Self-medication in Brazil's public health:
The importance of pharmaceutical performance in the multiprofessional team
and as an advisor in the rational use of medications

A automedicação na saúde pública do Brasil:
Importância da atuação do farmacêutico na equipe multiprofissional e como orientador no uso racional de medicamentos

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ABSTRACT
Self-medication is one of the main public health problems that has been growing in Brazil and in the world in recent years. Thus, the present study aims to verify and evaluate self-medication in public health in Brazil, its risk factors and the role of the pharmacist in the multidisciplinary team as an advisor in the rational use of medications. A bibliographic review was carried out using SciELO and Google Scholar databases with the intention of collecting data on the numbers of registered cases and deaths. According to the reviewed literature, self-medication in Brazil is linked to several factors. Among them, it can be highlighted the excessive advertising and easy access to medications in pharmacies. Moreover, the analysis pointed out that 77% of the population adhere to this practice; males represent about 40% of the cases. The indiscriminate use of these drugs and their associations can cause several adverse effects and intoxications that can lead the patient to death. According to the National Toxic-Pharmacological Information System (SINITOX) (SINITOX- Sistema Nacional de Informações Tóxico-Farmacológicas), only in 2017, about 27.11% of the registered intoxications were caused by medications, with 20,637 cases and 50 deaths. One way of controlling self-medication is the humanization of health services, especially in the public network. Therefore, The Federal Pharmacy Council (Conselho Federal de Farmácia- CFF) implemented the Resolution 586 on August 29th, 2013, a guideline about the prescription of over-the-counter medications. In this context, the pharmacist has great relevance as an advisor and health agent. This professional collaborates for the rational use of medicines and the reduction of self-medication cases. Finally, pharmaceutical assistance projects intended to guide the correct use of medicines would be of paramount importance to the population, thus reducing public health problems, mainly related to self-medication.

Keywords: Self-medication, Multiprofessional Team, SINITOX, clinical pharmacist.

RESUMO
A automedicação é um dos principais problemas de saúde pública que vem crescendo no Brasil e no mundo nos últimos anos. Assim, o presente trabalho tem por objetivo, verificar e avaliar sobre a automedicação na saúde pública do Brasil, seus fatores de risco e a atuação do farmacêutico na equipe multiprofissional como orientador no uso racional de medicamentos. Desta forma, foi realizada uma revisão bibliográfica utilizando bancos de dados SciELO e Google Acadêmico® com a intenção de levantar dados sobre os números de casos e óbitos registrados. Segundo a literatura revisada, revelou que a automedicação no Brasil está ligada a diversos fatores, entre os principais, pode-se destacar: a propaganda excessiva e a facilidade de acesso aos medicamentos nas farmácias. Também está presente em toda a população onde foi apontado que 77% das pessoas aderem esta prática, principalmente do sexo masculino, apresentando cerca de 40% dos casos. O uso indiscriminado desses medicamentos e de suas associações podem causar vários efeitos adversos e intoxicações que podem levar o paciente a óbito. Segundo dados do SINITOX somente em 2017,
There is a consensus that self-medication is one of the examples of drug misuse, considered a public health problem in Brazil and in the world (TRUTA et al., 2010; PEREIRA et al., 2017). This practice can lead to adulteration of signs and symptoms of the disease, hindering its diagnosis (SILVA; FONTOURA, 2014).

According to reports by Pereira et al. (2017) the incorrect use of medicines can cause a disease to worsen, since the misuse can disguise certain symptoms and increase the drug resistance of the microorganisms, which compromise the effectiveness of treatments. According to the National Health Surveillance Agency (ANVISA), self-medication is defined as the use of drugs, without prescription or guidance from a doctor or dentist, for treating diseases whose symptoms are "perceived" by the user (BRAZIL, 2001).

