



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Hungarian consumer behavior analysis in terms of healthy nutrition

Krisztián Lőrinczi, Zoltán Bács and Adrián SZ. Nagy

Faculty of Applied Economics and Rural Development, University of Debrecen, Debrecen, Hungary, e-mail:
lorinczik@agr.unideb.hu, bacs@agr.unideb.hu, anagy@agr.unideb.hu



Paper prepared for presentation at the 113th EAAE Seminar “A resilient European food industry and food chain in a challenging world”, Chania, Crete, Greece, date as in: September 3 - 6, 2009

Copyright 2009 by [Krisztián Lőrinczi, Zoltán Bács and Adrián SZ. Nagy]. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Hungarian consumer behavior analysis in terms of healthy nutrition

Krisztián Lőrinczi, Zoltán Bács and Adrián SZ. Nagy

Faculty of Applied Economics and Rural Development, University of Debrecen, Debrecen, Hungary, e-mail: lorinczik@agr.unideb.hu, bacs@agr.unideb.hu, anagy@agr.unideb.hu

Abstract. *Food marketing should pay special attention to emphasizing healthy nutrition and lifestyle as a result of the lifestyle trends and bad dietary habits. Regarding the close relationship between consumer behavior and lifestyle, the influence of healthy nutrition on purchase decisions should be an important factor in the consumer purchase decision analysis. Soft drinks have a major role in the intake of liquids and energy necessary for life. A certain level of soft drink consumption can be part of a proper diet. The potential problems arise from excessive consumption endangering especially children and young people. In addition to the contents of soft drinks, the problem can be the displacing in consumption of other useful foods having an important role in nutrient intake. Consumers differ in their expectations toward the ingredients and content of soft drinks. This research aims to determine whether consumer groups can be differentiated based on their requirements. A countrywide representative analysis was conducted in Hungary in terms of the importance and the role of health factor by purchase decision process. According to the research it can be ascertained that perceived health and the consciousness of health plays a marginal role by decision. Based on the market research in terms of healthy way of life well separated prospective target groups can be found among the population in Hungary.*

Keywords: Consumer Behavior, Market Analysis, Health, Way of Life

1. Introduction

The civilized society of the modern era, the automated world, the information-focused internet-based society, market liberalization and globalization together resulted in a change in people's lifestyles and living conditions. In addition, the global economic growth of the last decades and the ever-increasing individualism of the consumers in developed and developing countries caused an increase in chronic or lifestyle diseases and in mortality due to these.

This phenomenon has enormous economic and social expenses. One major causing factor is the improper diet. In the past decades, huge, dramatic changes happened in the European eating habits. Schmidhuber and Traill^[1] describe that a trend can be observed when comparing the eating habits in the European countries regarding the nutrient intake that the energy intake significantly increased in the last decades, it exceeds the values recommended by the World Health Organization (WHO). Regarding the cholesterol, saturated fat and sugar intake, almost all European countries exceed the recommended levels. In the case of sugar, the threshold is 10 % of the total energy intake. Empirical studies have proved that a high ratio of sugar in the diet has unfavorable effects on health. Forty years ago, the level of sugar consumption was well below the threshold in the Mediterranean countries, in Belgium and in France, while it was significantly higher in the United Kingdom, Denmark and Sweden. By now, all European countries have approached or exceeded the 10% threshold. On the other hand, it can be mentioned as a positive tendency that the level of fruit and vegetable consumption has increased.

In the light of these, WHO has been striving to popularize healthy nutrition and healthy lifestyle for a long time. Each country should have a programme and policy aimed at these issues. Accordingly, programmes and measures were implemented in numerous countries of the world for popularizing health and healthy food consumption which were initiated by the WHO globally and by the governments. Here, the major role of education should be stressed, which can be performed by the family, via public education, society or media channels.

Of course, this applies also to Hungary and the popularization of healthy lifestyle and food consumption is a factor of increasing importance in the food industry. It is mainly food marketing which should identify this role and meet the expectations.

