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THE RESPONSIBILITY OF MARKETING AND LEGISLATION IN CHILDHOOD OBESITY

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Abstract: The purchasing power of youth is considerable; they are the market of the future. , the young generation is the most influenced and vulnerable segment of the economy. The greatest problem of the influencing of our children is the rising cost of childhood obesity. The health care system cannot keep up with the pressure of obesity. Today, the risk of obesity is a bigger problem than smoking or alcoholism. The greatest problem is that youth underestimates the cost and risk of consumption of foods with high levels of fats, sugar and/or salt.

Keywords: foods with high level of fats, sugar and/or salt, fat tax, marketing, youth

1. Target group - youth

“Kidfluence” is the direct or indirect influence kids have over family household purchases. Indirect influence means that children’s preferences are given consideration when parents make a purchase decision. The major driving force behind this sweeping change is advertising. Advertising has changed the way kids learn, react and behave to a large extent. On television, too, only 18 percent of the total viewing is of children’s channels, while 80 percent still continues to be general viewing (Swati Soni, Makarand Upadhyaya, 2007). The greater influence of children on family decision making is caused by two main factors: The first is the growing importance of families with one parent and the lower average number of children. The second is that the independence of children in the family is growing and their consumer socialization starts earlier. (Lehota, 2001) In the cases of several products, they are more informed and have wider knowledge than their parents, which is how their importance grows in the case of competency decisions. (Törőcsik, 2003). In spite of these factors, we should not forget that parents are the main influencers of children in how they will become potential consumers and decision makers, because they finance all their children’s purchases. (McNeal, 2007) Eight to twelve year-old children definitely know what they need, even though purchasing for them is much more a hobby than an aim: it is a method of how they acquire conquering the world, making decisions, demonstrating their power and authorize their own status. (Müller, 2001) It is therefore essential for marketing experts to deal with them. Moreover, children represent an extraordinary market, as they make purchases on their own, furthermore they influence their parents’ decisions, (Foxall et al., 2006) and they will create future markets. (Diekhof, 1999) Depending on product category, children can influence purchase decisions in several ways: influencing level is

higher in the case of toys and lower in the case of victuals. (Olson et al., 1999; Pólya, Szűcs 2010).

The young generation is one of the most preferred target groups of marketing. Companies are looking for the young generation’s flavours and taking aim at an age group that does not have individual incomes or a formed system of preferences. Children understand the essence of advertisements less and they are more credulous from the average one. The absence of scepticism about the contents of advertisements is significant (Boush et al., 1994). Predominately older children (10–12 years of age) recognize that an advertisement does not communicate the full truth all of the time. Children express their apprehensions, but their levels of knowledge and scepticism are not enough. A serious problem is that an average American child (but the statement is also true of Hungarian children) spends roughly 4 hours in front of the television screen every day (Federal Communications Commission 2003, Kunkel, D. 2001). They watch more than 40,000 television advertisements per year (Kunkel 2001, Strasburger 2001). This means about 5 hours of only advertisement viewing weekly (Lindstrom, Seybold 2003). It is a fact that children above the age of three recognize trademarks, but the beginning of the formation of brand loyalty may start even from the age of two (Fischer et al. 1991, McNeal, J. 1992). Secondary surveys confirm that a large percentage (20%) of children less than 3 years of age already insists on brands and influences their parents’ purchasing. Children aged between 4-5 years already insist on 20–30. A considerable portion of advertisements features foods containing high levels of fats, sugar and/or salt, rich in energy, but with low nutritional values and ingredients (Linn 2008). More than 75% of advertisements for games, flakes, candies and snacks is scheduled on Saturday morning, primarily on the channels for children (Macklin, 2003). The advertised foods are sweets, sweetened corn flakes, snacks, soft drinks. 95% of food advertisements show foods with

high levels of fats, sugar and/or salt. In a report made by the International Obesity Task Force, the level of children overweight and obese is accelerating rapidly in some countries (International Obesity Task Force 2005). Over the past three decades, the share of children who are considered overweight or obese has doubled, from 15 per cent in the 1970s to nearly 30 per cent today, while the share of children who are considered obese has tripled (Paxson, Donahue 2007, Koplean et al. 2005).

