

Experiences of users of a drug information center on the role of the pharmacist

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Abstract

Objective: To describe the activities performed by the pharmacist according to the experiences of users (non-specialized population and pharmacists) of a Drug Information Center. **Methods:** A cross-sectional study conducted with pharmaceutical professionals and medication users who use the Information Service of the Drug Information Center at the Federal University of Minas Gerais (Cemed/UFMG). The participants answered an electronic questionnaire with information on sociodemographic data and on the pharmacist's role or use of pharmaceutical services. The data were analyzed in a descriptive way by means of absolute and relative frequencies, and some of the participants' reports were presented to contextualize the analysis. **Results:** In total, 156 participants answered the questionnaire. Most of the medication users, 58 (72.2%), reported that they had some experience of being guided by the pharmacist about the use of medications, with indication, 28 (34.6%), and guidance on medication administration (21.3%) being the main interventions reported. Most of the pharmacists, 26 (96.3%), reported performing at least one intervention. Of these, 20 (74.1%) were carried out at the professional's workplace and the rest were technical guidelines to family members or friends. Guidelines on the correct administration of medications, 10 (37%), were the main interventions performed by the pharmacists. **Conclusion:** Dispensing of medications was often performed with guidance by the pharmacist on the use or health issues. Recognizing the contribution of the performance of this professional to obtain better health results supports its importance in drugstores and pharmacies, main workplaces of this professional and with great outreach to the population.

Keywords: prescription drugs; non prescription drugs; self-medication; community pharmaceutical services.

Experiências de usuários de um centro de informação de medicamentos sobre a atuação do profissional farmacêutico

Resumo

Objetivo: Descrever as atividades realizadas pelo profissional farmacêutico de acordo com experiências de usuários (público não especializado e farmacêuticos) de um Centro de Informação sobre Medicamentos. **Métodos:** Estudo transversal com farmacêuticos e usuários de medicamentos que utilizam o Serviço de Informação do Centro de Estudos do Medicamento da Universidade Federal de Minas Gerais (Cemed/UFMG). Os participantes responderam a um questionário eletrônico, enviando informações sobre dados sociodemográficos próprios, sobre a atuação do farmacêutico e sobre experiências com uso e execução dos serviços farmacêuticos. Os dados foram analisados de forma descritiva por meio de frequências absolutas e relativas e alguns relatos dos participantes foram apresentados para contextualização das análises. **Resultados:** 156 participantes responderam ao questionário. A maioria dos usuários de medicamentos, 58 (72,2%), informou que havia tido alguma experiência de orientação do farmacêutico acerca do uso de medicamentos, sendo a indicação, 28 (34,6%) e orientações sobre a administração de medicamentos, 23 (28,4%), as principais intervenções relatadas. A maioria dos farmacêuticos, 26 (96,3%), relatou a realização de pelo menos uma intervenção. Destas, 20 (74,1%) foram realizadas no local de trabalho do profissional e as demais foram orientações técnicas a familiares ou amigos. Orientações sobre administração correta de medicamentos, 10 (37%) foram as principais intervenções realizadas pelos farmacêuticos. **Conclusão:** A dispensação de medicamentos foi apontada como frequentemente acompanhada pela orientação sobre o uso ou questões de saúde realizadas pelo farmacêutico. O reconhecimento da contribuição da atuação deste profissional para a obtenção de melhores resultados em saúde respalda sua importância nas drogarias e farmácias, principais estabelecimentos de atuação deste profissional e de grande alcance da população.

Palavras-chaves: medicamentos sob prescrição; medicamento isento de prescrição; automedicação; serviços comunitários de farmácia.



Introduction

In Brazil, pharmacies and drugstores are establishments for the legal trade of pharmaceutical products, with the pharmacist being technically responsible for these establishments.¹⁻² However, since the implementation of the Real Plan, when the sale of over-the-counter (OTC) medications was allowed for a certain period of time in supermarkets without the supervision of a pharmacist, several projects for provisional measures were created to regulate the trade of these inputs in these places, under the argument that there would be a reduction in prices and greater access.³⁻⁴ Actions of this magnitude contribute to inducing (inadequate) consumption of medications and to devaluation of the pharmaceutical profession.