Via marketing, companies of the food industry can undertake a social role against lifestyle diseases, exploit a new market niche and acquire a competitive advantage at the same time.

Of course, in addition to the supply side, it is essential to study the characteristics of the demand side that is the consumer. Mapping of consumer behavior and differentiation of consumer groups based on this are essential for knowledge of the market and for performing the properly targeted marketing activities.

Cancer, cardiovascular diseases, high blood pressure, damages of the nervous system and obesity which are called lifestyle diseases are the predominant causes of all the mortality worldwide. According to Bhikha^[2], lifestyle diseases are such diseases which occur resulting from the way people live their lives. In developed countries and societies, these diseases become more frequent as economic growth starts. In one of his papers, Szakály^[3] discusses that these diseases are especially frequent in the developed Central-Eastern European countries which are prospering in these years. The same conclusions can be drawn for Hungary, since here the lifestyle diseases are also responsible for a great proportion of the mortalities. Research has proven that in many cases obesity is the causal factor of the lifestyle diseases. Over 30% of the cardiovascular diseases are caused by unhealthy eating habits.

The statement that economic growth, as opposed to public belief, conceals critical challenges and threats to the health and welfare of people and consequently does not necessarily results in development is thought-provoking.

History justified these hypotheses in the XIXth century in the case of Great Britain which was the epicenter of the first industrial revolution of the world. Even in a society, where voluntary humanitarian organizations and the social services are developed and the protection of poor from poverty and privation are central issues, the growth of trade, increasing wealth and luxury might cause an increase in lifestyle diseases also^[4].

The problem of lifestyle diseases is related to the questions of obesity and overweight as a significant portion of lifestyle diseases are the consequences of obesity and overweight. Obesity and overweight occur mainly due to improper dietary habits, the lack of exercise and unhealthy lifestyle. This phenomenon causes serious problems in many countries of the world. In the USA, more or less 80% of the population is concerned, while in Hungary this ratio is 50% which is also significant.

Obesity and the increase in the number of overweight people represent significant health problems. There are over one billion overweight people in the world and 300 million of them are critically obese. According to Nayga^[5], obesity develops due to the imbalance of energy, caused by too high calorie intake in the long run and/or too low energy use; this is where the question of lack of physical activities should be mentioned as well. With respect to the relationship between lifestyle diseases and overweight, this is a burning problem. Keefe and Cordain^[6] emphasize that the United States is the first in the list; two thirds of the people are obese or overweight due to the sedentary works not requiring intensive physical activities, people's lifestyles and dietary habits. According to experts of the Community Health Needs Assessment^[7], the number of obese or overweight people in the USA will be more than 80% in a few years. According to estimations, about 10% of the health system costs in the USA are directly related to obesity and the lack of physical activities.

Nayga^[5] analyzes further this topic for Europe, where these problems became a major topic also recently, especially in the United Kingdom, where the number of obese people tripled in the last twenty years. According to Biro and Biro^[8], this problem has a serious economic impact in addition to its social effect, as it results notable costs due to the relationship between lifestyle diseases and obesity. The economic aspects of diseases are the examination of the patients, costs of medication and hospital care, care for people at home and the missed working time.

The costs of the health system can be considerably reduced via reducing the frequency of diseases by popularizing healthy lifestyle and healthy diet.

In my study, I focus on one segment of food industry, on soft drinks and within this on carbonated soft drinks.

Among others, Hernádi^[9] mentions that the consumption of soft drinks has long traditions in Hungary, however, manufacturing of soft drinks does not have a long history. Mihály Laki^[10] writes in his paper that this industry started to grow in Europe and in Hungary mostly after World War II, and that this sector was also restructured with the economic growth after the change of the regime. Research on the consumption of soft drinks and their effects on healthy lifestyle are increasing. Research anticipated a

relationship between health and the consumption of soft drinks and non-alcoholic beverages in many cases. The United States does a pioneering work in this field, which is understandable considering that the situation is probably the most critical there. The consumption of soft drinks significantly increased in the last few decades.

