

## Buying dietary supplements and over the counter drugs in the Czech Republic

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### Abstract

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**Introduction.** The aim of this survey was to evaluate the consumers' behaviour of dietary supplements and over the counter drugs on the market in the Czech Republic and to define four main segments of customers. Group of pharmacy customers in the Czech city was interviewed to find out, how often they buy dietary supplements and over the counter drugs.

**Materials and methods.** Respondents came from a sample aged from 18 to 80 and most of respondents were rather higher educated. A method of research was structured questionnaire. Respondents were asked prior drugstores.

**Results and discussion.** There is a need for consumers' education on reliable use of herbal medicines and herbal dietary supplements, in order to improve their awareness of the limits of herbal remedies safety and potential risks of their combination with drugs. The most important findings are, in the Czech Republic 86 % of respondents buy dietary supplements and majority of responded consumers (64 %) believe its effect on health. Based on our research, four segments were defined, called as „caring“, „mistrustful“, „natural“ and „trustful“. „Caring“ customers are the most numerous (64 %) and buys the most painkillers, but spend almost the least amount of money (5.29 € per month for over the counter drugs and dietary supplements). „Natural“ customers have share of 14 % in the Czech population. This group buys mostly dietary supplements and other types of drugs. „Trustful“ buyers prefers medicines for flu and colds and for digestion. They have also the second highest payments for over the counter drugs and dietary supplements. „Mistrustful“ customers do not buy any over the counter drugs and dietary supplements.

**Conclusion.** This research builds on the existing literature on pharmaceutical marketing and gives comprehensive findings about Czech dietary supplements and over the counter drugs market.

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## **Introduction**

Dietary supplements are vitamins, minerals, amino acids, specific fatty acids, extracts and other substances with significant biological effect (by Act No. 110/1997 on food as amended by the Act No. 306/2000 Sb. § 2. letter i). These products are available in pharmacies, drugstores, groceries and are available without any prescription. Prior bringing them in the market, National Health Institute has to evaluate their health harmlessness. In contrast with pharmaceuticals, nobody evaluates their effectiveness [1].

Dietary supplements are also products which look very similar to pharmaceuticals, but this is only specific category of foodstuffs. It is concentrated source of vitamins and mineral substances or other substances with nutritional or physiological effect, contained in the foodstuff itself or in the combination of foodstuffs, intended for direct consumption in measured small unit quantities. Another goal of dietary supplements is to supplement the normal diet consumer level and positively affect his or her health.

In the Czech Republic dietary supplements are solved in the following legislative documents. Bill of Ministry of Health No. 225/2008 Sb. defines requirements for dietary supplements and food enrichment (amended by bill No. 352/2009 Sb – changes of recommended dose of some minerals and vitamins), where are listed allowed vitamins and mineral substances, their purity and maximum amounts per daily dose. Bill No. 352/2009 Sb. also presents a list of plants, which are prohibited for production of dietary supplements. Other documents which deal with dietary supplements are Act No. 110/1997 Sb., on food and tobacco products and Ordinance of European Parliament and European Council No. 1924/2006 on nutrition and health claims made on food labelling [2].

## **Literature review**

Customer behaviour reflects the totality of their decisions regarding goods, services, activities and ideas, namely the acquisition, consumption and disposal of goods or services [4]. Customer behaviour is influenced by cultural, social and personal factors. Cultural factors are presented as the largest and broadest group and they include ethnicity, religion, racial group and social class. Social factors comprise family, reference groups, social role and position in society. Personal factors include age, occupation and lifestyle [5].

There are two approaches to the analysis of customers: quantitative and qualitative. Qualitative analysis may be performed by the black box model, which is based on stimulus and response. Advertising can be one of the stimuli. A marketer looks for the reasons why a customer responded. Another qualitative analysis is based on the decision-making process, which includes recognising the problem, searching for information, evaluating alternatives, purchase decision and behaviour after purchase.

Customer behaviour is an ongoing process. This process does not end with purchase and payment. It involves the handling of products, repeat purchases and satisfied or unsatisfied behaviour [6].

