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MEDICATIONS RATIONAL USE TO PREVENT INCORRECT DISPOSAL

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ABSTRACT

Pharmacotherapy is one of the most effective approaches for the treatment of diseases, however the increased use of medications by the population rise the need of a better dispensation quality. In this context, the present study aimed to collect data regarding the use of medications and how they are disposed of in Boa Esperança, Minas Gerais, Brazil. 105 individuals aged from 15 to 70 years old were interviewed. The obtained results were: 77.33% perform self-medication; 30.48% present chronic diseases; 43.81% use medications; 79.04% acquire medications at the drugstores; 40% have knowledge regarding correct medications disposal; 59.04% store medications in disuse; 61.92% discard overdue medications in the common trash, and 97.14% believe the medications are polluting agents to the environment. According to the data presented, it is observed that it is imperative the creation of public policies to educate or even inform users, along with pharmacists in public or private assistance, via pamphlets, posters, lectures, and advertisements about the medications use and disposal. The goal is to prevent these substances surplus since the population receives no guidance or sufficient knowledge to carry out this practice.

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INTRODUCTION

Pharmacotherapy is currently the most efficient approach to disease treatments in general. Treatments, before restricted to hospitals, are now easily applied at home following the adequate dosage of the prescribed medications (BISSON, 2007).

According to the National Agency of Sanitary Surveillance (ANVISA) (BRASIL,2005), medications may be acquired in authorized pharmacies, such as drugstores, compounding pharmacies, municipal pharmacies, health assistance, among others institutions with a responsible pharmacist for the medications delivery (ALVES, 2010). It is noted that pharmaceutical spending has become a threat to the public health systems sustainability in many countries and spending on pharmacy has not matched the significant improvements in population health indicators (MOTA *et al.*, 2008). The increased medications consumption is followed by increased

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requirements for quality services by the clients and pharmacists. This quality must be based on the Pharmacy Assistance practices. According to ARAÚJO *et al*. (2008), the pharmacist redirected their practice, especially to the drug, forgetting his primary purpose, which is the patient. Currently, a new pharmacist professional profile becomes essential, assuming a central role in the users and patients with chronic diseases follow-up or pharmacotherapeutic monitoring (ARAÚJO *et al.*, 2008). "The user's knowledge and understanding of medication through the guidance associated with the support provided by family members and healthcare staff are the most important sociopsychological variables for whether or not the prescribed drug regimen is obeyed" (ARAÚJO *et al.*, 2008). Medication users should be aware of the Rational Use of Medications, which according to the WHO 2002, is the process where "patients receive medications according to their clinical conditions, in adequate doses to their individual needs, for an appropriate period and at the lowest cost for themselves and the community. " Patients are not always able to obtain medications in pharmaceutical forms and the dosages prescribed by the physician in the public health services, and most of the time, they are not adequately informed about their treatment and how to properly discard the medication after its use (AQUINO, 2008).

Environmental pollution (mainly in the generation domestic or from any other human activities waste) has directly reflected on the population quality of life (HIRATA; MANCINI FILHO, 2002). Besides the microbial contaminations, there is chemical agents contamination, among them the presence of drugs in the soil and water bodies due to medications incorrect disposal (BILA; DEZOTTI, 2003). Lately, there has been a concern about the medications incorrect disposal, not only due to the environmental impact, but due to domestic and social security issues, since there is an exposition of these drugs, both in their entire form and in their residue form, by garbage collectors and children (HOPPE, 2011). Given this importance, this study aims to verify the Boa Esperança, MG, population knowledge regarding the medications correct disposal, as well as to evaluate pharmaceutical assistance practices on medications disposal and rational use.

MATERIALS AND METHODS

Ethical principles: This study was carried out under the ethical precepts determined by the National Health Council 196/96 resolution. Therefore, the project was submitted to the José do Rosário Vellano University (Unifenas) Research Ethics Committee (protocol number: nº 440.224). A free and informed consent form was offered and signed by all participants. Additionally, a database consent form for the science usage and the Emergency room responsible technician authorization was signed.