2. Risk of obesity

It is a fact that the average health care cost of overweight persons is higher by 42% than for those persons with normal bodyweights (Finkelstein, 2004). In particular, the average annual medical bill for an overweight person is estimated to be \$732 higher than for a person of normal weight (Loureiro, Nayga 2005). Nearly 7 people die of obesity or from complications of obesity in Hungary each hour - one every 9 minutes. The unnecessary kilos play an important role in their deaths (Halmi, 2010). Secondary surveys confirm that children will follow their family’s consumption patterns. We have to recognize that obese children become obese adults. 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 can contribute to the drastic rise in the number of overweight persons, as well as those with Type 2 diabetes. The high intensity of consumption affects the family budget and the budget of the country. The importance of the problem can be measured. The health care costs caused by obesity are rising dramatically. 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 persons today is 700 million more and, in the case of the obese, is 300 million more persons than seen in 2005 (WHO, 2008). The obesity rate around the world reached 60% of the entire population. The obesity rate among adults has risen 30% in the USA. 60 million

Americans over the age of 20 are obese (Costley, Leggett 2010). Childhood obesity is a problem around the world. 15.2% of 2 to 5 year-old children are overweight, whereas 6.3% are obese in Canada. (Olstand, McCarger 2009) Canada has one of the highest overall childhood obesity rates among nations in the Organization of Economic Cooperation and Development (UNICEF Innocenti Research Centre 2007). The magnitude of overweight ranges from 9% to 27.5%, and obesity ranges from 1% to 12.9% among Indian children (Rajaat et al, 2011). Detailed data for Hungary can be found in Table 1.

3. Materials and Methods

This paper focuses on consumer behaviour of youth and cost of eating unhealthy foods, regarding food with high levels of fat, sugar and/or salt. In addition, the efficiency of unhealthy food advertisements is also evaluated. I assumed that by virtue of field research, well delineated consumer groups can be formed within the segment of young people in cases of foods containing high levels of salt, sugar and fat. An aim of this paper is to explore and identify these segments and to describe consumer behaviour.

Altogether 1297 questionnaires were filled out in high schools in four cities (Mezőtúr, Szolnok, Debrecen, Nyíregyháza) of North-Great Plain Region, Hungary.

The questionnaire examined the consumption of young persons in cases of food with high levels of fat, sugar and/or salt. Features of the sample: Participants 1297 young persons (mean ± SD age, 16.13 ± 1.37 years, range 13 – 19 years, mode 15 years); 55.4% female, 44.6% male. Table 2 shows the representativeness of the sample according to gender. The representativeness of the sample is good.

This paper presents the results of 1297 questionnaire. Questionnaires were evaluated by SPSS, using the following statistical methods (e.g., average, mode, median, standard deviation, Cramer’s V coefficient of concordance).

In addition, I examined the consumer behaviour of young people with an online survey especially in connection with the so-called fat tax. In this survey, 504 questionnaires were filled in Hungary. The online questionnaire was promoted in different forums: social media, e.g. Facebook, iwiw and Neptun. Taking part in the research for respondents was voluntary and anonymous, without any previous selection. Inquiry of the online survey took place between 27th April 2011 and 1st June 2011. Anyone could participate in the survey that filled in the questionnaire. The online survey was country-wide. Distribution of the sample by gender: 60 % women, 40 % men. Average age in the sample () 27.29 ± 10.099 year, range (R) 14–65 year, modus 20–24 year.

