Pharmacognosy

The registration of the usage of medicinal plants on e-SUS program: a case study in a city in the upper Jequitinhonha Valley

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Abstract

The e-SUS is a software used to computerize the health work process in Brazil. Among the population registration data is the record about the use of medicinal plants in Primary Health Care (AB). Thus, our objective was to analyze the records of the e-SUS in a Basic Health Unit (UBS) in the Jequitinhonha Valley and conduct a survey with individuals from the same UBS, where they were asked about the use of medicinal plants. The hypothesis of the study is that although the registration is relevant, the software data underestimate the reality about medicinal plants use. In a survey with 77 users of an UBS randomly selected, 93.5% reported using medicinal plants, while in e-SUS reports only 0.8% of the individuals from the same UBS use medicinal plants. Therefore, the recorded data cannot yet be used to develop medicinal plant policies in the AB. Reliable record of medicinal plant use in e-SUS is still a challenge. It is important to make professionals aware of the benefits of correctly completing the forms for the development of public policies that include what is recommended by the National Medicinal Plants Policy in order to recognize, guide and value the use of medicinal plants.

Key words: e-SUS, herbal medicine, medicinal plants, pharmacovigilance, public health, self medication.

Resumo

O e-SUS é um software que instrumentaliza o processo de trabalho em saúde no Brasil. Dentre os dados de cadastro da população há o registro do uso de plantas medicinais na Atenção Básica (AB) à saúde. O objetivo do trabalho foi analisar esses registros no e-SUS em uma Unidade Básica de Saúde (UBS) no Vale do Jequitinhonha e realizar uma pesquisa com pessoas da mesma UBS que responderam sobre o uso de plantas medicinais. A hipótese do estudo é que embora o registro seja relevante, os dados gerados pelo *software* subestimam a realidade. Na pesquisa realizada com 77 usuários de uma UBS, selecionados de forma randomizada, 93,5% declararam fazer uso de plantas medicinais, enquanto nos relatórios do e-SUS apenas 0,8% dos indivíduos fazem este uso na mesma UBS. Portanto, os dados registrados ainda não podem ser utilizados para desenvolvimento de políticas de plantas medicinais na AB. O registro confiável do uso de plantas medicinais no e-SUS ainda é um desafio. É importante conscientizar os profissionais dos benefícios do preenchimento correto dos formulários para o desenvolvimento de políticas públicas que incluam o que é preconizado na Política Nacional de Plantas Medicinais visando reconhecer, orientar e valorizar o uso de plantas medicinais.

Palavras-chave: e-SUS, medicina herbal, plantas medicinais, farmacovigilância, saúde coletiva, automedicação.

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Introduction

Information and communication technologies are inserted in numerous branches of many activities, both in areas of economy, leisure or public service. However, actions offered by the public health care service are characterized by the predominance of the use of paper, pen and stamp. Historically, since the 1970s, the need for computerized systems for health care practices has been discussed. In Brazil, the first health information systems also appeared in this period, and it was developed to monitor the billing presented by providers of health care services linked to the National Social Security Institute (INAMPS) (Fornazin & Joia 2015).

The Brazilian Unified Health System "Sistema Único de Saúde" (SUS) offers assistance to more than two hundred million people, at various levels of care. Such a complex and grandiose system requires an accurate management, evaluation and control of its services in order to provide quality health care, allowing a mechanism to collect, process, analyze data and transmit information (Gava *et al.* 2016). In 1998, the Basic Attention Information System "Sistema de Informação da Atenção Básica" (SIAB) was created (Marcolino & Scochi 2010). However, the SIAB system became obsolete and there was a requirement for structural improvement in aspects such as: unification of data, computerized system and inclusion of other areas of basic care in the information registry (Brasil 2014). In July 2013, in the Regulatory Ordinance nº 1412, a health care information system for basic care "Sistema de Informação em Saúde para a Atenção Básica" (SISAB) was created. Its operation is based on the e-SUS basic care strategy "e-SUS Atenção Básica" (e-SUS AB), software that computerizes the workflow in basic health care units "Unidade Básica de Saúde" (UBS) and restructures basic care information.