Customer behaviour involves many different actors. Each of them has a different role. Each role may be performed by one person or one person can perform many roles. The purchaser and user of a product may not be the same person. Other roles include informant, decider and influencer [6].

Customer behaviour comprises five elements. Each of these elements influences marketing strategies and tactics. In models of customer behaviour, many questions describe behaviour accurately, such as what a customer buys and when and where a customer buys

it. The actors in a decision-making process have many roles: information gatherer, influencer, decider, purchaser and user. The decision-making process takes place at a certain time

Advertising can play an important role in a decision-making process, especially informing and influencing. Advertising informs about new and existing medicaments, and an advertisement may have different forms such as television and radio advertising, advertising on the Internet, in pharmacies or in magazines. This is valid for the medicaments freely available.

These factors may affect the Decision making process. Purchasing decision-making process has several phases. The phases are follows: recognition, information search, alternative evaluation and selection, outlet selection and purchase, and post-purchase processes. There are certain factors that play a role at each phase [7].

Consumer behaviour is influenced by many factors. Customers are influenced by a risk of buying, innovativeness in the adoption of new products, variety in purchase, retail facilities or window displays, and interviews with other persons about purchases [9].

Internal and external factors affect customers. These facts are transferred to decision-making process by affected customers. Individuals develop self-concepts and subsequent lifestyles based on a variety of internal and external influences. These self-concepts and lifestyles produce needs and desires. It affects the decision-making process, as is indicated in [7]. The decision-making process affects internal and external factors in the form of experiences and acquisitions.

The internal factors are determined by customers. Hawkins et al. divide these factors into seven groups – perception, learning, memory, motivation, attitudes, personality, and emotions [7].

The perception is a process by which individuals receive and assign interest to stimuli. Stimuli are gathered through the five senses – sight, hearing, touch, taste and smell. Perception of object results from the interaction of two types of factors: stimulus factors (size, colour) and individual factors (including sensory processes, experience, basic motivations and expirations of individual). Learning is change in the content and structure of long-term memory; it is the result of information processing [8].

Memory can be divided into short-term memory and long-term memory. Each individual has short-term memory (working memory), it is a portion of total memory that is currently activated or in use and long-term memory, and it is that portion of totally memory devoted to permanent information storage [7].

Sort-term memory has a limited capacity to store information and sensations and long-term memory is viewed as an unlimited, permanent storage.

Jamal et al. (2006) describe motivation based on two types of psychosocial needs: personal and social. Motivation is the reason for behaviour, e.g. purchase). The reasons may be personal or social. The personal motives include the needs for role-playing, self-gratification, and diversion, learning about new things, physical activity, and sensory stimulation.

The social motives include the communication with others, group attractions, status and authority, and pleasure in bargaining.

Attitudes are described by Hawkins et al. as an enduring organization of motivational, emotional, perceptual and cognitive processes with respect to some aspect of the environment. The internal factors are also: personality (characteristics of person), and emotions (relatively uncontrolled feeling that affect behaviour) [7].

Hawkins et al. divide external factors into seven groups – culture, subculture, demographic characteristic, social status, reference groups, family, and marketing activities [7].

Culture can be defined as the values, beliefs, preferences and tastes handed down from one generation to the next. Every marketer need to understand their role in consumer decision making.

Marketing strategies have to be varied in each area. This is due to the differences in cultures in different areas [8].

Hawkins et al. define subculture, demographic characteristic, and family as follows. Subculture is a segment of a larger culture whose member shares the distinguishing values and patterns of behaviour. Subculture produces unique market behaviours. Members of subculture are part of the larger culture. Demographic characteristic includes the number, education, age, income, occupation and location of individuals in society. Family has a role in teaching children how to consume and household decision making [7].

Social status and reference groups are defined as follows. Social status – consumers belong to a number of social groups. Differences in group status and roles can affect buying behaviour. Status is the relative position of any individual member in a group [8].

