GENERAL

OPINIONS AND ATTITUDES OF CZECH CITIZENS ON SELECTED ISSUES OF DRUGS IN SOCIETY

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Abstract: The social sciences within health care and pharmacy provide various points of view on issues often managed by professionals both inside and outside of the health care system. This multidisciplinary perspective often leads to divergent views and sometimes seemingly contradictory viewpoints and solutions. This paper is devoted to the opinions and attitudes of Czech citizens on selected issues of healthcare and pharmacy, the elucidation of which could be a source for understanding the relationships among participants in our pluralist health care system as a whole. This article presents the results of a sociological survey featuring a representative sample in terms of gender, age and region of 1,797 respondents from the Czech population aged 15 and over. The research is focused on the issues of self-medication, choice of pharmacy, out of pocket expenditures on prescription drugs and over-the-counter medicines, experiences with side effects and finally an evaluation of patient comprehension of information leaflets accompanying health care products. According to the results presented here, at the onset of a health problem most of the population tries to treat the condition themselves before seeing a doctor (54.1% always, 30.9% sometimes). Over-the-counter drugs are purchased generally in classic pharmacies without self-service (96.1%). The choice of pharmacy is determined primarily by proximity, with much less importance placed on personal experience or lower price. According to the survey, Czechs spend around 150 CZK (€ 5.9) for over-the-counter medicines and around 143 CZK (€ 5.6) for prescription drugs per month; 77.9% of Czech citizens were shown to understand the information provided on package leaflets. These data help to understand the perception, orientation and behavior of the patient in the healthcare system, with the ultimate goal of leading to higher system effectiveness as well as greater satisfaction for all parties involved.

Keywords: pharmacy; self-medication; drug consumption; drug expenditure; package leaflets; the Czech Republic

In the Czech system, health care is paid for mainly by public health insurance, supplemented by small fees paid by patients. Among European countries the Czech Republic devotes one of the largest shares of its national budget toward funding public health, thus the level of expenditure by the patient (16% of the total) is one of the lowest in the EU (1, 2). The reform measures implemented by the government in 2008 to increase participation have a significant influence on the behavior of Czech patients. The introduction of various types of regulatory fees, however, may bring a range of socio-economic problems, for example increasing the burden of citizens, affecting pensioners and older individuals most drastically (3).

Providing health care is becoming one of the largest sectors of the global economy, with all developed countries recording an effort to improve the health status of their citizens. Not always, however, does the amount of money devoted to health care show corresponding results in the improvement of the overall health of the population as described by international standards (4). Rapid technological change, rising patient expectations and an aging population are driving the need for many reforms in the health sector (1). Unquestionably, the health status of a population, represented for example by average life expectancy, has a relatively strong link to the overall economic level of the country. In comparison with the health values of other European Union countries (EU-27), the Czech Republic remains on the border between average and poorer nations (5).

Despite the decreased spending over the last two decades of reforms and changes which have taken place not only in healthcare but in all sectors,

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the Czech health care system has become measurably more efficient (6, 7). In recent years throughout the Czech health care system, however, reform and partial changes have increasingly influenced public opinion. These developments are often driven not only by economic and organizational need but also by the political background, with which they are closely associated by individual citizen-voters. To insure citizens' maximum understanding of the necessity and effectiveness of every reform, data from public opinion surveys should be carefully analyzed and the results taken into account.

Pharmaceuticals significantly affect society, and the application of appropriate drug policies likewise affect the quality of life in that culture. Citizens themselves can significantly alter the role of specific drugs in terms of prevention as well as causal and symptomatic treatment. Our intention thus is to find, identify and exploit these relationships among regulators, health care professionals and individuals for the benefit of both patients and the society at large. The initial reaction when an individual first experiences a health problem is often a determining factor in effective treatment. People usually try to treat themselves, and only when they fail to achieve results do they see a doctor. Self-medication has increasingly become an important area of healthcare, shifting the responsibility for the treatment of minor ailments to the patient himself (8).

In self-medication the patient usually uses non-prescription medicines, and the entire process of selection and the proper use of substances can be supported significantly by the expert advice provided in pharmacies (9). Despite the fact that online pharmacies must be staffed by a university-educated medical staff which ensures the quality and safety of the medicines marketed, this kind of one-to-one advice to the patient cannot be provided in internet sales. Further, a much more dangerous situation arises from internet transactions outside of regulated pharmacies. These often illegal businesses cannot guarantee the quality or safety of their products, which often come from counterfeiters and may have drastic or even deadly consequences on the health of the buyers.

