The effect of childhood obesity on social welfare

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Abstract

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Understanding the way how children are becoming consumers is essential. Children have received more attention in marketing and consumer behaviour in recent years. The young generation is one of the most influenced segments of the market. Influencing of children is a simultaneous question of marketing, ethics, economics, consumer protection and social welfare. 95% of food advertisements show food with high level of fat, sugar and/or salt on the television. The advertised food is mainly sweets, sweetened corn flakes, snacks, soft drinks. The efficiency of marketing activity of manufacturers can be increased by use of sales promotion techniques, e.g. presentation of well-known person, actors, free gifts, prize games. Inactive lifestyle, increased consumption of unhealthy food, effective marketing tools lead to a drastic reduction of well-being of individuals and society. 17.5 million obese young persons live in the European Union. It can be stated that obese children are becoming obese adults. The direct costs (social costs) of obesity exceed the costs of smoking and alcoholism. Restriction may be the solution of the question, e.g.: California county in 2010 became the first to ban toys from fast food kids' meals high in calories, fat, salt and sugar. The ordinance will ban restaurants from giving away toys with meals that have more than 485 calories. The reason, that the cost of obesity manifests itself in the government budget, but the profit is realized by the manufacturers of food with high level of fat, sugar and/or salt.

This paper focuses on consumer behaviour of youth, regarding unhealthy food and social costs of obesity. Primary research has been carried out through 1300 questionnaires (in high schools of four cities (Mezőtúr, Szolnok, Debrecen, Nyíregyháza) of North-Great Plain Region, Hungary) in order to analyse the consumption of food with high level of fat, sugar and/or salt by young persons and the efficiency of marketing activity of manufacturers.

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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. Approximately 119 million Americans, or 64.5 percent, of adult Americans are either overweight or obese. 17.5 million obese young persons live in the European Union. The result is the drastic elevation of the hygienic expenses. The average health care cost of overweight persons is higher by 42% than normal bodyweight ones. Per capita spending on fast foods is unbelievable and rising. The value of average spending was 2.5 € in 2002. Fast food sales continue to boom despite warnings about obesity. The consumption of these products can contribute to the increased level of childhood obesity. 12.0% of young person's visited a fast food restaurant at least with a weekly regularity. The value is 16.9% in case of young men higher than in case of young ladies (8.1%) to our research. We can state the respondents underestimate the costs of fast foods.
Keywords: fast food, childhood obesity, cost, youth,

TARGET GROUP - YOUTH

Young generation is one of the most preferred target groups of marketing. Most of companies are looking focuses on the young generation that does not have individual incomes and formed preference system. It is easy to influence, to persuade, and to shape the young generation according to their corporate needs. Children understand the essence of the advertisements less and they are more credulous from the average one. The lack of skepticism and strongly presenting a positive attitude in connection with the advertisements is significant (Boush, Friestad, Rose 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 for 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 in a year (Kunkel, D. 2001, Strasburger, Victor C. 2001). It means about 5 hours of clear advertisement watching weekly (Lindstrom, M., P. B. Seybold 2003). It is a fact that children recognize the trademarks over the age of 3, but the beginning of the brand loyalty's forming may start from the age of 2 already (Fischer, Schwartz, Meyer 1991, McNeal, J. 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 foods with high level of fats, sugar and/or salt that is rich in energy but include low level of nutritive values and important nutritive materials (Linn, 2008). More than 75% of advertisements of games, flakes, candies and snacks is scheduled on Saturday morning, primarily on the channels for children (Macklin, M. C. 2003). The advertised foods are sweets, sweetened corn flakes, snacks, soft drinks. 95% of food

advertisements show foods with high level of fats, sugar and/or salt on the television. In the report of International Obesity Task Force it is published that the level of childhood overweight and obesity is seen to be accelerating rapidly in some countries (International Obesity Task Force 2005). The Mediterranean islands of Malta, Sicily and Crete as well as the countries of Spain, Portugal and Italy report overweight and obesity levels exceeding 30% among children, in addition UK, Sweden and Greece report levels above 20%, while France, Switzerland, Poland, the Czech Republic, Hungary, Germany report overweight levels of 10-20% among this age group. It means that 17.5 million overweight children live in the EU (Fülöp, 2009). The responsibility of marketing could be questionable from this point of view. Hastings' 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 behavior and consumption (Hastings, G., Stead, 2003). It can be stated that brand loyalty developes in the childhood and the influential strength of the brand also comes forth in the age of youth and lasts till early adulthood (Szűcs, Csapó 2009).

