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LIQUIDCANDIES

This research aims to determine whether consumer groups can be differentiated based on their requirements. A countrywide representative analysis was conducted in Hungary concerning the importance of the quality of healthiness in purchase decision-making. According to the research, it can be ascertained that a product's perceived healthiness and the consciousness of health plays a marginal role in the purchase decision process. Based on the market research about healthy ways of life, well separated prospective target groups can be found among the population in Hungary. Gender, age, level of education, and job type are all good factors to differentiate the population according to their preferences. Based on these findings, well targeted marketing should play an important role in disseminating information about health and a healthy way of life among the population.

1. INTRODUCTION

Industrialization, technological development, and the prosperity of capitalist societies has significantly changed people's lives. The increasing number of processed foods and sedentary yet stressful jobs have drastically changed people's dietary needs. Such a major change in lifestyle should imply that changes in dietary habits are necessary. New living conditions combined with traditional dietary habits could have strong negative effects on the organism. In the last few decades the rate of occurrence of chronic diseases has dramatically increased. The main cause of these diseases is the change in way of life: rising stress in a fast-paced world and a lack of attention to physical activity and proper nutrition. Nutrition and bad dietary habits have the greatest influence on weight gain and obesity, which are serious public health problems because of the increased risk of premature death and chronic diseases like heart diseases, high blood pressure, and diabetes. Besides the social cost of the diseases, they also have huge economic costs (NAYGA, 2008). Capitalism, agriculture, and food production is a troublesome partnership. Profit makes capital indifferent to the qualitative aspect of life, unless it can make quick profits. Rational capitalists will produce unhealthy food as long as it is more profitable than healthy food (ALBRITTON, 2009). The chronic diseases

obesity and diabetes are linked closely to improper nutrition and lack of physical activity (CLARKE et al., 2009). Good nutrition implies a daily balanced energy intake. Chronic imbalance between energy expenditure and energy intake causes weight gain and obesity. The daily energy burned and the energy consumed should be in balance continuously (AGIN, 2006).

One of the main sources of energy is added sugar, which doesn't contain any micronutrients, only calories. For this reason it is often called empty calories. Sugars are added to foods during processing or preparation, primarily to enhance taste. Consumption of added sugars has increased steadily in developed countries, especially in western societies (JOHNSON and FRARY, 2001). This increased consumption is contributing to the epidemic of obesity (MURPHY and JOHNSON, 2003). Researchers have found that there is a significant connection between energy intake, added sugar consumption, and weight-gain, obesity or Body Mass Index (BMI) (LI et al., 2008; DAVIS et al., 2007; GIBSON and NEATE, 2007). Based on these findings, the WHO has published the recommendation that refined, added sugar intake be less than 10% of total calorie intake.

Sugar is one of the cheapest and most accessible sources of calories. Its habitual consumption can lead to excessive appetite and quasi-addiction. The more sugar we consume, the more sugar we want, so processed foods are getting sweeter and sweeter

(ALBRITTON, 2009). These cheap and tasty calories are exploited by soft drink manufacturers, especially. A regular soft drink is a really good example of empty calories; it is sometimes called liquid candy (JACOBSON, 2005). These drinks contain almost no micronutrients, only added sugar. One 12 oz. can of a regular soft drink contains approximately 40g of sugar, around 200 calories, which is already the WHO-recommended daily maximum (DUBÉ, 2005). Soft drinks may also displace more nutritious beverage choices such as milk, which is the primary calcium source for children and youth (VAGSTRAND, LINNÉ and KARLSSON, 2009). In the last few decades there have been dramatic changes in the world's diet. Sugar and fat intake have increased considerably. This is especially true in the United States and Europe (SCHMIDHUBER and TRAILL, 2005). The rate of sugar and saturated fat consumption and the number of chronic diseases are relatively high in Hungary. Overweight and obese people constitute 50% of the total population, which is a lot compared to other European countries, though it is still less than in the United States or, in Europe, the United Kingdom.

A significant part of the increase in sugar consumption has been the increase of soft-drink consumption.