The e-SUS has a simplified data collection version "Coleta de Dados Simplificada" (CDS), which has the individual registration forms (IRF), home registration, individual attendance record/complementary record, individual dental attendance record, collective activity form, general procedures form, home-visiting form, among others. In addition, the CDS version can be used in a computer without internet connection (CDS-offline), with the subsequent data transfer to another computer with access to the integrated network of the city (Oliveira *et al.* 2016).

In the Individual Registration Form (IRF) there is the question "Do you use medicinal plants? If so, which ones?". It is understood that such question is relevant for the National Policy of Medicinal Plants, created in 2006, by Decree nº 5813, and also by the guidelines of the National Program of Medicinal Plants and Phytotherapeutics - Interministerial Ordinance nº 2960/2008. One of the program's guidelines is "To promote and recognize popular practices for the use of medicinal plants and home remedies." If the fulfillment of this field in the registration form is performed effectively, the reports generated in this system can provide evidence about local practices to support and recognize popular knowledge. Knowing about the usage, health professionals can also instruct patients about risks of toxicity, drug interactions and thus, assist in the rational and safe use of medicinal plants.

Considering that the answers of the IRF can provide evidence that suports the development of municipal guidelines in accordance with the National Policy of Medicinal Plants and Phytotherapics, the objective of the present study was to analyze the responses regarding the use of medicinal plants registered in a UBS unit in the e-SUS system and compare with a survey performed with the local population, asking them questions about the use of medicinal plants stated in the e-SUS IRF. In addition, we discussed aspects that may have caused the possible filling failures, such as embarrassment of people reporting medicinal plant use or if the question may have been suppressed by the Community Health Agent at the filling process. Nevertheless, we characterized the sample of individuals who were interviewed. The hypothesis of the study is that although the registration is relevant, the data generated by the software regarding the use of medicinal plants are underestimated, not aligned with reality.

Material and Methods

We used an exploratory-descriptive method. The research was approved by the Research Ethics Committee of the UFVJM (CEP) (CAAE 96527618.5.0000.5108), as well as authorized by the municipal health manager, with the city as a co-participant institution.

In the city where this research was performed, there are strong agriculture and commerce that contributed to keep many people in the community and region, marks currently registered in the city's coat of arms (IBGE 2019). The city is located

in the upper Jequitinhonha, in the microregion of Diamantina/MG and 268 km distant from Belo Horizonte, capital of Minas Gerais a state in Southeastern Brazil. It is estimated that local vegetation is constituted basically by field (37%), forests (32%), cerrado (11%), capoeiras (9%), pastures (2%), permanent crops (1%) and others (8%). Local economic activity is concentrated in mineral exploration and agriculture (Arnous *et al*. 2005).

Initially, from the individual registers in the e-SUS, reports were generated regarding the answers obtained from the question asked to the population by the community health care agent "Agente Comunitário de Saúde" (ACS): "Do you use medicinal plants? If so, which ones?" The results were consolidated and presented in a descriptive way. The registers refer to those performed since the beginning of the software implementation in the city in 01/01/2016 up to 7/31/2018 and referring to all the city population. Those data were obtained through e-SUS software reports and secondary data. A representative sample calculation was used (Hulley *et al*. 2008) for a confidence index of 90% and considering that on the specific UBS evaluated there are 1,099 users in order to verify the correct completion of the answers. 77 individuals were randomly selected from simple draw of residences and the older dweller was interviewed, for the application of a semi-structured survey in the domicile of the persons registered in that UBS. Two trained researchers conducted interviews of 10 minutes approximately. The exclusion criteria were to refuse to participate of the interview and/or not sign the informed consent form. The interviews were performed between April and July 2019. The interview contained the same question regarding the use of medicinal plants performed by the community health care agent during the individual registration "Do you use medicinal plants?", questions to characterize the sample, as age and gender, and questions about the usage of medicinal plants, as: "Are you registered in the Health Care Family Strategy (ESF, Estratégia Saúde da família)?", "Do you know what are medicial plants?", "Do you feel inhibited to deny or confirm the use of medicinal plants?" and "Have you ever been questioned by the ACS about the usage of medicinal plants?".

