

SELF-MEDICATION AMONG FIRST-YEAR NURSING STUDENTS

MAGDALENA IORGA*

Abstract: The aim of the study was to identify self-medication practices among nursing students. Material and methods: A number of 89 first-year nursing school students voluntarily answered a questionnaire regarding self-medication. The data were processed using SPSS 17. Results: Regarding the acquisition of certain drugs, the results are the following: antibiotics ($M = 2.29 \pm 1.04$), analgesics ($M = 2.50 \pm 1.26$), sleeping pills ($M = 1.29 \pm 1.15$), vitamins ($M = 3.03 \pm 1.10$), anti-inflammatory drugs ($M = 2.48 \pm 1.07$) and natural products ($M = 3.24 \pm 1.17$). TV promotion and price do not change students' choice of a special drug. A total of 94.32% claimed that they store drugs at home and 62.50% declared that they keep drugs out of reach (bags, private car, office, etc.) Variables like age and nursing experience had no influence on drug-buying behaviour. The conclusion was that a high number of students from nursing school use drugs with no medical prescription. Vitamins and natural products are the most frequent drugs bought without medical indication.

Keywords: self-medication, nursing students, drug, chronic disease

INTRODUCTION

Self-medication is the use of medication without the prescription, orientation, or supervision of a physician or dentist. Self-medication is defined by the World Health Organization (WHO) as the use of drugs for the treatment of self-diagnosed disorders or symptoms. It also refers to the intermittent or continued use of a drug prescribed by a physician for chronic or recurrent symptoms.

The guidelines of WHO mention that responsible self-medication could be helpful in the prevention and treatment of ailments that do not require medical consultation and provide a cheaper alternative treatment for common illnesses. Some drugs were classified from prescription by physician to non-prescription (so they can be bought

* Magdalena Iorga (✉)

Faculty of Medicine, Department of Preventive Medicine and Interdisciplinarity, "Gr.T.Popa" University of Medicine and Pharmacy, Iasi, Romania
e-mail: magdalena.iorga@umfiasi.ro

without prescription). The self-administration of drugs is seen as a means to reduce costs for the healthcare system and for individuals. WHO mentions that countries should educate their population about over-the-counter drug use. Improvements in people's general knowledge, level of education and socioeconomic status in many countries form a reasonable basis for successful self-medication, because individuals should be responsible for their own health¹.

The factors that influence self-medication are identified by a number of researches conducted on healthy and compared to chronic disease populations. It seems that education, family, society, laws, availability of drugs, a previous experience with a certain drug, exposure to advertisements and access to information resources such as the Internet are the most common factors that influence self-medication. Apart from them, chronic disease, like mental disorders and some psycho-sociological aspects, determines higher rates of drug self-administration. For example, in a study focusing on drug self-administration on the Spanish population, it was found that self-medication is more prevalent among women, persons who live alone, and persons who live in large cities; people over 40 compared to younger persons, students compared to full-time workers².

Predictive factors for self-medication seem to be a high level of education, professional status and waiting times for a medical consultation in the case of a severe health problem. Urban population is more exposed to self-medication and rates from a research in Portugal are 26.2%³. In a study in Brazil, the authors found that factors such as being male, having children, and having average or poor medication knowledge significantly influenced self-medication, as protection factors⁴.

¹ World Health Organization (2000). *Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication*, Geneva. <http://apps.who.int/medicinedocs/en/d/Js2218e/> [29.02.2016]

² Figueiras, A., Caamano, F., & Gestal-Otero, J. J. (2000). Sociodemographic factors related to self-medication in Spain. *European Journal of Epidemiology*, 16(1), pp. 19-26.

³ Paula Martins, A., da Costa Miranda, A., Mendes, Z., Soares, M. A., Ferreira, P., & Nogueira, A. (2002). Self-medication in a Portuguese urban population: a prevalence study. *Pharmacoepidemiology and Drug Safety*, 11(5), pp. 409-41.

⁴ Da Silva, M. G. C., Soares, M. C. F., & Muccillo-Baisch, A. L. (2012). Self-medication in university students from the city of Rio Grande, Brazil. *BMC Public Health*, 12: 339.

Self-medication might become a serious health problem. For example, it may delay diagnosis and facilitate the emergence of resistant microorganisms and iatrogenic illnesses. An overuse of antibiotics could lead to important side effects on the person's quality of life. Pharmacists in particular can play a key role in giving advice to consumers on the proper and safe use of medicinal products intended for self-medication, as WHO mentions. But some studies have proven that usually pharmacists provide no information about storage conditions, availability of the drug, side effects or association with other substances (alcohol, drugs, food, preventive driving etc). So carefully reading the indications for use is the only source of information. The second important source is represented by the rapid development of new technology, and especially the Internet and related means of communication that provide information about a drug.

Even if the WHO promotes self-medication and a lot of studies show high rates of drug self-administration, this problem should be approached carefully. Education regarding health issues and providing access to it is not an easy thing. Side effects could appear over the years, so the most affected populations, like teenagers, should be carefully trained.

The goal of the study is to identify to what measure nursing students use self-medication and if some variables influence this practice.