According to a report of the Minnesota Department of Health^[11], soft drinks usually contain a high amount of refined sugar and therefore they have high calorie content. In addition, the consumption of soft drinks has a harmful dietary effect, they replace the consumption of nutritive foods and drinks, thereby, and they reduce the nutrient intake.

There are dietary experts, both independent and working within the soft drink industry, who stress that soft drinks and other nutrient-deficient foods can be parts of a healthy diet. In theory, they might be right, but moderation that is the amount of consumption is of major importance in this issue. A balance should be maintained between the consumption of foods poor and rich in nutrients. The research of Centers for Disease Control and Prevention^[12] states that many people consume high amounts of soft drinks with other nutrient-deficient foods having non-beneficial effects such as chips, sweets, fast foods. In addition, they consume low amounts of nutrient-rich foods which should constitute the majority of their diet.

In his extensive research on soft drinks, Jacobson^[13] found a relationship between high soft drink consumption and low vitamin intake (magnesium, vitamins A, C, B12, calcium) and high calorie, fat and carbohydrate intake. In addition, the large increase in the consumption of soft drinks coincides with the reduction in the consumption of fruits, vegetables and calcium-rich dairy products. Jacobson also mentions that a research of the United States Department of Agriculture (USDA) studied the amount of food intake between 1994 and 1996 in order to clarify the relationship between refined sugar and other nutrients. They concluded that it is proved that the foods and drinks with added sugar content displace nutrient-rich foods from our diet. In relation to this, they claimed that the amount of refined sugar should not exceed 10% of the daily calorie intake (recommended value: between 6% and 10%). For an average daily 2200 calorie intake, it means 12 teaspoons of sugar.

Based on these, the consumers should realize that via the consumption of processed foods, soft drinks, they consume significant amounts of added sugar. For supporting consumer awareness and rational consumer decisions, a demand arose for more detailed, easily understandable information on nutrients and health issues on the products. Problems may arise from excessive soft drink consumption due to their contents and because they displace other useful foods and thereby contribute to low vitamin, mineral and fiber intake. Excessive consumption is closely related to the great increase in eating at fast food restaurants. In harmony with these statements, recommendations can be prepared for the consumers on diet and lifestyle and the highlighting of these messages is an important task of marketing.

People should be aware of the amount of their soft drink consumption and in the case of excessive consumption, they should reduce it. In relation to this, distinctly visible, clear information of proper content can have a great influence on consumption and lifestyle as stated by Bergen and Yeh^[14]. Parents should buy healthy food which other members of the family can also enjoy, as the dietary habits of the parents have a great influence on those of the children^[15]. Health awareness and a corresponding menu should be demanded also from the restaurant chains by the governments. In a few American states, a minimal tax has been introduced for soft drinks, which can be a solution to a certain extent, but in any case, people should be made aware of the importance of health and diet^[13].

2. Method

I studied the consumer preferences of Hungarian people regarding the consumption of carbonated soft drinks and health awareness in co-operation with a Hungarian market research company. For collecting a representative sample from 1000 people, we applied the method of computer-assisted phone interviews. In this method, the interviewer fills in the questionnaire on the computer and the computer systematically assists the interviewer to carry out the interview properly.

When planning the quantitative research, I took into consideration the weaknesses of the different methods and the budget of the research in order to determine the survey method. The method of face to face interviews was refused due to its mistakes. Field work is hard to control, it is difficult to monitor and check the interviewers. At this method, there might be a risk of cheating by the interviewers and it has unreasonably high costs. Considering the above, I decided for the phone survey method. With this

method, the field work does not require a long period as opposed to face to face interviews. In order to increase verifiability and reliability of data, the calls were recorded so that they can be checked any time. In addition, phone survey makes it easier to obtain a representative sample, as the required sample can be easily determined by the quota method from the existing database. Of course, this method also has negative features; however, taking into consideration the above and last but not least cost efficacy, I applied this method.