In legal cases, only authorized pharmacies can offer to sell OTC drugs for the fulfillment of conditions stipulated by law in the Czech Republic. Approved common pharmacy can expand their activities on the mail order dispensing, that offer drug sales through the website. In this way it is possible to offer only registered OTC medicinal products (not prescription-only medicinal products) (10). Another widely frequented point of sale of common

medicines are outlets such as drugstores and petrol stations which have a license for the sale of selected medicinal preparations. At any rate employees at these establishments have gone through special training and can ensure the right conditions for the purchase, storage and sale of such products (11).

Selected medicinal products which may, in accordance with the marketing authorization, be sold without a medical prescription outside pharmacies like i.e., herbal products registered as medicinal products (teas), desinfecting and antiseptic preparations, nicotine replacement therapy and some well-known and long used OTC drugs (ibuprofen, paracetamol, activated charcoal, etc.). A complete list is available in the database of registered medicines (10, 11).

Good practice of the vendors of selected medicinal products shall mean a set of rules which ensure that the sale of these products is conducted in compliance with the requirements governing the quality, safety, and efficacy of selected medicinal products and in compliance with their intended use (11).

In the Czech Republic the citizens' choice of pharmacy is not tied to specific medical facilities, thus the provider of pharmaceutical care can be freely changed. There is no obligation to register in a specific pharmacy and thus enjoy the benefits of a long-term relationship with a particular pharmacist. While there are wide disparities among pharmacies regarding the provision of pharmaceutical care (12), the basic responsibilities of all pharmacies are described and regulated through legislation (13). The patient-pharmacist relationship, the demand for vocational counseling, and other various factors influencing selection and patient satisfaction have been to a limited extent analyzed by surveys in the past (14), but these studies have not worked with representative sociological data.

For proper treatment people need comprehensive and accurate information about their medicines as well as information about the risks and benefits of treatment. The lack of information has been identified as a major factor in why patients do not take their medication as prescribed to them or otherwise recommended (15). It is also vital that this information be provided in a form that can readily be understood. The technical or formal language involved with descriptions of adverse effects along with the enumeration and correct standardization of potential problems as well as information on indications, proper dosage and possible interactions with other medicines is for a number of patients incomprehensible. Studies have found that the likelihood of

adverse effects in patients has been greatly overstated (16).

MATERIAL AND METHODS

In the context of our representative sociological survey of citizens of the Czech Republic we first investigated to what extent respondents engaged in self-treatment when health problems occurred. Our research also focused on the preferred method of purchasing over-the-counter medicines and the choice of pharmacy. Special attention was devoted to OTCs and proprietary medicines issued by prescription. Questions were composed with the goal of determining the number of as well as the range of substances used as well as how much money citizens spend on medications within a certain time period. Another aim of the research was to ascertain the views of citizens on the thoroughness of the information on their medicinal products and the clarity of leaflets. Respondents were also asked whether they had noticed any side effects while taking non-prescription medicines and in such a case how they behaved and whether they had taken advantage of additional pharmacy services.

The questionnaire used in survey study contains two groups of questions. The first group, eleven questions, consisted of questions relating to the person the interviewee. Issues as gender, age, place of residence, marital status, number of children, net household income and other household characteristics, education, occupation and religious affiliation. The second group of questions (the number of the twelve) were specific issues related to the topic of sociological survey described below.

The questions were closed-ended and semi-open-ended according to character of questions.

Data collection

The research plan and project was developed in September and October 2011. An examination of the projected methodology took place in early November 2011, at which point preliminary research was used to verify the instruments, with the wording of the questions tested on a sample of 234 respondents (citizens) on 7-11 November 2011. During this period the interviewers were also briefed and coached.

The field survey itself was carried out in the Czech Republic during the period of 21 November to 4 December 2011. The compiling of the questionnaire forms, validation and data entry into the computer was completed by 19 December 2011. Balancing the data, basic mathematical and statistical analysis of the results as well as the final inter-

pretation of the data base had been carried out by 31 December 2011.

The research was conceived as sociological, with the field survey being conducted through controlled interviews of respondents. The final version of the questionnaire form was determined based on the results of preliminary research. Data collection was ensured by 303 professional interviewers working throughout the Czech Republic. Interviewers read the questions exactly as they appeared on the survey questionnaire. In this structured interviews the choice of answers to the questions was fixed (close-ended) in advance and there was also a possibility of semi-open-ended questions in some cases according to the character of these.

The data (answers) were collected by an interviewers personally in households of respondents chosen randomly according to the parameters set out below.

Study population

The data were obtained from a sample size of 1797 individuals randomly selected using quotas. The file is a representative sample of the Czech population aged 15 years and over, with representativeness being derived from a basic set of the population of the Czech Republic at the age of 15 years and older (17).