Setting and location : The study was performed at Boa Esperança, Minas Gerais, which holds approximately 40,018 inhabitants. Agriculture is the primary income source followed by provision of services, including 13 pharmacies, 3 compounding pharmacies and one municipal pharmacy as medications distribution sites (IBGE, 2013) (SARNO *et al.*, 2013).

Procedures and sample: The data collection was performed via semistructured interview that combines multiple choice and descriptive questions, where the respondent was able to discuss the topic (MINAYO, 2007). The project was performed in Boa Esperança, Minas Gerais, via questionnaire application to 105 medication users, to characterize the medications use and acquisition, and the population knowledge regarding the medications disposal and their environmental impact as residues.

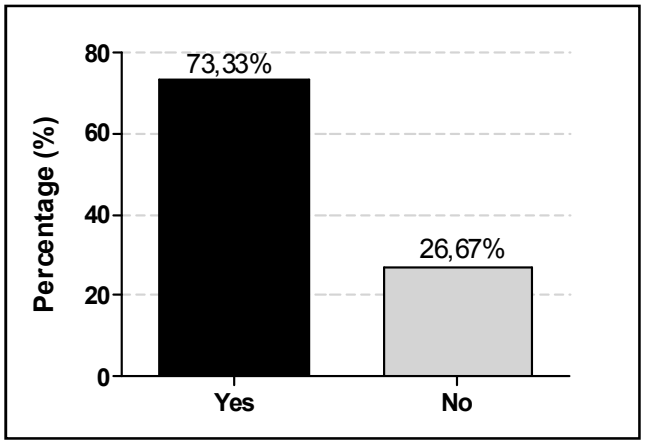
Inclusion and exclusion criteria: All citizens or patients (under use of medications or not) that accepted to answer the questionnaire were included. The citizens that did not accept answering the questionnaires were excluded. The participants aged below 18 years old answered the questionnaire after their responsible authorization.

Data analysis*:* The data analysis occurred with the database codification and elaboration, which consists in establishing the connection between the obtained results with the literature reported findings, whether derived from theories or carried out previously (GIL, 2002). The results were obtained as the percentage with the intention to describe, explain and comprehend the study focus.

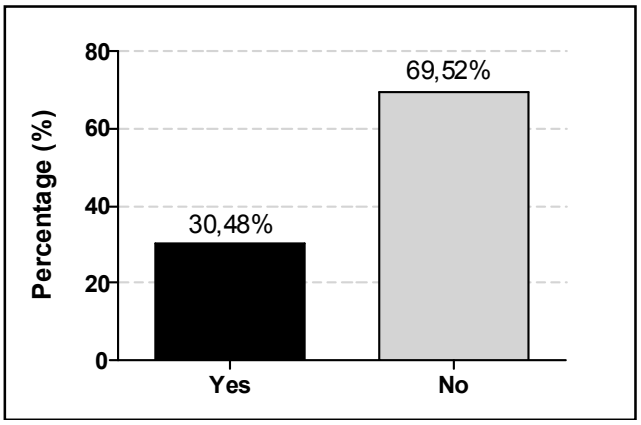
RESULTS AND DISCUSSION

Graph 1 characterizes the frequency of respondents performing self-medication. We observed that the most used medications in this context are the free prescription medications, which can be obtained without the medical prescription. Self-medication is dangerous, as in general, the free prescription medications may cause side effects. According to the Ministry of Health 2013, after medical or pharmaceutical assistance, the patient is informed about the medication risks. The current public health scenario recognizes the pharmacists as a prescriber, mainly the free prescription medications, which favors the pharmacists' professional action in all aspects, including in the pharmaceutical assistance (DE FARMÁCIA). The graph 2 indicates the percentage of patients with chronic diseases. It was observed that a few respondents had trouble to understand the term "chronic," so informal arguments were used in the explanations. For this reason, it was also noted that respondents have little knowledge about the symptoms and even the treatment they receive for these diseases. The graph 3 presents the frequency of medications users with chronic diseases, evidencing that 19.04% reported at least one chronic condition, 12.39% reported 2 or more and 68.57% reported no disease.