Pharmaceutical care refers to the provision of services related to the medication in different settings, such as community pharmacies and hospitals, among others. Community pharmacies have been the main workplace of pharmacists and represent the health establishments with easiest access to the population.⁵ In this context, these professionals play an essential role in promoting qualified use of medications, seeking to optimize benefits and minimize harms in using this technology.

Interventions by the pharmacists or carried out under their supervision in community pharmacies have shown to be effective in glycemic, hypertension and dyslipidemia control, in addition to promoting quality of life in users of these services.⁵ Guidance on self-medication is also the target of broad action by pharmacists. A recurrent practice in Brazil and worldwide, self-medication refers to the selection and use of medications without a medical or dental prescription for self-care.⁶ However, a recent survey carried out in Brazil showed that approximately 25% of the medications consumed on a self-medication basis are not OTC; of these, 0.5% require a prescription under special control. Most of the consumption (65.5%) corresponds to OTC medications, such as analgesics and muscle relaxants⁶. Although OTCs are indicated to treat mild symptoms and self-limiting health problems, if used inappropriately, in the presence of comorbidities or use of multiple drugs, they can result in poisoning, drug interactions and adverse effects.⁷⁻⁸

Dispensing medications under the guidance of a professional pharmacist stands out as an important strategy to inform the patients and ensure qualified and safe use of medications, preventing harms and complications to their health.^{2,6,8,9} Studies that describe educational actions in health by the pharmacist are still scarce, mainly from the perspective of medication users. Thus, this study sought to know the perception of pharmacists and users about the role of the former in the process of guidance and intervention on the proper use of medications.

Methods

Study design

This is a descriptive and cross-sectional study with a convenience sample of medication users and professional pharmacists who use the information services of the Medication Studies Center of the Federal University of Minas Gerais (Cemed/UFGM). Cemed/UFGM is a Drug Information Center (DIC), headquartered in Belo Horizonte, which offers active and reactive information services about medications and related topics. Active information consists in the production and disclosure of informative material through

the Cemed's blog (<https://cemedmg.wordpress.com/>) and social networks. The Cemed's information service (reactive information) answers the users' queries free of charge through an electronic form available in the website (<https://www.farmacia.ufmg.br/pergunta-ao-cemed/>). From the blog's launch, in 2012, until 2020, these services were accessed by nearly 177,272 people, among health professionals and medication users.¹⁰

Participants

Professional pharmacists and medication users who use the information services of the Cemed/UFGM and for whom at least one contact data was available (email address, telephone number or social network contact) were invited to participate in the research. Thus, the sample was made up by those who accepted the invitation and volunteered to answer the questionnaire. The information about the respondent's category, if a professional pharmacist or medication user, was recorded by the participants in the research questionnaire. The invitation to participate and data collection were performed simultaneously.

Data collection

Data collection took place between July 21st and August 20th, 2019, period during which the form with the research questions was made available for completion. The users of the Cemed/UFGM's information system received an invitation to participate in the research via email, telephone or social networks.

The data were collected through an electronic questionnaire, using the *Google Forms*[®] platform. The questionnaire consisted of three multiple-choice questions and an open-field question where the participants were invited to describe an experience related to the pharmacist's performance (professional's assistance, in the case of the medication users; or intervention, in the case of the professionals). The questions were structured in two parts: 1) sociodemographic data, and 2) data on the pharmacist's performance or use of the pharmaceutical services, according to the respondent's profile. The pharmacists were asked to describe a report of some experience with intervention, which resulted in treatment optimization and/or avoided possible harms to the patient. The medication users were asked whether or not they had already experienced any situation in which the pharmacist's performance would have been important to obtain better results with a pharmacological treatment or to avoid the occurrence of treatment-related problems/errors. If so, the interviewees were directed to a field where they were asked to report the situation experienced.

Data analysis

The answer records were manually reviewed and sent to peers for verification of errors and inconsistencies. The answers obtained were organized according to the respondent group (medication users or professional pharmacists) and classified according to the type of intervention experienced or performed. No judgment was made about the adequacy of the intervention performed by the pharmacist or experienced by the user.