COST OF OBESITY

The efficiency of marketing activity of manufacturers can increase by using of sales promotion techniques, e.g. presentation by well-known persons, actors, free gifts, prize games. Inactive lifestyle, increased consumption of unhealthy foods and effective marketing tools lead to a drastic reduction of well-being of individuals and society. The drastic reduction of well-being of individuals manifest in the raising of obesity rate. There is an unprecedented increase in the number of obese people. Figure 1 shows the level of overweight and obesity rate from 1960 to 2004.
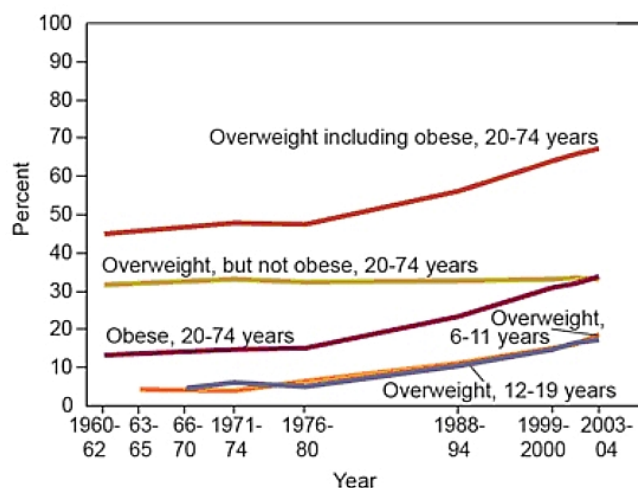

Figure 1.: Level of obesity rate (%)
Source: *Centers for Disease Control,* CDC, 2006

The direct medical cost of obesity and indirect economic loss to obesity has been estimated to be as high as 51.64 billion USD and 99.2 billion USD in 1995 (Wolf, A. M.; Colditz, G. A. 1998). 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 direct cost rose to 61 billion USD and the indirect cost rose to 117 billion USD in 2000 (Wellman,; Friedberg, 2002). The indirect cost 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. An analysis of projected health care costs has revealed that by the year 2018, obesity-related medical expenses will top 344 billion USD (Huff., 2010). The cost of obesity can be measured 2 ways:

- Direct costs include the cost of physicians and other professionals, hospital and nursing home services, the cost of medications, home health care and other medical durables.
- Indirect costs include lost productivity that results from illness and death.
  The cost of different illnesses in 2008 can be found in Table 1.

Table 1: The cost of different illnesses in 2008 in the USA

Illness	Cost of illness (USD)
Cancer	219 billion
Diabetes	174 billion
Coronary Heart Disease	156 billion
Obesity	123 billion
High Blood Pressure	66 billion
Stroke	57 billion

Estimates of annual direct + indirect costs in 2008
Source: AHA 2008, ACS 2008, Endocrime 2005

7 out of 10 deaths among Americans each year are from chronic diseases. Heart disease, cancer and stroke account for more than 50% of all deaths each year (Kung, et al, 2005).

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).

Insurance companies measure the cost of obesity:

- Medicare[1] pays 1.723 USD more than it pays for normal weight beneficiaries.
- Medicaid[2] pays 1.021 USD more than it pays for normal weight beneficiaries.
- Private insurers pay 1.140 USD more than they pay for normal-weight beneficiaries.
- Medicare pays 95 USD more for an inpatient service, 693 USD more for a non-inpatient service, and 608 USD more for prescription drugs in comparison with normal-weight patients.
- Medicaid pays 213 USD more for an inpatient service, 175 USD more for a non-inpatient service, and

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[1] Medicare is a social insurance program administered by the United States government to people who are aged 65 and over

[2] Medicaid is the United States health program for eligible individuals and families with low incomes and resources.

- 230 USD more for prescription drugs in comparison with normal-weight patients.
- Private insurers pay 443 USD more for an inpatient service, 398 USD more for a non-inpatient service, and 284 USD more for prescription drugs in comparison with normal-weight patients (Finkelstein EA, 2009).

