INTRODUCTION

The Unified Health System (UHS) in Brazil gives great importance to pharmaceutical care [1]. The clinical pharmacist is a professional involved in a multidisciplinary team, which is of paramount importance to obtain adequate pharmacotherapy [2]. In October 2013, a two-step pharmaceutical care plan was implemented in Curitiba – Parana state, Brazil, to create clinical pharmacies with professionals capable of performing appropriate patient care [3].

Brazilian pharmaceutical care has not been developed in a standardized manner, as the policy of each municipality contains a distinct pharmaceutical care model. Therefore, the development of pharmaceutical care depends on the local and current legislation [4-6].

The pharmaceutical care service was established by the Secretary of Municipal Health of São Paulo in the primary healthcare and specialty network, through Ordinance 1918/2016 - SMSG, published in the Official Gazette of the City of São Paulo on October 27, 2016 [7]. The goal was to provide individual and collective therapeutic health outcomes through pharmacist clinical actions, integrated with the multidisciplinary team, promoting the rational use of medicines among prescribers, health teams, and the community, encompassing health education actions, and pharmacovigilance. Pharmacotherapeutic follow-up for UHS users should strengthen adherence to drug treatment, mainly in cases of non-communicable chronic diseases, which may result in a reduction in hospital admissions in urgency and emergency units [7].

Non-communicable diseases (NCDs) are considered a public health problem worldwide. They have been increasing with the population aging, which changes the epidemiological profile of diseases, reducing infectious diseases, and increasing chronic diseases [8]. NCDs constitute the largest group of diseases in the world, mainly affecting individuals with low income and education, and those with high exposure to risk factors and restricted access to information and health services [9]. The leading causes of these diseases are modifiable risk factors, such as smoking, harmful alcohol consumption, physical inactivity, and improper diet, as well as metabolic risk factors, including hypertension, hyperglycemia, overweight, and dyslipidemia [10].

In Brazil, systemic arterial hypertension (SAH) affects approximately 32.5% (36 million) of adult individuals, and over 60% of older adults, contributing directly or indirectly to the percentage of deaths from cardiovascular disease (CVD). The latter is often associated with other chronic diseases and has a major impact on the loss of labor productivity and household income, estimated at $4.18 billion between 2006 and 2015. In 2013, there were 1,138,670 deaths, of which 339,672 (28%) were due to CVD, this being the leading cause of death in the country for both sexes and all age groups [11]. In the city of São Paulo, the prevalence of SAH reported in the population aged 12 and over corresponded to 14% (2003), 18.6% (2008), and 20.2% (2015) [12].

In 2016, the most common cause of death in Brazil was ischemic heart disease (ICD), followed by stroke. Other causes of death included transmissible diseases (lower respiratory tract infections) and two external causes, aggressions, and land transport accidents, in sixth and eighth place, respectively. All the other causes corresponded to NCDs [13].

From 2005 to 2015, the inadequate therapeutic segment for NCDs in Brazil caused financial losses of approximately $ 50 billion, and premature deaths from CVD and diabetes. The estimated loss in 2005 was $ 2.7 billion and might have reached $ 9.3 billion in 2015. Non-adherence to drug treatment and lack of understanding of treatment by the patient are the main causes of recurrent hospitalizations. Polypharmacotherapy is present in the treatment of NCDs and is defined as the use of five or more drugs, adding difficulty to the process of treatment and adherence [14,15].

Approximately 50% of patients with chronic diseases do not adhere to pharmacological treatments, resulting in poor clinical outcomes. The

ROLE OF THE PHARMACIST IN MANAGING HIGH BLOOD PRESSURE OF HYPERTENSIVE PATIENTS IN PRIMARY CARE UNITS

JÚLIO EDUARDO PEREIRA DE SOUZA1,2, EMERSON SILVA2, NEIL FERREIRA NOVO2, MARINA TIEMI SHIO2*

1Associação Saúde da Família - Coordenação Regional Sul – Brazil, 2Post-Graduation Program in Health Sciences, Santo Amaro University, São Paulo, Brazil. Email: mtshio@prof.unisa.br

Objective: The aim of this study was to evaluate the influence of pharmaceutical care on the control of high blood pressure (BP) in hypertensive patients.

Methods: The study included thirty hypertensive patients from primary or secondary healthcare located in the south of São Paulo, Brazil.

Results: The majority of patients was aged over 60 years (68.75%), non-smokers (90%), non-alcoholics (93.33%), did not practice physical activities (93.33%), and presented comorbidities and Polypharmacotherapy. The most common drug-related problems were drug-drug interactions, missed doses, incorrect frequency or time of administration, incorrect patient administration technique, and self-medication. The interventions used during the pharmaceutical consultations (PC) were based on the organization of medicines with tools such as a pillbox organizer (84.38%). A significant improvement in BP control (p<0.05) was observed when comparing BP measurements before and after the PC; however, the number of PCs did not influence the BP reduction.

