Self-medication among nursing students in the state of Amazonas – Brazil

Automedicação em estudantes de enfermagem do Estado do Amazonas – Brasil

La automedicación por los estudiantes de enfermería del Estado de Amazonas – Brasil

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ABSTRACT

Objective: To determine the prevalence of self-medication and associated factors among nursing students.
Method: This is a cross-sectional study with 116 nursing students from the public university in the state of Amazonas, Brazil, from March to April 2014. Data were collected using a questionnaire with socioeconomic and medicine use variables. The data were subjected to bivariate analysis and logistic regression at a significance level of 5%.
Results: The prevalence of self-medication was 76.0%, chiefly motivated by the belief that the health condition did not require a medical appointment (46.6%). Half of the students reported pain-related complaints. The most commonly used pharmacological groups were non-steroidal anti-inflammatory drugs (63.2%) and antibiotics (11.1%). Lack of awareness of the negative implications of self-medication was associated with self-medication (OR = 6.0).
Conclusion: The high prevalence of self-medication that may lead to adverse reactions reveals the students' irrational use of medicines, especially considering the role of these future professionals in patient safety.
Keywords: Self-medication. Students, nursing. Education, nursing. Drug utilisation. Patient safety. Risk-taking.

RESUMO

Objetivo: Determinar a prevalência e os fatores associados à automedicação entre estudantes de enfermagem.
Método: Estudo transversal realizado com 116 estudantes de enfermagem de uma universidade pública do Estado do Amazonas – Brasil, no período de março a abril de 2014. Utilizou-se questionário constituído por variáveis socioeconômicas e de consumo de medicamentos. Foi realizada a análise bivariada e a regressão logística – nível de significância de 5%.
Resultados: A prevalência de automedicação foi de 76,0%, motivada especialmente pela percepção de que o problema de saúde não requeria visita ao médico (46,6%). Metade dos estudantes relataram queixas álgicas. Os grupos farmacológicos mais consumidos foram anti-inflamatórios não esteroides (63,2%) e antibióticos (11,1%). O desconhecimento das implicações negativas da prática da automedicação foi associado à automedicação (OR=6,0).
Conclusão: A alta prevalência de automedicação, além de poder levar a reações adversas retrata também o uso irracional de medicamentos pelos estudantes, especialmente, quando considerado o papel destes futuros profissionais na segurança do paciente.
Palavras-chave: Automedicação. Estudantes de enfermagem. Educação em enfermagem. Uso de medicamentos. Segurança do paciente. Assunção de riscos.

RESUMEN

Objetivo: Determinar la prevalencia y los factores asociados con la automedicación entre estudiantes de enfermería.
Métodos: Estudio transversal con 116 estudiantes de enfermería de una universidad pública en Amazonas - Brasil, en el período de marzo y abril del 2014. Se utilizó un cuestionario que consta de los niveles socioeconómicos y el consumo de drogas. Se realizó un análisis bivariante y regresión logística -nivel de significación del 5%.
Resultados: La prevalencia de la automedicación fue de un 76,0%, motivada especialmente por la constatación de que el problema de salud requiere no visitar al médico (46,6%). La mitad de los estudiantes reportaron quejas de dolor. Los grupos de fármacos más consumidos fueron los antiinflamatorios no esteroide (63,2%) y antibióticos (11,1%). Ignorar las implicaciones negativas de la práctica de la automedicación se asoció con la automedicación (OR = 6,0).
Conclusión: La alta prevalencia de la automedicación, pueden dar lugar a reacciones adversas, retrata el uso irracional de los medicamentos por los estudiantes, especialmente teniendo en cuenta el papel de estos futuros profesionales de la seguridad del paciente.
Palabras clave: Automedicación. Estudiantes de enfermería. Educación en enfermería. Utilización de medicamentos. Seguridad del paciente. Asunción de riesgos.

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■ INTRODUCTION

Self-medication is a frequent practice in many age groups and in different cultures, and is defined as a person's spontaneous selection and use of any medicine considered appropriate to remedy their own health problem[1-3]. This practice can cause inappropriate antimicrobial resistance, adverse reactions to drugs, drug interactions, the risk of masking evolutionary diseases, and increase costs for the health system[1].

