

Influence of advertising on the assortment of OTC cold medications

Wpływ reklamy na asortyment stosowanych leków na przeziębienie

Magdalena Hartman¹, Paweł Lichtański¹, Ewa Klimacka-Nawrot¹,
Karolina Donocik², Barbara Błońska-Fajfrowska¹

ABSTRACT

¹Department of Basic Biomedical Science
in Sosnowiec
Silesian Medical University in Katowice
²General Surgery Ward, District Hospital
in Zawiercie

INTRODUCTION

The research is focused on the variety of OTC (over the counter) medications used to treat the common cold, with respect to sex, age, and educations of respondents, as well as the influence of advertising on purchasing such products.

MATERIAL AND METHODS

A survey including 131 respondents (74 women and 57 men) aged 19 to 65 years, was conducted in the Silesia Region (Poland).

RESULTS AND CONCLUSIONS

The findings indicate that women more often than men fall victims of OTC cold medication advertisements and use a wider assortment of such medicines. The poorer the education of respondents, the lower the frequency with which they bought cold medications under the influence of advertising and were accustomed to a smaller assortment of such remedies. Persons with vocational or primary education had the most problems remembering the names of OTC cold drugs they self-administered during a cold. Respondents who purchased those medicines they knew from an advertisement used a richer assortment of OTC cold medications.

ADRES

DO KORESPONDENCJI:

Dr n. med. Magdalena Hartman
Department of Basic Biomedical Science
Kasztanowa Street 3
41-205 Sosnowiec
phone: +48 32 269 98 30
fax: +48 32 269 98 33
e-mai: mhartman@sum.edu.pl

KEY WORDS

OTC, the common cold, advertising, assortment of drugs

STRESZCZENIE

WSTĘP

Opracowanie dotyczy oceny różnorodności leków OTC (*over the counter* – leki bez recepty) stosowanych podczas leczenia przeziębienia, z uwzględ-

nieniem płci, wieku i wykształcenia respondentów oraz wpływu reklamy na zakup tego typu preparatów.

MATERIAŁ I METODY

Badanie ankietowe przeprowadzono w województwie śląskim. Wzięło w nim udział 131 osób (74 kobiety i 57 mężczyzn) w wieku od 19 do 65 lat.

WYNIKI I WNIOSKI

Wyniki wskazują, że kobiety łatwiej ulegają wpływowi reklamy przy zakupie leków OTC na przeziębienie i stosują bogatszy asortyment tych leków niż mężczyźni. Im niższy poziom wykształcenia ankietowanych, tym rzadziej zaopatrują się oni w leki na przeziębienie znane im z reklamy i stosują mniejszy asortyment preparatów. Osoby z wykształceniem zawodowym lub podstawowym wykazują najniższą znajomość nazw leków stosowanych podczas przeziębienia. Respondenci częściej kupujący leki znane z reklamy stosują większy asortyment preparatów OTC podczas leczenia przeziębienia.

SŁOWA KLUCZOWE

OTC, przeziębienie, reklama, asortyment leków

INTRODUCTION

The common cold is a self-limiting, viral infection of the upper respiratory tract [1,2]. The disease is characterized by high incidence. Adults catch it about two to four times a year, while children eight to nine times annually. It is usually accompanied by watery catarrh, nasal congestion, sneezing, scratchy throat, malaise, headache, and sometimes fever [3]. The symptoms cause difficulties in everyday functioning as well as frequent absence from school and work [2]. Given the large number of viruses responsible for the infection, their types and subtypes, developing a vaccine and gaining immunity is practically impossible [2,4]. Treatment is mainly based on alleviating the symptoms, and a visit to the doctor is usually not required unless the state is severe. According to TNS OBOP, 33% of Poles see their doctors only when self-medication is not effective [5]. There is a wide range of available products which are supposed to relieve unpleasant indications of the illness. Such products are heavily advertised in the media, especially between September and March, when the cold incidence increases, which enables persons outside medical circles to learn about non-prescription drugs [6]. Pharmaceutical Law and Code of OTC Pharmaceutical Marketing Practices are to ensure safety of those