GraphPad Prisma 5.0 (San Diego, CA, USA) was used in data analysis. Age were presented as mean ± standard deviation. For nominal variables, the percentages for each response were presented.

Mann-Whitney test was used for age comparison between the group that claimed to use medicinal plants and the group who does not. For other comparisons between two groups, the Fisher's exact test was used. Values with $p \leq 0.05$ were considered statistically significant for the tests used in this study. The comparison between analyses of secondary data obtained from reports and analyses of interviews were performed descriptively.

Results and Discussion

According to the results, less than 1% of 6,564 individual registered the use of medicinal plants in the e-SUS system. In the specific UBS evaluated, only 0.8% confirmed the use of medicinal plants (Tab. 1).

The e-SUS AB strategy refers to the process of computerization of the SUS to provide an electronic form of SUS. This initiative is in agreement with the perspective of restructuring the Health Information Systems of the Brazilian Ministry of Health, understanding that information management is fundamental to increase quality of care to the population. The e-SUS can be characterized as contemporary because its installation in all the Brazilian cities occurred gradually, making mandatory send information to the database of the Health Information System for Primary Care. However, to actually fulfill its role in health data management, the software must have all its information correctly registered.

Cruz *et al*. (2015) performed a research in urban areas of 20 cities in the Jequitinhonha Valley, including the city approached in the present study, and reported that 73.5% (408 persons) from the sample evaluated in the present study, use medicinal plants in health care, diverging from e-SUS data. That shows the limitations of the data registered on e-SUS and their fragility regarding medicinal plants usage.

Arnous *et al*. (2005) applied in this same city 500 interviews in the urban area and in the districts of the rural zone in order to identify popular knowledge regarding use of medicinal plants, to estimate satisfaction with this therapy and to identify methods of obtaining and using them. From those, 83.6% (418 persons) believed that herbal treatment is effective, 78.5% (392 persons) of individuals reported that they cultivate medicinal plant species in their backyards and gardens.

The discrepancy between those data and the data released in e-SUS, strengthen the need of the current study and questions the reliability

Table 1 – Medicinal plants usage in a city of the upper Jequitinhonha Valley obtained from a register of e-SUS software.

Do you use medicinal plants?				
Location	Yes	No	Not informed	Total
UBS	9 (0,8%)	996 (90,6%)	94 (8,6%)	1099 (100%)
Total in the city	43 (0,7%)	4566 (69%)	1955 (29,8%)	6564 (100%)

UBS = Unidade Básica de Saúde (Basic Health Care Unit); Data presented as n (%).

trustworthiness of the information released in the software. Inaccurate data negatively impact the analysis of the municipal, state and federal manager regarding the reality of the integrative and complementary practices adopted by the population and do not allow a global analysis of the health-disease process. For example, low rates of use of medicinal plants can be interpreted as an irrelevant practice by the population. That could mean that there is no demand for a possible training of professionals to guide the population for the correct use of medicinal plants. Untrue data on the use of medicinal plants may hinder the reality of curative practices adopted by the population.

Knowledge about medicinal plants is valuable, passed through generations, being a wealth of communities, an inheritance carried for years. In Brazil the use of this therapy was influenced by the European colonizers, who brought several exotic species that satisfactorily settled to the Brazilian climate. It is also undeniable the African influence, of the black postulated as slaves, who added knowledge of indigenous native cultures (Almeida & Rodrigues 2006).

