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REDUCING CONSUMPTION OF FOOD WITH HIGH LEVEL OF FAT, SUGAR AND/OR SALT AMONG YOUNG GENERATION

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Abstract: The young generation is the most influenced and vulnerable segment of the market. Food with high level of fat, sugar and/or salt are popularised for this segment. At the same time nearly 7 people die of obesity or from complications of obesity in Hungary each hour – one every 9 minutes. Less than 10% of youth are of the belief of eating healthy and more then one third of youth don't take care about healthy eating. The young generation can be especially influenced by use of well-known persons, prize games and free gifts. The idea of fat tax's introduction could be an obvious proposal.

Key words: obesity, fat tax, marketing, child, unhealthy food

1. Introduction: Youth – as a special target group

The young generation is one of the most preferred target groups of the marketing. Most of companies are looking for the young generation's flavours and targeting them, although they don't have individual income and formed preference system. The world of tastes is easy to influence, to persuade, and to shape according to their own corporate needs. Marketing, which focuses on children, is very problematic. It causes a problem since the polished marketing arsenal is used for special, impressionable segments (*Törőcsik,* 2003). The young are especially vulnerable according to a basic accepted statement. Children understand the essence of the advertisements less and they are more credulous from the average one. The absence of scepticism and strongly presenting a positive attitude in connection with the advertisements is significant (Boush, 1994). It is more recognized by the older children (10–12 years of age) that advertisement does not communicate the full truth all the time. Children express their suspense, but the level of their knowledge and the sceptical view is not enough. It is a serious problem that an average American child (but the statement is also true in Hungarian comparison) spends roughly 4 hours in front of the television screen every day (Federal Communications Commission, 2003; *Kunkel*, 2001). They watch more than 40,000 television advertisements in a year (*Strasburger,* 2001; *Kunkel,* 2001). It means about 5 hours of watching clear advertisement weekly (*Lindstrom, Seybold,* 2003). It is fact, that children recognize the trademarks over the age of 3, but the beginning of the brand loyalty's forming may start even from the age of 2 years (*Fishers,* 1991; *McNeal,* 1992). Secondary surveys confirm that a large percentage (20%) of children less than 3 years of age insists on brands already and influences their parents on its purchasing. Children aged between 4–5 years insist on 20–30 brands already. They identify products from the melody of the advertisings and the logo (*Látos,* 2005). Considerable part of the advertisements demonstrate food with high level of fat, sugar and/or salt that is rich in energy, but include low level of nutritive values and important nutritive materials (*Linn,* 2008). The responsibility of marketing could be questionable from this point of view (*Hastings,* 2003). A professor's study responds to the question unambiguously with his method and his statements: there is a lot of food advertising for children; the advertised diet is less healthy than the recommended one; children enjoy and are engaged with food promotion; food promotion is having an effect, particularly on children's preferences, purchase behaviour and consumption.

On the other hand, the soft drink industry spends 600 times more on advertising each year than the National Cancer Institute in the USA. The National Cancer Institute spends about 1 million USD annually on promoting healthy food (*Jacobson, Brownell,* 2000). Brand name Coke and Diet Coke are supported by 154 million USD, M&M candies by 67 million USD, Lay's chips by 56 million USD. Undisputed, that the marketing activity of unhealthy food' manufacturers is effective. The only one question is that, how efficient is their activity.

2. Obesity trends, food advertisements

Production and consumption of food with high level of fat, sugar and/or salt are becoming considerable question in the food industry and health care. Effectiveness of ads of food with high level of fat, sugar and/or salt are much more effective than we suppose it. The advertised food is sweet, sweetened corn flakes, snacks, soft drinks. 95% of food advertisements show food with high level of fat, sugar and/or salt on the television (International Obesity Task Force, 2004). More than 75% of advertisements of games, flakes, candies and snacks is scheduled on Saturday morning, primarily on the channels for children (*Macklin,* 2003). In the report of International Obesity Task Force (2005) it is published that the level of childhood overweight and obesity is shown to be accelerating rapidly in some countries. The Mediterranean islands of Malta, Sicily, Gibraltar and Crete as well as countries of Spain, Portugal and Italy report overweight and obesity levels exceeding 30% among children. In addition to it England, Ireland, Cyprus, Sweden and Greece report levels above 20%, while France, Switzerland, Poland, the Czech Republic, Hungary, Germany, Denmark, Netherlands and even Bulgaria report overweight levels of 10–20% among this age group. It means that 17.5 million overweight children live in the European Union (*Fülöp,* 2009). The increasing consumption of food with high level of fat, sugar and/or salt contributes to the drastic increasing of the number of overweight and diabetes type 2 people. The prevalence of obesity has increased 100 percent in the last 20 years (*Flegal,* 2002). Centers for Disease Control and Prevention published in 2004, that 64 percent of U.S. adults are either overweight or obese (CDC, 2004). The increased rate of obesity is alarming, given the association between obesity and many chronic diseases, including type 2 diabetes; several types of cancer, musculoskeletal disorders; sleep apnea (*Must* et al., 1999; *Field* et al., 2001; *Visscher, Seidell,* 2001).