The composition of the sample can be described in terms of basic demographic variables. In terms of gender the file is composed of 877 (48.8%) men and 920 (51.2%) women, a ratio which corresponds to the Czech population aged 15 years and over; in terms of relative frequency, the ratio from our sample represented a deviation from the basic set of within 0.1%, and compared with the age breakdown of the basic set the deviation in our study does not exceed 0.2%. By geographical representation, the regions from which our respondents were chosen also corresponded with representative population breakdowns of the Czech Republic; compared with the basic set, the maximum deviation of our samples was 0.2%. Thus it can be concluded that our results are representative of the population of the Czech Republic over 15 years of age in terms of gender, age and region.

Other characteristics not monitored for representativeness but collected in the survey include education, marital status, number of children, size of residence, occupation, amount of net monthly family income and standpoint toward religion. When what seemed to be a statistically significant association was found, the study results noted a possible correlation. Nevertheless, due to the fact that these

data were not monitored for representativeness these associations can finally be interpreted only as tendencies.

Response rate

The field survey was conducted by interviewers who questioned a total of 1,996 randomly selected citizens, each of which were approached with a simple request for an interview on the issue of health care; 199 respondents, i.e., 10.0%, simply refused to be interviewed; 1797 respondents, i.e., 90.0%, agreed to be questioned.

An analysis of refusal to participate based on gender indicates that women were more willing to participate in our research than men. The least willing to participate in the project were men and women aged 65 years or over. It was found that willingness to participate in the survey was lower in the oldest age group, while respondents from the youngest age groups were most willing to cooperate. Overall, it can be said that the rate of refusal to participate in the research was low, a result which possibly reflected the special training of interviewers. The preparation focused on ways of making contact and inducing the trust of respondents along with mode of communication in order to encourage participation in the research after the respondents were issued the special instructions.

Regarding reasons for the refusal to participate, the most common one was lack of time (35.4% of those who declined). The second most common excuse given was a general lack of interest in such participation or a disregard for research (29.3%). Another 16.9% of the respondents who said no gave as the reason a mistrust of our particular project and doubts about its efficacy; 9.3% of those who rejected us said the questionnaire was too long and that they considered such studies as ours unnecessary. 4.6% of the respondents justified their refusal by stating that not enough information was presented about the topic being investigated. The remaining 4.5% of respondents who declined gave reasons of health, reasons other than those specified above or no reason at all.

Data analysis

Statistical data processing was done by SASD 1.4.5 (Statistical Analysis of Social Data). First level indicators and a pivot table of selected 2nd degree indicators were processed first. The degree of dependence of the selected characteristics was based on χ^2 distribution as well as on other test criteria applied according to the nature of indicators. On the basis of this analysis alone data interpretation was conducted.

RESULTS

Czech citizens and self-treatment

How Czechs respond initially in the event of a health problem was investigated by means of closed questions such as: "Do you generally attempt to treat yourself before you visit a doctor?" Respondents had three options: "yes", "no", and "sometimes".

The results showed that more than half of the citizens of the Czech Republic (54.1%) attempt self-treatment before going to the doctor, and less than one third (30.9%) do so occasionally. Only 15.0% of Czechs stated that they never first try to treat themselves; they see a doctor straight away whenever a health problem arises.

Table 1. Motivating factors in pharmacy selection for different groups of the Czech population (in percentage).

	Men (n = 877)	Women (n = 920)	Over 65[1] (n = 316)	Lower education[2] (n = 768)	Higher education[3] (n = 1029)	TOTAL (n = 1797)
Personal experience	25.2	32.2	27.2	22.1	33.7	28.7
Nearest pharmacy	45.8	37.0	37.3	44.0	39.3	41.3
Cheaper prices	18.1	24.2	30.4	24.9	18.6	21.3
Another factor	0.4	0.1	0.3	0.3	0.2	0.3
No preference	10.5	6.5	4.8	8.7	8.2	8.4

[1] The eldest citizens of age 65 and over. [2] People with lower schooling (primary, vocational and technical school graduates). [3] Pople with a higher level of education (secondary school and university graduates).

More women (57.8%) attempt to self-medicate than men (50.3%) do (p < 0.001). It was also found that individuals with a higher level of education (56.9% of secondary school and university graduates) try to first treat themselves to a greater extent than people with lower schooling (50.5% of primary, vocational and technical school graduates), (p < 0.01).

The possibilities of purchasing OTCs

Our research also examined the behavior of citizens regarding the acquisition of non-prescription medicines with the aim of determining preferred point of purchase. The question investigating these behaviors was formulated as a semi-open one with the possibility for respondents to choose more than one answer: "Regarding non-prescription medicines, which of the following purchase options have you used?" Respondents had the option to choose from the following possible responses: "classic pharmacy", "self-service pharmacy", "internet pharmacy", "outside the pharmacy - drugstore, petrol station", "internet, from a non-pharmacy website", and "other – be specific" with a gap provided for written clarification. Because respondents could select multiple answers, the sum of the relative frequencies exceeds 100%.