In addition, I carried out an online card survey in order to map preferences regarding carbonated soft drinks. In this survey, 250 people were interviewed using another well-known method, the online questionnaire instead of the phone survey, among others due to the special nature of the survey. With the help of the conjoint analysis, I aim to gain a better insight into the preferences of consumers regarding the carbonated soft drinks. In the course of the conjoint analysis, the interviewees can feel themselves in a quasi-shopping situation, since the essence of the method is that the consumers consider the product alternatives of a product according to different characteristics and they have to qualify these product alternatives based on their preferences. Regarding carbonated soft drinks, three major product features were involved in the survey: trademark, price and sugar content as factors influencing the consumption.

The online survey was performed by using a panel of national level, which was verified by the nature of conjoint analysis, the reliability of available data and the possibility of verification. Here also, I determined the sample by the quota method for the sake of reliability and representative sample.

When determining the quotas, I considered four major demographic characteristics. I determined the proper quotas according to gender, age, settlement type and regional distribution by using data peculiar to Hungary. With this weighing according to quotas, we ensure the best possible usability of the data for presenting the national status that is representative. Due to the nature of the survey, I took into consideration the Hungarian population aged between 14 and 65.

3. Results

Regarding carbonated soft drinks, I studied the preference of this soft drink category, the level of consumption and the perceived health effects (how healthy these drinks are considered by the people). Regarding preference, it can be stated that Hungarian people like mineral waters the best, probably due to the nature of the product and they consume these in the highest amount. This category highly exceeds the other categories. However, this category is followed by the carbonated soft drinks in the preference system, which contains significant amounts of sugar or sweeteners as opposed to mineral waters.

It is interesting that although the consumers like this category very much, they do not consider it too healthy (in a scale from 1-5 where 1 is unhealthy and 5 is healthy, the average value was 1.8), in spite of this, they like to drink these products.

In order to map consumer groups, I analyze the above statements separately for men and women.

Table 1. T-probe averages and significance values for preferences of genders

		Preference		Consumption		Perceived health	
		Significance	Mean	Significance	Mean	Significance	Mean
Carbonated soft drink	Men	0,000	3,606	0,000	2,098	0,012	1,885
	Women	0,000	4,057	0,000	1,799	0,012	1,713

At the indicated values, H_0 can be rejected at 5% level, so there is a difference in the preferences of men and women
 At preference, the higher values represent lower preference, while for consumption and health is the opposite (values on a scale from 1-5)
 Own construction

For carbonated soft drinks, the null hypothesis is rejected and the alternative hypothesis is accepted, according to which there is a significant difference between the preference system of Hungarian women and men regarding carbonated soft drinks. Namely, women find this category less preferable than men. This result is in agreement with consumption and perceived healthiness. Men like better and consume more from carbonated soft drinks than women and accordingly, they consider it less harmful.

Next, I analyze the relationships according to age within the Hungarian population. As the figure demonstrates, older people consume less carbonated soft drinks. With increasing age, the consumption

Consumption based on age



reduces. The consumption of carbonated soft drinks is most preferred by the age-group of 14-17 years. The above mentioned potential harmful health effects are threatening especially the children and the youth.

Figure 1. Carbonated soft drink consumption of Hungarian people according to age groups (Own construction)

The next studied characteristic was the job type of the consumers.

Table 2. Differences among the soft drink consumption of Hungarian people according to the job type

Tukey HSD	Job type	Mean difference	Standard Error
Heavy labourer	Light labourer	0,192	0,136
	Intellectual	0,454	0,138
	Student	-0,118	0,157
	Unemployed	0,244	0,201
Light labourer	Heavy labourer	-0,192	0,136
	Intellectual	0,262	0,103
	Student	-0,310	0,127
	Unemployed	0,053	0,179
Intellectual	Heavy labourer	-0,454	0,138
	Light labourer	-0,262	0,103
	Student	-0,572	0,129
	Unemployed	-0,209	0,181
Student	Heavy labourer	0,118	0,157
	Light labourer	0,310	0,127
	Intellectual	0,572	0,129
	Unemployed	0,363	0,195
Unemployed	Heavy labourer	-0,244	0,201
	Light labourer	-0,053	0,179
	Intellectual	0,209	0,181
	Student	-0,363	0,195

The indicated values can be accepted at 5% significance level, they show significant differences
Own construction

In the case of carbonated soft drinks, it is proven that those having an intellectual occupation consume significantly (at 5% probability level) less than students or manual workers.