The answers were classified into the following categories, considering the respondents' profiles: 1) administration; 2) access to and/or acquisition of medications; 3) measurement of



biochemical/physiological parameters; 4) dose adjustment; 5) application of injectables; 6) storage; 7) medication reconciliation; 8) indication; 9) interactions (drug-drug/food-drug); 10) substitution of medications; 11) anamnesis/pharmacotherapy monitoring; and 12) other guidelines.

Answers that included the description of more than one type of guidance or service were classified into all categories considered pertinent, respecting consensus between the two reviewing authors. Answers that did not include an attribution of the pharmacist, as regulated by the Federal Council of Pharmacy, were excluded.^{1,2,11} Some answers were duplicated due to possible errors in the form system; therefore, they were also excluded. In all cases where there was no consensus on peer classification, determination was made based on the judgment of a third author. The first two reviewers are undergraduate Pharmacy students, and those who acted as third reviewers are pharmacists with a master's or higher degree.

The categories identified were analyzed descriptively, by means of absolute and relative frequencies, and some of the participants' reports were transcribed only to contextualize the analyses.

The project was approved by the Research Ethics Committee of UFMG (opinion No. 2,601,397) and CAAE: 86437017.8.0000.5149. All the participants signed the Free and Informed Consent Form (FICF) via electronic means.

Results

A total of 156 participants were included, 82% of them being medication users. The mean age of the professional pharmacists was 32.6 years old \pm 8.7 and that of the medication users was 34.4 years old \pm 13.6. After exclusion of duplicates and of non-eligible answers, 108 valid answers were obtained, 81 (75%) from medication users and 27 (25%) from professional pharmacists.

Most of the medication users, 58 (72.2%), reported having had some experience regarding the pharmacist's guidance about medication use (Table 1). Drug *indication*, 29 (35.8%) and *administration*, 23 (28.41%), were the main interventions reported. The *other guidelines* category included interventions such as: answers related to warning about drug reactions, guidance on the importance of maintaining regular treatment and clarification of doubts about correct use of the medications, and were present in the reports of 32 (39.5 %) interviewees.

Table 1 – Interventions conducted by the pharmacist and reported by medication users (n=81). Belo Horizonte, MG. 2019.

Categories	n (%)
Administration	23 (28.41)
Access to/Acquisition of medications	2 (2.51)
Measurement of biochemical/physiological parameters	1 (1.23)
Dose adjustment	4 (4.93)
Application of injectables	2 (2.51)
Medication reconciliation	1 (1.23)
Indication	29 (35.80)
Interactions (drug-drug / drug-food)	9 (11.11)
Substitution of medications	3 (3.70)
Anamnesis/Pharmacotherapy monitoring	9 (11.11)
Other guidelines	32 (39.51)

Most of the pharmacists interviewed, 26 (96.3%), reported at least one situation in which they had performed an intervention related to medication use (Table 2). Among the reports of pharmacists who had daily contact with patients, 20 (74.1%) involved performing an intervention in the professional's workplace and the other six (22.2%) involved offering technical guidelines to family members or friends. One professional reported not having direct contact with the patient in his work environment; therefore, he did not share any intervention report.

Table 2 – Interventions conducted and described by the pharmacists (n=27). Belo Horizonte, MG. 2019.

Categories	n (%)
Administration	11 (40.74)
Dose adjustment	3 (11.11)
Storage	4 (14.81)
Indication	2 (7.41)
Interactions (drug-drug / drug-food)	2 (7.41)
Substitution of medications	2 (7.41)
Other guidelines	10 (37.03)

Guidelines on the correct administration of medications, 10 (37%), were the main interventions performed by the pharmacists interviewed, followed by other guidelines, 10 (37%) (e.g., clarification of doubts about the influence of the use of alcoholic beverages associated with the treatment [n=1]; trust in generic drugs [n=1]; information on the need to search for a nutritionist to indicate the correct use of teas [n=1] and intervention regarding the use of antimicrobials without medical prescription [n=1]).