Conclusion: Patient guidance and simple intervention favor better patient understanding of medication administration schedules.

Keywords: Pharmaceutical care, Pharmaceutical consultation, Intervention, non-communicable diseases, Hypertension, Polypharmacotherapy.
identification of reasons for drug non-adherence based on a history of unresolved NCDs enables pharmacists to apply interventions, document them, and reschedule pharmaceutical appointments, facilitating the pharmacotherapeutic follow-up. There is sharing of interventions defined in pharmaceutical consultations (PC) for the multidisciplinary team of health units. This organization is required for the patient’s perception of health, improving the longitudinal care process. Non-adherence to treatment described in the literature is related to individual patient characteristics, the disease itself, the drugs used, and the interaction between the patient and access to health services, among others. Certain health conditions or treatments may have characteristics that lead to specific barriers to adherence [16,17].

In this line of thought, the evaluation of pharmaceutical assistance in the multiprofessional team would help to establish the fundamental involvement of this professional and his service in primary health care, as well as showing what type of intervention is effective in helping the patient to improve his health condition. Therefore, the aim of this study is to evaluate whether PC contributes to a better control of high blood pressure (HBP) in hypertensive patients.

METHODS

The Research Ethics Committee of the University of Santo Amaro (UNISA) approved the study under protocol number 77408717.5.0000.0081. This retrospective pre- and post-interventional study was conducted in primary and secondary healthcare of the Southern Health Regional Coordination, in the city of São Paulo, Brazil, between March 2017 and December 2019.

Data collection was performed by consulting medical records, medical prescriptions, laboratory records, and reports of PCs applied by the pharmaceutical professionals of health units during the process of pharmaceutical care to patients referred by the multidisciplinary team of the units.

Inclusion criteria

Adult and older patients with NCDs referred to pharmaceutical care by the multidisciplinary team. All of the patients have hypertension and difficulty adhering to drug treatment. Children and adolescents were excluded from this research. Only patients who presented BP measurements during PCs and who were under pharmaceutical care monitoring were selected, totaling 30 patients from 62 consultations, performed by 23 pharmacists, distributed in 38 health units in the south area of São Paulo.

Statistical analysis

For statistical analyses, we used BioEstat 5.3 software, and the following statistical tests: The Cochran G-Test to compare the frequencies of pharmacotherapy-related problems, comorbidities, and interventions in the form of material provision or referral to other health professionals. Wilcoxon analysis was used to verify whether the number of PCs influenced the reduction in BP and the Fisher’s exact test to compare female and male sexes concerning systolic (SBP) or diastolic BP (DBP) before and after PC.

RESULTS

During the study, the majority of the patients received one (43.33%) or two PCs (33.33%), however, a few patients received six (6.67%) or even twelve PCs (3.33%). Data show the percentage of patients who received one to 12 PCs, taking into account males and females. The majority of patients received one or two PCs during the study period.

Part of the patients referred to PC was female (56.25%), as shown in Table 1. Overall patients had more than 60 years old (68.75%), as shown in Table 2.

Regarding the modifiable risk factors (Table 3), out of 30 treated patients, only three (10%) are smokers, two (6.67%) are alcoholics, and two (6.67%) practice regular physical activity. Therefore, the vast majority (93.33%) are sedentary.

The most prevalent comorbidities (Table 4) of patients assisted by pharmacists were Type 2 diabetes mellitus, SAH and dyslipidemia (26.67%), Type 2 diabetes mellitus and SAH (16.67%), Type 1 diabetes mellitus and SAH (13.33%), SAH and dyslipidemia (10.00%), or only SAH (10.00%). Due to these comorbidities, a large proportion of the patients were taking more than five drugs (56.67%), as shown in Table 5. The most commonly used drug classes are presented in Table 6: Oral hypoglycemic agents (23.19%), diuretics (12.56%), angiotensin-converting enzyme inhibitors (9.10%), platelet anti-aggregants (7.25%), calcium channel blockers (6.28%), beta blockers (5.31%), proton pump inhibitors (5.31%), angiotensin receptor blockers (4.83%), aldosterone antagonist (2.42%), hormone reposition (2.42%), antipsychotics, benzodiazepines, and uricosuric agents (1.45%).

Beyond Polypharmacotherapy, 85 events of Pharmacotherapy-Related Problems were found. The most statistically significant (p<0.0001) was drug-drug interaction (n=26), followed by missed doses (n=14), incorrect frequency or time of administration, without changing daily dose (n=13), incorrect patient administration technique (n=9), improper self-medication (n=6), drug interruption (n=6), or abrupt dose reduction by the patient (n=4), as shown in Table 7.