We interviewed 77 individuals linked to the Basic Health Care Unit, of whom 49 (63.6%) were women and 28 (36.4%) were men (Tab. 2). The mean age was 52.0 ± 15.5 (mean ± standard deviation).

Most of the interviewed, 72 (93.5%) stated to make use of medicinal plants. Different from the data collected and registered on e-SUS, which indicated less than 1% of users. The discrepancy alerts to the demand for instruction of the ACS regarding the correct completion of data in the individual record, since the records can assist in planning health actions. Correct fulfill of the individual register form can be important to improve rational use of medicinal plants favoring social and regional promotion, sustainable use of biodiversity and keeping of knowledge and popular culture (Brasil 2012).

The implementation of e-SUS strategy can be characterized as recent due to the gradual installation in the municipalities between 2013 e 2015. According to our research, no study have evaluated the use of medicinal plants by the e-SUS program registrations. Considering that a large part of the Brazilian population was registered in the program until 2015, e-SUS filling could provide relevant data for the development of public policies of medicinal plants in primary health care. As it is recent, it is necessary to detect possible errors in the forms and registration, so that e-SUS can be used as a reliable tool (Brasil 2019).

Some individuals use the medicinal plants indiscriminately. The use of some plants presents a great risk, due to their toxicity and for some people, there is a common sense that they are useful for the treatment of basically any clinical condition. That illustrates the necessity of explanations to the population about the risks of an indiscriminate usage of medicinal plants. If the identification of medicinal plants users is not effective, the action of health care promotion and guidance regarding safety use becomes difficult (Matos 1989; Pisano *et al*. 2012).

Feijó *et al*. (2012) analyzed the use of medicinal plants in health care and identified that the use of those plants assumes great meanings in people's lives. They also reported that the health care professional, especially the nurses, should know the context in which they work, considering the plants used by the community, studying active principles, contraindications, scientific and popular names. The authors highlighted that in the use of medicinal plants, inadequate preparation, origin and inappropriate storage are factors that compromise the effectiveness of functional properties and real health benefits, which are situations that can be overcome and instructed by trained professional.

There was no correlation between the use of medicinal plants and the sex in this study, different from others that showed that women tend to use

Table2 – Summary of the data collected through questionnaires in a Health Care Family Strategy (ESF) of a city of the upper Vale do Jequitinhonha.

		Use medicinal plants	Does not use medicinal plants	Total	*p* value
Age (Mean ± Standard Derivation)		53.0 ± 15.3	37.6 ± 10.0	52.0 ± 15.5	0.0158*
Sex - Absolute value (%)	F	46 (59.7%)	3 (3.9%)	49 (63.6%)	1.000
	M	26 (33.8%)	2 (2.6%)	28 (36.4%)	
Do you know what are medicinal plants? Absolute value (%)	Yes	71 (92.2%)	4 (5.2%)	75 (97.4%)	0.126
	No	1 (1.3%)	1 (1.3%)	2 (2.6%)	
Have you ever been questioned by the ACS about the usage of medicinal plants? - Absolute value (%)	Yes	3 (3.9%)	0 (0%)	3 (3.9%)	1.000
	No	69 (89.6%)	5 (6.5%)	74 (96.1%)	
Do you feel inhibited to deny or confirm the use of medicinal plants? - Absolute value (%)	Yes	0 (%)	0 (0%)	0 (0%)	-
	No	72 (93.5%)	5 (6.5%)	77 (100%)	
Are you registred in the ESF? - Absolute value (%)	Yes	72 (93.5%)	5 (6.5%)	77 (100%)	-
	No	0 (0%)	0 (0%)	0 (0%)	
Total		**72 (93.5%)**	**5 (6.5%)**	**77 (100%)**	

ACS = Community Health Care Agent; ESF = Health Care Family Strategy.

