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EVALUATION OF THE PHARMACOTHERAPEUTIC PROFILE OF ELDERLY DIABETIC USERS OF THE PROGRAM HERE HAS POPULAR PHARMACY IN A PRIVATE PHARMACY OF THE BAHIA POTIONS COUNTRY

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ABSTRACT

The present study aims to analyze the pharmacotherapeutic profile of diabetic elderly people assisted by the "Here Has Popular Pharmacy" program in a drugstore in the municipality of Potions, located in southwestern Bahia. In addition, it aims to highlight the role of pharmaceutical assistance to the health team in the prevention of diseases, complications and health promotion in the area of Diabetes mellitus. For this, a descriptive and exploratory research will be carried out, being configured as quantitative. The sample will be composed of users of hypoglycemia patients aged 60 years or older and who seek the pharmacy spontaneously during the investigation period. The collection instrument used to carry out the study will be a semi-structured questionnaire with questions regarding the socio-economic and health aspects of the participants.

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INTRODUCTION

Diabetes mellitus is considered one of the main chronic development syndromes affecting the current population (GUARIGUATA et al., 2014). Its high prevalence is directly related to the process of industrialization and population urbanization of the last decades (BEAGLAY et al., 2014). By definition, it is characterized by being a metabolic disorder triggering chronic hyperglycemia that, in the occurrence of diabetes mellitus type 1- DM1, results from the destruction of pancreatic beta cells by autoimmunity, developing an absolute insulin deficiency (GRILLO et al., 2016). Type 2 is due to a defect in insulin secretion or action, in which case the observed deficiency is relative (BRAZIL, 2013). In Brazil, according to the World Health Organization (WHO), the number of people with diabetes will jump from 4.5 million in

2000 to 11.3 million in 2030, making it the eighth country in the world with more individuals with this syndrome. (ISER et al., 2014). Based on the world population, the prevalence of diabetes diagnosed in Brazil (6.4%) in 2010 was lower than in countries such as the United States of America (10.3%), Canada (9.2%) and Mexico (10.8%); however, it was higher than those found in countries such as Japan ((5.0%), Argentina (5.7%) and Chile (5.7%) (SHAW et al., 2010). On Global scale it is estimated that by 2030 the number of diabetics in the world will be approximately 366 million (SHAW et al., 2010). All these statistics suggest that diabetes mellitus has become a public health problem which, in addition to affecting the quality of life, has a high mortality rate. It is important, therefore, the implementation of preventive public policies that provide assistance to people who already live with diabetes and its comorbidities. It should be emphasized that diabetes treatment should be started through educational practices that

suggest a change in lifestyle, because at the beginning it is necessary to implement a balanced diet and regular exercise. The use of drugs is a more extreme measure, ie only when the patient responds inadequately non medic actions However, if anti-diabetic agents are to be complied with or not, antidiabetic agents should be administered to restore glycemc control and lead to decreased glycated hemoglobin levels (SBD, 2015). In this scenario, the importance of pharmaceutical assistance for the dosage evaluation of the various medications administered, with their absorption specificities and side effects, whether conducted with or without meals, is undeniable, observing not only the drugs and the medical prescription, but also the dynamics that these constitute with the patient (NETTO *et al.*, 2013). In 2006, through the Ordinance No. 491 of the Public Prosecution Service, the “Aqui Tem Popular Pharmacy” program was created, aimed at decentralizing access and the rational use of medicines (BRAZIL, 2015). The main objective of the Program is to increase the therapeutic effectiveness of treatments for chronic diseases such as diabetes and increase the pharmacist's inference with the multiprofessional primary health care team (MIRANDA, 2014). Given these introductory considerations, the present study is structured, which aimed to analyze the pharmacotherapeutic profile of elderly people with diabetes, assisted by the program “Aqui popular pharmacy”, in a private pharmacy located in the municipality of Poções-Bahia. In addition, it sought to highlight the role of pharmaceutical care with the health team in preventing disease, complications and health promotion in the spectrum of Diabetes *mellitus*.