Then, I focused on the relationship between educational level and consumption. This revealed that higher educational levels are accompanied with decreasing consumption levels. People with higher education consume significantly less than people with the education of elementary school and skilled labourer.

Table 3. Differences among the soft drink consumption of Hungarian people according to the level of education

Tukey HSD	Level of education	Mean difference	Standard Error
Elementary School	Skilled labourer	0,121	0,133
	High School	0,396	0,121
	Higher education	0,580	0,132
Skilled labourer	Elementary School	-0,121	0,133
	High School	0,275	0,107
	Higher education	0,459	0,121
High School	Elementary School	-0,396	0,121
	Skilled labourer	-0,275	0,107
	Higher education	0,184	0,106
Higher education	Elementary School	-0,580	0,132
	Skilled labourer	-0,459	0,121
	High School	-0,184	0,106

The indicated values can be accepted at 5% significance level, they show significant differences
Own construction

In consumer decisions, price and the income level of the consumer have important roles. In the case of carbonated soft drinks, interesting conclusions can be drawn, namely, that consumption is not dependent upon the income level. The income of the consumer does not influence him/her at purchasing carbonated soft drinks. If he/she likes it, then he/she will buy it.

However, this finding might have several causes. It might be that Hungarian people are less influenced by the price in soft drink consumption since it is a basic physiological need; therefore, price is not a factor. On the other hand, the fact that there are soft drink products of different trademarks and manufacturing with great differences in price might also play a role. Consequently, this product type can be found at lower and higher prices, due to this, price is not the decisive factor in selecting the soft drink type.

During the decision-making process, the consumer is influenced by different stimuli and he/she considers different aspects, then, makes his/her decision. Such influencing factors can be the flavor, so that he/she buys the product the flavor of which he/she likes. Trademark and adherence to the usual, preferred trademark also influence the decision. Price is also a cardinal point in shopping. Another aspect is health, which appears as health awareness in the decision-making. How much he/she cares to select a product that he/she considers healthy, whether he/she deals with this question in the decision-making process at all? Finally, the quickness of shopping can also influence the decision. The importance of these factors in consumer decisions regarding carbonated soft drinks is presented in the figure below.

Consumption influencing factors

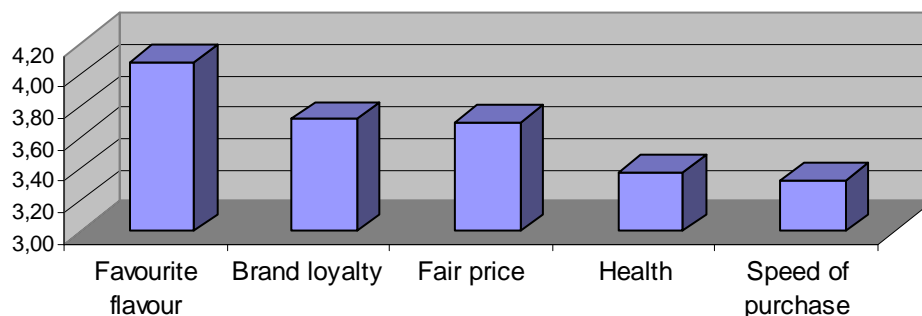


Figure 2. Importance of the factors influencing consumer decisions during shopping (Own construction)

It can be seen that the flavor of the soft drink is the most decisive in consumer decisions. It is followed by trademark and product price as important factors. Health and the quickness of shopping are not really important for the consumer in the case of carbonated soft drinks. This result is in agreement with the former ones. If the consumer likes the flavor of the product, then he/she does not care about health aspects at buying it, in spite of the fact that he-she considers it unhealthy and is aware of its potential negative physiological impacts.