The motives for self-medication include prior experience with the symptom or disease, the belief that one has knowledge of the disease, limited financial resources to appropriate treat a health problem, lack of time to seek medical assistance, and personal attitude regarding the disease. The common factors associated with self-medication are women, higher age group, physically active, alcohol consumption, and people with health insurance[4-7].

Given the epidemiological magnitude and negative impact of this practice, self-medication among students in the area of healthcare is considered an important public health problem.

Studies show that prevalence rates range from 38.0% to 97.8%, depending on the students' country of origin, graduation course, or the reminiscent period of self-medication[3-9].

In Brazil, although previous studies conducted in large urban centres found that self-medication among nurses is frequent[2, 8, 10], the magnitude of the phenomenon is unknown in the North region. The geographical dimensions, limited access to health services, the influence of the indigenous culture on the habits of the population, especially with regard to the use of medicinal plants, are very specific aspects that can influence the decision to self-medicate among future nurses. Additionally, it is important to consider that self-medication in this group can indirectly affect the future practices of these workers in relation to the administration of medicine and patient safety. Nurses play a key role in the safe use of medicines, especially in terms of awareness of the involved risks[11].

In this regard, considering the different factors involved in self-medication, we sought to answer the following guiding question: What is the prevalence of self-medication and its associated factors among nursing students in Coari, Amazonas, Brazil? Thus, the aim of this paper was to determine the prevalence of self-medication and its associated factors among nursing students.

■ METHOD

This is a cross-sectional study conducted with students of the graduate nursing course (1st, 3rd, 5th, 7th and 9th semester), at the Instituto de Saúde e Biotecnologia (ISB), Universidade Federal do Amazonas (UFAM), city of Coari, Amazonas. Coari is located in the centre of the state of Amazonas, on the banks of river Solimões, 363 Km from the capital Manaus. The estimated population of the municipality was 83,078 in 2016. Most of the population has brown skin (75.6%), born in the region, and 0.6% is self-declared indigenous. The municipal human development index ("IDHM") is low (0.586), in position 4,595 of the Brazilian municipalities, and 21st in the state ranking[12]. Access to the city is by waterway or air.

The ISB was established in 2005 as a result of a policy for the internalisation and expansion of activities of the UFAM by means of courses in the areas of exact sciences and healthcare. The nursing course offered by the university is the only one in the state of Amazonas, providing 40 places per year.

The non-probability sample was made up of 116 students, regardless of age, who reported having consumed medicine in the last 30 days, from March to April 2014. The inclusion criterion was students who were regularly enrolled and attending the university in the data collection period. The exclusion criterion was any difficulty that prevented communication.

The data were collected using a questionnaire with three parts, namely socioeconomic information related to the consumption of medicines and self-medication (health problem, indication and main reason for self-medication, obtaining information about medicines, prior medication use problem, and knowledge of the risks of self-medication). A pre-test of the questionnaire was carried out with 16 students, resulting in an adjustment to the order of the questions). No changes to the content were necessary.

The application of questionnaires was preceded by institutional authorisations (director of the ISB and discipline professors). The researchers responsible for this work invited the students to participate in the study in the classroom, during the breaks.

The dependent variable was self-medication, defined as "consumption of medication without a medical or dental prescription," which was assessed using the question, "In the last 30 days, have to taken any medicine? and, "Was the medicine you used prescribed by a physician or dentist?" In the case of a negative response to the second question, the practice of self-medication was considered.

This study was approved by the Research Ethics Committee of the Universidade Federal do Amazonas with file number 26982314.4.0000.5020. All the participants signed an informed consent statement.

The data were entered by the researchers into the programme SPSS (Statistical Package for the Social Sciences) 17.0 for Windows, and cross-referenced. The prevalence of self-medication was calculated as the use of at least one medicine without prescription. The Chi-square test and logistic regression was used to estimate the odds ratios (OR) with confidence intervals (CI) of 95% and a significance level of 5%.

■ RESULTS

The prevalence of self-medication was 76.0%. The average age in the self-medication group was 22.3 (SD = 4.4), and 21.2 (SD = 2.9) for those who did not self-medicate. There was no statistically significant difference between the groups, as shown in Table 1.

With regard to the health problems that led to self-medication, 50.0% of students reported pain, including headache, stomach crunches, and menstrual cramps. Other causes were throat and urinary infections (14.8%), cold (10.2%), fever (9.1%), and gastrointestinal problems (6.8%). Less than 10% were motivated by contraception, allergies, diarrhoea, and cough.