The direct costs of obesity are estimated about 7% of total health care costs (110 billion USD in 1999) in the United States (*Michael S. Finke, Sand J. Huston,* 2007). The value is 123 billion USD in 2003 (Endocrine Society and Hormone Foundation 2008). The direct cost of obesity is raised by 9.1% of total health care costs in 2006. The direct cost of obesity was 147 billion USD in 2009.

It can be stated, that obesity is becoming a serious problem nowadays. Today the risk of obesity is a bigger problem than smoking or alcoholism. It means that the average health care cost of overweight persons is higher by 42% than normal bodyweight ones (*Finkelstein,* 2004). WHO projects that approximately 2.3 billion adults will be overweight and more than 700 million will be obese by 2015. The number of overweight person is more by 700 million and in case of obese is more by 300 million persons than in 2005. At least 20 million children under the age of 5 years are overweight globally in 2005 (WHO, 2008).

The situation is not favourable in Hungary, as well. The Hungarian National Public Health and Medical Officer Service (ÁNTSZ) and The National Institute for Food and Nutrition Science (OÉTI) published the fact that 16% of young boys and 20% of young girls fight with the problem overweight in 2006. Obesity rate, of course, is higher. The obesity rate in Hungary reached 60% among the total population. Nearly 7 people die of obesity or from complications of obesity in Hungary each hour – one every 9 minutes. The unnecessary kilos play important role in death (*Halmi,* 2010).

3. „Fat tax"; tool against the childhood obesity

Food with high level of fat, sugar and/or salt ensures high income and profit for the producers, but the expenses of obesity have to be covered by the national economy. The question is how the above mentioned trend can be stopped. The Latvian government banned schools from selling unhealthy food and beverages including soft drinks made by Coca-Cola and Pepsi-Cola. Instead of sweets, crisps, soft drinks and bubble gum, school cafes will be stocked with unsalted nuts, dried fruit, wholegrain snacks, oatmeal cookies, mineral water and unsweetened juices. The ministry stated that every European Union member state is allowed to ban or restrict sales of unhealthy food (European Heart Network, 2006). Health Minister of Malaysia fully supports the banning of fast food advertisements. Dr Chua Soi Lek said in 2007 that fast food should not be promoted. He supports the ban on fast food advertising is similar to cigarettes and alcohol ads. Britain announced in November 2007 a ban on fast-food advertising during children's television programmes. It is not surprising that more and more countries do not want to finance the additional expenses of unhealthy nutrition.

The popularity of fat tax is increasing in more and more countries that are against of food with high level of fat, sugar and/or salt. A fat tax aims to decrease the consumption of food that are linked to obesity. Numerous studies suggest that as the price of a food increases, consumption of that food decreases[1]. Measure of fat tax is unequivocal. Most authors and studies propose to increase taxes about 20% in case of unhealthy food. The use of the extra incomes shows two directions characteristically. According the first principle the extra profit must be devoted to public health care. While the other guideline recommends a parallel reduction of tax content of the healthy food.

Do not forget to mention the most important facts: more of US states apply similar taxes, New Zealand, Denmark plans already the introduction of second type of fat tax, the system of fat tax works properly in Finland and the WHO proposed that nations consider taxing junk food to encourage people to make healthier food choices (*Srikameswaran,* 2003). The opportunity of introduction is examined in Great

[1] http://en.wikipedia.org/wiki/Fat_tax, Downloaded: 31. January 2010.

Britain and in France, too. A new tax on junk food products is introduced in March 2010 in Romania. The move appears to set a worldwide precedent (Euractiv, 2010). Taiwan plans the fat tax's introduction in 2011.