MATERIALS AND METHODS

This is a descriptive and exploratory research, configured as quantitative. According to Gil (2017), a quantitative research is characterized by a closer approximation of the object under analysis through the knowledge of the community. Investigating, for this, its characteristic, social and cultural and also anthropometric traits. The survey and data collection were performed in the interstice of May and June of 2019, during alternate days, according to the availability of the researcher. To delimit the sample, we analyzed the database of customers who acquired hypoglycemic drugs in the last 30 days. From then on, it was found that 328 diabetics were treated. However, the sample consisted of 100 people who bought the hypoglycemic drug, excluding those under 60 years of age. The collection instrument used for the study was a semi-structured questionnaire with questions related to socioeconomic and health aspects, referring to the Aqui Tem Farmácia Popular Program.

Specifically, it contained the following variables: gender, age, region of residence, comorbidities, and commonly purchased drugs. The collected data were tabulated and analyzed with the assistance of the Microsoft Excel ® 2010 Program. In accordance with the ethical principles, this study was submitted for approval by the Research Ethics Committee of the Independent Faculty of the Northeast, under opinion No. 19332919.9.0000.5578. In addition, the drugstore that participated in the research gave its consent in a specific document of agreement, and the interviewees signed the Informed Consent Form (ICF), because it was a study that raised, in a specific questionnaire, the personal data of the sample participants. , as well as information about drugs purchased from the drugstore.

RESULTS

The results will be presented in the following tables and graphs, organized in different sections, which successively address the socio demographic data of the sample, as well as information related to the assessment of the pharmacotherapeutic profile of elderly patients with diabetes, assisted by the program “Aqui has a popular pharmacy ”and who participated in the study.

Socio-demographic data of the sample

The results shown in Table 1 show that, of the elderly in the sample: 72% (n: 72) were female and 28% (n: 28) male. As for education, only 1% (n: 1) of respondents have completed higher education, 10% (n: 10) completed high school, and more than half (n: 64) said they were not literate. Regarding marital status, 57% (n: 57) reported being married, and 26% (n: 26) widowed. According to survey data, more than half of the sample is retired (n: 55), and 25% (n: 25) are rural workers, while 13% (n: 13) claim to be housewives. The participants' compensation was arranged as follows: 59% (n: 59) receive from 1 to 2 monthly minimum wages, 34% (n: 34) to 1 monthly salary, and 3% (n: 3) earn more than 4 minimum wages.

Table 1. Demographic Characteristics and Socioeconomic

Variables	N	
Gender		
Feminine	72%	72
Male	28	28
Schooling		
Not literate	64	64
Incomplete Elementary School	21	21
Complete Primary Education	3	3
Incomplete High School	1	1
Complete High School	10	10
Higher Education Complete	1	1
Civil Status		
Single	13	13
Married	57	57
Widower	26	26
Divorced	4	4
Employment		
Unemployed	1	1
Contest (Health) agent)	1	1
Teacher	2	2
Trading	3	3
Retired	55	55
Rural worker	25	25
Housewife	13	13
Monthly household income		
Up to 1 minimum wage	34	34
From 1 to 2 minimum wages	59	59
2 to 3 minimum wages	4	4
Over 4 minimum wages	3	3

Source: Research Data.

Pharmacotherapeutic Profile

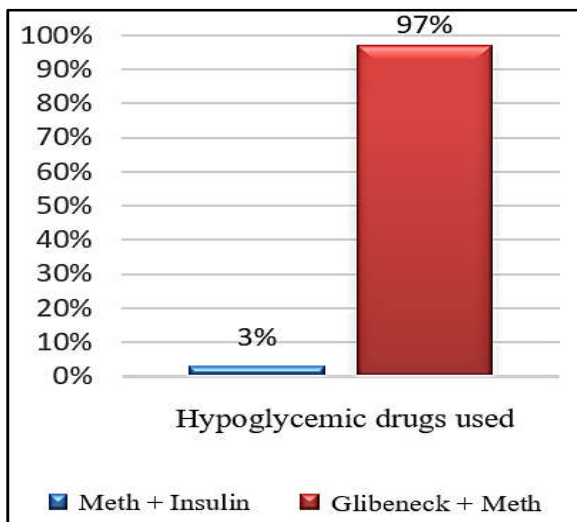
The elderly participants in the study had a diagnostic time represented in the following figure. Analyzing the data in figure 1, it is observed that 40% (n: 40) of respondents were diagnosed with diabetes in the interstitium from 1 to 5 years, another 25% (n: 25) received the diagnosis 11 or more years ago. Table 2 contains information on the main diabetes-related symptoms presented by the sample participants.