who treat their illnesses by self-medication [7, 8]. Pharmaceutical law obliges pharmaceutical companies to prevent their advertising from misleading, and to objectively inform of the rational use of medicines [7]. All of the medications advertised in the media can be bought without a prescription. Many of them are available not only from a pharmacy, but also from non-pharmacy establishments [9,10]. Easy access to OTC products is generally regarded as positive due to the fact that it allows to relieve symptoms quickly and without additional costs. However, self-medication entails various risks depending on the kind of product used. The most commonly purchased groups of cold remedies are non-steroidal anti-inflammatory medications, first-generation antihistamines, anti-cough drugs, expectorant ones, products loosening thick nasal mucous, “decongestants” (pseudoephedrine and phenylephrine), vitamin C, medicines causing vasoconstriction in the nasal passages, gargling medicines, and lozenges [2]. Non-steroidal cold medications reduce inflammation, relieve pain and bring down fever, which makes the patient feel better, however, the medications may cause sensitive persons to suffer from such side effects as disorders in the digestive tract, in the kidneys, and the central nervous system [11]. Adverse side effects intensify together with an increasing dose and duration of use. Establishing

proper dosage is particularly difficult for those not familiar with medicine. One must realize that the name of a product is not as important as the active substance and its dose in a pill. Not everybody knows that products with different names often contain the same active substance [11]. For instance, the most popular Acetylsalicylic acid (*Acidum acetylosalicylicum*) can be found in several dozen OTC simple and complex medications [12]. While simultaneously taking the correct dosage of the same substance under different names, one might unconsciously exceed the highest allowed dose of Acetylsalicylic acid and suffer from e.g. gastric ulcers, bleeding in the digestive tract, decreased renal blood flow, improper water-electrolyte balance, damage to the hematopoietic system, the liver, or the skin. Unfortunately, even if given products contain different substances, that does not mean the patient can be uncritical about their self-administration. Medications belonging to the same group, for example the group of non-steroidal anti-inflammatory medications, and sharing a similar mechanism of activity should not be taken together. Apart from non-steroidal anti-inflammatory medications, there are many other products applied in the common cold treatment. Each of them must be used according to directions which are to be strictly adhered to. The safest and highly recommended course of action in treating any illness by self-medication is reading the package leaflet provided with all medicines. The Regulation of the Minister of Health [13] requires all package inserts to contain all the information necessary to choose the best product for a given person, considering their general health. By law, every medicine commercial has to inform of the need to read package inserts, or contact a doctor, or a pharmacist before use [8]. Patients should take the advice for the sake of their own safety, since pharmaceutical companies sometimes use improper marketing practices in the name of profit. This is evidenced by a large number of advertisements that Main Pharmaceutical Inspectorate withdraw each year because of misleading patients [14].

OTC products can produce both beneficial and negative effects. Our study helped to establish how well the names of cold medications are remembered, which suggests whether such products are chosen consciously. The assortment of medications listed by the respondents allowed

to determine whether sex, age, and education predispose to self-administering a greater variety of medicines, which would entail greater risk of overdose, and interactions between substances. Respondents' declarations cast a light on the influence of advertising on OTC cold medication purchasing.

AIM

This research sought to assess the wide diversity of OTC cold medications, taking into account sex, age, and education of respondents, as well as the influence of advertising on the purchase of such products.

MATERIAL AND METHODS

The study included 131 respondents from the Silesia Region (Poland). They were asked to report how often, during a cold treatment, they bought a product seen in advertisements, and to name OTC cold medications they used. The respondents were chosen at random [15] from among supermarket and petrol station customers. The criteria for participation in the study were participant's consent and no cold symptoms. Each participant responded to survey questions individually. Respondents were 74 women and 57 men, including 69 subjects within the age range 19–39 years, and 62 persons aged 40–65 years. A higher education diploma was held by 32 of them, 72 had secondary education, and 26– vocational or primary. Statistical analyses were performed by means of a chi-square test with $\alpha = 0.05$ regarded statistically significant. In order to establish the relation between advertising and the assortment of cold medications correlation coefficient R^2 was used.

RESULTS

Advertising was helpful when it came to the choice of a cold medication for 64.2% of respondents, who reported buying those cold medications which they knew from advertisements, 15.3% of them bought such products frequently or very frequently (fig. 1).