The results of this question were unambiguous: in the vast majority of cases (96.1%) Czechs buy over-the-counter medicines in traditional pharmacies. Other purchase options were used to a much lesser extent. Self-service pharmacies were identified by 15.5% of the respondents; drugstores and petrol stations were indicated by 9.9%. Online pharmacies accounted for 7.4% of purchases, while 1.6% of the total was accounted for by internet sales from non-pharmacy websites. Other options, e.g., purchases from stores specializing in herbs, shops specializing in dental care, bought from a friend, etc., were indicated at an extremely low rate (0.5%), (p < 0.05 for each).

Motivating factors in pharmacy selection

The way Czechs choose pharmacies is governed by a variety of factors and circumstances which were identified in the research through a semi-open question: "What is the most important factor in your selection of pharmacy?" The choices of replies were "personal experience", "nearest pharmacy", "cheaper prices", "another factor" and "no preference". Respondents were able to choose only one answer, which was regarded as the most influential factor in the decision.

In the selection of pharmacy Czech citizens clearly placed the most emphasis on close proximity. More than two-fifths (41.3%) reported that they simply select the nearest pharmacy when they need to buy or order medicines. For 28.7% of the respondents personal experience is most decisive factor; more than one-fifth of the respondents (21.3%) cited lower prices as the motivating factor. Without any preferences in pharmacy selection were 8.5%. Only 0.3% of those questioned indicated another option, with some of their choices specified as opening hours, accessibility to pharmacists, the possibility of paying by credit or debit card, and how the pharmacist advises customers regarding medications. No other factors were reported.

Men indicated significantly more often that they select the nearest pharmacy or they have no preference; women seem to prefer a more personal experience and lower prices than men. The eldest citizens (65 and over) indicated cheaper prices as the deciding factor. Pharmacies with lower prices at a closer location were preferred by those with lower education (primary school, no university); respondents with a higher level of education (secondary school and university) prefer a more personal experience. For detailed results see Table 1 (p < 0.01 for each).

Consumption of OTC drugs

Considerable attention was devoted in this study to both the treatment of people with OTC medicines as well as medicines issued by prescription. The aim of the research here was to determine how much money is spent as well as how many and what kind of medicaments are used regularly.

The first aspect of our research in this area focused on the average cost per month that Czechs spend, with the amount being determined by means of a continuous variable (respondents mentioned a specific amount in CZK). Then those questioned were asked to name specifically the over-the-counter medicines which are usually purchased with this monthly expenditure. The first step in the data analysis was the calculation which showed that Czechs spend on average 149.8 CZK (5.9 EUR) per month on OTC drugs (the standard deviation 223.9 CZK or 8.78 EUR). The margin was 2000 CZK (78.4 EUR), indicating that the smallest amount quoted was 0 CZK/EUR, the highest 2000 CZK (78.4 EUR).

Our analysis shows that 29.3% of Czech citizens do not purchase over-the-counter medicines at all; therefore for them no funds are spent in this area. More than half (51.6%) of Czechs spend 200 CZK (7.8 EUR) per month on non-prescription medi-

cines; for 15.3% the amount ranges from 201 to 500 CZK (19.6 EUR) per month. The remaining 3.8% spend an amount exceeding 500 CZK (19.6 EUR) per month. For graphical representation and comparison of differences between expenditures on OTCs and prescription drugs see Chart 1.

Our study also clearly shows that men more often report an amount of 0 CZK/EUR than women and women more often an amount of 200 CZK (7.8 EUR) or higher than men. This finding, however, does not justify the conclusion that men use OTC products less often, but rather reflects the fact that in families women are in most cases more often in charge of shopping. The survey results also indicate a correlation with age. Higher monthly amounts (201-500 CZK, 7.9-19.6 EUR) are spent by respondents in the oldest age group (over 65 years), with 0 CZK/EUR) more likely to indicated by those from younger age groups. This is likely the result of the

greater incidence of common health problems in the elderly and the growing need for the use of appropriate medicines, but also in the fact that for young people these products are usually purchased by their parents. For summarized representation of the results see Table 2 ($p < 0.01$).

With regard to OTC drugs, how many of those products are used daily by Czechs was also measured. The average number of OTC drugs used every day is 0.76 (the standard deviation 1.09). In this case the range was from 0 (no OTCs) to 10 (the highest number of OTCs per day indicated).

More than half of Czech citizens (55.1%) indicated that they take no OTC drugs diurnally. Approximately one quarter (25.3%) said that regularly each day they take one OTC drug, another one-fifth of them more than one (12.6% indicated two OTCs daily and 7% three or more OTCs). For graphical representation and comparison of total

Table 2. Total monthly expenditures on OTC drugs by gender and age of the Czech population (in percentage).