Roles define behaviour that members of a group expect of individuals who hold specific positions within that group. Groups define formal roles and others. Reference groups influence person's behaviour by the value structures and standards. Children are especially vulnerable to the influence of reference groups. They base their buying decisions on outside forces (television, internet, fashion icon, singer, actor and other celebrity, friends). Reference groups have a few members act – opinion leaders. They share their experience and opinions about new products [8].

Marketing activities is concentrated in product strategy, price strategy, place strategy and promotion strategy. Marketing communication has an important role in the decision making process.

It can be realized using advertising, promotion, public relations, direct marketing and personal selling.

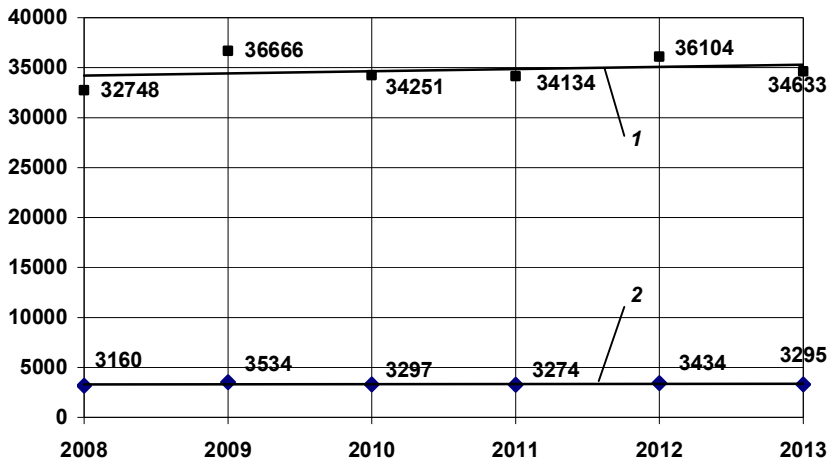
Purchasing behaviour of customers can be divided into two categories. Customers ask themselves two types of questions – (1) whether the customers buy products, (2) which products the customer buys (if there are substitutes). Consumers have a difficult situation in deciding because the number of variants available as the market grows. There is the problem of how people choose from among a large number of variants. People make decisions based with the aim of maximizing their total benefit in relation to their budget line.

In 1999, pharmaceutical companies spent 1.8 billion dollars on direct-to-consumer advertising compared with less than 300 million dollars in 1994 [10]. US research on prescription drugs has shown that customers are increasingly exposed to direct-to-consumer advertisements. The results show that doctors are increasingly confronted with patients who ask questions or who make suggestions based on these advertisements [10].

Pharmaceutical marketing influences customers very intensively [16] as well as culture [17]. Another interesting findings about relations between dietary supplements consumption and their sweetness presents [18]. Conclusions about determinants of dietary supplement use depicts [19] and [20].

## Analysis of Czech market of drugs and dietary supplements

Drugs and dietary supplements can be described in the following way. Expenditures of health insurance companies on prescription drugs have a growing trend (values are not adjusted for inflation). Expenditure of health insurance companies on prescription drugs since 2008 increased by 10.25% (adjusted for inflation only 1.44%) and the average cost of a prescription medication given to the insured of 8.67%. (Adjusted for inflation, however, we get a negative value for cost reductions of -0.12% for the years 2008 to 2012) [3].



**Figure 1. Structure of drugs sales in 2006-2013:**

- 1 – Health insurance expenditures for prescription drugs
- 2 – Average costs for prescription drugs per policyholder

Source: own elaboration based on [12], [14]

**Development of the volume of distributed drugs.** Compared with other European countries shows that the Czech Republic has a lower than average consumption of drugs both in absolute terms and in purchasing power parity, the lower values reached Estonia, Poland and Denmark. Interesting is not finding that the Nordic countries (of the countries plus Norway and Finland the consumption of drugs, despite climatic conditions, rather lower than necessary to Germany, France or Belgium. Remarkable is also the result of Slovakia, which has purchasing power parity consumption higher 44%.