The main reasons for self-medicating in the last 30 days were the belief that the problem did not warrant a doctor's appointment (46.6%), lack of time to consult a doctor (28.4%), and difficulty accessing healthcare services (25.0%).

Self-medication, according to the students, was influenced by family and friends (36.4%), the use of earlier prescriptions (30.7%), knowledge of previously used medicines (15.9%), and advertisements in the media (TV/radio/internet) (12.5%).

The information of the medicines was obtained by reading the package inserts (63.6%), talking to healthcare workers, (13.6%), information from the media (TV/radio/

Table 1 – Self-medication among nursing students of the Instituto de Saúde e Biotecnologia – UFAM, according to socio-economic and medicine use variables. Coari, AM, Brazil, 2014.

Variables	Self-medication						p*
	Yes		No		Total		
	n (88)	(%)	n (28)	(%)	n (116)	(%)	
Sex							
Men	34	38.6	16	57.1	50	43.1	0.124
Women	54	61.4	12	42.9	66	56.9	
Lives with someone							
Yes	19	21.6	9	32.1	28	24.1	0.311
No	69	78.4	19	67.9	88	75.9	
Course semester							
1st	23	26.1	8	28.6	31	26.7	0.431
3rd	34	38.6	9	32.1	43	37.1	
5th	11	12.5	5	17.9	16	13.8	
7th	12	13.6	2	7.1	14	12.1	
9th	8	9.1	4	14.3	12	10.3	
Aware of the negative implications of self-medication							
Yes	72	81.8	27	96.4	99	85.3	0.068
No	16	18.2	1	3.6	17	14.7	
Indicating medication to others							
Yes	60	68.2	15	53.6	75	64.7	0.178
No	28	31.8	13	46.4	41	35.3	

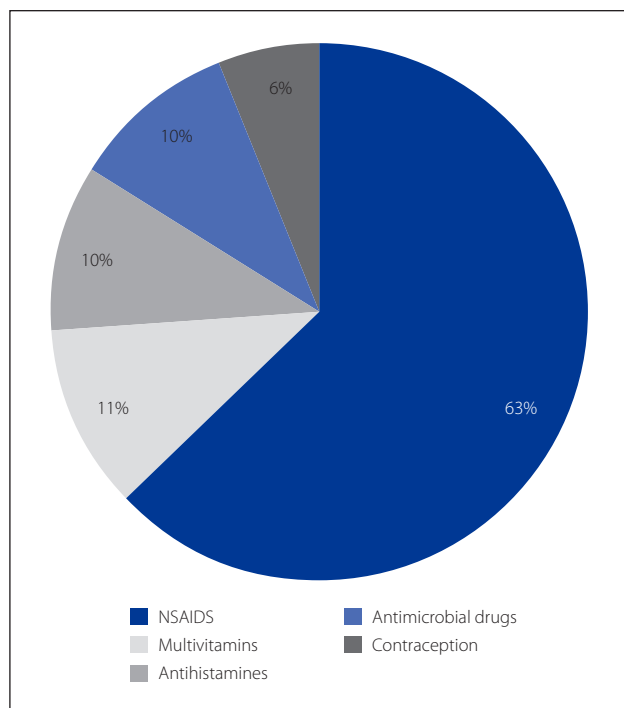Source: Research data, 2014.
* χ^2 test (< 0.050)

Figure 1 – Pharmacological groups consumed by the nursing students, Instituto de Saúde e Biotecnologia – UFAM. Coari, AM, Brazil, 2014.

Source: Research data, 2014.

internet) (12.5%), and information from relatives/friends/neighbours (10.3%).

As to where the medicine was obtained, over half (53.4%) claimed to have purchased the medicine directly in pharmacies, 30.7% reported it was stored at home or in the homes of relatives/friends/neighbours (10.2%), and 5.7% acquired the medicine during internships in basic health units ("UBS") or at the hospital. When asked about the problems caused by self-medication, 14.8% reported some kind of complication.

The students mentioned 84 different medicines from five pharmacological groups, especially non-steroid anti-inflammatory drugs – NSAIDS (63.2%), as shown in Figure 1.

The most commonly consumed medicines were paracetamol and dipyrone (48.8%), followed by cephalexin (6.0%) and B-complex (8.3%). Among the antimicrobials, the most frequently used were cephalexin (55.6%), amoxicillin (22.2%), ampicillin (11.1%), and azithromycin (11.1%).