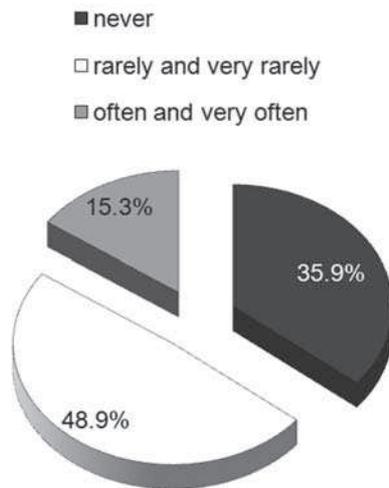


Fig. 1. Declared frequency of purchasing OTC cold medications that respondents were familiar with thanks to advertising (n = 131).

Ryc. 1. Deklarowana częstość zakupu leków OTC na przeziębienie znanych ankietowanym z reklamy (n = 131).

Men (49.1%) statistically significantly more rarely than women (75.7%) purchased OTC cold products under the influence of advertisements ($p < 0.01$), 12.3% and 17.6%, respectively, did it often or very often. There were no statistically significant differences between persons from both the age groups in the frequency of buying remedies known from advertising. Among the younger subjects (18–39 years of age), 66% obtained advertised cold medications, 14.5% of them bought such products frequently or very frequently, while among the older (40–65 years of age) the percentage was 61.3% and 16.1%, respectively. Education statistically significantly influenced the declared frequency of purchasing advertised OTC cold medications. Persons with vocational or primary education more rarely reported buying such products familiar to them thanks to advertisements than persons with secondary or higher education ($p < 0.01$). Among the subjects with the lowest levels of education, 34.6% bought cold medications under the influence of advertising, 15.4% – frequently or very frequently, respondents with secondary education accounted for 68.5% and 17.8%, while in those with the highest level of education the percentage was 78.2% and 9.4%, respectively (fig. 2.).

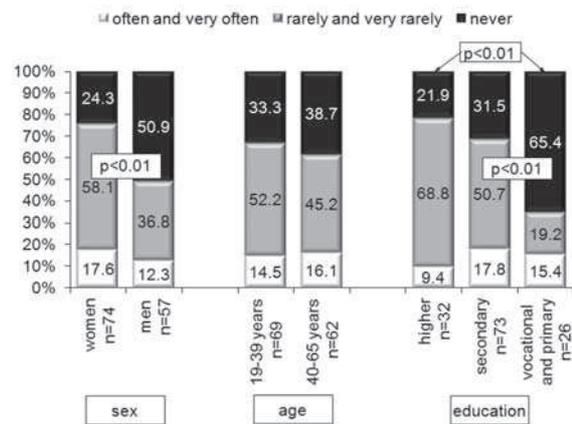


Fig. 2. Sex, age, and education of respondents with respect to the frequency of obtaining OTC cold medications under the influence of advertising.

Ryc. 2. Płeć, wiek i wykształcenie respondentów a częstość zakupu leków OTC na przeziębienie pod wpływem reklamy.

About 71% of respondents gave at least one example of a cold medication they used, the remainder either failed to mention any products (10.7%), or claimed they did not remember the names of products 18.3% (fig. 3).

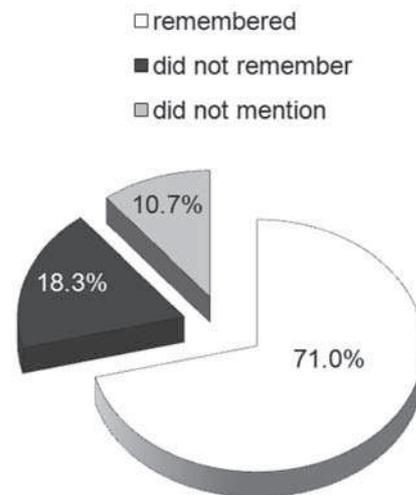


Fig. 3. The percentage of respondents who remembered the name of OTC cold medications they used, of those who forgot the names, and of those who failed to provide an answer (n = 131).

Ryc. 3. Odsetek respondentów znających nazwy leków, które stosują w trakcie leczenia przeziębienia, oraz osób, które nie pamiętają nazw leków lub uchyliły się od odpowiedzi (n = 131).