People consider these products unhealthy; however, they do not really care about this aspect when consuming them, since they consume these products because they like their flavor and not because they are healthy.

In the case of carbonated soft drinks, the ratio of those who consider them unhealthy and therefore do not consume them is extremely high. Carbonated soft drinks are considered very unhealthy by Hungarian people, but it should be added that those who like this category are also aware of it, but when making their decision, they are not influenced by the aspect of healthy lifestyle.

Next, I present the results of the conjoint analysis on carbonated soft drinks, which provide important information for understanding the preferences of consumers. I focus on three variables: price, trademark and sugar content as a health-related component.

Regarding trademark, Hungarian people prefer the low-category trademarks less, while they like better the medium-category trademarks. The international premium trademarks are the most preferred in the case of carbonated soft drinks, if only the role of trademark is studied in consumer decisions.

Regarding sugar content, Hungarian consumers prefer those products less which contain only sugar; they do not really like these. If they consume carbonated soft drinks and the sugar content is the determining factor in their decision, then they prefer more those products which contain only sweeteners, but they like the best those with reduced sugar content. This is important for healthy lifestyle and can be considered favorable as regards calorie intake, however, in the light of the problems related to sweeteners, it may give rise to further worries.

As regards the price, we obtained the expected results; there is a negative correlation between the price of the product and its usefulness or preference. The higher the price is, the less we want to buy it in the case of normal goods. A more interesting result related to price is the estimated utility at different price levels and via this the relative importance of price with respect to the other two examined basic product features.

It worth observing the relative importance of the three studied product features in consumer decisions based on the preferences of Hungarian consumers regarding carbonated soft drinks.

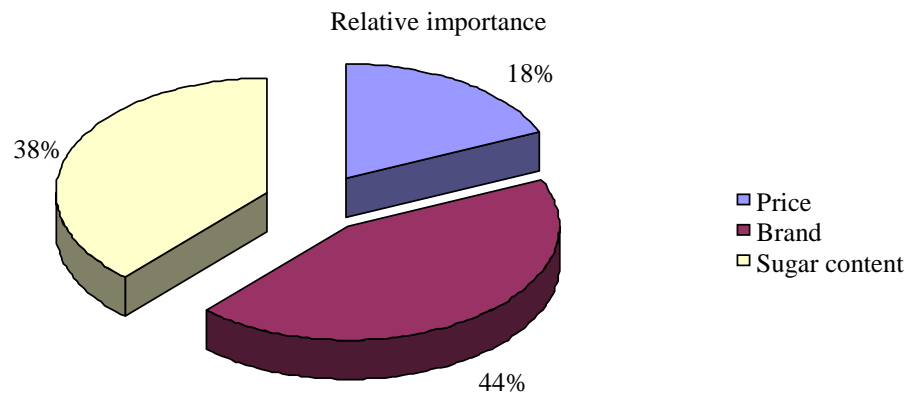


Figure 3. The relative importance of product features (Own construction)

The relative importance of the product features is 43.43%, 38.34% and 18.23% for trademark, sugar content and price, respectively. It is an important finding that under the conditions of the present study, the most important aspect was trademark for the consumers followed by sugar content with almost similar weight. Finally, it can be stated, which might be surprising, that price has the smallest role, its importance is considerably lower than that of the other features.

The fact that sugar content has a high relative importance can be a positive result with respect to healthy nutrition and healthy lifestyle. Sugar intake and consequently energy intake have a major and determining role in health; excess intake might have a health-damaging effect.

4. Conclusions

Consumer lifestyle and health are relevant factors to understanding consumption preferences. In the last few decades the number of lifestyle diseases has dramatically increased. The main cause for these diseases is the change in lifestyle; including a lack of attention to physical activity and good nutrition. Health and lifestyle are important factors by purchase decision process. In accordance with these, I examine the consumer behaviour toward carbonated soft drinks with special regards to healthy lifestyle and the state of health among the Hungarian population.