Table 1.: Distribution of population according Body Mass Index (BMI), gender and age in Hungary

BMI category	Men			Total	Women			Total
	Age 18-34	Age 35-65	Age 65-		Age 18-34	Age 35-65	Age 65-	
Underweight	3.0	0.6	1.4	1.5	11.3	3.0	1.9	4.9
Normal	55.9	29.6	28.9	37.7	67.4	39.8	32.1	45.2
Overweight	29.8	45.0	39.8	39.4	14.9	34.2	42.1	31.1
Obese	11.3	24.8	30.0	21.5	6.4	23.1	23.8	18.9

Source: Hungarian Central Statistical Office, 2009

4. Results – Cost of fast foods

During my research, I made several analyses to realize at what intensity children and young people take part in the market of foods containing high level, of salt, sugar and fat. Following the position of the European Heart Network, I limited my research to 3 product categories (fast food products, carbonated soft drink beverages, especially colas and chips). We can see as a result of my field research that 38.0% of young men and 29.7% of young women consume health-damaging chips at least once a week. 70.5% of young men and 57.8% of young women consume a carbonated soft drink at least once a week. The proportion of weekly fast food restaurant visitors is 17.1% among young men and 11.1% among young women. As to the classification of McDonald's, we can refer to them as heavy users. The data is shockingly high. I proved with my field research that young people of different genders have different consumption intensities; in the market of foods with high levels of salt, sugar and fat, young men consume more than young women.

Analyzing foods containing high levels of salt, sugar and fat with a distribution ratio, it can be stated that women have a lower consumption intensity; but by using higher statistical methods (ex.: Cramer V statistics), this unambiguous trend cannot be validated. The indicator showed only low correlation between the gender of the interviewed and consumption intensity. These results confirmed the high consumption intensity level for both genders. I made a similar statement for the age of the interviewed persons: at a young age, consumption intensity showed a minimal decrease with age, and this degree is negligible, as Cramer V statistics support. It can be stated that consumption intensity does not depend on age. It can be stated that consumption of foods containing high levels of salt, sugar and fat does not show close correlation with the age and gender of the interviewed. The consumption of foods containing high levels of salt, sugar and fat represent a generally high intensity among young people. It can be stated that young people of different genders and ages have different consumption intensities, but the age and gender of the interviewed is not a determining factor; rather, it is much more determining to which segment the person belongs by his consumption intensity in the case of foods containing high levels of salt, sugar and fat.

Using cluster analysis, I segmented the age groups of young people according to their consumption inten-

sity in the case of foods containing high levels of salt, sugar and fat. Groups can be unambiguously identified and have variant natures. Segmentation was done by the age and gender of the interviewed people. By the gender of the interviewed I identified the following segments:

- Health-conscious people,
- Uninterested unhealthy,
- Healthy self-conscious,
- Fast food chain obsesses,
- Coke-dependents (see on Figure 1.).

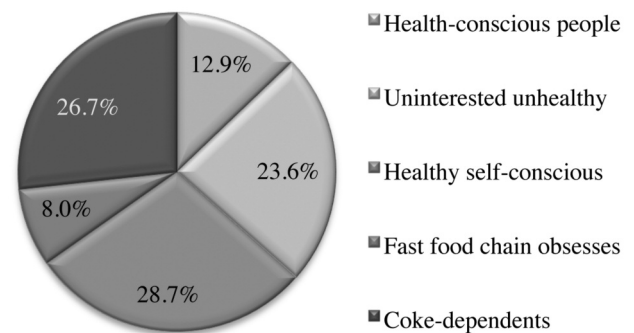


Figure 1: Distribution (%) of revealing segments on the market of foods containing high levels of salt, sugar and fat

Source: Own research, 2010

Table 2.: Frequency of fast-food products, cola and chips consumption according to identified segments (%)

Frequency of sugar-sweetened carbonated soft drinks consumption (%)							
	Daily	Several times on a week	Weekly	Twice in a month	Monthly	Rarely	Total
Health-conscious people	0.0	0.0	3.6	42.8	24.7	28.9	100.0
Uninterested unhealthy	44.9	35.1	19.7	0.3	0.0	0.0	100.0
Healthy self-conscious	0.0	0.0	0.0	14.8	34.5	50.7	100.0
Fast food chain obsesses	26.2	33.0	34.0	2.9	1.9	1.9	100.0
Coke-dependents	22.7	32.8	44.5	0.0	0.0	0.0	100.0
Average	21.2	21.5	20.8	9.3	11.4	15.8	100.0
Frequency of fast-food products consumption (%)							
	Daily	Several times on a week	Weekly	Twice in a month	Monthly	Rarely	Total
Health-conscious people	1.2	1.2	4.2	11.4	60.2	21.7	100.0
Uninterested unhealthy	2.4	6.5	15.9	16.8	46.8	11.6	100.0
Healthy self-conscious	0.0	0.0	0.7	3.3	47.4	48.7	100.0
Fast food chain obsesses	4.9	14.6	29.1	51.5	0.0	0.0	100.0
Coke-dependents	0.0	0.0	0.0	0.0	67.4	32.6	100.0
Average	1.2	3.2	7.6	11.2	50.5	26.3	100.0