	Men (n = 877)	Women (n = 920)	Under 65[1] (n = 1481)	Over 65[2] (n = 316)	TOTAL (n = 1797)
0 CZK/EUR	34.7	24.1	30.3	24.4	29.3
1-200 CZK (up to 7.8 EUR)	49.9	53.3	52.5	47.8	51.6
201-500 CZK (up to 19.6 EUR)	12.7	17.8	13.7	22.8	15.3
501 CZK (19.6 EUR) and more	2.7	4.8	3.5	5.0	3.8

[1] The younger age groups of age under 65 years. [2] The eldest citizens of age 65 and over.
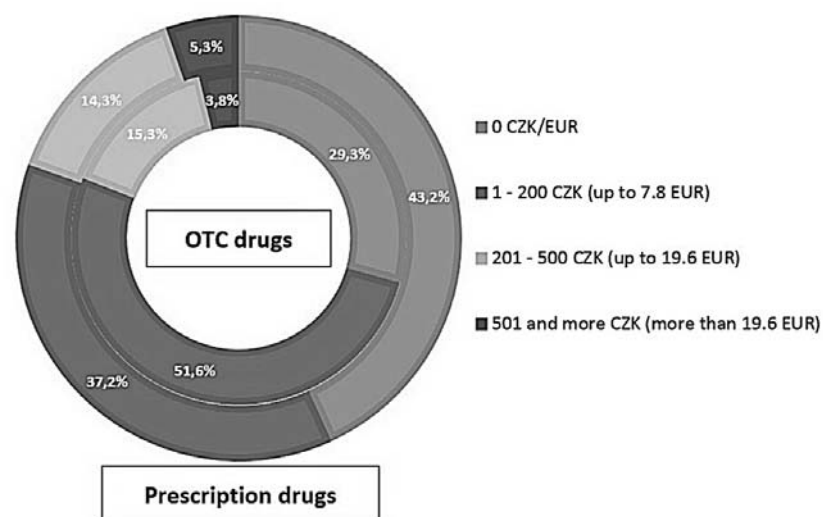

Chart 1. Comparison of total monthly expenditures on prescription drugs (the outer ring) and OTC drugs (the inner ring) of the Czech population aged 15 and over (n = 1797)
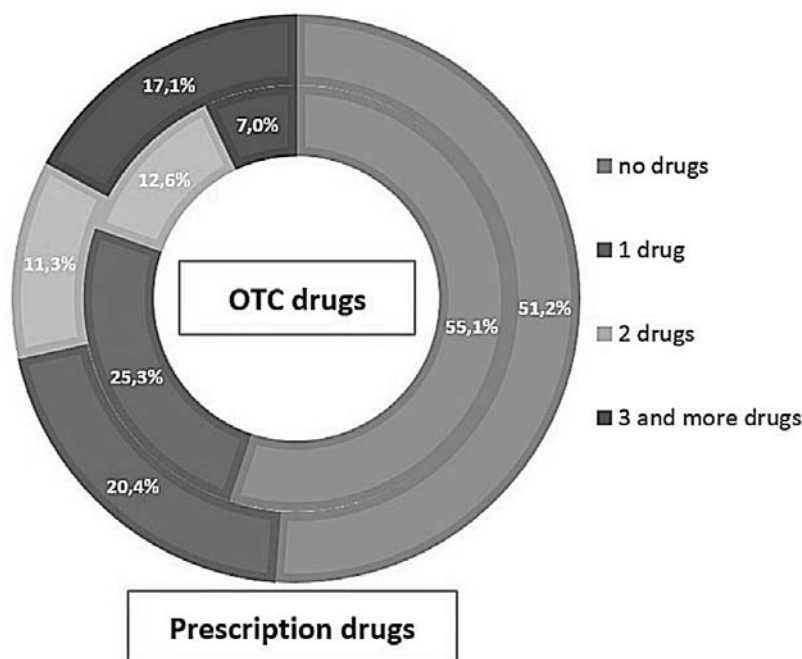
Chart 2. Comparison of total number of daily used prescription drugs (the outer ring) and OTC drugs (the inner ring) of the Czech population aged 15 and over (n = 1797)

number of daily used OTCs and prescription drugs see Chart 2.

Our tests of statistical significance have identified a number of significant relationships (p < 0.01) between sociodemographic characteristics and the regular diurnal use of OTC drugs. These products were clearly shown to be used daily more often by women (57% of women daily use one and more OTCs), with significantly more men reporting no use at all (62.4% of men).