Though smoking remains the number one preventable cause of death (of course just in people's mind) in the United States, obesity and diseases like heart and kidney failure that result from it hold a close second in the health care cost equation. In 1998, medical spending on obese people was half of what it is today. It could more than double in the next decade, accounting for more than 20 percent of overall medical expenses. Of the three primary diseases related to both smoking and obesity - diabetes, heart disease, and cancer - 1.8 trillion USD a year is spent treating them (Huff., 2010).

CDC estimates that if all physically inactive Americans became active, we would save 55 billion USD in annual medical costs (Pratt, Macera, Wang, 2000). Health care spending is expected to rise by 25% by 2030, due to the aging of the American population. Chronic diseases are responsible for more than 75% of health-care costs (CDC 2008). From 1979 to 1999, annual hospital costs for treating obesity-related diseases in children rose three-fold (from 35 million to 127 million USD) (Wang, Dietz, 2002).
There are several statistics which present the importance of the problem of obesity:
- Diet- and inactivity-related diseases increase costs to businesses. Medical costs of General Motors employees increased from 2,225 to 3.753 USD per year with increasing body mass index (BMI) of the employee (Wang F, et al 2003).
- Because of the extra weight that Americans gained over the last decade, the airline industry spends an additional 275 million USD a year on jet fuel Dannenberg AL, et al, 2004).
- The average health-care costs for a person with diabetes are more than 13,000 USD per year compared to 2.500 USD for a person without diabetes (Gerberding, J 2006).
- Employers pay an average of 4.410 USD more per year for employee beneficiaries who have diabetes than for beneficiaries who do not have diabetes than for beneficiaries who do not have diabetes (Ramsey et al, 2002).

Other indirect cost of obesity can be measured, but there is estimation e.g.: Cost of
- Lost Productivity: 3.9 billion USD,
- Lost Work Days: 39.3 million USD,
- Physician Office Visits: 62.7 million USD,
- Restricted Activity Days: 239.0 million USD,
- Bed-Days: 89.5 million USD [3].

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 favorable 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. Rate of obesity in EU and in USA can be found in Figure 2. and Figure 3.
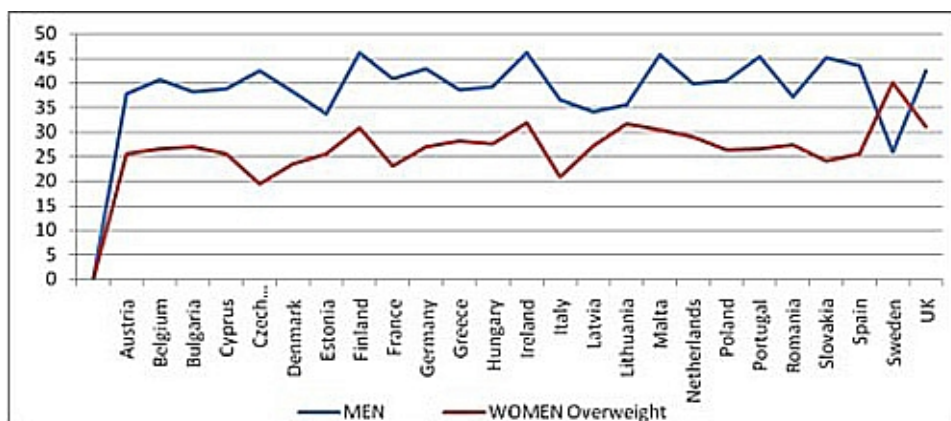
Figure 2.: Comparison of 25 countries of the European Union based on overweight males and females in 2004 (%)

Source: Nikos Valsamidis, 2004, http://www.valsamidis-surgery.com/en-obe-statistics.html