Researchers are divided as to what their findings regarding soft-drink consumption imply for human health. Some say that carbonated soft drink consumption has no negative effects on health and that there is no connection between sugar consumption, excessively sugary soft-drink consumption, and obesity (ALMIRON-ROIG and DREWNOWSKI, 2003; MARR, 2004). They found no Body Mass Index difference in those who regularly consume such drinks (BALIAN, 2009; KVAAVIK, ANDERSEN and KLEPB, 2004). Other researchers claim to have proven a connection between the above mentioned factors and sugary soft-drink consumption. They argue that soft-drinks displace more nutritious beverages and cause cavities, while their addictive caffeine may keep people hooked on them (WHITE, NITZKE and PETERSON, 2004).

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 part of a healthy diet. In theory, they might be right, but moderation in the amount of consumed is of major importance in this issue. A balance should be maintained between the consumption of foods poor and rich in nutrients.

Of course it is essential to study characteristics of the demand side, which is the consumer. Behaviour analyses are necessary to understand how to reach the target group more effectively (VIJAYAKUMAR, 2005). Mapping of consumer behaviour and differentiation of consumer groups based on this are essential for knowledge of the market and for performing properly targeted marketing activities. Much research has analysed the factors influencing soft-drink consumption, to understand consumer preferences better. Obviously, since carbonated soft drinks are beverages, one reason to consume them is to quench the thirst and gain energy (O'DEA, 2003). Yet these drinks don't quench thirst; people drink them mostly because of their sweet taste (SWEETMAN, WARDLE and COOKE, 2008). Gender, age, qualification, and educational level are all strong determinants of the purchase decision process; this applies to soft-drink consumption as well (BERE et al., 2007; ELFHAG, TYNELIUS and RASMUSSEN, 2007). Beside these the education level of parents and their nutrition habits are also considerable influences (BRUJIN et al., 2007). The behaviour of friends and peers can also have a strong effect.

Body Mass Index, level of physical activity, energy intake, and screen watching are also influencing factors (HAERENS et al., 2008; PAW et al., 2008). The availability of the soft-drink can also determine levels of consumption (HORST et al., 2008). Another factor that can attract consumers to drink more carbonated soft drinks is low price. Since they are cheap, excessive consumption problems can occur among low-income groups (WILCOX, KAMAL and GANGADHARBATALA, 2009). According to these findings I have examined the consumer behaviour of carbonated soft drinks in Hungary, with the purpose of grouping the Hungarian population according to their soft-drink consumption.

2. MATERIALS AND METHODS

2.1. Sample

I've studied the consumer preferences of Hungarian people regarding the consumption of carbonated soft-drinks and health awareness in cooperation with Szinapszis Ltd., a Hungarian market research company. In order to collect 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.

2.2. Methods

When planning the quantitative research, we 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 rejected because it was deemed unreliable. Field work is hard to control; it is also difficult to monitor and check the interviewers. If we had used this method, there would have been a risk of cheating by the interviewers. Also, it has unreasonably high costs. Considering the above, we decided on the phone survey method. With this method, the field work does not require a long period compared to face to face interviews. In order to increase verifiability and reliability of data, the calls were recorded so that they could be checked any time. Phone surveying 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, but its virtues and its cost-efficiency convinced us that it was the right method for this study.

When determining the quotas, we considered four major demographic characteristics. Quotas were determined according to gender, age, settlement type, and regional distribution by using data peculiar to Hungary. With this weighting 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, we took into consideration the Hungarian population between 14 and 65 years of age.

2.3. Data analysis

We used mostly a 5 point Likert-scale (1–5) to gain information from the respondents. Preference (higher value represents lower preference), amount of consumption, perceived healthiness, and the importance of different purchase-influencing factors (higher

value represented, higher amount of consumption, higher level of perceived health) were measured in relation to carbonated soft drinks. Mostly t-test and Analyses of Variance (ANOVA) were used to differentiate consumer groups by different attributes.

3. RESULTS AND DISCUSSION

I studied the preference for the category of carbonated soft-drinks, 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 best and they consume these at the highest rate. This category greatly exceeds the other categories. However, this category is followed, in order of preference, by carbonated soft-drinks, which contain significant amounts of sugar or sweetener c to mineral waters.

It is interesting that although the consumers like this category very much, they do not consider it too healthy (on 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 analyse the above statements (Table 1) separately by gender for men and women.