The average price of drugs for the past 11 years has risen by 125%, but adjusted for inflation, we conclude that the average price for drugs from 2001 to 2012 actually fell to 95.9%.

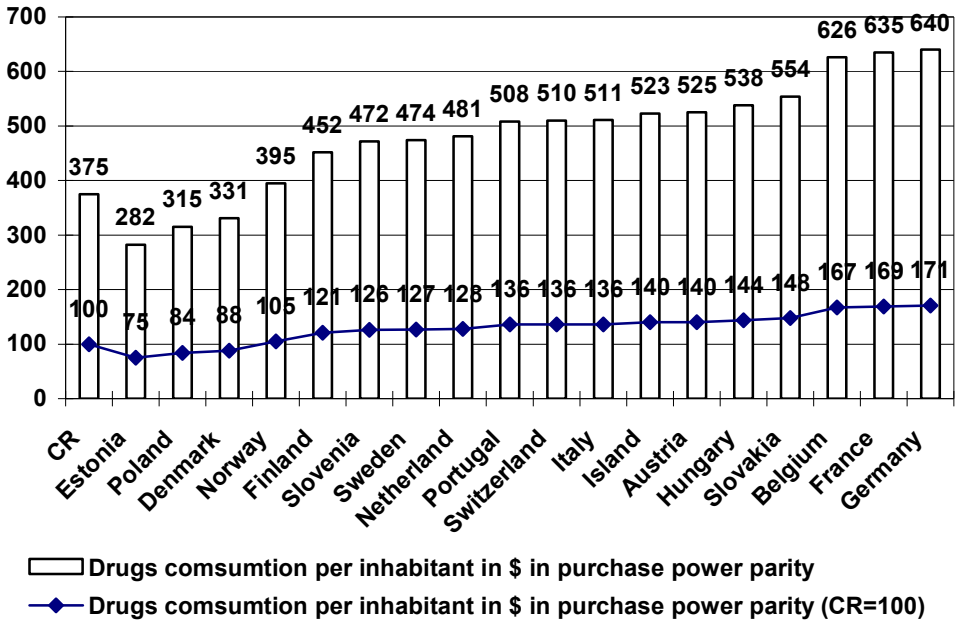


Figure 2. Development of drug consumption per capita in purchasing power parity in 2012  
Source: own elaboration based on [3]

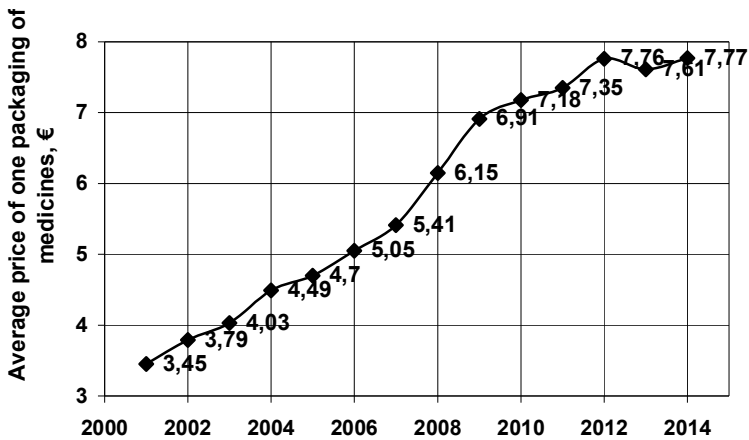


Figure 3. Average prices of one packet of drugs in €  
Source: own elaboration based on [15]

## Materials and methods

Relations between information about over the counter drugs and dietary supplements and their real consumption are illustrated by research made in February 2013 in Czech city with 12,000 inhabitants, frequently visited by tourists with the sample of pharmacy visitors. Respondents came from a sample aged from 18 to 80 and most of respondents were rather higher educated. A method of research was structured questionnaire. Respondents were asked prior drugstores.

Structured questionnaire with sixteen questions has been used for personal interviewing.