Self-medication can cause damages that go beyond financial loss: delayed diagnostics, lack of adequate therapy, adverse or allergic reactions and intoxication (VITOR et al., 2008; PEREIRA et al., 2017). Furthermore, self-medication offers additional risks when associated with prescription drugs, delaying proper diagnosis and often masking serious diseases (PEREIRA et al., 2017).

According to a survey conducted by the Datafolha Institute on behalf of the Federal Pharmacy Council (CFF) in 2019, self-medication is a common practice of 77% of Brazilians, who have used medications in the last 6 months. This same study found that about 47% of people use medications on their own at least once a month; another 25% do this practice every day or at least once a week (DATAFOLHA, 2019).

The ANVISA Resolution 44/2009 (2009) predicts that the pharmacist can grant functions to auxiliary technicians; therefore, they should train and supervise these professionals in the performance of tasks. The dispensation of medications, however, is a private activity of the Pharmacist according to Board Resolution (RDC) 357/2001 of the CFF.
Thus, pharmacist must be seen as a health professional, responsible for offering reliable technical instructions on medicines, based on their vast corpus of knowledge from the professional class in question (SERAFIG et al., 2007).

The role of the pharmacist in the multiprofessional health team is essential for connecting the patient with the appropriate treatment and to reduce the possible risks that self-medication may entail (CHIAROTI; REBELLO; RESTINI, 2010).

The present study aims to verify and evaluate self-medication and its risks factors in public health in Brazil and the role of the pharmacist in the multidisciplinary team as an advisor in the rational use of medicines.

2 MATERIAL AND METHODS

For the development of this work, an integrative literature review study was carried out. According to Gil (2008, p.50) “it is developed from material already prepared, consisting of books and scientific articles”; thus, articles and works by several renowned authors were selected for structuring, developing and discussing the self-medication theme.

The bibliographic survey was carried out using electronic databases SciELO (Scientific Electronic Library Online) and Google Scholar using the following descriptors: Self-medication; Medication use; Medicines sold without a prescription.

Articles in Portuguese and English, published between the years 2001 to 2020, were searched; however, since it is a bibliographic review, no Qualis CAPES analysis was performed.

3 DEVELOPMENT

3.1 SELF-MEDICATION IN BRAZIL AND ITS COMPLICATIONS

The use of medications without a medical prescription is called self-medication (DOMINGUES et al., 2017); however, the irrational use of medicines occurs when there is self-medication without prescription and without the supervision of a pharmaceutical professional (ROCHA, 2014).

The increased availability and the ease of access to red-stripe drugs (without prescription retention) and Over-the-Counter drugs (OTC), increase both the self-medication index and the damages caused by the irrational use (SOTERIO; DOS SANTOS, 2016).

Macedo et al. (2016) report that self-medication is a common practice in Brazil regarding usual symptoms like those contracted from the flu — cough, muscle pain, headaches and sore throat — as well as rashes and gastrointestinal problems, such as stomach acidity and constipation.
Educational practices taught by the pharmacist have proven to be very important and effective in encouraging URM and Health Education for the local community, exerting a notable influence in the context of public health. It is necessary to consider the potential contribution of the pharmacist and effectively incorporate it into the health teams, understanding the dimension of the need to expand their area of expertise in health education and promotion services (MELO; PAUFERRO, 2020).

Self-medication can also be practiced in other ways, such as using an older prescription, interrupting or prolonging the dosage of medications, or even the treatment time, besides sharing medications with other family members (LOYOLA FILHO et al., 2002).

In the meantime, advances in the medical field aside, there are great complexities on health services availability question. This factor, when associated with others like advertisements for over-the-counter drugs and the culture of home pharmacy, forms a solid basis for the practice of self-medication (ARRAIS et al., 2016).

In Brazil, there are few studies concerning self-medication and its associated factors (DOMINGUES et al., 2015), despite the large number of drug intoxication cases (LEITE; VIEIRA; VEBER, 2008). This study aims to take a more in-depth approach and it has two objectives: (a) making people aware about the possible risks of self-medication; (b) talk about the importance of rational use of medicines.