Carbonated soft drink is a high preferred product category even though most of the population considers it unhealthy. The highest level influencing factor by them is the flavor. The second high level influencing factor by the Hungarian population is the brand loyalty, which has a strong effect on purchase decision process.

Well differentiated consumer groups can be separated based on gender, age, level of education and job type. These results can be useful for a well targeted marketing strategy related to carbonated soft drink.

People should be aware of the amount of their carbonated soft drink consumption and the negative effect of excessive sugar and calorie consumption. It also has to be mentioned the displacing effect of the nutrient-rich food out from diet. On the whole healthy life and nutrition is an important issue, regarding to the results temperance is highly emphasized on the consumption.

References

1. Schmidhuber, J.-Traill, W. B. (2005), "The changing structure of diet in the European Union in relation to healthy eating guidelines", *Public Health Nutrition*, 9(5), 584-595, 2006
2. Bhikha, R. (2007), "The role of Unani in lifestyle diseases. International Conference on "Holistic approach of Unani medicine in lifestyle diseases", Aligarh Muslim University, India, 2007

3. Szakaly, Z. (2006), "New directions of nutrmarketing", The Hungarian Journal of Food, Nutrition and Marketing vol. 1, pp 3-12, 2006
4. Szreter, S. (1997), "Economic growth, disruption, deprivation, disease, and death: On the importance of the politics of public health for development", Population and Development Review, Vol. 23, No. 4, 693-728, 1997
5. Nayga, R. M. Jr. (2008), "Nutrition, obesity and health: policies and economic research challenges", European Review of Agricultural Economics vol.35, pp 281-302, 2008
6. O'Keefe, J. H. Jr.-Cordain, L. (2004), "Cardiovascular disease resulting from a diet and lifestyle at odds with our Paleolithic genome: How to become a 21st-century hunter-gatherer", Mayo Foundation for Medical Education and Research, Mayo Clin Proc, 79:101-108, 2004
7. Community Health Needs Assessment (2001), "Poor nutrition & sedentary lifestyle: "The 21st Century Plague", 2001 <http://www.sdchip.org/pdfs/G-nutrition%20edited.pdf>
8. Biro, G.-Biro, Gy. (2000), *Food-security, Nutrition-hygiene*, Agroinform Kiadó, Budapest, 2000, ISBN: 963 502 25 7
9. Hernádi, Z. (1997): "Üdítőital-ipar", In: Síki, J. – Tóth-Zsiga, I. *A magyar élelmiszeripar története*, Mezőgazda Kiadó, Budapest, 1997 ISBN:963 9121 04 5
10. Laki, M. (2004), „Az ásványvízpiac átalakulása”, Közgazdasági Szemle, LI. Évf., 2004. december, 1151-1171
11. Minnesota Department of Health (2005), "Soft drinks, Minnesota Department of Health Fact Sheet", 2005, <http://www.health.state.mn.us/divs/hpcd/chp/5aday/2005pdfs/2005softdrinks.pdf>
12. Centers for Disease Control and Prevention (2006), "Does drinking beverages with added sugars increase the risk of overweight?", Research to Practice Series No. 3, National Center for Chronic Disease Prevention and Health Promotion Division of Nutrition and Physical Activity, USA, 2006, http://www.cdc.gov/nccdphp/dnpa/nutrition/pdf/r2p_sweetend_beverages.pdf
13. Jacobson, M. F. (2005), *How soft drinks are harming Americans' health*, Center for Science in the Public Interest, Washington, D.C., 2005
14. Bergen, D.-Yeh, M-C. (2006), "Effects of energy-content labels and motivational posters on sales of sugar-sweetened beverages: stimulating sales of diet drinks among adults study", Journal of the American Dietetic Association, 106:1866-1869, 2006
15. Grimm, G. C.-Harnack, L.-Story, M. (2004), "Factors associated with soft drink consumption in school-aged children", Journal of the American Dietetic Association, 104:1244-1249, 2004