A strong linkage (p < 0.01) between age and daily use was also found. Based on our analysis it can be concluded that regular diurnal use of OTC drugs increases with age: the younger the respondents, the lower the use. The reason for this is apparently the increasing number of health problems which occur as an individual grows older. In this way age as a factor also operates through marital status. With less products being used by unmarried people (on average 0.54 OTC per day), more by widowed individuals (on average 1.05 OTC per day). A particularly interesting correlation was found between daily use of OTC drugs and religious belief: more OTCs use was reported by Czechs who indicated that they were religious; less was indicated by those with no religious belief. But correlation with age is the reason for this also here, because in the Czech Republic older people in particular have

been found to be more religious (18). No real correlation was found between religious beliefs and consumption of OTC drugs, everything is related only to age.

Adverse effects of OTCs

The safe use of (especially new) medicines and an overall deeper relationship between patient and pharmacist is facilitated by the mandatory reporting of unexpected side effects to a central control authority. In the Czech Republic this process is administered by the National Institute for Drug Control.

Within the context of our research into drug use one of the objectives was to determine what experience Czechs have had with side effects of non-prescription medications and how they handle these events. The question relevant to these experiences was worded thusly: "Have you ever noticed side effects after taking OTC drugs?" Respondents could choose one of the following answers: "1 – Yes, I have experienced side effects and I reported them to a pharmacist or physician; 2 – Yes, I have experienced side effects, but I did not report them; 3 – No, I have never noticed side effects."

The results show that almost four-fifths (79.3%) of Czechs reported never having experienced any side effects in connection with OTC med-

icines. Another 11.4% indicated that they had reported adverse effects to a pharmacist or doctor, with the remaining respondents (9.3%) indicating that had experienced adverse reactions, but did not report them.

Significantly more men (83.6%) than women (75.2%) reported they had not experienced side effects from OTC drugs (p < 0.001). No other statistically significant links to sociodemographic characteristics were identified.

Consumption of prescription drugs

In the same way that the use of OTC drugs was investigated, prescription drugs were studied in terms of the average monthly expenditure and how many of these products are used regularly on a daily basis. Respondents were to indicate not only a specific amount or quantity, but also to specify which medicinal products are used.

The data analysis shows that Czechs spend on average 143.0 CZK (5.6 EUR) per month on prescription drugs (the standard deviation 283.3 CZK or 11.1 EUR). Financial expenditures indicated in this regard ranged from 0 to 5100 CZK (0 to 200 EUR).

The analysis showed that 43.2% of the respondents stated that they did not allocate any monthly funds toward prescription drugs. Another 37.2% of the respondents indicated that they spent on average of 200 CZK (7.8 EUR) per month on prescription drugs; 14.3% said more than 200 CZK (7.8 EUR) and 5.3% more than 500 CZK (19.6 EUR) monthly. For graphical representation and comparison of differences between expenditures on prescription drugs and OTCs see Chart 1.

As in the case of OTC drugs, the second-stage analyses showed that significantly greater financial expenditures were made by women, specifically between 201 CZK and 500 CZK (7.9 and 19.6 EUR) per month, while significantly more often men reported 0 CZK/EUR. Despite the presence of the phrase "you personally" in the survey question, the

fact that women buy more products in total for the entire family may have influenced these results.

Again a strong link to age was found. The result that no funds at all are spent for prescription drugs was reported significantly more often by younger age groups (under 44 years of age). The finding that the amount of monthly financial resources allocated increased with the age of the respondent can likely be linked to the increase of health problems as individuals grow older, as stated above regarding OTCs.

Also as described above, age also operates through marital status and religious belief (18). To a significantly greater extent unmarried respondents indicated no funds spent monthly on prescription drugs; widowed individuals indicated higher expenditures. Similarly, the fact that higher expenditures were described by those claiming to be religious is likely mediated by the fact that in the Czech Republic a greater percentage of these individuals are senior citizens. For summarized representation of the results see Table 3 (p < 0.01).

How many prescription drugs are used daily by the average Czech was also investigated. In this case the value is 1.24 (the standard deviation 1.97), indicating that Czechs consume on average more than one prescription drug daily. The range here is from 0-17, i.e., one case was identified in which the respondent reported taking 17 prescription drugs per day.

A bit more than half of the citizens of the Czech Republic (51.2%) stated that at present they take no prescription drug daily. Approximately one-fifth (20.4%) stated they regularly use daily one drug, while the remaining 28.4% indicated two or more products. Combining these latter figures it can be said that about half of Czechs aged 15 or older regularly use a prescription drug at least once a day. For graphical representation and comparison of total number of daily used and prescription drugs OTCs see Chart 2.

Regarding products requiring a prescription as is the case with those that do not, significantly more

Table 3. Total monthly expenditures on prescription drugs by gender and age of the Czech population (in percentage).

	Men (n = 877)	Women (n = 920)	Under 44[1] (n = 871)	Over 44[2] (n = 926)	TOTAL (n = 1797)
0 CZK/EUR	48.8	37.8	55.6	31.5	43.2
1-200 CZK (up to 7.8 EUR)	35.9	38.5	34.8	39.5	37.2
201-500 CZK (up to 19.6 EUR)	10.6	17.8	8.1	20.0	14.3
501 CZK (19.6 EUR) and more	4.7	6.0	1.5	9.0	5.3

[1] The younger age groups of age under 44 years. [2] The eldest citizens of age 44 and over.