Table 2. Distribution of elderly participants according to symptoms

Complaints	
Fatigue	20
Vision problems	32
Thirst	02
Dizziness	03
Somnolence	02
Tremor	01
Numbness feet / leg	08
Polyuria	09

Source: Research Data.

Among the diabetes-related complaints, the most common are vision problems 32% (n: 32) followed by tiredness 20% (n: 20), and to a lesser extent thirst and drowsiness, both affecting only 2% (n: 32). : 2) of the interviewees. Figure 2 shows the hypoglycemic drugs used by the patients who participated in the research:



Source: Research Data.

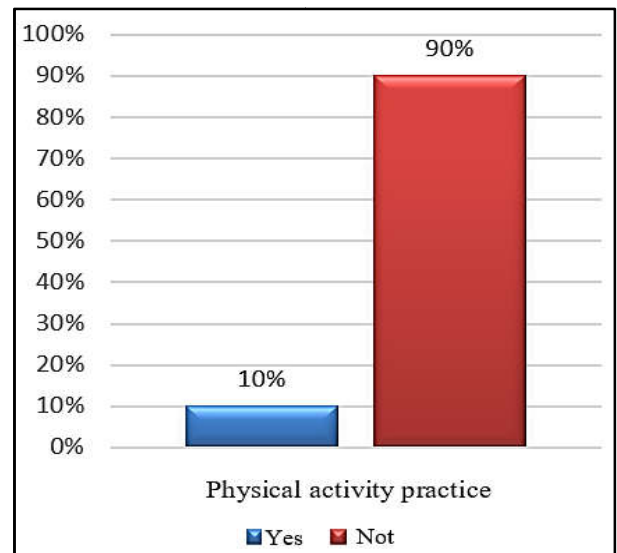
Figure 2. Distribution of elderly participants according to use of hypoglycemicagents

Table 3. Distribution of elderly participants in the research regarding the comorbidities associated with diabetes

Other medicines	
Hypertension	80
Dyslipidemia	30
Antiaggregant	14
Cardiac insufficiency	5
Gout	2

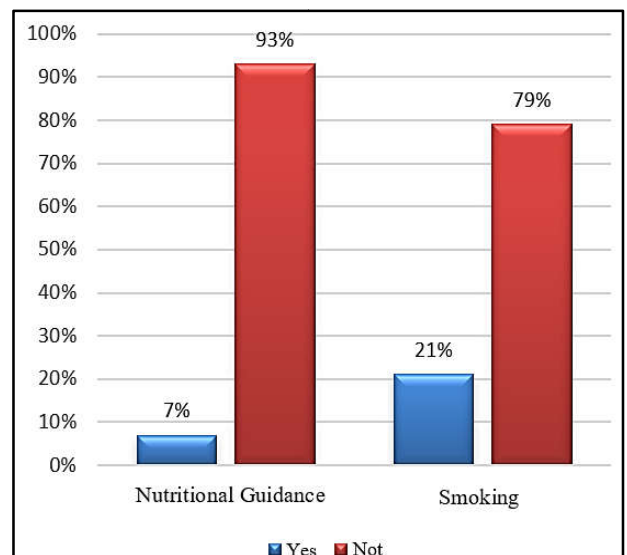
Source: Research Data.

As noted, over 90% (n: 90) of respondents use Metformin-associated Glibenclamide for diabetes treatment. Other survey data indicate that 80% (n: 80) of diabetics use hypertension drugs, while 30% (n: 30) use medicines to control dyslipidemia. Possible adverse reactions from the use of these medicines are contained in Figure 3. Figure 3 suggests that 88% (n: 88) of respondents have no adverse reactions caused by the use of continuous medications. Regarding the practice of physical exercise, it was found that 90% (n: 90) of the diabetic subjects in the sample do not practice any kind of activity. Finally, Figure 5 describes the variables related to nutritional monitoring and smoking, presenting the following results:



Source: Research Data.

Figure 4. Distribution of elderly participants according to physical exercise practice



Source: Research Data.