MATERIAL AND METHODS

A number of 89 first-year nursing school students voluntarily answered a questionnaire regarding self-medication. Students were informed about the goals of the study and that they could express their desire not to follow the questionnaire at any time. The questionnaires were delivered in printed format and confidentiality and anonymity were ensured.

Some other variables like gender, age, children, marital status, employee status or the existence of a chronic disease were taken into consideration in order to identify some correlations between variables.

The collected data were processed by means of the statistical processing software *SPSS* (Statistical Package for Social Sciences) version 17.0 for Windows and the following types of statistical methods were used:

- descriptive statistics, which pursued the central tendency and dispersion indicators (the mean and standard deviation);

- correlational study, in order to point out correlations between independent and dependent variables, by calculating Pearson's correlation coefficient.

RESULTS AND DISCUSSIONS

The study targeted 89 students, 91.01% women (N = 81) and 8.99% (N = 8) men. The age distribution is from 19 to 48 years old, with $M = 25.52 \pm 9.42$. The age distribution proves a constant phenomenon in Romania among nursing students: parts of them are “mature students”, meaning that they are over the usual student age range. Most of them have already graduated some other types of education, like some post-secondary school or some other professional courses, but they desire to obtain a university diploma in nursing. The distribution of students according to age shows that 50% are 19-20 years old and 50% are over 21, half of the students are over the common baccalaureate age. A number of 27 subjects already have a job with a mean length of employment of 16.24 ± 6.86 years. Most of these subjects have experience as professional nurses, with a mean of 12.82 ± 6.54 years of employment as nurses.

The distribution according to the environment area shows that 55 subjects (62.55%) live in urban areas and 33 subjects (37.50%) live in rural areas. The students come from 5 other departments from north-eastern part of the country, being close to the University City: Iasi (73.03%), Suceava (10.11%), Botosani (7.87%), Vaslui (3.37%), Neamt (3,375) and Bacau (2.26%). Regarding the marital status, 60.67% of them (N = 54) are single and 39.33% are divorced or in a relationship.

Subjects were asked to mention if they suffer from any chronic disease. A number of 59 students, representing 67.05%, claim that they suffer different kinds of chronic diseases. The results according to gender and the existence of a chronic disease are presented in Table 1.

<i>The existence of a chronic disease</i>	<i>men</i>	<i>women</i>
With chronic disease 67.05% (N = 59)	6.82% (N = 6)	60.23% (N =63)
Without chronic disease	2.27% (N = 2)	30.68 % (N = 27)
	Total N = 89 (100%)	

Table 1. *The distribution of subjects according to gender and chronic disease*

In order to identify if there is a correlation between chronic disease and other variables, we showed that there is no correlation among variables, not even concerning age. The results show that age has no

influence on the chronic disease variable. Subjects already suffering a chronic disease wish to become graduate nurses, so a possible explanation could be launched and some further researches should consider if the motive for choosing this profession is linked to the medical condition (the existence of a chronic disease or experience with medical situations).

The study focused on the type of drugs that students self-administer without a medical prescription. The drugs taken into consideration were: antibiotics ($M = 2.29 \pm 1.04$), analgesics ($M = 2.50 \pm 1.26$), sleeping pills ($M = 1.29 \pm 1.15$), vitamins ($M = 3.03 \pm 1.10$), anti-inflammatory drugs ($M = 2.48 \pm 1.07$) and natural products ($M = 3.24 \pm 1.17$).

The means show, in order of frequency, the natural products are bought most often, followed by vitamins, analgesics, tranquilizers, antibiotics and sleeping pills. The frequencies of the answers are presented in Table 2.

<i>Type of drug</i>	<i>never</i>	<i>rarely</i>	<i>moderately</i>	<i>often</i>	<i>always</i>
antibiotics	24.7%	36%	21.3%	14.6%	1.1%
analgesics	25.8%	31.5%	10.1%	25.8%	4.5%
sleeping pills	80.9%	14.6%	0.0%	1.1%	1.1%
vitamins	6.7%	30.3%	20.2%	33.7%	6.7%
anti-inflammatory	16.9%	38.2%	22.5%	15.7%	3.4%
natural products	10.1%	14.6%	27%	33.7%	12.4%

Table 2. *The distribution of answers according to gender and chronic disease*

Subjects were questioned regarding the influence of drug promotion in the media on their drug use behaviour. A number of 78 students (88.64%) claim that they do not buy a drug because of its TV campaign. The frequency of answers regarding the influence of TV promotions on their willingness of buy a certain drug (non-prescribed by a doctor or dentist) is presented in Table 3, taking also into consideration the variable “chronic disease”, due to the fact that chronic disease patients should approach the consumption of drugs with precaution. On the other hand, students with chronic disease have experience regarding some types of medicines, so they have knowledge about what they are allowed to use.

Students have also been asked about the influence that price has on their intentions of buying a drug. A total of 18.18% ($N = 16$) have declared that price is important and they buy the drug that has the lower price.