Taxing unhealthy food might avert around 2300 deaths per annum, primarily by reducing salt intake. Taxing a wider range of food (food with high level of fat, sugar and/or salt) could avert up to 3200 cardiovascular deaths in the UK per annum, it is a 1.7% reduction. (*Mytton* et al., 2007). The measure may be similar in Hungary. More authors call attention to the fact that the fat tax's introduction may be accompanied by invisible hygienic effects if the demand and the effect of price elasticity do not take into consideration. The price elasticity coefficient of the fundamental bare necessity articles exceptionally low in case of bare necessities (-0.0 – -0.5), the price elasticity of demand is inelastic. In case of food with high level of fat, sugar and/or salt (luxurious things) the price elasticity of demand is elastic. Price reductions of 10%, 25% and 50% on lower fat snacks resulted in an increase in sales of 9%, 39% and 93%, respectively, compared with usual price conditions (Regmi et al, 2001, French, 2003). If the price elasticity of soft drinks were about the same as that estimated for cigarettes, about –0.4, a 5% tax would result in a 2% decline in sales. (*Jacobson,* 2000; *Lewit,* 1982).

The fat tax could bring an unobtrusive (but considerable) change in the reform of food consumption's structure. It is indicative of the question's importance that this news is published in 2010. January by CBS News: *A CBS News poll from January 2010 reported that a tax on items such as soft drinks and food considered to be junk food, supported by President Obama and some Democrats in the Senate, is rejected by Americans by a margin of 60% to 38%. An even larger number, 72% of Americans, also believed that a tax would not actually help people lose weight.* (*Montopoli,* 2010). But do not forget it, 64 percent of U.S. adults' fight with overweight or obesity.

4. Materials and Methods

This paper focuses on consumer behaviour of youth, regarding food with high level of fat, sugar and/or salt. In addition to it the efficiency of unhealthy food advertisements is also evaluated. Altogether 1247 questionnaires were filled out in high schools of four cities (Mezőtúr, Szolnok, Debrecen, Nyíregyháza) of North-Great Plain Region, Hungary. *Figure 1* shows the North-Great Plain Region, Hungary.

The questionnaire examined the consumption of young persons in case of food with high level of fat, sugar and/or salt. Features of the sample: Participants 1247 young persons (mean ± SD age, 16.10 ± 1.39 years, range 13 – 19 years, mode 15 years); 57.7% female, 42.3% male. Table 1 shows the representativeness of the sample according to gender.

Students' grouping according to a type of school: 7.5% industrial school, 43.5% secondary school, 49.0% high

Figure 1.: North-Great Plain Region, Hungary
Source: http://www.apeh.hu/sites/apeh/images/regio_varosok_EAF.jpg

school. This paper presents the results of 1247 questionnaire. Questionnaires were evaluated by SPSS, using the following statistical methods (like average, mode, median, standard deviation, Kendall's coefficient of concordance, factor analysis).

Table 1. Demographic characteristic of the sample (n=1247)

Variables		Characteristics of the sample (%)	Data of the Hungarian Central Statistics Office(%)	Representa-tiveness
Gender	Female	57.7	52.6	Good
	Male	42.3	47.4	Good

Source: own research, 2010, Data of HCSO
http://portal.ksh.hu/pls/ksh/docs/hun/xstadat/xstadat_eves/tabl1_01ib.html

5. Results

The objective of this study is to analyze the young generation's opinion about their dietary behaviour and health. Results of the research can be seen in the following tables. *Table 2.* shows the opinion of respondents regarding the healthy nutrition's question according to genders.

Table 2. Opinion of respondents regarding the healthy nutrition's question according to genders (%)

		Sex of respondent		Average
		Female	Male	
Do you eat healthy?	Yes, I do	4.6	12.8	8.1
	Yes, I try	58.6	46.6	53.5
	No, but I gather information	29.7	24.0	27.3
	No, I do not	7.1	16.6	11.1
Total		100.0	100.0	100.0

Source*: own research, 2009*

Less than 10% (8.1%) of the respondents think that they eat healthy. Considerable difference can be observed according to sex of respondents. 4.6% of female think that they eat healthy. The rate was higher (12.8%) among young males.

Males were much more indulgent of themselves, but the results do not support their indulgent behaviour. Later results will confirm it. Taking into consideration the intention of healthy nutrition (Yes, I try to eat healthy), the proportion between the genders equalizes. 63.2% of female aims healthy nutrition (Sum of the answers "Yes, I do" and "Yes, I try"), while 59.4% of male aims to eat healthy (Sum of the answers "Yes, I do" and "Yes, I try"). We can also declare that 38.4% of the respondents do not deal with the question of healthy nutrition. We may establish that the opinion of male about their own dietary habits is extreme. Conspicuous that 16.6% of young men clearly rejected the idea of healthy eating, while considerable part of young men (12.8%) indulgent of themselves. At the same time Table 3. shows that young men eat much more unhealthy food. Results regarding consumer behaviour of unhealthy food (food with high level of fat, sugar and/or salt) can be seen in *Table 3*.