When asked to enumerate OTC cold medications they used, about 75% of women and

65% of men were able to name at least one of them, 8.1% of women and 14% of men did not provide any answer, while 16.2% women and 12.1% of men reported taking drugs but had difficulties remembering their names (fig. 4). With respect to age, the analysis showed that 68.1% of younger respondents (18–39 years of age) and 74.2% those within the age range of 40 to 65 years gave at least one example of an OTC cold medication, 14.5% of the younger and 6.5% of the older did not mention any product, while 17.4% and 19.4%, respectively, declared self-administering cold medications but having forgotten the names (fig. 4). With respect to education, the research found that the name of one or more OTC cold medications was provided by 75% of highly educated respondents, 76.7% of those with secondary education, and as little as 50% of those with vocational or primary education. When it comes to education, among respondents with a higher education degree those who failed to answer the question constituted 3.1%, secondary – 8.2%, vocational and primary – 38.5%, while 21.9% of the subjects with higher education, 15.1% with secondary, and 38.5% of those with vocational or primary education did not remember any names of drugs they took during a cold. Respondents with vocational or primary education statistically significantly more poorly remembered the names of OTC cold medications they used than subjects with a secondary education level ($p < 0.05$) (fig. 4).

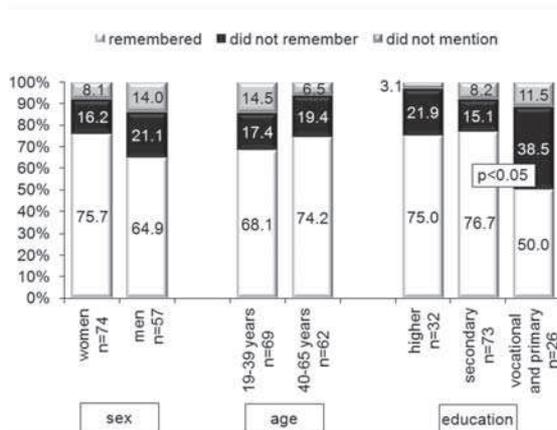


Fig. 4. Sex, age, and education of respondents with respect to how well they remembered the names of OTC medications they used in the common cold treatment.
Ryc. 4. Płeć, wiek i wykształcenie respondentów a znajomość nazw leków, które stosują w trakcie leczenia przeziębienia.

Of all the women who mentioned at least one cold remedy over 23% declared having used only one such product, 16.1% – two, 21.4% – three, 16.1% – four, and 23.2% – five or more. As compared to female respondents, men’s range of OTC cold medications was not that rich ($p < 0.05$), more than 43% of men used only one cold medication, 27% – two, 16.2% – three, 8.1% – four, and only 5.4% – five or more (fig. 5).

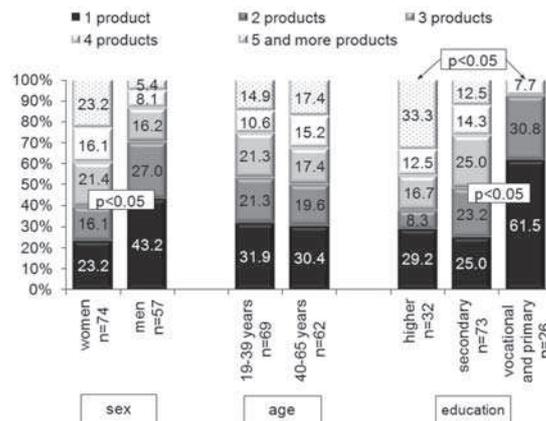


Fig. 5. Influence of sex, age and education of respondents on the number of medications they used for the common cold.
Ryc. 5. Płeć, wiek i wykształcenie respondentów a asortyment leków OTC, stosowanych przez nich w trakcie leczenia przeziębienia.

Education did not affect statistically significantly the assortment of OTC medications taken to treat the common cold. Respondents in both the age groups who were able to give the name of a drug usually self-administered only one product. To such a limited choice of medications were accustomed 32% of the younger (19–39 years of age) and 30% of the older (40–65 years of age). Taking two different cold remedies was reported by 21.3% of the younger respondents and 19.5% of the older ones, three – 21.3% and 17.4%, four – 10.6% and 15.2%, and five or more – 14.9% and 17.4%, respectively (fig. 5). The higher the education level of the respondents, the wider the range of self-administered OTC cold medications ($p < 0.05$). None of the respondents with vocational or primary education named five or more OTC cold medications, while 12.5% of those with secondary education, and as many as 33% of persons with higher education based self-medication on so many products. Four different medicines were

used by 12.5% of subjects with higher education, 14.3% of those with secondary one, 7.7% of persons with vocational and primary education levels. Three products were self-administered by 16.7% of respondents with a higher education degree, and 25% of those who had secondary education, two products by 8.3% of highly educated persons, 23.2% of persons with secondary education, and 30.8% of respondents with vocational and primary education, one product was used by 29.2%, 25%, and 61.5%, respectively (fig. 5). Weak correlation ($R^2 = 0.0612$) was found between the size of OTC cold medication assortment and the frequency of purchasing medications known from advertising.