	<i>Media promotion influences the decision to buy a certain drug</i>	<i>Media promotion does NOT influence the decision to buy a certain drug</i>
With chronic disease	10.23% (N = 9)	56.82% (N = 50)
Without chronic disease	1.14% (N=1)	31.82% (N = 28)
Total N = 89 (100%)		

Table 3. *The distribution of subjects according to the influence of variables chronic disease and media promotion on drug-buying behaviour*

A number of 83 subjects (94.32%) claimed that they store drugs at home and 62.50% declared that they keep drugs out of reach (bags, private car, in the office etc).

Due to the fact that college and university students usually have little time, lower access to medical services and less money to pay for medical examinations and treatments, a lot of studies have been focusing on this population regarding the problems of drug self-administration.

Some higher rates have been reported by Bahrain university students (81.3%), Slovenia (92.3%)⁵ and Iran (53%)⁶ and some lower rates reported by students in the UK (20%)⁷, and Germany (40%)⁸. In Brazil, the rate of self-medication among university students is about 86.4% and a study focusing on drug self-administration among female students proved that 93.1% students stated that they stored medicine in their rooms⁹ and results from a research among university students in Palestine proved that approximately 98% of the respondents reported that they did practice self-medication¹⁰. In United Arab Emirates, a

⁵ Klemenc-Ketis, Z., Hladnik, Z., & Kersnik, J. (2010). Self-medication among healthcare and non-healthcare students at University of Ljubljana, Slovenia. *Medical Principles and Practice*, 19(5), pp. 395-401.

⁶ Sarahoodi, S., & Arzi, A. (2009). Self medication with antibiotics, is it a problem among Iranian college students in Tehran. *J Biol Sci*, 9(8), pp. 829-832.

⁷ Dengler, R., & Roberts, H. (1996). Adolescents' use of prescribed drugs and over-the-counter preparations. *Journal of Public Health*, 18(4), pp. 437-442.

⁸ Du, Y., & Knopf, H. (2009). Self-medication among children and adolescents in Germany: results of the National Health Survey for Children and Adolescents (KiGGS). *British Journal of Clinical Pharmacology*, 68(4), pp. 599-608.

⁹ Ali, S. E., Ibrahim, M. I., & Palaian, S. (2010). Medication storage and self-medication behaviour amongst female students in Malaysia. *Pharmacy Practice (Internet)*, 8, pp. 226-232.

¹⁰ Sawalha, A. F. (2007). Assessment of self-medication practice among university students in Palestine: therapeutic and toxicity implications. *The Islamic University Journal*, 15(2), pp. 67-82.

study proved a rate of 86% of this practice among pharmacy students¹¹.

A study conducted in China among students from 8 universities showed that 47.8% had self-treated with antibiotic and community pharmacies were mentioned to be the major source of self-prescribed antibiotics¹².

The same rate of trust in pharmacists was registered in a study on 6197 first-year students in Taiwan. Given the usual low level of knowledge concerning safe medication practice found among college students in Taiwan, the researchers pointed out the need for pharmacists to bridge the gap between what college students consider to be important and accurate information about medication¹³.

Some studies have proved that there is no difference in using self-medication between medical students (that feel more confident in self-prescribing) and non-medical students, nor between male and female students, but results are not identical for all studies, some researches proving that medical students usually discourage their friends and family members from self-medication.

The sources of the medicines used by university students are the pharmacy, home medicine cabinet, supermarket/shop and other people such as family, friends, neighbours and classmates. The sources of drug information are a family member, previous experience, a pharmacy salesman, a doctor or nurse, an advertisement and others¹⁴.

This study has some limitations. Firstly, considering the number of students, the conclusion cannot be generalized for a larger population. On the other hand, a longitudinal study could offer a better view of self-medication among nursing students in Romania.

¹¹ Sharif, S. I., Ibrahim, O. H. M., Mouslli, L., & Waisi, R. (2012). Evaluation of self-medication among pharmacy students. *American Journal of Pharmacology and Toxicology*, 7(4), pp. 135-140.

¹² Pan, H., Cui, B., Zhang, D., Farrar, J., Law, F., & Ba-Thein, W. (2012). Prior knowledge, older age, and higher allowance are risk factors for self-medication with antibiotics among university students in southern China. *PLOS ONE*, 7(7), e41314.

¹³ Hsiao, F. Y., Jen-Ai, L., Huang, W. F., Shih-Ming, C., & Hsiang-Yin, C. (2006). Survey of medication knowledge and behaviors among college students in Taiwan. *American Journal of Pharmaceutical Education*, 70(2), G1.

¹⁴ Almasdy, D., & Sharrif, A. (2011). Self-Medication Practice with Nonprescription Medication among University Students: a review of the literature. *Archives of Pharmacy Practice*, 2(3), pp. 95-100.

CONCLUSIONS

The study identifies a high number of nursing students that use drugs with no medical prescription. Vitamins and natural products are the most frequent drugs bought without medical indication. The majority of subjects have declared that they buy antibiotics, analgesics and anti-inflammatory pills on their judgment and price, and TV spots do not influence their decision regarding the acquisition of a certain drug. Results are important for health policy-makers, pharmacists managing local pharmacies and teachers to increase health students' accountability regarding their decision on non-prescribed or supervised drug consumption.

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