We may see extremely high values in Table 3. 11.9% of young persons visit a fast food restaurant at least with weekly frequency, 63.4% of the youth drink sugar-sweetened carbonated soft drinks (mainly cola) and 33.2% of respondents eat chips with weekly frequency. We have to emphasize the daily coke consumption. 12% of the young men drink cola every day. The proportion is not better in case of young ladies, 50 per cent of them consume cola several times a week. The harmful effect of the product on health is an undisputed fact.

Figures of Table 3. confirm that more young men are of the belief of eating healthy than young ladies. Their assumption does not justify the fact that the consumer intensity of men is higher than young ladies in case of food with high level of fat, sugar and/or salt.

6. The examination of the food advertisements' opinion

Table 3 confirms that young people consume too much food with high level of fat, sugar and/or salt. The increase in consumption's intensity supports the importance of fat tax's introduction, contributing to the reduction of obesity level. The responsibility of marketing could be questionable in the childhood obesity.

Hasings professor declared (as it has been mentioned before) that the food advertisements influence the young persons unambiguously and youth face too many advertisements.

The increasing consumption of food with high level of fat, sugar and/or salt contributes to the drastic rise of the number of overweight and diabetes type 2. people, especially in childhood. The aim of this paper is to explain the young persons' opinion about advertisements.

Consumers were asked to rank the level of agreement with different statement (1- I do not agree with the statement, 5 – I fully agree with the statement).

Table 3. Frequency of fast-food products, cola and chips consumption according to genders (%)

Frequency of fast-food products consumption (%)														
	Daily		Several times on a week		Weekly		Twice in a month		Monthly		Rarely		Total	
Frequency	F*	M*	F	M	F	M	F	M	F	M	F	M	F	M
	0.6	2.1	2.8	3.8	4.7	11.2	11.8	10.3	51.4	49.4	28.7	23.2	100	100
Average	***1.2***		***3.2***		***7.5***		11.2		50.6		26.4		100	
Frequency of sugar-sweetened carbonated soft drinks consumption (%)														
	Daily		Several times on a week		Weekly		Twice in a month		Monthly		Rarely		Total	
Frequency	F	M	F	M	F	M	F	M	F	M	F	M	F	M
	19.1	24.8	18.2	25.5	20.5	21.1	10.4	7.6	12.0	10.1	19.8	10.9	100	100
Average	***21.4***		***21.3***		***20.7***		9.2		11.2		16.1		100	
Frequency of chips consumption (%)														
	Daily		Several times on a week		Weekly		Twice in a month		Monthly		Rarely		Total	
Frequency	F	M	F	M	F	M	F	M	F	M	F	M	F	M
	2.1	5.7	9.2	11.3	18.4	21.4	17.3	16.2	19.1	18.9	34.0	26.5	100	100
Average	***3.6***		***10.0***		***19.6***		16.8		19.1		30.9		100	

* F=Female, M=Male
Source: own research, 2009

The statement of questionnaire and the average of answers can be found in *Table 4* according to genders and in aggregated form, as well.

Table 4. Understanding willingness according to genders

Statements	*Average*			*Mode*		Standard deviation
	Female	*Male*	*Total*	*Female*	*Male*	
The ads are fun.	2.38	2.23	2.32	3.00	3.00	0.99
The ads have become part of everyday.	4.18	4.10	4.15	5.00	5.00	1.08
The ads affect my consumer behaviour.	**2.02**	**1.82**	1.94	**2.00**	**1.00**	0.94
The ads affect the consumer behaviour of people.	3.70	3.64	3.67	4.00	4.00	0.93
I face too many advertisements in the media.	4.65	4.57	4.62	5.00	5.00	0.81
People often buy unnecessary things due to the effect of advertising.	**4.27**	**4.01**	4.16	5.00	4.00	0.86
I often buy unnecessary things due to the effect of advertising.	**1.87**	**1.56**	1.74	1.00	1.00	0.91
I consider myself as a conscious customer.	**3.77**	**4.11**	3.92	**4.00**	**5.00**	1.00
I am aware of my consumer rights.	3.69	3.63	3.66	4.00	4.00	1.10

Source: own research, 2009

Table 4 shows that the ads have become the part of their everyday life. They do not recognize the advertisements' influential effect on their consumer behaviour. However, it is clearly seen that other people often buy unnecessary things due to ads (in contrast to the interviewed person, who scarcely buy unnecessary things).