The variable unaware of the negative implications of self-medication was associated with the practice of self-medication (OR = 6.0 CI 95% 0.75 – 47.56).

■ DISCUSSION

The present study depicts the practice of self-medication among nursing students of different course cycles in the state of Amazonas. Although Coari is virtually isolated in the map of Brazil, and the culture is to "empirically" cure ills using medicinal plants, there was a prevalence of self-medication with allopathic drugs known to cause major adverse reactions.

National studies carried out in the most economically affluent regions and with restrictions on the sample eligibility criteria – students with pain only in the 8th semester – show that self-medication was practiced by 38.8% of the students with pain and 65.1% of the students of the 8th semester[2, 8]. In both cases, the limited inclusion criteria may have contributed to the lower prevalence.

In contrast, the prevalence in Coari is close to the rates found in developing countries like India (88.2%) and Serbia (79.9%)[5, 7]. Although there are differences between these countries, especially in terms of culture and health practices, these scenarios may have similar characteristics regarding the lack of government control on the sales of medicines, the manner healthcare services are funded or reimbursed, and the need to practice self-care with medication. These factors suggest that self-medication is adopted as a form of self-care. This assumption is confirmed by the respondents in the questions about the consumed medicines, place of acquisition, and motive for self-medication.

Moreover, this study confirms the findings of other authors about the use of NSAIDS among students[5, 9] for pain relief purposes[3, 6]. These medicines represent a practical and fast way to relieve complaints such as pain, menstrual cramps, and characteristically female symptoms, possibly leading to self-medication[3]. The pharmacological actions of NSAIDS, namely relief of pain and fever, free access of consumers to pharmacy shelves, and the frequent presence of this class in the medicine boxes of homes facilitate their usage. Additionally, the contribution of the media influences young people[13].

In spite of the regulation of the national health surveillance agency ("ANVISA") prohibiting the sale of antibiotics without prescription[14], the second most consumed medicine was antibiotics. This finding is corroborated by research conducted with students from universities in Africa and Asia[4-5, 9]. In these countries, this medicine class is used to self-medicate because it is considered a low-cost alternative, especially by individuals who cannot afford or do not have access to health services. Furthermore, the limited inspection capacity of the government and the tenacity of pharmaceutical companies in the sale of

antibiotics limits any effective regulation[4, 15]. These issues are very similar to the reality of the state of Amazonas. Antibiotics are possibly being sold in pharmacies without a prescription. This assumption is reinforced by the finding that more than half of the students reported buying drugs directly from pharmacies.

The widespread use and misuse of antibiotics can lead to the development of resistant bacteria. Moreover, self-medication with this group of drugs is usually absolutely inadequate, especially when indicated by laypersons or reusing old prescriptions, increasing the risk of adverse reactions[16].

The students of this study reported the use of multivitamins, as also found among students in Recife[6]. Easy access, advertising associated with the miraculous benefits of these products, especially among young people, and the promise of aesthetic benefits, as well as curiosity and the desire to find immediate relief for symptoms, can contribute to the irrational use of this medicine[6]. Consequently, self-care is often disguised as miracle formulas with the ingestion of "capsules", "pills", and "tablets", and the promise of large pharmaceutical companies, with limited benefits.

While the indigenous influence over local customs is expected, the students did not report the use of natural products or home remedies. This finding can illustrate the power of pro-consumption television campaigns of allopathic medicines. In contrast, the students may have underestimated the importance of natural products to relieve signs and symptoms, limiting the acquisition of information on the subject. Here, it should be noted that the existing education model at universities many not be sensitive enough to train students on the use of medicinal plants and herbal remedies, as advocated in the national policy of integrative and complementary practices, and the national policy of medicinal plants and herbal remedies of the Brazilian government[17]. Evidently, the hegemony of the biomedical model persists in the ISB faculty since most of the professors are from other Brazilian regions. Teaching graduate nursing students how to use natural therapies with herbal medicines may help preserve the knowledge of the local culture[18].-

More importantly, considering the subjects were students, 5.7% obtained medicines in the practice fields during the course (UBS and hospital). This worrisome finding may be justified by the lack of control when dispensing and prescribing medicines at the healthcare services. Additionally, considering the small size of the municipality, the close relationship between the health workers and the students can facilitate access to medicines. Regardless of the factors that may have facilitated access to medicine, the practice scenario is supposedly the ideal setting to teach good healthcare practices, including the rational use of medicines. Health workers should reinforce the education of students regarding the benefits and damage caused by medication, and curb such practices.