Nevertheless, self-medication is a widespread practice, not only in Brazil, but also in other countries. As an example, in countries with an incipient health system, pharmacies are the first option to solve a health problem. Moreover, most of the drugs consumed by the population are sold without a prescription (BRAZILIAN MEDICAL ASSOCIATION, 2011).

However, even in more industrialized countries, several popular medicines of simpler use are available in pharmacies, drugstores or supermarkets. These drugs, such as analgesics, antipyretics, among others, can be purchased without the need of a doctor's prescription (BRAZILIAN MEDICAL ASSOCIATION, 2011).

In Brazil, according to Domingues et al. (2015), approximately one third of the adult population adhered to the practice of self-medication. Comparing these data with other developing countries, self-medication appears to be prevalent.

Contribution to the irrational use of some determinant medications, such as patients' compulsion for medication, advertising of medications in the media, the multiplicity of pharmaceutical products available, and the Internet as an easily accessible vehicle to acquire these medications (MELO; PAUFERRO, 2020).
A study conducted by Moura, Gomes and Pereira (2017), established that self-medication in the Brazilian population happens mainly in adulthood. When gender is considered, men represent about 40% of the cases, whereas women correspond to 30%. The study also reports that, historically, men present low demand for medical services.

Regarding complications due to medications, Cunha (2008) describes two disastrous cases that made drug safety an important issue. In the first case, the use of a cough syrup led dozens of children to death because of the excipient used. The second case, which is well known, was that of Thalidomide, a medicine capable of causing serious health problems to pregnant women and fetal malformation.

In 2017, the National Toxic-Pharmacological Information System (SINITOX) reported that 27.11% of registered poisoning occurrences resulted from the misuse of medicines. This fact is even more alarming, considering that the toxic agent that appears second in the statistics (venomous animals and scorpions) correspond to only 15.34% of the occurrences (Table 01).

### TABLE 01. Evolution of registered cases of human poisoning by toxic agents.

| AGENT / EVOLUTION             | Healing | No cure confirmed | Sequeal | Death | Death other circumstances | Other | Ignored | TOTAL |
|-------------------------------|---------|-------------------|---------|-------|---------------------------|-------|---------|-------|
|                               | n°      | n°                | n°      | n°    | n°                        | n°    | n°      | n°    |
| Medications                   | 12,911  | 750               | 2       | 50    | 5                         | 434   | 6,485   | 20,637 |
| Pesticides for agricultural use| 1,516   | 76                | 1       | 61    | 2                         | 53    | 839     | 2,548  |
| Pesticides for domestic use   | 605     | 37                | 1       | 1     | -                         | 11    | 176     | 831   |
| Veterinary Products           | 427     | 36                | -       | 2     | -                         | 2     | 242     | 709   |
| Rodenticides                  | 727     | 20                | -       | 1     | -                         | 5     | 398     | 1,151 |
| Household cleaning products   | 2,934   | 161               | 3       | 4     | -                         | 45    | 1,505   | 4,652 |
| Cosmetics                     | 752     | 32                | -       | -     | -                         | 62    | 221     | 1,067 |
| Industrial Chemicals          | 1,737   | 107               | 1       | 16    | -                         | 35    | 982     | 2,878 |
| Metals                        | 25      | 6                 | -       | -     | -                         | -     | 3       | 21    |
| Drugs of abuse                | 852     | 16                | 1       | 16    | 4                         | 1,384 | 470     | 2,743 |
| Plants                        | 543     | 22                | -       | 1     | -                         | 4     | 251     | 821   |
| Foods                         | 256     | 5                 | -       | -     | -                         | 166   | 45      | 472   |
| Venous animals/snakes         | 1,466   | 597               | 13      | 9     | 2                         | 18    | 965     | 3,070 |
| Venous animals/spiders        | 989     | 2,112             | 3       | 1     | 1                         | 11    | 2,839   | 5,956 |
| Venous animals/scorpions      | 10,322  | 502               | -       | 6     | 1                         | 255   | 593     | 11,679 |
| Other venomous animals        | 1,489   | 1,787             | -       | 10    | -                         | 23    | 2,821   | 6,130 |
| Non-venomous animals          | 4,111   | 55                | -       | -     | -                         | 35    | 849     | 5,050 |
| Unknown                       | 908     | 14                | 1       | 4     | -                         | 11    | 66      | 1,004 |
| Others                        | 899     | 21                | -       | 18    | 27                        | 17    | 3,680   | 4,662 |
| TOTAL                         | 43,469  | 6,356             | 26      | 200   | 42                        | 2,574 | 23,44   | 76,115 |
| %                             | 57,11   | 8,35              | 0,03    | 0,26  | 0,06                      | 3,38  | 8       | 100   |