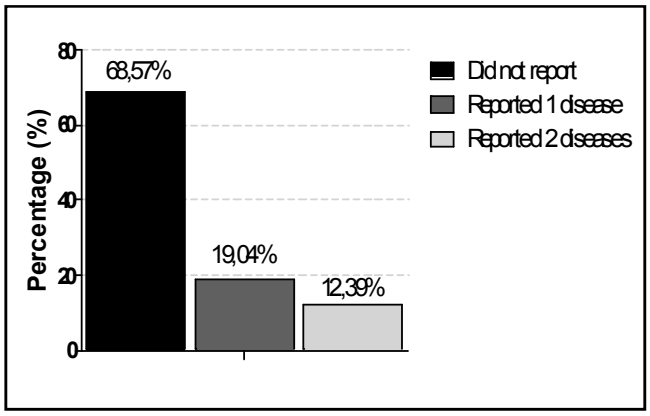
In the graph 4, it was verified the use of medications by the respondents. Among the medications reported were: oral contraceptive pills (15%), by women who were the majority of the included study participants. 9% use ARBs as antihypertensive medications (e.g., losartan) and 8% beta-blockers as antihypertensive (e.g., propranolol, atenolol, and methyldopa). Around 7% of the respondents use medications for hypothyroidism, 5% use anti-diabetic drugs and 5% antiplatelet agents. Graph 5 shows where the drugs were purchased by the users interviewed, and it is observed that most respondents buy medications in the drugstore. The minority of respondents buy the medications at compounding pharmacies, which is justified by the ease of acquisition and low cost (BRASIL, 2009). As the popular and municipal pharmacies require a medical prescription for medications acquisition, the compounding pharmacies become an alternative for acquiring the medication.



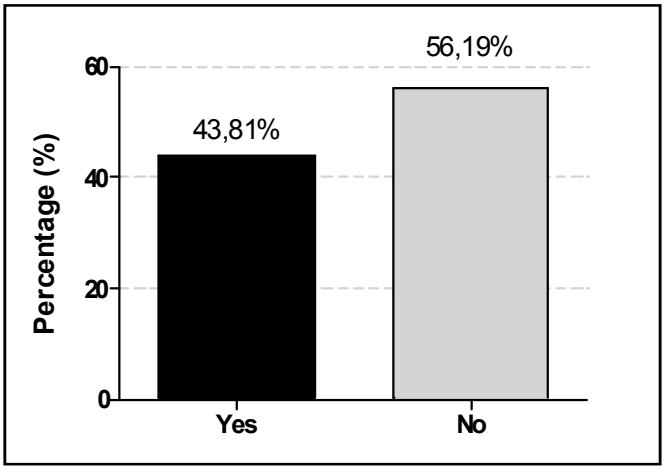
Graph 1. Frequency of respondents that perform self-medication



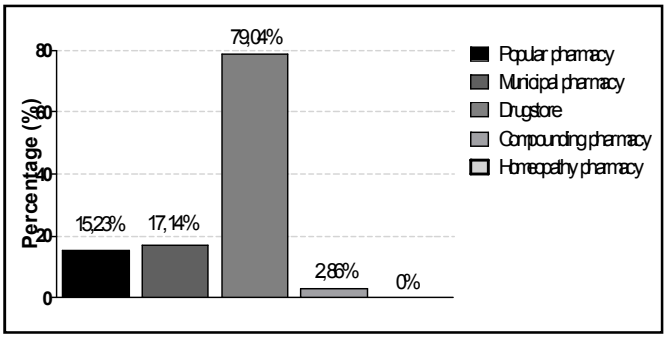
Graph 2. Respondents with chronic diseases



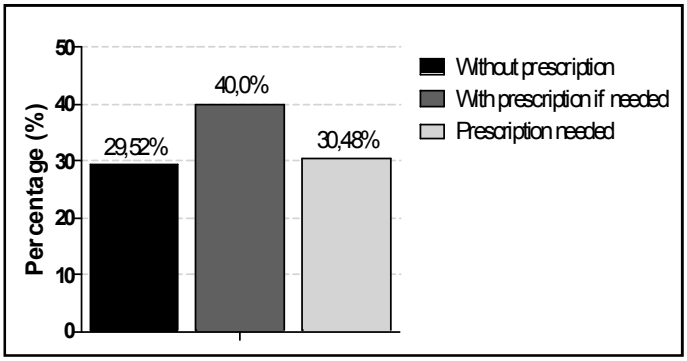
Graph 3. Frequency of respondents with chronic diseases