We may establish that the situation is not much better in European Union than in the USA.
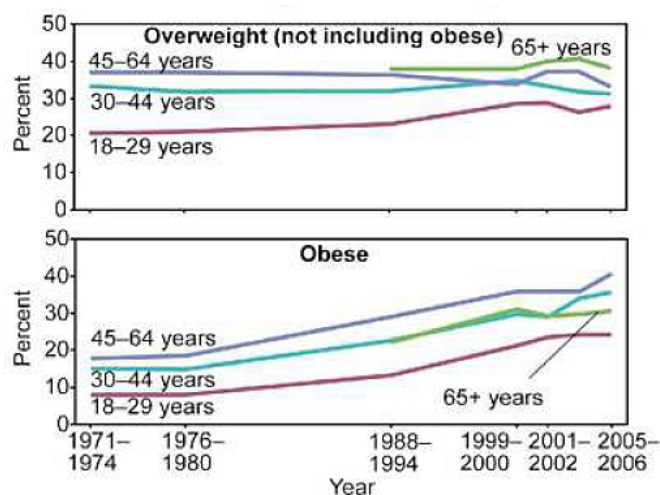

Figure 3.: Level of overweight and obese in USA (%)

Source: CDC/NCHS, Health, United States, 2008, Data from the National Health and Nutrition Examination Survey, http://www.win.niddk.nih.gov/statistics/

The rate of obesity is sharply rising. Nowadays the obesity rate in Hungary reached 60% among the total population too. 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).

Part of the problem with obesity is the American industrial food system that composes what is popularly termed the "Western" diet. Rich in bad fats, refined sugars, and oftentimes genetically modified ingredients. The components of the Western diet are the primary triggers in obesity. Quantity plays a part as well, but the substance is most likely the primary contributor (Huff, 2010). We think the statement is true all around the world.

MATERIALS AND METHODS

This paper focuses on consumer behavior of youth and cost of eating unhealthy foods, 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 1297 questionnaires were filled out in high schools of four cities (Mezőtúr, Szolnok, Debrecen, Nyíregyháza) of North-Great Plain Region, Hungary. Figure 4 shows the 4 cities of research in Hungary.

Figure 4.: Cities of the research in Hungary

Source: http://hcc.midanweb.com/administration/media/image/Map---WEB-Home-Hungary-Engl.jpg

The questionnaire examined the consumption of young persons in case of food with high level of fat, sugar and/or salt by young persons. 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.

Table 2: Demographic characteristic of the sample (n=1297)

Variables		Characteristics of the sample (%)	Data of the Hungarian Central Statistics Office(%)	Representativeness
Gender	Female	55.4	52.6	Good
	Male	44.6	47.4	Good

Source: own research,and Data of HCSO, 2010

http://portal.ksh.hu/pls/ksh/docs/hun/xstadat/xstadat_eves/tabl1_01ib.html

Students' grouping according to a type of school: 7.2% vocational school, 45.6% secondary school, 47.1% high school. This paper presents the results of 1297 questionnaire. Questionnaires were evaluated by SPSS, using the following statistical methods (like average, mode, median, standard deviation, Cramer's V coefficient of concordance, etc.).

During our research we examine the consumers' behavior regarding unhealthy foods (foods with high level of fats, sugar and/or salt) in detail. Table 3 shows the consumption frequency of fast-food products.

Table 3: Consumption frequency of fast-food products (n=1297)

			Intensity of consumption						Total
			Daily	Several times on a week	Weekly	Twice in a month	Monthly	Rarely	
Gender of respondent	Female	Count	4	20	34	85	369	206	718
		% within intensity	0,6%	2,8%	4,7%	11,8%	51,4%	28,7%	100,0%
	Male	Count	12	21	64	60	284	134	575
		% within intensity	2,1%	3,7%	11,1%	10,4%	49,4%	23,3%	100,0%
Total		Count	16	41	98	145	653	340	1293
		% within intensity	1,2%	3,2%	7,6%	11,2%	50,5%	26,3%	100,0%

Source: own research, 2010

We can see shocking high values. 12.0% of young persons visited a fast food restaurant at least with a weekly regularity. The value is 16.9% in case of young men higher than in case of young ladies (8.1%). The value of Cramer's V is 0.148 between gender of respondent and consumption frequency of fast-food products. The value of Cramer's V is 0.148 that shows a weaker correlation. We can state that the consumption frequency of fast-food products is higher in case of young men than young ladies. The consumption intensity of young men exceeds the average.