Caption: n°: number of cases; %: percentage of cases. Source: MS/FIOCRUZ/SINITOX (BRAZIL, 2017).
The data above refer only to registered cases by the National Toxic-Pharmacological Information System (SINITOX); of the 20,637 drug intoxication occurrences, 50 evolved to death (SINITOX, 2017).

Over the past few years, according to data from SINITOX — between 2014 and 2017, specifically — 108,319 cases of people who suffered intoxication from the inappropriate use of medications were recorded and 288 people died (Table 02).

| MEDICATIONS/YEAR | CASES  | DEATHS |
|------------------|--------|--------|
| 2014             | 26,593 | 61     |
| 2015             | 28,778 | 62     |
| 2016             | 32,311 | 115    |
| 2017             | 20,637 | 50     |
| **Total**        | **108,319** | **288** |

Source: MS/ FIOCRUZ/ SINITOX (BRASIL, 2017).

These data, however, can be even greater. There is no integrated system capable of handling all intoxication cases related to the practice of self-medication.

In a survey conducted with nursing students in a city in Amazonas State, it was revealed that self-medication is very common in cases of pain and temperature reduction, and that the most used drugs were non-steroidal anti-inflammatory drugs, since they allow pain relief (GAMA; SECOLIB, 2017).

Regarding drug interactions, the indiscriminate use of medicines without the proper guidance of a pharmacist can lead to the use of more than one medicament at the same time, which, in turn, can lead to interactions that generate dangerous side effects (CALADO, 2014).

According to Vieira and Vieira (2017), one of the main reasons for antibiotic resistance triggering is the irrational use of medicines; thus, it is caused by the incorrect usage without proper guidance, besides interrupted treatment time.

In view of the arguments presented, it is up to health professionals combat self-medication, with the dissemination of correct information, through reliable sources; hence, misinformation and lack of knowledge can undoubtedly lead to the worsening of people's health.

Therefore, health professionals have a relevant role through pharmaceutical care and assistance, in order to contribute to the constant improvement in people's quality of life and the rational use of medicines.
3.2 RATIONAL DRUG USAGE (RDU) TO REDUCE CASES OF SELF-MEDICATION AND ITS COMPLICATIONS

The rational drug usage (RDU) is pointed out as one of the key concepts recommended by the World Health Organization (WHO) for drug policies (BRASIL, 2012).

On the other hand, in Brazil’s National Medicines Policy (NMP), RDU is defined as the process that consists of the appropriate prescription, timely availability and affordable prices, dispensing under appropriate conditions, consumption in the indicated doses, intervals and period of time. The remedies must be safe, effective and of good quality. (BRASIL, 2002).

The management of financial resources must be rational in any environment, especially when considering a public health system (PINTO et al., 2015).

It is essential to differentiate the terms "rational" and "rationing". "Rational" refers to the measures taken based on reason or evidence; "rationing", in turn, is the controlled distribution of scarce resources, goods or services. Thus, the rational drug usage (RDU) is based on the use of reason and knowledge of the facts involved; in addition, it seeks to promote the use of medications — with scientific basis —, which are safe and effective, besides having acceptable costs and distribution (PINTO et al., 2015).