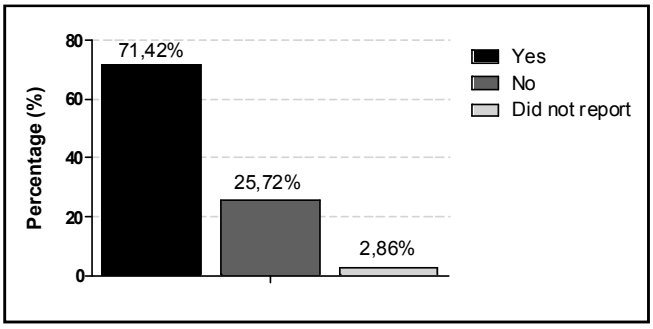
Graph 4. Medications usage



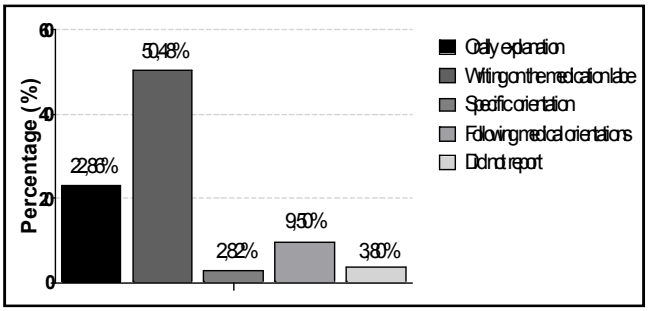
Graph 5. Pharmacies where the users acquire the medications



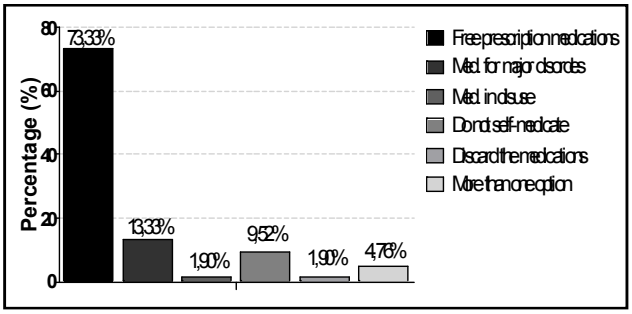
Graph 6. Frequency of medications obtainment with a medical prescription



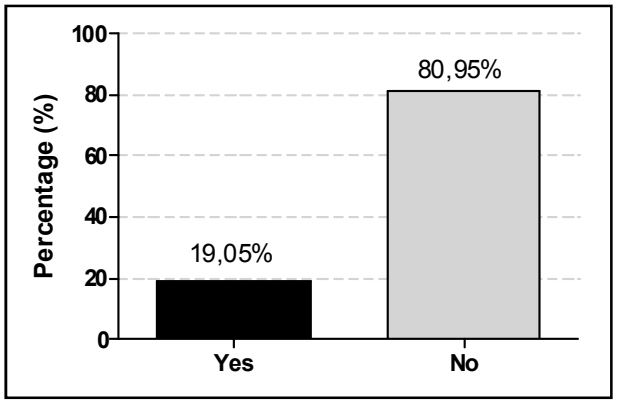
Graph 7. Frequency of users that receive orientation regarding pharmacotherapy