The men's rejection is prominent in connection with their purchasing unnecessary things due to the advertisements. Young men consider themselves much more conscious customers than young ladies. This contradiction, however, is questionable taking into account figures of *Table 2. and Table 3.*

We can state that the level of agreement is high. It is excellently visible from the value of mode. A low standard deviation means that figures are tightly clustered. We may examine the agreement indicator of the consumers. Kendall's W can be calculated from these figures. Kendall'W can be used for assessing agreement among the 1247 respondents. The value of Kendall's coefficient of concordance is 0.575 (57.5%) in case of female and 0.584 (58,4%) in case of male. It means there is overall trend of agreement among the respondents. The value of the indicator exceptionally favourable, about 60% of respondents agree with the order totally.

The above-mentioned 9 statements measure the effectiveness of advertisements. The extension of the above statements has been made by another 3 questions of the questionnaire:

1. Does it influence your decision if the product/brand is advertised with well-known persons?
2. Do you like the different prize games, collector actions?
3. Did you buy a product exclusively because of a free gift?

The judgement of the advertisements based on 12 questions was evaluated through factor analysis. Based on the results of the factor analysis the judgement of the advertisements is influenced by 5 factors. The factors were named by us and put into parenthesis the ingredient statements of factors.

- Individual opinion about advertisements (1,3,7,10. statement). Influencing effect 12.9 %.
- General opinion about advertisements (4,5,6. statement). Influencing effect 8.3%.
- Right consciousness of the respondent (8,9. statement). Influencing effect 4.5%.
- Promised prizes (11,12. statement): Influencing effect 2.6%.
- Habituation (2. statement): Influencing effect 2.4%.

We know that the total influencing effect of advertising could be about 50% totally. „I know half the money I spend on advertising is wasted, but I can never find out which half." (*John Wanamaker,* 1922)

Taking into consideration that many factors influence the efficiency of the advertisements (culture, habits, fashion, price, the index of consumer confidence, individual needs, etc.), the result of the factor analysis shows that the above mentioned 5 factors influence 30.7 per cent of the effectiveness of ads.

The results of questionnaire confirm the efficiency of sales promotion:

- Influencing effect of the well-know person: 20.8%
- The influencing effect of prize games: 50.3%
- The influencing effect of free gifts: 55.5%.

It is necessary to emphasize that young ladies are influenced much more by means of sales promotion (in order 24.8%; 54.6%; 62.5%).

Particularly the producers of the food with high level of fat, sugar and/or salt have a more effective marketing activity. About 30% of respondents admitted that they buy food with high level of fat, sugar and/or salt due to the advertisements of these products *exclusively (See Table 5.).*

Table 5. Exclusive advertising effect of fast-food products, sugar-sweetened carbonated soft drinks according to genders (%)

Statement		*Average value*	
		Female	*Male*
The influencing effect of fast-food advertisements	It influences me	30.2	27.9
	It does not influence me	69.8	72.1
Total		100.0	100.0
The influencing effect of cola advertisements	It influences me	28.0	25.1
	It does not influence me	72.0	74.9
Total		100.0	100.0

Source: own research, 2009

7. Conclusion

It can be stated that youth do not have unambiguous and accurate knowledge about the healthy nutrition. Less than 10% of the participants are of the belief of eating healthy and 38.4% of the respondents do not deal with the question of healthy nutrition (not at all). The incomplete knowledge contributes to serious problems especially in the case of increasing consumption of food with high level of fat, sugar and/or salt. In this case the increasing consumption of these products contributes to the drastic rise in the number of overweight and diabetes type 2 people. Regarding the consumption intensity of food with high level of fat, sugar and/or salt we may see shocking high values. The statement is true in case of fast-food products, sugar-sweetened carbonated soft drinks and chips. Opinion of the consumer habits does not reflect the reality. Respondents do not recognize advertisements' influential effect on their consumer behaviour, so, it spoils the situation. The youth are especially vulnerable with use of well-known persons, prize games and free gifts. Not surprising, these are the manufacturers' favourite advertising techniques. Absence of the effective regulation and the increasing marketing activity contributes to indifferent health of kids. The idea of fat tax's introduction may be an obvious proposal. Its theoretical basis is indisputable. The tax's introduction is an opportunity, but does not solve the problem. The introduction of fat tax is not a panacea, but a chance. It may contribute to keeping the health care expenses on an adequate level. Our ageing society and the drastic increase of the health care expenses together cannot be maintained in the future.

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