Cunha (2008) argues that there are four essential criteria for the rational use of medicines: (1) effectiveness: if the medication is effective against a certain disease and what are its adverse effects; (2) effectiveness: what result it is intended to be achieved based on a certain drug and dosage; (3) efficiency: a concept of Economics, whose central question is "are the resources employed minimal?"; (4) safety: the more frequent drug interactions and side effects (CUNHA, 2008).

The need for the rational drug use, the relevance of the pharmaceutical professional grows, according to Silva et al. (2013): “[...] the pharmaceutical professional must work with the patient, seeking concrete results and improving their quality of life”. This research points out that the results are based on the eradication of symptoms or their reduction and in the healing process or even disease prevention.

The pharmacist has an important role in reducing the irrational use of medicines. The patient will be more willing to use the medication correctly when properly instructed by a professional (FERNANDES; CEMBRANELLI, 2015).

The administration of medications in the correct dose is essential to avoid damage to the patient’s health (especially in drugs that may impair some function of the organism and that have a
narrow therapeutic range) and ensure that the treatment will be effective (avoid subtherapeutic dose, for example) (ROSA et al., 2020).

Thus, measures were created against the practice of self-medication, favoring rational use of medicines. Through Resolution 586 of August 29, 2013, the Federal Pharmacy Council (CFF- Conselho Federal de Farmácia), established rules on over-the-counter medications. This resolution authorizes professionals to “select, start, add, replace, adjust, repeat or interrupt pharmacological therapy”. According to Article 5:

“Art. 5th - The pharmacist may prescribe medications and other products for therapeutic purposes, the dispensation of which does not require a medical prescription, including industrialized drugs and magistral preparations - allopathic or dynamized -, medicinal plants, plant drugs and other categories or lists of medications that may be approved by the federal health agency for prescription by the pharmacist.

§ 1 - The exercise of this act must be based on knowledge and clinical skills that include good prescription practices, pathophysiology, semiology, interpersonal communication, clinical and therapeutic pharmacology.

§ 2 - The act of prescribing dynamized medications and therapies related to integrative and complementary practices must be based on knowledge and skills related to these practices.”

This resolution becomes crucial, since most of the over-the-counter medicines are among the most used classes for self-medication (FERNANDES; CEMBRANELLI, 2015). Therefore, it is important that the pharmacist has an accurate notion of his/her competence and the limits of his/her intervention in the disease-health process. This professional must assess the patient’s condition, take the right actions at the correct time and refer the sick person to the doctor or hospital in case of possible emergencies (ZUBIOLI, 2000). However, the approach of a specialized professional is essential in the process of patient awareness about the great risks arising from self-medication (PEREIRA; SILVEIRA, 2008).

Adherence to the rational use of medicines involves certain practices, such as educational lectures directed to the population and clear guidelines when prescribing and dispensing medication (CASCAES; FALCHETTI; GALATO, 2008). Waldman and Sato (2016) propose the humanization of health services (especially on the public network) and the prioritization of infectious diseases cases as actions to reduce the number of hospitalizations and deaths from poisoning. Furthermore, health professionals should be valued through measures such as the adoption of good working conditions and making good technological resources available to all.

Pharmaceutical professionals must become aware of their role in the gradual improvement of public health by helping to reduce the risks of using drugs.
3.3 MULTIPROFESSIONAL TEAM AND THE IMPORTANCE OF CLINICAL PHARMACEUTICAL INSERTION

The multiprofessional health team is formed by doctors of various specialties, such as nurses, physiotherapists, pharmacists, psychologists, nutritionists, in addition to dentists, music therapists, among others (MEDILAB, 2019). This multiprofessional team refers to a group of clinical professionals who work in a collaborative way that aims at correct diagnosis, adequate treatment and full recovery of the patient; thus, decisions are made taking into account the contributions of each area (MEDILAB, 2019).