Corroborating the findings of studies conducted in Serbia and India, the main reason the students decided to use medication without a prescription was the belief that they did not need a doctor's appointment to treat a simple ailment[4,7]. The self-confidence of healthcare students, success in previous experiences, and the belief that the knowledge acquired during their education enables them to select the correct medicine for the ailment, may have contributed to the practice of self-medication[2, 4, 6].

The lack of time to see a doctor is one of the main reason Brazilian students self-medicate, and that includes the students of Coari[6]. In general, in public Brazilian universities, healthcare students, including nursing students, follow a full academic regime, which may limit the time they have available to seek medical attention[2].

One fourth of the students mentioned difficulties accessing healthcare services as a justification for self-medication. Although the reasons for the limited access to healthcare services in Coari were not investigated, regional issues may have limited the coverage of health services. After the start of construction of the Coari/Manaus pipeline in 2007, the population grew an alarming 20.7% by 2015[12]. However, the infrastructure and human resources for healthcare in the city did not accompany this growth, possibly limiting access to these services.

Most of the students got their information of the medicine from the package insert. This source is important. However, the technical language can be incomprehensible to students, especially those in the initial semesters of the graduate course. Furthermore, the information is often incomplete and lacks any description of the risks (intoxication) or drug interactions with food and/or natural products (or herbal medicines), and the pharmaceutical industry may not update the adverse reactions in a timely manner[10].

Despite the education process, which can theoretically support more robust decision making, the choice of medicine was influenced by others. In this respect, the average age of the students and their susceptibility to the influence of others should be noted. Moreover, the university can transform and shift paradigms by disrupting the culture of medicalisation passed from generation to generation.

Although most of the students reported they were aware of the negative implications of self-medication, these future nurses usually indicate medicines to others.

This illustrates the seriousness of the problem. In addition to potentially compromising their own health, they can endanger the health of other people, thereby compromising the safety of users. They do not seem to recognise that the nursing education process does not provide the necessary theoretical basis to support the indication and correct use of medicines. This is important, especially with respect to the issues that govern the professional practice, as nurses cannot prescribe drugs, except those recommended in the primary care programmes of the ministry of health, and are therefore subject to disciplinary sanctions of the professional code of ethics for nurses.

The variable unaware of the negative implications of self-medication was associated with the practice of self-medication. This unique finding is of paramount importance because it indirectly reflects the superficial knowledge or ignorance of students regarding medicines, which may be explained by distinct, albeit related motives. Over the years, the science of pharmacology has undergone major transformations, illustrating the advancement of knowledge about medicines, particularly therapeutic indications and adverse reactions[19]. These advancement may not have been incorporated in the teaching of pharmacology in the nursing curricula, leading to the limited pharmacological knowledge of future nurses[20]. This limitation can give students the false impression that they are safe to consume these medicines, and make them fearless regarding the decision to self-medicate. It seems that students do not fear the unknown. Thus, although the scope of the study did not include the analysis of content taught during the course, there may be some inconsistencies regarding the rational use of medicines in the graduate programme. Inappropriate use can lead to the unsafe consumption of medicine. Pharmacovigilance, the area responsible for monitoring medicines, especially regarding adverse reactions, is not included in the teaching of pharmacology in the ISB/UFAM.

This study has limitations that may have restricted the generalisation of the findings. Although the sample consisted of half of the nursing students, there was a bias in the selection of the subjects since their participation was voluntary. Other students who self-medicate may not have participated.

■ CONCLUSION

The findings reveal that self-medication is a major problem among the students of Coari, Amazonas. In addition to the significant prevalence found in this study, the personal use of medicine can cause harm, especially when indicated to others and, above all, due to the lack of knowledge of the risks of self-medication.

In this respect, the study stresses the need to enhance the education of nursing students regarding the rational use of medicine. Consequently, we suggest the inclusion of topics that enable discussion on the rational use of medicine in crosscutting disciplines throughout graduate studies, to warn students of the limits or boundaries and consequences of their actions, especially in terms of indications and the responsible management of medicine to ensure patient safety.

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