Table 1
Independent t-test 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 the 5% level, so there is a difference in the preferences of men and women. The higher values represent lower preference, while for consumption and health it is the opposite (values on a scale from 1–5) for preference.

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 appealing than do men. This result is in agreement with consumption and perceived healthiness. Men prefer and consume more carbonated soft drinks than women do and, accordingly, they consider it less harmful. It has been ascertained that gender is a strong determinant factor in carbonated soft-drink consumption. Similar results were found in a study by BERE et al. (2007) related to soft drink consumption among almost 3 000 10th grade students in 33 Norwegian schools.

Other researchers (STOREY, FORSHEE and ANDERSON, 2006) have found that, according to the National Health and Nutrition Examination Survey between 1999–2002, average carbonated soft

drink consumption is high among young people and it decreases sharply from the age 40 in the US population. To explore other determinants, I've next analysed the relationships according to age within the Hungarian population. I've found results similar to the above-mentioned. As the figure demonstrates (Fig. 1), older people consume a fewer carbonated soft-drinks. As age increases, consumption decreases. The consumption of carbonated soft-drinks is highest among the 14–17-year-old age group. The potentially harmful health effects mentioned above are threatening especially children and youth.

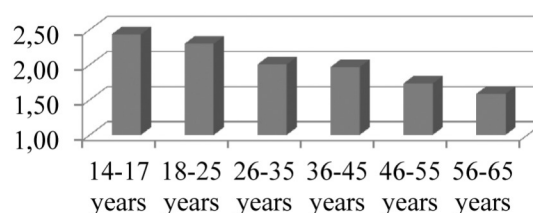


Fig. 1
Carbonated soft-drink consumption by Hungarian people according to age group

Another study (ELFHAG, TYNELIUS and RASMUSSEN, 2007) examined more than 3000 people in Sweden and found that age and education also corresponded to different levels of sweetened soft-drink consumption. My results indicate that young people consume more and older people consume fewer carbonated soft drinks in Hungary. Occupation is a factor that can usefully differentiate consumer groups. Occupation is strongly linked to educational level, which I will discuss later. The result of occupational differentiation can be seen in the next table (Table 2). The indicated values can be accepted at the 5% significance level; they show significant differences. In the case of carbonated soft-drinks, it is proven that those having an intellectual occupation consume significantly less (at 5% probability level) than students or manual workers. Students and manual workers, mostly heavy manual workers, consume many more carbonated soft-drinks. The results for students supports the above results obtained using the age determinant.

This result shows clearly that carbonated soft drinks are targeted particularly at the younger population. It is important to disseminate information and encouragement toward healthier lifestyles, physical activity, and proper nutrition, especially to the young population, who are under greater threat from companies' marketing.

After these findings, I focused on the relationship between educational level and consumption. It has been found (CULLEN et al., 2002) that the education level of parents is an influential factor in carbonated soft drink consumption through an examination of 560 American children. I've revealed that among the Hungarian population higher educational levels are accompanied by decreasing consumption levels of the products in question. People with higher education consume significantly less than people with only an elementary school education (Table 3). The indicated values can be accepted at 5% significance level; they show significant differences. Apparently level of education is also a useful factor to consider when differentiating consumer groups according to purchase behaviour toward carbonated soft drinks. This information is es-

sential to creating a public health marketing campaign that can enhance proper nutrition and health among the Hungarian population.

Table 2
Differences in Hungarians' soft drink consumption according to job type

	<i>Job type</i>	<i>Mean difference</i>	<i>Standard Error</i>
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

Table 3
Differences in Hungarians' soft drink consumption according to level of education

	<i>Level of education</i>	<i>Mean difference</i>	<i>Standard Error</i>
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

4. SUMMARY

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

Carbonated soft-drinks are a highly popular product category even though most of the population considers them unhealthy. The most influential factor is the flavour (the candy sweetened taste). The second most influential factor for the Hungarian population is brand loyalty, which has a strong effect on the 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 drinks.

People should be aware of the amount of their carbonated soft drink consumption and the negative effect of excessive sugar and calorie consumption. The displacing of nutrient-rich in the diet should also be monitored. Healthy life and nutrition are important issues. After examining the study's results, it is clear that temperance should be exercised in the consumption of soft-drinks.

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