Figure 5. Distribution of the elderly according to nutritional orientation and smoking

DISCUSSION

The study sample consisted of patients over 60 years old who, in Brazil, are considered elderly (Brazil, 2003). Of the universe surveyed, a significant number were female (72%). According to the Brazilian Society of Diabetes - SBD, DM affects men and women equally, however, the impact of mortality and problems affecting the quality of life of its carriers is more frequent in females (SBD, 2017). Other studies suggest that DM is slightly more common in women (Flor, Campos, 2017). However, these data may be directly linked to the fact that, culturally, men look less for primary health care services than women (Oliveira *et al*, 2015). In the present research, the predominance of women can be explained by sociocultural issues, which associate self-care with females, and by the age group of the sample population, since life expectancy is longer for women. Survey participants have a low education, 64% is not literate. Close results were also presented in other DM prevalence studies (Martinez, Ferreira, 2013). Therefore, it is observed that socioeconomic factors may influence eating

habits and lifestyle and quality of life; thus, individuals of classes C and D / E experience a shorter survival, while being more prone to chronic diseases (Flor, Campos, 2017). In addition to low education, the survey showed that 93% of survey participants receive up to 2 minimum monthly wages. These numbers are corroborated by research that analyzes the socioeconomic profile of users of the program “Aqui Tem Farmácia Popular” (Takemoto, 2015). The very purpose of the program is to expand access to medicines, making them accessible to the population who cannot afford them without prejudice to their monthly income (Brazil, 2004).

The results suggest that the time of diagnosis of DM is mostly between 1 and 5 years. The nature of the research cannot determine whether participants were late diagnosed, but some studies indicate that disease discovery becomes more common among older individuals (ISER *et al.*, 2014). On the other hand, SBD states that DM “[...] is most often diagnosed in children, adolescents and, in some cases, in young adults (p. 19, 2016). As noted, the diagnostic time variable may be controversial depending on the study. In this sense, Flor and Campos warn that: “[...] comparisons between Brazilian surveys should not be made directly, and should take into consideration, in addition to the year of survey itself, methodological issues such as age group investigated” (p. 10, 2017). It is reiterated that the sample of the present study is composed only of the elderly, and the discussion proposed here focuses on the category of time of diagnosis and not the prevalence of DM1 in a certain age group. The classic symptoms of hyperglycemia are polyuria, polydipsia, polyphagia, blurred vision, and unexplained weight loss. When under treatment, the patient with DM may present inverse symptoms, that is, a picture of hypoglycemia. In these cases, they may frequently complain of: sweating, nervousness, tremors, dizziness, palpitations, headaches and hunger (SBD, 2016; Chrisostomo *et al.*, 2017). The main health complaints reported by respondents were vision problems (32%) and tiredness (20%).

Diabetes can trigger a range of vision damage, such as glaucoma, cataracts, and diabetic retinopathy - RD. Research suggests that RD affects about 5% of diabetic patients with up to 3 years of diagnosis of the disease, this number reaches 80% among those who have more than 15 years of diagnosis. However, careful and regulated control dramatically decreases the propensity to develop DR (CBO, 2016). Tiredness / fatigue is also recurrent in diabetics, but can be fully reversible when drug treatment is done correctly and the patient acquires a healthier lifestyle (Bishop *et al.*, 2014). Survey results suggest that over 90% of respondents use oral hypoglycemic drugs (metformin and glyburide), while the others use metformin-associated insulin. The main choice for patients with T2DM is metformin; however, monotherapy with this drug is often unsatisfactory to control glycemic indexes, and it is therefore essential to associate its use with sulphonylurea such as glyburide (SBD, 2019). Insulin therapy, however, should be started immediately in patients with glycemic values greater than 300 mg/dL (SBD, 2016). Most of the research participants use drugs indicated to treat other diseases: 80% use antihypertensive drugs and 30% use dyslipidemics. The number of patients using antihypertensive drugs is justified by the close relationship between T2DM and arterial hypertension. Scientific evidence indicates that this comorbidity has a high propensity for cardiovascular mortality, which requires even more accurate pharmacotherapy to avoid