more medicinal plants (Oliveira *et al.* 2010; Zeni *et al.* 2017). From the total number of interviewed, 75 reported knowing what medicinal plants are, and most of them described them as "home remedies", "bush remedy", "plant remedy" or "remedy of the ancients." The description "remedy of the ancients" remembers a concern about the current devaluation of the use of medicinal plants and the forgetting of popular knowledge, which needs to be recognized and valued. In addition, there was a difference in the average age of those who used medicinal plants and those who did not use them. It was observed that users who did not use medicinal plants represented a younger population (37.6 ± 10.0 years old), although small (n = 5). Other studies had similar results, younger populations with lesser use of medicinal plants (Messias *et al.* 2015; Flor & Barbosa 2015). This may be due to the easier access to industrialized medicines in both public and private pharmacy networks, and may also mean devaluation of local culture.

When inquired if the user had been asked by the community health care agent on the use of medicinal plants, 96.1% (74 persons) answered that they were not asked about it. When asked if the user felt inhibited in responding about the use of medicinal plants, all the interviewed (77 persons) answered that they did not feel. Initially in the development of the proposal it was thought that the reduced number of indicative use of medicinal plants registered in the e-SUS could be related to the constraint that people could feel in confirming the use of medicinal plants, and the fear of losing access to industrialized medicine provided by SUS programs, or even fear of devaluation that many health care professionals can manifest in front of the knowledge about the use of medicinal plants due to a lack of knowledge and/or training. In a study by Mattos *et al.* (2018), it was evaluated the prescription/suggestion and credibility in the use of medicinal plants in Blumenau/SC, in which were randomly selected health care professional in the UBS, and it was identified that 98.7% from the health care professionals agree with the initiative of the Ministry of Health, believe in the therapeutic effect of plants, but do not prescribe them for lack of knowledge.

From the possibilities that led to the question not being asked by the ACS, we may suggest that ACS may be overloaded, prioritizing other questions, among the more than 40 questions asked during the individual citizen registration, such as the report of health problems as diabetes and hypertension. In addition, professionals may not have been correctly oriented and may still have not seen relevance in such question. Considering that

these instruments are interviews, data may have suffered memory bias, so it is still possible that some ACS have asked such a question and some users may have forgotten what they were asked. Data suggested that when the professionals do not see relevance of the collected data, they do not fill it correctly (Carreno *et al*. 2015). Therefore, it is necessary not only to reinforce the relevance of adequate data collection, but also to work and use the information collected. It should be emphasized that the individual register form can be updated at any moment by the ACS, as well as by another health care professional, and should be performed periodically according to the health care managers (Brasil 2018). Another bias of the fulfillment by the ACS is the bias of the interviewed answers must had influence of what they think the interviewer wanted them to answer, and not necessarily what they really practice. Such bias may also have affected our study, considering that interviews was done here.

It is common to use the same plant for a great number of diseases and the belief that plants can cure any type of disease, therefore the use of medicinal plants should be judicious and oriented (Figueredo *et al*. 2014). The information can be gathered, worked in groups, checked in the literature, even with the support of university extension groups, which can assist in the development of safe practices of the use of medicinal plants by dialoguing with the community.

It is remarkable that within our searches we cannot issue a report of the answers given in the open-ended question "If yes, which?". That should indicate a list of plants used that would be to checked in the registers one by one. Therefore, the system needs to be improved and receive new updates providing more consistent and complete reports, ranking the plants most used by individuals, addressing methods of use, dosage, preparation, among others, making knowledge about medicinal plants even more relevant and useful for the citizens .

Conclusion

The data registered in the e-SUS regarding the individual registration of SUS users about the use of medicinal plants in the evaluated municipality do not match to the reality, the data are under-recorded. Considering the link the ACS represents between SUS and the population, as well as their role in health promotion, and also considering the responsibility of the entire Primary Care team in the dissemination of knowledge and guidance of users, including the formation of operative groups with conversation wheels and systematization of the use of plants valuing the local culture, it is important to correctly record the use of medicinal plants and also an awareness of health professionals of the importance of the use of medicinal plants in Primary Health Care.

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