DISCUSSION

A substantial number of remedies helpful in the common cold treatment belong to the group of OTC medications and can be bought without a prescription. Therefore, such products are not only available from a pharmacy, but also from a hypermarket, a petrol station, a kiosk, and other non-pharmacy establishments [9,10]. While purchasing at places other than pharmacies, one must remember the name of a medication, or at least be able to choose a proper remedy from the available assortment. Our findings suggest that the choice of OTC cold medications is influenced by advertisements. As many as 64.2% of respondents reported having bought those OTC cold medications they learnt about via advertising. However, an advertisement itself and how attractive it is seems not to be the most influential element. The research performed by TNS OBOP in the year 2007 [16] has shown that only 2% of Poles claim an attractive advertisement is a crucial factor in deciding which product they should purchase. The results are reassuring since attractive advertisements show marketing companies' craftsmanship rather than demonstrate how useful and effective the advertised medication is. Controlling advertisement content is necessary because the results of our study indicate that 15.3% of respondents frequently or very frequently bought those OTC cold medications they had seen in advertisements. Women more often than men reported obtaining advertised remedies, only 23.4% of female respondents claimed they had never

purchased a medication under the influence of advertising, compared to 50.9% of men. Such a considerable difference between the percentage of women and men easily affected by advertisements is not surprising due to the fact that it is women who are the main target of advertising. A mother administering a medication or advising her family which remedy will be the most effective one is a frequent picture seen in commercials during the period of increased cold incidence. Such commercials refer to the conventional role of woman, mother, and carer. Analysis of the reported frequency with which respondents of different education levels bought advertised OTC cold remedies showed that subjects who had vocational or primary education purchased such products the most rarely. The reason might be that persons with the lower education levels had difficulties remembering the names of medications. Perhaps poorly educated individuals do not feel competent to use self-medication and that is why they are not particularly interested in medicine advertisements. However, there is not enough data in the available literature to support this hypothesis.

About 71% of respondents were able to provide the names of OTC medications they used in the common cold treatment, thus they should not have any problems while purchasing such products on their own. The remaining group of subjects did not remember the names of OTC cold medications they used, which is disturbing. If the names of products did not catch interest in the case of such persons, most likely the contraindications, dosage, and side effects described on the package insert did not either. We can only hope that they obtained the medications after having contacted their physician and it was not necessary for them to make the decision on their own, or that they suffered from a cold very rarely and did not need such products, hence their ignorance about the names of products.

The persons with vocational or primary education were those representing the worst memory when it came to the names of cold medications. Only 50% of them named a product and as many as 38.5% claimed to have forgotten the names. An explanation could be that names of medications are not similar to every-day expressions, sound strange and it is more difficult for poorly educated persons to remember such words than for better educated individuals. According to TNS OBOP, the Poles who prefer

self-medication based on their own experience are better educated persons [16]. The process of self-medication requires gathering information on the medications helpful to cure a disease. Gaining knowledge is good for learning and remembering the names of medications, which also explains why such persons are better able to mention more names of products. The assortment of OTC cold medications was to a large extent influenced by the sex and education of respondents. As many as 23.2% of those women who mentioned the names of drugs gave five or more of them, only 5.4% of men were able to do that. The percentage of respondents with higher education who provided more than five names of products was 33.3%, it was 12.5% in the case of secondary education level, while the respondents with vocational or primary education were able to name at most four OTC cold medications (7.7%). Such a wide assortment of OTC cold medications used by women and persons with higher education is an important risk factor for overdose and interaction with other medicinal substances. In the study by TNS OBOP [16], women and better educated persons often based their choice of OTC cold remedies on their previous experiences, which would suggest that all the products mentioned by our respondents were the ones they actually used. We can only hope that respondents named more than five products because their memory did not fail them and that the medications were used in more than one cold treatment, which affected them over a period of time. Self-administering several medicinal substances at the same time without prior consultation with a doctor could be dangerous to one's health.