Table 4. Understanding of package leaflets for different groups of the Czech population (in percentage).

	Men (n = 877)	Women (n = 920)	Under 30[1] (n = 453)	Over 65[2] (n = 316)	Lower education[3] (n = 768)	Higher education[4] (n = 1029)	TOTAL (n = 1797)
Understand entirely	27.5	37.6	32.5	25.6	24.1	39.1	32.7
Understand almost everything	45.3	45.1	43.5	45.9	46.6	44.1	45.2
Not understand many things	9.9	10.3	8.8	16.2	13.4	7.7	10.1
Not understand at all	0.8	0.5	0.4	2.5	1.2	0.2	0.6
Not read them	16.5	6.5	14.8	9.8	14.7	8.9	11.4

[1] The youngest citizens of age under 30 years. [2] The eldest citizens of age 65 and over. [3] People with lower schooling (primary, vocational and technical school graduates). [4] Pople with a higher level of education (secondary school and university graduates).

women than men reported that they do not use any. Clearly regular daily use of medicines and prescriptions increases with age, with the pivotal point being 44 years of age (p < 0.01). Herein the obvious cause of this finding is the growing health problems of the elderly.

Here again age also operates through marital status, with regular daily use being indicated higher by the widowed respondents than unmarried ones. Education is also a factor. A greater number of products used (three or more) was reported at a significantly higher rate by those with only primary, vocational or technical schooling; those with a higher level of education (secondary school, university) were significantly more likely to report that they use no prescription medical product regularly every day (all with p < 0.01).

Rating of the clarity of package leaflets

Participants in our study were asked to evaluate the clarity of leaflets enclosed in medicine packaging. They were asked to do so through a closed question with a standardized five-point Likert scale of answers.

Most Czechs (77.9%) reported that they understood the package leaflets in medicinal products in part or in full. Of these, 32.7% said regarding herself / himself "I understand entirely" these leaflets; 45.2% stated "I understand almost everything" the information. The answer "I do not understand many things" was chosen by 10.1% of those questioned, while only 0.6% said "I do not understand at all". The remaining 11.4% of the research participants reported regarding leaflets "I do not know because I do not read them" (p < 0.001 for each).

Men significantly more often chose the answer "I do not know because I do not read them"; significantly more women selected "I understand entirely" the leaflets in medical packets.

The youngest age group often chose the answer "I do not know because I do not read them", and the oldest citizens reported more often "I do not understand many things". A lower level of understanding and more answers of "I do not know because I do not read them" was indicated by respondents with lower education, whereas those with a higher level of education stated significantly more often "I understand entirely" package leaflets. For the numerical results of different groups see Table 4 (p < 0.001).

CONCLUSIONS

The study showed that self-medication and pharmaceutical care in pharmacies are very important not only for savings in health care financing as a whole, but also for the patients themselves, because the most of them attempt self-treatment before going to the doctor (54.1% always, 30.9% sometimes). The vast majority of the Czech citizens choose classical pharmacy for it and the main motivating factor in pharmacy selection are distance and availability (they prefer the location before price and quality of care provided). 79.3% of Czechs have never had any experience with side effects in connection with the use of OTC drugs. Understanding of package leaflets information by patients is very good, because they said that they understood all (32.7%) or almost everything (45.2%) of the information.

Czechs spend on average 149.8 CZK (5.9 EUR) per month on OTC drugs and likewise on prescription drugs – 143.0 CZK (5.6 EUR) per month and it is still one of the lowest participation (out-of-pocket expenditures) among OECD countries.

DISCUSSION

The optimization of drug therapy has traditionally involved a physician, and in the concept of clinical pharmacy also a pharmacist. The idea of pharmaceutical care in keeping with the decision-making on drug therapy includes also the patient and the drug therapy management also payer of the provided health care (health insurance company). Drug therapy management can be considered as a strategy to incorporate the philosophy of pharmaceutical care into everyday practice of pharmacies (19).

The Czech Republic ranks among the countries with the lowest levels of private expenditure (20) on health care and this situation has not changed significantly even after the introduction of nominal regulatory fees (21). The burden of Czech households increased from 2.15% of their net income to 2.63% in 2008 and to 2.55% in 2009 after the implementation of user fees (3). The increasing private spending on drugs in recent years has not been so significant as in some neighboring countries. For example the private expenditures on drugs were financial burden for the Polish population in recent years. In 2000, 14% of the Polish households spent more than 10% of their income on medications and the share increased over the decade to reach 18% in 2009 (22).