Usually, after examining the patient, the multiprofessional health team meets and discusses the main intervention tactics, considering the risks and the therapeutic tools available (MEDILAB, 2019).

The prominence of certain specialists must be prevented, since it can compromise the patient's prognosis. The knowledge and opinions of all health professionals involved in the disease-cure process must be taken into account (MEDILAB, 2019).

However, this synergy occurs only when a team of specialists works together. The solution for clinical problems is more easily found when each professional has the chance to evaluate the patient through the perspective of his or her area of expertise (MEDILAB, 2019).

The standardization of multidisciplinary health teams has enormous advantages for patients and also for the institutions involved, which will shorten hospitalization period - especially those related to avoidable errors and the lack of accurate diagnosis. As different professionals align their approaches and objectives, the patient will achieve better recovery and quality of life (MEDILAB, 2019).

Thus, in their set of activities, each professional educates, assists and supports the patient in planned self-care and in the evaluation of the results of the treatment. According to Gomes et al. (2007), clinical pharmaceutical care focused on the patient is sustained by technical-assistance and technical-managerial actions, which reformulates the techniques and working methods. Pharmaceutical Professionals must have sufficient cognitive resources to assist patient in their treatment needs and to assess the results of medication usage and other therapeutic interventions.

In addition, the services developed by clinical pharmacists play a crucial role in promoting the rational use of medicines, which guarantees the patient correct pharmacotherapy and defined therapeutic results. Hence, it is possible to simultaneously reduce financial costs and the risk of harmful results in drug treatments (KABOLI, 2006).
Services, such as the review of medical prescriptions, are important actions that allow the identification, resolution and prevention of drug-related problems (DRPs) and negative outcomes associated with pharmacotherapy (CARE, 2007).

Multiprofessional teamwork is the most important way to ensure patient safety and treatment. For many years, the pharmacist has been limited to the management of hospital pharmacies, for example. It demonstrates the need to expand the area of expertise of this professional in the clinical units in order to ensure the safe and rational use of drugs (Leape, 2000; KUCUKARSLAN, 2003).

Studies reveal that the pharmaco-therapeutic segment can reduce medication error rates by up to 78% (LEAPE, 2000; KUCUKARSLAN, 2003). The insertion of clinical pharmacists in the multiprofessional health team is essential, since their great technical knowledge of medications brings great benefits to the patient. When pharmacists work in an integrated manner with the other professionals, it makes possible to improve the quality of medical care.

In Brazil, even with the insertion of the clinical pharmacist in the multiprofessional health team, there is still a long way to go to continuously improve this process. Concerning facts such as the persistence of prognosis and medication errors prove the importance of the pharmacist’s role. Undoubtedly, this professional brings direct benefits to the patient's safety and quality of life.

4 CONCLUSIONS

This study concludes that most of the drugs that people use do not have a medical prescription, which presents several risks. This problem deserves more attention from health professionals; thus, pharmacists have a fundamental role, since they are simultaneously in contact with the medications and the patient. The guidance of this professional can avoid increases in health expenses and it decreases the number of intoxications, adverse reactions and deaths.

The Brazilian public power, through the Ministry of Health, must formulate and implement strategies that encourage the rational use of medicines. Such purposes must be present even in the training of future health professionals.

Together with the multiprofessional health team, pharmacists are, given their academic background, the one who is best prepared to advise pharmacological and non-pharmacological therapies.
Every day, the need to include the clinical pharmacist in the multiprofessional health teams becomes clearer, as shown by the alarming numbers of medication errors. The interventions of this professional generate direct benefits for the safety and quality of life of patients.

Finally, projects related to the correct use of medicines would be extremely important for the population. These actions can reduce problems related to public health costs, especially those associated to self-medication.

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