Persons who reported using a larger number of OTC medications in the common cold self-medication also more frequently tended to buy advertised products ($R^2 = 0.0612$). It proves the effectiveness of OTC advertising, increases the profits of pharmaceutical companies and results in greater numbers of patients with severe complications admitted to toxicology wards. Complications caused by improper use of OTC medications are difficult to treat and dangerous to the health. That is why it would be advisable to launch an information campaign to promote safe use of OTC medications during the common cold and raise awareness of the society so that the knowledge on such products is not only based on advertising slogans.

CONCLUSION

In conclusion, women more easily than men were influenced by advertising when it came to purchasing OTC medications. What is more, their assortment of such products was wider. The lower the level of education of respondents, the lower the frequency with which they obtained advertised OTC cold medications, and the smaller the range of OTC cold remedies they used. Respondents with vocational or primary education showed the worst knowledge of the names of OTC drugs they self-administered to treat the common cold. Those respondents who more frequently bought OTC cold medications under the influence of advertisements used a richer assortment of such products.

REFERENCES

- Schlesselman L.S. Cold and cough treatment. *Retail Clinician* 2006; 4: 61–70. www.retailclinician.com.
- Mrozińska M., Stopiński M., Mik E. Przeziębienie. *Przew. Lek.* 2003; 6(9): 20–27.
- Pappas D.E., Hendlay J.O., Hayden F.G., Winther B. Symptom profile of common colds in school-aged children. *Pediatr. Infect. Dis. J.* 2008; 27(1): 8–11.
- Ruohola A., Waris M., Allander T., Ziegler T., Heikkinen T., Ruuskanen O. Viral etiology of common cold in children, Finland. *Emerg. Infect. Dis.* 2009; 15(2): 344–346.
- Nie bądź sobie lekarzem, jeśli nie jesteś medykiem (*Do not act as your own doctor if you are not one*). Portal rynek zdrowia. pl <http://www.rynekzdrowia.pl/Zdrowie-publiczne/Nie-badz-sobie-lekarzem-jesli-nie-jestes-medykiem,4458,27.html>
- Janusz-Lorkowska M. Eksperymentatorzy i hipochondrycy w aptece mile widziani (*Experimenters and hypochondriacs are highly welcome to a pharmacy*). <http://www.rp.pl/arttykul/76756.html>
- Ustawa z dnia 6 września 2001 r. Prawo farmaceutyczne. *Dz. U.* 2008 nr 45 poz. 271.
- Kodeks Farmaceutycznej Etyki Marketingowej dla Produktów Leczniczych Dostępnych bez Recept. *Medycyna Rodzinna* 2000; 3–4: 3–6.
- Rozporządzenie Ministra Zdrowia z dnia 2 lutego 2009 r. w sprawie kryteriów klasyfikacji produktów leczniczych, które mogą być dopuszczone do obrotu w placówkach obrotu pozaaptecznego oraz punktach aptecznych. *Dz. U.* 2009 nr 27 poz. 167.
- Janiec W., Śliwiński L., Nowińska B. Niesteroïdowe leki przeciwbólne i przeciwgorączkowe. W: *Kompendium farmakologii*. Red. W. Janiec. Warszawa: PZWL; 2005: 249–253.

LEKI STOSOWANE NA PRZEZIĘBIENIE

11. Federacja Konsumentów na podstawie rozmowy z dr. Wojciechem Masełbasem specjalistą farmakologii klinicznej. Leki sprzedawane bez recepty. <http://www.federacja-konsumentow.org.pl/story.php?story=55>
12. Podlewski A.K., Chwalibogowska-Podlowska A. Leki współczesnej terapii. Wydanie XIX. Warszawa: Medical Tribune Polska; 2009: 9–12.
13. Rozporządzenie Ministra Zdrowia z dnia 20 lutego 2009 r. w sprawie wymagań dotyczących oznakowań produktu leczniczego i treści ulotki. Dz. U. 2009 nr 39 poz. 321.
14. Główny Inspektorat Farmaceutyczny. Biuro Informacji Prasowej. <http://www.gif.gov.pl/>
15. Ferguson G.A., Takane Y. Analiza statystyczna w psychologii i pedagogice. Warszawa: Wydawnictwo Naukowe PWN; 2008: 163–166.
16. Raport TNS OBOP. Zwyczaje zakupowe Polaków związane z nabywaniem leków. <http://www.tns-global.pl>