However, Czech citizens perceive their private health expenditure as being much higher than it is in reality. While in the law covering the Czech public health insurance program it is provided that in every group of medicines at least one medicinal product is paid for in full by the health insurance, this applies to only certain groups of active substances provided for in an annex of this law (23, 24). Often Czechs have to pay surcharge for medicines, with the average value in the survey being reported at 143 CZK (5.6 EUR) per month. In official statistical data this average surcharge was cited as half that amount – 72 CZK (2.8 EUR) (2). This difference, in perception by citizens of higher personal expenditure than is really the case, can be seen as an important sociological parameter. Raising the awareness of Czechs about their actual expenditure on drugs as opposed to what they think, could be considered a major contribution of our survey. Along with other considerations, the feeling that one is spending more than is actually the case is also exacerbated in many chron-

ic patients, for example with those who must purchase a selection of concomitant medications every three months. In these cases this accumulated amount could distort the picture of the actual monthly cost.

OECD Health Data are a good source for detailed information about health expenditures. It is good for understanding of health policy and comparison providing of health care in different countries. However, any available official estimates of private expenditure (and their publishing in OECD Health Data) have proven not to be reliable according to some studies (25). Therefore, the sociological surveys and other different types of studies are so important for better understanding and comparison of national diversity from many points of view.

The result of the survey that more than half of Czechs attempt to treat health problems themselves before seeing a doctor should be seen as an important motivating factor for improving the operation of pharmacies, which serve as an ideal place for preliminary consultation. The potential counseling and assistance from pharmacists regarding self-medication, thus only sending the patient to a doctor in the case of a serious problem, brings additional cost savings to the healthcare system. The two regulatory fees, one for doctor visits and another for prescriptions, have certainly enhanced pharmaceutical care in terms of self-treatment as well as increased savings by almost 22% due to an overall decrease in the number of items issued per prescription (26).

According to the another sociological study, the main source of information about medicines are for the Czech citizens the package leaflets (58.2%), the prescribing physician (58.2%) and only 37.0% of them obtain information from their pharmacist (27). According to the study conducted one year after the implementation of regulatory fees, a proportional distribution of the results is the same (relative frequency; annual change): the package leaflets (67.7%; +9.5%), the prescibing physician (56.3%; -1.9%) and pharmacist (44.0%; +7.0%) (28). Because respondents could select multiple answers, the sum of the relative frequencies exceeds 100%. The clarity of package leaflets is an important and reasoned subject of interest. Participants in our study understood the package leaflets in medicinal products in part or in full. Men did not read them more often and significantly more women understood them entirely. In another study, the Czech citizens before taking a new drug in 80% of cases read leaflets and follow recommendations of them (more women – 86% than men – 75%) (29).

Regarding self-treatment and the opportunity to purchase medicines, the vast majority of Czechs choose classic pharmacies in which the pharmacist can provide technical assistance and other recommendations. Neither personal experience (29%) nor price (21%) was found to be the leading deciding factor in the selection of pharmacy; proximity affected the choice most often (41%), with the nearest available facility being chosen. This results (proximity and affordable of pharmacies) is related to the opinions of the Czech citizens from other studies (29); in case of legal dispensing of some drugs outside classical pharmacies (and in case of cheaper price and better accessibility of dispensing place), 41% of respondents would use such a place (29). The same view like a currently legislation (10) has 59% of Czech citizens who disagree with sales outside pharmacies (29). The most preferred alternative places of this sales are drugstores (26% of whole population) and supermarkets (25% of whole population) (29).

The finding that religious individuals regularly use more medicines daily than non-religious people could lead to erroneous conclusions: this factor is closely related to age, as in the Czech Republic many more individuals in the age group above 70 years identify themselves as religious (68%), a statistic which represents a much higher average than that of the entire population 15 years and older (39% of which are religious) (18). There is no correlation between religious beliefs and consumption of drugs. According to the demographic characteristics of the Czech population, consumption of drugs s not related to religious beliefs but only to age.

Data from the present project can serve not only to facilitate wider understanding and possibly suggest potential nationwide changes and major decisions, but also help shape the smaller sub-goals of regional institutions, private facilities and future research projects. Nationwide changes over the last two decades including but not limited to reforms in the field of Czech medical care can be re-evaluated and developed further thanks to the type of representative sociological survey that was carried out in this project (30). This kind of sociodemographic information about personal attitudes, beliefs and habits is of vital importance to health providers (doctors and pharmacists) who are in daily contact with the end user (patient). Thus medical and pharmaceutical professionals may focus their efforts on the goal of increased efficiency and the greater satisfaction of all involved in the health care process.

For a better understanding and comparing, the values in Czech crowns (CZK) were converted into Euro (EUR) at the average exchange rate values during data collection, which was 25.5 CZK/EUR (31).

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