Regarding the interventions performed on the correct administration of medications, a professional pharmacist shared the following report involving the use of methotrexate for the treatment of rheumatoid arthritis:

"A 68-year-old female patient, I.A.O., lives alone and is diagnosed with rheumatoid arthritis, systemic arterial hypertension (SAH) and diabetes mellitus (DM). She uses many medications and reported that she took them all right. But she couldn't control rheumatoid arthritis. When investigating how she used methotrexate, she reported that she took one 2.5 mg tablet a day, because that's what she had understood. However, according to the medical prescription and to the clinical protocol and therapeutic guideline for rheumatoid arthritis, it is recommended to use all tablets together once a week. I made this intervention by explaining to the patient the importance of using 6 tablets together and I asked her if she would have any problem or difficulty trying to use this way in the coming weeks. A month and a half later, she returned reporting improvements in pain due to rheumatoid arthritis and confidence in the work performed during the pharmaceutical consultation." (Ph006)

Correct medication storage was also a frequent report by the professionals interviewed, as in the following cases involving the storage of an ophthalmic preparation for the treatment of glaucoma and of an antimicrobial:

"Guidance regarding the storage of eye drops for glaucoma (combination of latanoprost and timolol) for older adults and explanation of stability once opened." (Ph023)

"The parents of a child were going to start the child's treatment for the second time with amoxicillin and potassium clavulanate, then I asked how the routine was being carried out. They explained to

me that they prepared it, gave the child to drink and put it back on the table. And this action was repeated every day. I explained that it should be stored in a refrigerator and had to be resuspended, always before giving the child, observing the change in the color of the medication, discontinuing use.” (Ph016)

General guidelines were also given on the understanding of what a generic drug is, to prevent potential errors in medication doses and administration routes, patient identification and therapeutic duplicity. In addition to that, there were reports of situations in which medication use was not necessary or represented some risk to the user's health:

“In general, I clarify to potential medication users about the reliability of generic drugs. This enables effective and more economical treatment for the users.” (Ph005)

“I work in a drugstore and every day I manage to carry out interventions of this nature. “One of them, which is practically daily, is the use of vasoconstrictors in patients with hypertension.” (Ph021)

Among the medication users, drug indication by the pharmacist based on the symptoms presented was reported by 35.8% of the interviewees:

“I had symptoms such as fever, runny nose and headache. I needed a pharmacist to guide me on what type of medication to take, appropriate to the symptoms.” (P001)

“He indicated an antiallergic, that can drive, as it doesn't cause drowsiness. And also referred me, to seek a doctor for detailed investigation.” (P044)

“I was with a very strong cough and he advised me a syrup and if I didn't get better in two days, go to the doctor, because it could be the beginning of bronchitis, and he was right.” (P067)

Necessary guidelines for proper treatment conduction were also reported, and the absence of some of these guidelines offered by the pharmacist could be determinant for success of the therapy:

“The pharmacist advised on the use of an antimicrobial, that I couldn't drink milk moments before and after administering the medication” (P071)

“I was taking the medication at the wrong time and was advised to use it at the correct time for better absorption.” (P014)

The pharmacist's performance also proved to be fundamental in treatment evaluation and monitoring of adverse events, with one interviewee reporting the following:

“I'm a cancer patient and I fetch the medication from a pharmacist at the clinic where I do my control and he warned me about the drug interaction that could occur if I used fluoxetine while in treatment with tamoxifen. He told me about the importance of always reporting the medications I use constantly before being medicated, thus avoiding adverse reactions.” (P030)

Discussion

The pharmacist's role in advising and providing services to support medication users in the qualified and safe use of these products is part of the experiences of the professionals and medication users interviewed.

The pharmacist's role in the indication of OTCs for self-limited health problems was reported by the medication users as one of the main causes for the intervention by these professionals. It is known that the pharmacist's role in this context contributes to responsible self-medication, defined by the World Health Organization (WHO) as the situation in which people treat their health problems with OTCs that are effective, safe and properly used. Responsible self-medication is understood by the WHO as necessary to reduce burden on the health systems.¹² The pharmacist's support with the development of actions aimed at care seems to contribute to the use of medications in a more responsible, appropriate and safe manner by the patient, in addition to influencing the achievement of better health outcomes, better quality of life and reduced costs resulting from inappropriate use or treatment.^{5,13-14}