Values of Table 3. shows a high intensity of consumption, especially if we take into consideration that consumption of these products contribute to the increased level of childhood obesity. The money spent in fast food restaurant influences the budget of the family and the probability of obesity. Figure 5 shows the average spending in a fast food restaurant monthly.
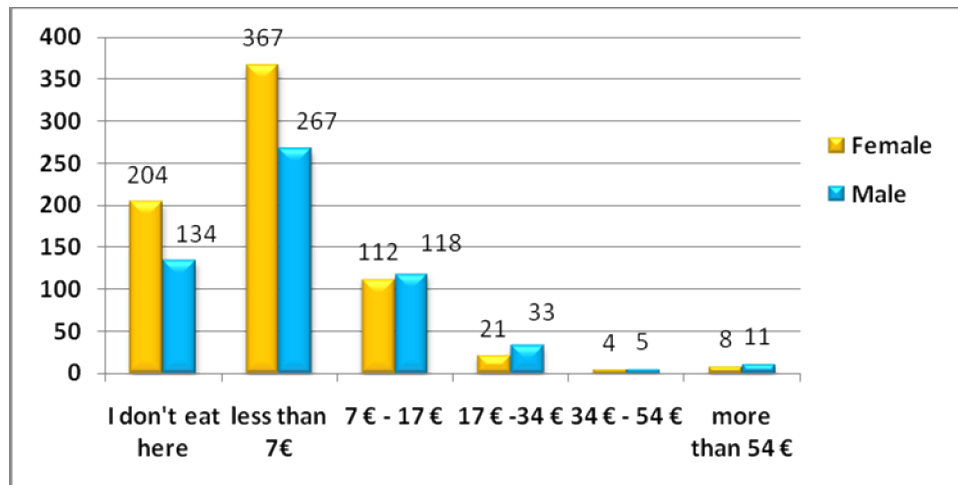

Figure 5: Average money spent in fast food restaurant monthly according genders
*1 € = 280 HUF, Official Euro exchange rate, Hungarian National Bank, 16. August 2010.
Source: own research, 2010

Per capita spending on fast foods is unbelievable. The value of average spending was 2.5 € in 2002 (MTI , 2002). Fast food sales continue to boom despite warnings about obesity. Fast food per capita spending statistics shows a considerable difference in different countries (Table 6).

Table 6. Per capita spending in a fast food restaurant in some important countries(USD)

Country	Per capita spending in a year (USD)
United States	492
Canada	387
Australia	279
United Kingdom	199
South Korea	189
Japan	108
Germany	89,63
Brazil	26.28
China	7,41
India	4,34

Source: Workman, 2007

The above mentioned numbers clearly show that Americans, Canadians and Australians spend much more per capita on fast food meals than an average Chinese or Indian eater does. Countries of EU can be found in middle of the list.

Of course the consumption frequency of fast-food products determines the average money spending. This is fact. If the consumer often eats in a fast food restaurant, the money spent on fast food is higher. The correlation of consumption frequency and average money spent in a fast food restaurant can be found in Table 7.

Table 7: Correlation between consumption frequency and average money spent in a fast food restaurant (n=1297)

		Average money spending in fast food restaurant monthly						Total
		I don't eat here	less than 7€	7€ - 17€	17€ - 34€	34€ - 54€	more than 54€	
Intensity of consumption	Daily	0	2	1	0	0	11	14
	Several times on a week	0	4	12	13	4	6	39
	Weekly	0	27	46	18	3	0	94
	Twice in a month	0	78	52	11	1	2	144
	Monthly	0	521	119	12	1	0	653
	Rarely	338	3	0	0	0	0	341
Total		338	635	230	54	9	19	1285

Source: own research, 2010

The Cramer's V coefficient, which measures the relationship between both methods, was middle: 0.585. If the consumer responds rationally, then the value of Cramer's V is 1.00. We can state that the respondents underestimate the costs.

CONCLUSION

The young generation is one of the most preferred target groups of the marketing. Considerable part of the advertisements, demonstrate foods with high level of fats, sugar and/or salt. Secondary surveys confirm that the children will follow the 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 contributes to the drastic rise in the number of overweight and diabetes type 2 people. The high intensity of consumption affects the family budget and the budget of the country. Importance of the problem can be measured. The health care costs rise dramatically. The obesity rate around the world reached 60% among the entire population. Nowadays there are serious consequences of rising obesity rate and increasing of health care costs. Problems will multiply in the near future if supporting actions will not taken.

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