potential drug interactions - IM (Sousa, 2015). The analysis of the results shows that the sample participants are individuals on polypharmacotherapy, which is recurrent in patients with some comorbidity, especially those who are elderly (Alves, 2019). In addition, Gonçalves *et al.* (2016) warns that individuals over 60 years are more prone to episodes of Drug Interactions, since most of them have NCDs. The findings of the present study are therefore corroborated by the related literature. The findings of other researches present a symmetry with the results presented here. Corralo *et al.* (2018), in a study on medication in diabetic elderly, demonstrated a high prevalence of polymedication (85%) among the sample participants. These results are alarming because the simultaneous use of medications increases the incidence of drug interactions, which may mean a reduction in quality of life and increased mortality from NCDs, as well as overloading primary health care (Cadogan, 2016). Pereira *et al.* warn that some studies indicate that polypharmacy among the elderly can be explained not only by the occurrence of comorbidities, but also by the “repetition of prescriptions resulting from the failure in health care of the elderly, such as being met at different times by different specialists. and other health professionals ”(p. 339, 2017). In addition, the same authors point out that while polypharmacy poses a risk to patient safety, on the other, it is really necessary, especially when it has a clear and necessary indication (Pereira, p.339,2017).

Conclusion

The use of medicines by diabetic users of the program “Aqui tem Farmácia Popular” in the municipality of Poções-BA, correlates with the results presented in similar studies. Thus, the pharmacotherapeutic profile now identified is the prevalence of polypharmacy, associated with the incidence of prognostic comorbidities, such as hypertension and diabetes. The prevalence of polypharmacy in the population sample is explained holistically, not just the incidence of comorbidities. Socioeconomic factors suggest that this phenomenon is more recurrent in certain categories of analysis, demonstrating that there is a certain uniformity in their practices and in the factors that make it recurrent and even necessary. Despite its consequences, polypharmacy is, depending on the case, necessary even more in elderly individuals with NCDs and their multiple comorbidities. The study showed that even using several drugs concomitantly, a significant part of the research participants stated that they do not present any adverse reaction; This may suggest that polypharmacy in this particular case does not pose greater risks to patients. What is noteworthy is that the prescription and / or use of various medications are appropriate and safe, so as to provide greater cost-effective treatment. Therefore, it is argued that drug dispensing and consumption must obey more careful protocols, capable of identifying potential MI and any other risks to patient safety.

REFERENCES

- _____, Ministério da Saúde. Portal da Saúde. 2016. Brasília (DF). Disponível em: <http://portalarquivos.saude.gov.br/images/pdf/2016/fevereiro/04/manual-orientacao-port111.pdf>. Acesso em: 20 de abr. de 2019.
- _____, Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Estratégias para o