Interventions related to drug administration were also frequently reported by the participants. Although data on the prevalence of medication administration errors in primary care are scarce, it is known that this rate is estimated at 8% to 28% for inpatients.¹⁵ It is also known that, in a study carried out to determine the prevalence and nature of prescription errors in the general medical practice, it was found that, for every 20 prescription items, one of them contains an error and that one out of 550 prescription items contained a serious error.¹⁶ These data show the importance of establishing actions to minimize these events, and it is emphasized that the pharmacist's intervention with the patients and integrated with other professionals can contribute to improving the medication administration processes.¹⁷⁻¹⁸

The clinical performance of the pharmacist, regulated by Resolutions No. 585 and No. 586, both of August 29th, 2013, of the Federal Council of Pharmacy, emerges as a strategy for the proper management of self-limited health problems, for qualification and greater safety in the use of medications, and as a way to minimize inadequate treatment and delay in diagnosing clinical conditions that require referral to other health professionals.¹⁹⁻²⁰ Actions that encourage the sale of medications in supermarkets and other similar establishments, without the presence of a pharmacist, can imply less safety in the use of medications and greater risk of harms to the patient due to inadequate use of these products. In an integrative review on the types and benefits of clinical pharmaceutical services developed in primary health care in Brazil, the authors concluded that the pharmacist's performance in primary care produces multiple benefits, including the following: contribution to user empowerment, control of chronic health problems, prevention and resolution of undesirable events related to drug therapy and adherence to pharmacotherapy. The results showed that the pharmacist has a strategic position as a health promoter.²¹ It is observed that, when encouraged by health professionals, the patients and their family members participate more actively in their health care. Therefore, greater difficulty of medication users to access a health professional can impair their health education and empowerment, reducing their participation in their care processes and, thus, obtaining worse health outcomes.²²⁻²⁵

The pharmacist's role was not limited to the use of OTCs, as the study participants reported several situations in which the pharmacist seemed to contribute to the safe and correct use of prescribed medications; situations in which the pharmacist informed about the correct way to store medications, guided



medication users about possible drug interactions and identified errors in the medication doses. These activities are part of the pharmacist's performance spectrum aimed at managing, optimizing and solving drug-related problems and adverse effects and that has shown to be effective in the control of diseases with a high burden in Brazil and worldwide, such as high blood pressure, diabetes mellitus and cholesterol, in an overview that evaluated pharmaceutical services performed in the community setting.²⁴ Results from this overview²⁶ also show benefits in treatment adherence in line with the study participants' reports in situations of lesser (e.g., use of OTCs) and greater complexity.

Considering the pharmacists' contribution to the health of the individual, as they are among the health professionals most accessible to the population (although the mistaken image of the pharmacist as a mere retailer still persists),^{27,28} public health policies must consider the increasing insertion of pharmacists in primary health care and their training for the development of clinical activities as a strategy for qualification of the use of medications and for the reduction in morbidity and mortality associated with this use.^{2,6,17}

The pharmacist plays an important role in primary health care and assists in the proper use of medications, thus promoting health maintenance in users.²¹ However, it is necessary that care and well-being of the patient become a priority so that the pharmacist acts in an integrated manner with other health professionals and is not a representative of the "medication-product", but a reference in the search for information and guidelines regarding the use of this important health technology.²⁹

In our study, there was lesser participation of pharmacists when compared to medication users. The list of experiences reported by the users is compatible with the pharmacist's performance spectrum and is perceived as important for obtaining better health outcomes. However, one of the study limitations is the participation of a mostly young and potentially better-informed population, with access to information sources, including the services of the drug information center.

Conclusion

This study allowed exemplifying activities developed by pharmacists in their professional practice. The findings indicated that dispensing was often accompanied by guidance on the use of the medication or health issues, inseparable activities of the pharmacists, which demarcate their role in promoting qualified use of the medication. Acknowledging the contribution of this professional's performance to obtain better health outcomes supports the importance of the pharmacist in drugstores and pharmacies, the main workplaces of these professionals and with a great outreach to the population.

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Collaborators

RCFC, JCMF and CAMP outlined the study design. PCT and LBF collected, analyzed and interpreted the data. RCFC, JCMF, CAMP,

PCT and LBF wrote and reviewed the article. The authors assume full responsibility for the data published and guarantee the accuracy and integrity of the article.

Conflict of interest statement

The authors declare that they have no conflicts of interest in relation to this article.

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