establishing which elements of the previous traditional models could be incorporated into the new model and what components could complement the hypothetical behavior models of food consumption by our target group.

A new wave of purchasing and consumption habits has been developing, which not only affects the behavior of the middle-age generation, but can also be incorporated into the day-to-day habits of the elderly:

- the popularity of natural (“bio” etc.) products is increasing;
- there is a growing demand for functional food products;
- more and more people pay special attention to healthy nutrition;
- the sale of “comfort” food products requiring short preparation time is increasing;
- people spend less time shopping, the general preference is to buy food for one week at one place; and
- there are more possibilities to eat out.

For the elderly consumers, food products are not just an issue of subsistence, but also a conscious process aimed at maintaining their health and preventing illness. We started out from the traditional food consumption behavior model by *Pilgrim* (1957). The model represented in *Figure 2* has been developed on the basis of three major indicators: economic and social (cultural) factors, factors associated with an individual, and factor associated with a food product. The latter include aspects of food quality and other food properties. Consumers with increased health awareness typically reject mass-products and specifically seek high quality products with a higher added value satisfying their special nutrition needs. When we talk about quality, we have in mind certain nutritional benefits, the natural origin and properties making the product enjoyable, and its reasonable price. In aggregate it means the product’s marketability.

The designed models make it possible to draw a conclusion as to the specific needs of the elderly, and can also lead us to a conscious and future-focused choice of food products. Focusing on the future is a significant aspect of behavior, since this specific attitude can significantly increase the health awareness of the elderly, facilitate their health-related decisions and ultimately improve their health condition.

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