Source: own research, 2010

The segmentation proves that there are two segments in which those questioned are consciously healthy or striving to maintain a healthy diet, avoiding the consumption of foods containing high levels of salt, sugar and fat. The total proportion is 36.5% of the youth who responded. With age segmentation, I proved that reformulation of segmentation by the gender of the interviewed does not reveal any substantive difference compared to the previous segment. F-rates calculated during the segmentation process proved that the gender and age of the interviewed does not have a substantive effect on the consumption of foods containing high levels of salt, sugar and fat, segmentation can be carried out by consumption intensity of products. Detailed data of the frequency of sugar-sweetened carbonated soft drinks and fast food product consumption according to identified segments can be found in Table 2.

The developed segments exist and show practically useable segmentation.

In my online survey in 2011, I asked the respondents to give their opinions about the obesity rate in Hungary. I can state that the respondents underestimate the proportion of obesity. 24% of the respondents think that the obesity rate can be found between 30% and 40%. 71% of respondents believed that the obesity rate is less than 60%. Their opinion is not correct. Only 20% of the respondents think correctly, i.e. that the obesity rate in Hungary is between 60% and 70%. This risk will multiply in the near future. 46.1% of the respondents do not do any sport. The inactivity of the population is a negative trend. 33.1% of respondents think children are affected by obesity principally. Only 5% of respondents report eating healthily, but most of respondents (93%) know the effects of obesity. The word cloud of obesity, according to respondents, can be found in Figure 2.

The idea of the introduction of a so-called fat tax may be an obvious proposal. 16.5% of respondent do not have any information about the new tax and 61.2% reject the introduction of a fat tax. We can suppose that consumers who drink coke often, eat more hamburgers or chips often would say no to fat tax. Our assumption does not justify this. The value of Cramer's V is 0.219 in the case of coke, 0.149 in the case of fast foods and 0.115 in the case of chips. The rate of rejection does not depend on the consumption intensity of foods with high level of fat, sugar and/or salt. The rate of rejection would be 14.2% if the tax on



Figure 2: Word cloud of obesity's consequences

Source: own research, 2011

healthy foods would decrease parallel. In this case, a fat tax would be accepted by 85.8% of the respondents. The size of the fat tax rate is a very important question, because the consumption of foods with high levels of fat, sugar and/or salt is inelastic. If the fat tax rate is too low, then consumption would not decrease. 92% of respondents think so that the fat tax will not achieve its goal (Kendall's $W=0.92$). Respondents propose to levy a tax on fast foods, too.

5. Conclusion

The idea of the introduction of a so-called fat tax may be an obvious proposal. Its theoretical basis is indisputable. The introduction of a fat tax is an opportunity, but it would not solve the problem of obesity. The introduction of a fat tax is not a panacea, but an opportunity. The tax can contribute to the maintenance of health care expenses on an adequate level. Our elemental interest is the drastic reduction of obesity. The responsibility of marketing could be questionable from this point of view. Melissa Müller's study