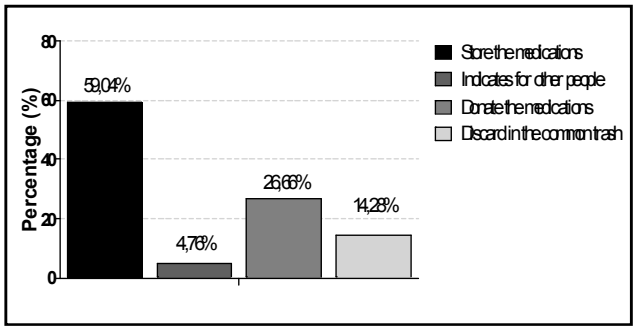
Graph 8. Orientation regarding pharmacotherapy



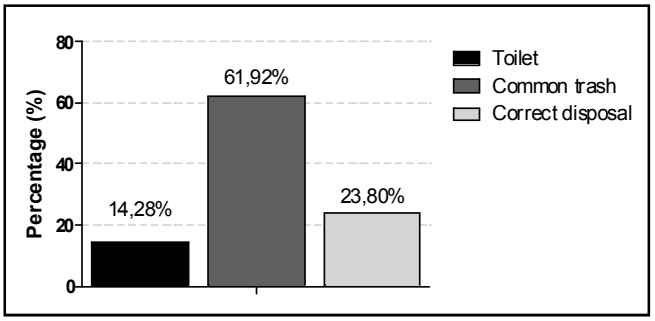
Graph 9. Frequency of home medications



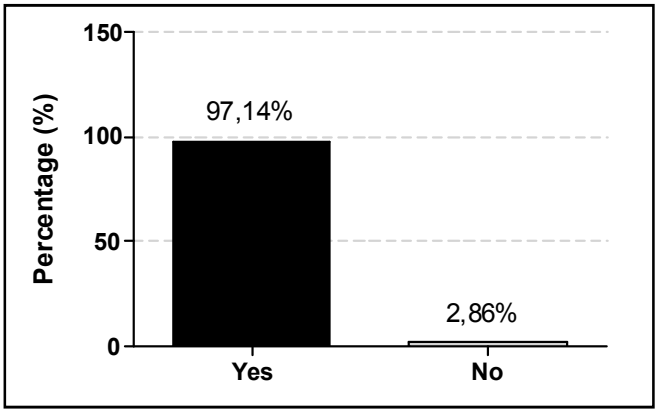
Graph 10. Frequency of users that received orientation for the medications disposal



Graph 11. Users actions for disuse medications



Graph 12. Users actions for overdue medications



Graph 1. Respondents opinion on the medication's potential as pollutants

In the popular and municipal pharmacies, an identification document must be presented as established by the Ministry of Health "Manual of Pharmacy and Drugstore Guidelines" in 2013. The frequency at which the users receive orientation regarding pharmacotherapy is observed below (Graph 7). MOTA *et al.* (2008) emphasized that prescribers and pharmacists are still not sensitized to the importance of informing the patients about the correct medications use (MOTA *et al.*, 2008). However, this practice has been neglected in its technical and legal complexity, and with the increase in the number of medications acquired by the individuals in the pharmacy, it becomes merely a bureaucratic or commercial act (ACURCIO, 2003), since in this study 79.04% of the medications (Graph 5) are obtained at drugstores. The graph 8 presents the way in which the orientation regarding pharmacotherapy was given, where 22.86% receives it verbally; 50.48% of the dispensers write the orientations on the medication label; 2.82% of the respondents receive a specific orientation; 9.50% answered that the dispensers suggest to follow the medical prescription orientations and 3.80% answered more than one option. The data collected show that 71.46% of the users received orientations at the moment of the medication acquisition (graphs 7 and 8), and it is evident that this procedure is responsible for the treatment success, since the medication is in its possession and the latter is responsible for proceeding with the administration (JESUS, 2012). The graph 9 indicates the frequency of home medications, where 73.33% of the respondents have free prescription medications; 13.33% have medications for major disorders that are sold under medical prescription; 1.90% have medications in disuse; 9.52% do not self-medicate, 1.90% discard the medications, and 4.76% answered more than one option. A study performed by Ribeiro and Heineck in 2010, shows that the amount of the prescribed medication is usually larger than the treatment duration, or that the patient did not comply with the treatment, and the drugs are often purchased on their own or for non-specific reasons, characterizing the accumulation of home medications (RIBEIRO, 2010).