**Table 1**

**Sample structure (n = 125)**  
Source: own elaboration

Sex	Male	20.0%	Education	Primary school	9.6%
	Female	80.0%		Secondary school	60.8
Age	18 - 25	35.2%		University	29.6%
	26 - 35	12.8%	Social status	Employed	45.6%
	36 - 45	20.0%		Unemployed	6.4%
	46 - 55	20.0%		Entrepreneur	8.0%
	56 - 65	10.4%		Student	32.0%
	66 and more	1.6%		Pensioner	8.0%

The obtained data were analysed with use of factor analysis using Varimax rotation and cluster analysis were created by four mutually heterogeneous segments. Market segmentation is the process of distribution of customers within each market into distinct groups. Whose members share a similar level of interest in the same or a comparable set of needs that can be satisfied certain market supply [11].

## Result and discussion

Individual frequency of purchase of medications and dietary supplements, and spending on them can be compared by each segment. These findings are presented in Table 2.

Table 2

**Frequency of purchase of over the counter drugs and dietary supplements and expenses for them**

Source: own elaboration

	Frequency of buying dietary supplements	Frequency of purchase of medicines for flu and colds	Frequency of buying painkillers	Frequency of buying drugs on the digestion	Frequency of purchase of other drugs	Average monthly expenses for medicines and dietary supplements
Caring 64 %	2.67	2.35	3.34	0.70	0.27	5.29 €
Distrustful 14 %	never	never	never	never	never	0 €
Natural 14 %	3.26	1.88	0.99	0.18	0.53	7.77 €
Trustful 8 %	1.4	3.4	2.4	0.8	never	7.22 €

**Caring**, who are also the most numerous segment, comprising 64% of respondents prefer natural products and health care is a priority for them. They believe that the use of drugs burdens the body. These customers are not characterized by extreme values in the purchase of over the counter drugs and dietary supplements fall more into the mainstream consumption. The only exceptions are medications to hurt (3.34 / year), which buy even more than three times more often than the natural segment of consumers.

**Distrustful** of the effects of dietary supplements do not believe supplements just pull the money and pharmaceutical products are harmful, according to them, which also reflects the fact that none of the monitored products not purchased. This segment as the table showed purchase no drug or dietary supplement.

For the segment of **natural**, health care is a priority, but despite a positive relationship with the natural healing products are essential medications is always in stock. This characteristic is also in their purchasing behaviour, which can confirm the high frequency of purchase of dietary supplements (3.26 / year) on one side and lowest frequencies buying drugs for flu and colds (1.88 / year), painkillers (0, 99 / year), and drugs for digestion (0.18 / year). Based on the presented data, we can say that a healthy lifestyle has a positive effect on the morbidity of consumers and therefore to purchase drugs.

**Trustful** believe that pharmaceutical products use is not harmful, and this intention should be reflected in their purchasing behaviour. This group of customers buys carries out the highest number of sales in the category of drugs for flu and colds (3.4 / year) and ingesting drugs (0.8 / year). The table also shows that two maximum values of purchases are done by this group.



## Conclusion

Czech market of over the counter drugs and dietary supplements have had since 2008 rising trend in health expenditures for prescription drugs but average costs for prescription drugs per policyholder fell down in 2010, 2011 and in 2013. Comparing the volume of distributed medicines in the Czech Republic with other European Union countries, Czech Republic has under average consumption and only Estonia, Poland and Denmark have lower amount distributed medicines. In total, average prices of one packet of drugs since 2001 till 2014 have doubled.

Based on our research, in the Czech Republic we can define four types of over the counter drugs and dietary supplements buyers. The most numerous (64 %) are customers called „caring“ who buys the most painkillers, but spend almost the least amount of money (5.29 € per month for over the counter drugs and dietary supplements). The second numerous group of customers are „natural“ with them share of 14 % in the Czech population. This group buys mostly dietary supplements and other types of drugs. Group of „trustful“ buyers prefers medicines for flu and colds and for digestion. They have also the second highest payments for over the counter drugs and dietary supplements. The rest of respondents are „mistrustful“ customers, who do not buy any over the counter drugs and dietary supplements.

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