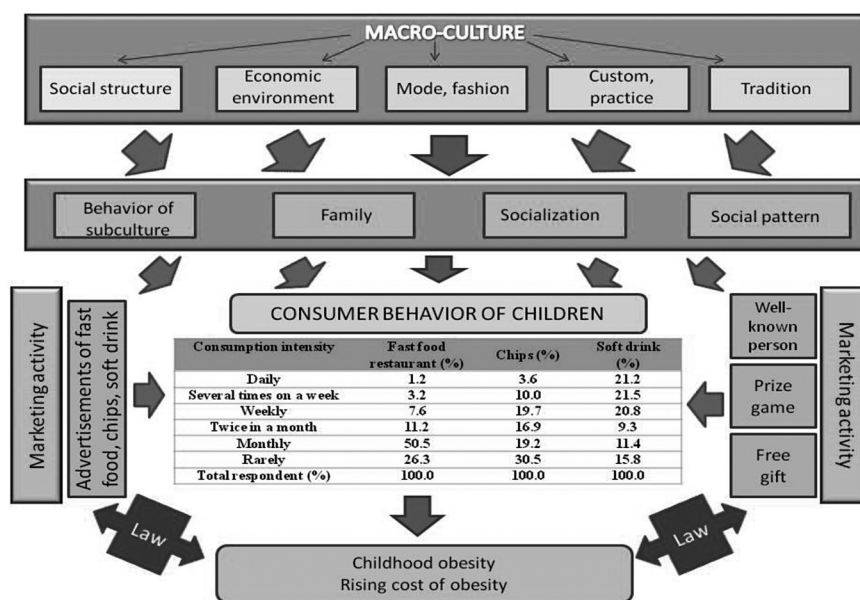


Figure 3: Influencing effect of marketing in case of foods with high level of fats, sugar and/or salt

Source: own research, 2010

(2001) responds to the question unambiguously: commercials make cartoon figures and well-known persons attractive in the minds of children. Their influencing effect is undisputed. In the mind of children, the advertised product is very nice, better or faster, than the non-advertised product. Children like to buy products which can be found in television advertisements. They refer to the television. 20% of respondents recognize that they buy more unhealthy products if the prices of these products are discounted. In our research, we measured the influencing effect of different marketing activities: the influencing effect of fast food and chips advertisements, influencing the effect of cola advertisements, prize games, free gifts, well-known persons. The above-mentioned factors are illustrated in our model, which can be found in the Figure 3.

There are several factors which influence the consumer behaviour of youth. Some factors cannot be measured, e.g. tradition or social structure. Some factors can be measured, e.g. the efficiency of marketing activity, the influencing effect of advertisements is about 30%, the influencing effect of a well-known person is 20.8%, the influencing effect of prize games is 50.3% and the influencing effect of free gifts is 55.5%. It can be stated that marketing activity has a considerable effect in the increase in childhood obesity rates and its resultant increase in the costs to society. The advertisements of foods with high levels of fat, sugar and/or salt should not be banned, but restriction is necessary, according to the opinion of 51% of respondents. This rate is 36% in the case of free gifts. I can state that the "invisible hand" does not work in the case of foods with high levels of fat, sugar and/or salt, and so restrictions are necessary. Still, we have to acknowledge that the method of intervention is questionable. There are some initiations, e.g. New Jersey has passed a bill that went into effect at the beginning of the 2007 school year. This bill includes the banning of all soft drinks, candy and any other item with sugar listed as the first ingredient from schools altogether (Krisberg, 2005). Another initiation is the removal of any vending machines in Arkansas elementary schools (Costley, Leggett 2010). So, we can state that there are some possibilities to fight against obesity.

On the basis of my research results, I can state that consuming foods with high levels of fat, salt and sugar is increasingly popular in Hungary. The consumption intensity of these products is high among youth. The results of the segmentation show that the majority of young Hungarians are intensive consumers of foods with high levels of fat, salt and sugar, that they do not understand the contents of food labels and that they are unaware of the meanings of symbols on product packages. There are several ways to decrease uncertainty: rethinking legislation and the regulation of communication in cases of foods with high levels of fat, salt and sugar, increasing the prices of products through taxation and examining the role of parents.

As to my opinion, the efficient solution is rooted in the combination of all of these. It is a fact that foods with high levels of fat, salt and sugar are popular among young people. By promoting these products, we contribute to childhood

obesity. Lack of legislation on the market of foods with high levels of fat, salt and sugar might lead to success in a short run, but only for the producing companies. Profit is realized at the producing companies, but costs are borne nationally as an increased health cost for obese children, young people and adults. Regardless of the interests at stake, intervention against obesity is required.

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