The prevalence of free prescription medications possibly suggests that the user's treatments duration, besides short, were not accompanied by regular orientations given by the involved professionals. Graph 10 shows the frequency of users that received orientation regarding the medications disposal. The debate chaired by Bergsten-Mendes 2008, emphasized that the pharmacist operation must not be limited to the medications acquisition and delivery. To proceed with the Rational Use of Medications, patients and users should receive the medications with guidelines that are consistent with the treatment, not only those related to pharmacotherapy but those that encompass all actions that involve improving the quality of life (BERGSTEN-MENDES, 2008). Graph 11 indicates the user's actions regarding the medications in disuse, where most individuals keep the medications, and a minority discard them in the common trash. The respondents store the unused medications, as they believe that at some point, the disease symptoms treated may return. Some individuals forward the medications for donation in the municipal pharmacies or other institutions such as Social Work Services. Graph 12 indicates the user's actions with overdue medications, where it was observed that the majority of them discard the medications in the common trash. When the participants were questioned about how they proceed with overdue medications, 61.92% confirmed to discard them in the common trash. A few individuals reported placing the medication in a plastic bag before discarding, justifying that this is a safe action, so the trash collectors do not use the medications". Other 14.28% reported to discard the medications in the toilet, and these people consider that by doing that they are avoiding other people at risk. A study by Crestana; Silva (2011) demonstrated that the population knowledge regarding the

dimension of persistent chemical compounds exposition and their consequence to environmental health, it is of extreme importance to guide strategies of control, collection and safe discard of these substances, corroborating our findings (CRESTANA; SILVA, 2011). The overdue medications storage increase the chances of incorrect disposal since the population is not aware of how to proceed (HOPPE, 2011). The respondents confirm to know that this is not the correct action to be taken and questioned the interviewers on how to perform the proper disposal, collection schedule, among others. While answering the questionnaires, the participants were informed that the Boa Esperança municipal pharmacy accepts donations, where the medications are selected and adequately managed. This practice of the Municipal pharmacy reflects on the data displayed in graph 11, where 23.8% of the respondents forward their medications for this or other places such as drugstores, outpatient clinics, among others. Chart 13 presents the respondent's opinion about the medication's potential as pollutants. In this last question, the respondent's opinion regarding the medication's potential as environmental pollutants was assessed.

It was verified that most of the participants believe that medications are pollutants and also argued that the creation of collection points is essential. A small percentage (2.86%) of the respondents do not believe that medications are pollutants and were not interested in discussing this question. Most of the respondents demonstrated an interest in debating about the medications impact as environmental pollutants, especially in the water resources, since the city of Boa Esperança have a lake and is surrounded by streams that supply the city (GUIMARÃES; DOS SANTOS, 2015). They could also relate the use of pesticides, as soil and fountains pollutants; and some related this practice to the disposal and possible presence of medications or chemical inputs in the region soils. Although the number of respondents exceeded the estimated number for this research, the distribution of informative pamphlets and educational lectures would reach a greater number of medication users. Therefore, students from the Pharmacy Course at the Faculdade de Ciências e Tecnologias de Campos Gerais, distributed informative pamphlets in emergency rooms, emphasizing the importance of the medications correct disposal.

Conclusion

The main findings of the present study suggest that the population does not have sufficient knowledge to proceed with the correct medications disposal since the information given to users during the acquisition or the orientation regarding pharmacotherapy is not enough for the proper practice. It is noted that users do not have the incentive to donate medications in disuse, and this practice would help users who are not able to purchase the drug for their therapy. The donation together with public policies would decrease the incorrect medications disposal in the city. The pharmacist role is essential for the therapy success.

In the dispensation procedure, pharmacists must be educators and treatment mediators, advising the patients not only about the correct dosages and treatment time but also on the proper disposal. Nevertheless, it is concluded that the creation of public policies to educate or even inform users, along with pharmacists in public or private assistance, via pamphlets, posters, lectures, and advertisements about the medications use and disposal. The goal is to prevent these substances surplus since the population receives no guidance or sufficient knowledge to carry out this practice.

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