- cuidado da pessoa com doença crônica: diabetes mellitus / Brasília, 2013.
- _____, Ministério da Saúde. Vigitel Brasil 2016: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico. Brasília, 2017.
- _____, Ministério da Saúde. Lei Nº 10.858, de 13 de Abril de 2004. Autoriza a Fundação Oswaldo Cruz – Fiocruz a disponibilizar medicamentos, mediante ressarcimento, e dá outras providências. 2004. Brasília (DF).
- _____. Conduta Terapêutica no Diabetes Tipo 2: Algoritmo SBD 2019. Diagraphic: Rio de Janeiro, 2019.
- ALVES, N. R., *et al.* Avaliação das interações medicamentosas entre antihipertensivos e hipoglicemiantes orais. *Id onLineRev.Mult. Psic.*, 2019, vol.13, n.44, p. 374-392. ISSN: 1981-1179.
- AMERICAN DIABETES ASSOCIATION. Standards of Medical Care in Diabetes 2017, v. 40, n. 1, p.33-40, 2017.
- BEAGLAY, J., *et al.* Global estimates of undiagnosed diabetes in adults. *Diabetes Res ClinPract*, 2014; 103(2):150-60.
- BISHOP, F. K., *et al.* Changes in diet and physical activity in adolescents with and without type 1 diabetes over time. *Int J PediatrEndocrinol* 2014; 2014(1):17.
- BRASIL, F., *et al.* Qualidade de vida em adultos com diabetes tipo 1 e validade do DQOL-Brasil. *Revista de CiênciasFarmacêuticasBásica e Aplicada*, 2014; 35(1):105-12.
- BRASIL, Lei nº 1074/2003. Estatuto do idoso. Brasília: DF, outubro de 2003.
- BRASIL, Ministério da Saúde. Portal da Saúde. 2015. Brasília (DF). Disponível em: <http://portalms.saude.gov.br/index.php/o-ministerio/principal/leia-mais-o-ministerio/346-sectie-raiz/daf-raiz/farmacia-popular/11-farmacia-popular/18008-programa-farmacia-popular-do-brasil>. Acesso em: 29 mar. de 2019.
- CADOGAN, C. A., *et al.* Appropriate polypharmacy and medicine safety: when many is not too many. *DrugSafety*, 2016;39(2):109-16.
- CBO – Conselho Brasileiro de Oftalmologia. Problemas oftalmológicos em diabéticos. *VejaBem | 10 | ano 04 | 2016*.
- CORRALO, V. S., *et al.* Polypharmacy and associated factors in elderly diabetic. *Rev. SaludPública*. 20 (3): 366-372, 2018.
- CRISOSTOMO, I. S., *et al.* A insulino terapia e a Atenção Farmacêutica aos portadores de diabetes mellitus tipo 1. *RevistaTransformar: Itaperuna*, 2017.
- FLOR, S. L.; CAMPOS, R. M. The prevalence of diabetes mellitus and its associated factors in the Brazilian adult population: evidence from a population-based survey. *Rev Bras Epidemiol*, 2017; 20(1): 16-29.
- GIL, A. C. Como elaborar projetos de pesquisa, 6 ed. – São Paulo: Atlas, 2017.
- GONÇALVES, S. S. *et al.* Ocorrência Clínicas de Interações Medicamentosas em Prescrições de Pacientes com Suspeita de Reação Adversa Internados em um Hospital no Interior da Bahia. *Rev. Bras. Ciên. Saúde: São Caetano do Sul*, 2016.
- GRILLO, M. F., *et al.* Educação em diabetes na atenção primária: um ensaio clínico randomizado. *Cad. Saúde Pública: Rio de Janeiro*, 2016.
- GUARIGUATA, L., *et al.* Global estimates of diabetes prevalence for 2013 and projections for 2035. *Diabetes Res ClinPract*, 2014.
- International Diabetes Federation. (2017). *IDF Diabetes Atlas 2017 (Eighth edi)*. International Diabetes Federation: London.
- ISER, B. P. *et al.* Prevalence, correlates, and description of self-reported diabetes in brazilian capitals – results from a telephone survey. *PLoS One*, 2014.
- MARTINEZ, B. B.; FERREIRA, C. N. Assessment of medication regimen complexity among diabetics. *RevMed Minas Gerais*, 2013.
- MIRANDA, V. Utilização do Programa Farmácia Popular entre Idosos da Zona Urbana de Pelotas/RS. (Trabalho de Mestrado). Universidade Federal de Pelotas, Rio Grande do Sul, 2014.
- NETTO, P. P., *et al.* Perfil farmacoterapêutico de pacientes portadores de diabetes assistidos pelo Programa Saúde da Família de Muriaé-MG. *Infarmas: CiênciasFarmacêuticas*, 2013.
- OLIVEIRA, *et al.* Men's health in question: seeking assistance in primary health care. *Ciência & Saúde Coletiva*, 2015.
- PEREIRA, B. L., *et al.* Avaliação da efetividade do acompanhamento farmacoterapêutico no controle do diabetes mellitus tipo 2 em longo prazo. *Clin Biomed Res*, 2018.
- PEREIRA, K. G., *et al.* Polypharmacy among the elderly: a population-based study. *REV BRAS EPIDEMIOL ABR-JUN*, 2017.
- SBD – Sociedade Brasileira de Diabetes. Diretrizes da Sociedade Brasileira de Diabetes (2017-2016). Diagraphic: Rio de Janeiro, 2017.
- SBD – Sociedade Brasileira de Diabetes. Tratamento e acompanhamento do Diabetes mellitus. Diretrizes da Sociedade Brasileira de Diabetes. Diagraphic: Rio de Janeiro, 2016.
- SHAW, J. E., *et al.* Global estimatesoftheprevalenceof diabetes for 2010 and 2030. *Diabetes Res ClinPr*, 2010.
- SOUSA, N. P. G. *et al.* Adoecimento por hipertensão arterial e Diabetes Mellitus: concepções de um grupo de pacientes hospitalizados. *Revista de Enfermagem UERJ: Rio de Janeiro*, 2015.
- TAKEMOTO, D. C., *et al.* Perfil do Usuário do Programa Farmácia Popular. MatoGrosso do Sul: TrêsLagoas. *Rev. ConexãoEletrônica*, 2015.