The most commonly used pharmaceutical intervention was the material supply (Table 7), which helped the therapeutic adherence. The most used tool (p<0.0000) was a pillbox organizer (84.38%), followed by pictograms, dosage schedules, and colored stickers. These interventions are simple, and favor a better understanding of the patient regarding medication administration schedules. The tool was widely accepted among patients and it helped their autonomy to use the medication. However, some patients refused to use the tools or it was not necessary (16.47%). Another common non-pharmacological intervention is to

| Table 1: Gender of patients |
|-----------------------------|
| Gender | Number of patients | % |
| Male | 14 | 46.67 |
| Female | 16 | 53.33 |
| Total | 30 | 100 |

| Table 2: Age range of patients |
|-------------------------------|
| Age range (years) | Number of patients | % |
| 40–49 | 3 | 10.00 |
| 50–59 | 6 | 20.00 |
| 60–69 | 11 | 36.67 |
| 70–79 | 6 | 20.00 |
| 80–89 | 6 | 20.00 |
| Total | 30 | 100.00 |

| Table 3: Modifiable risk factors |
|---------------------------------|
| Variables | Yes | No | Total | % yes |
| Ethnivist | 3 | 27 | 30 | 10.00 |
| Smoker | 2 | 28 | 30 | 6.67 |
| Physical activity | 2 | 28 | 30 | 6.67 |

| Table 4: Prevalence of comorbidities |
|--------------------------------------|
| Comorbidities | Number of patients | % |
| T2DM/SAH/Dyslipidemia | 8 | 26.67 |
| SAH/T2DM | 5 | 16.67 |
| SAH/T1DM | 4 | 13.33 |
| SAH/Dyslipidemia | 3 | 10.00 |
| SAH | 3 | 10.00 |
| Others | 7 | 23.33 |
| Total | 30 | 100.00 |

SAH: Systemic arterial hypertension, T1DM: Type 1 diabetes mellitus, T2DM: Type 2 diabetes mellitus
Table 5: Number of medicines/patients

| Number of medicines | Number of Patients | %   |
|---------------------|--------------------|-----|
| 2                   | 1                  | 3.33|
| 3                   | 1                  | 3.33|
| 4                   | 2                  | 6.67|
| 5                   | 6                  | 20.00|
| 7                   | 4                  | 13.33|
| 8                   | 3                  | 10.00|
| 9                   | 2                  | 6.67|
| 10                  | 2                  | 6.67|
| 11                  | 1                  | 3.33|
| 13                  | 1                  | 3.33|
| 14                  | 1                  | 3.33|
| 92                  | 30                 | 100.00|

Table 6: Drugs class of most frequently used medicines

| Class of drugs                      | Number of patients | %   |
|-------------------------------------|--------------------|-----|
| Oral hypoglycemic agents            | 48                 | 23.19|
| Diuretics                           | 26                 | 12.56|
| Antilipemics                        | 23                 | 11.11|
| ACE inhibitors                      | 19                 | 9.18 |
| Platelet antiaggregants             | 15                 | 7.25 |
| Calcium channel blocker             | 13                 | 6.28 |
| Beta blockers                       | 11                 | 5.31 |
| Proton pump inhibitors              | 11                 | 5.31 |
| Angiotensin receptor blocker        | 10                 | 4.83 |
| Aldosterone antagonist              | 5                  | 2.42 |
| Hormone reposition                  | 5                  | 2.42 |
| Antipychotic                        | 3                  | 1.45 |
| Antidepressant                      | 3                  | 1.45 |
| Benzodiazepines                     | 3                  | 1.45 |
| Uricosuric                          | 3                  | 1.45 |
| Others                              | 9                  | 4.35 |
| Total                               | 207                | 100  |

ACE Inhibitors: Angiotensin-converting enzyme inhibitors. Some patients used more than one drug from the same drug class.

Table 7: Prevalence of pharmacotherapy-related problems

| Pharmacotherapy-related problems | Number of patients | %   |
|----------------------------------|--------------------|-----|
| Drug-drug interaction            | 26                 | 30.59|
| Missed doses                     | 14                 | 16.47|
| Incorrect frequency              | 13                 | 15.29|
| Incorrect technique              | 9                  | 10.59|
| Drug interruption                | 6                  | 7.06 |
| Improper self-medication         | 6                  | 7.06 |
| Abrupt dose reduction            | 4                  | 4.71 |
| Others                           | 7                  | 8.24 |
| Total                            | 85                 | 100  |

Table 8: Intervention with material provision

| Materials                      | Number of patients | %   |
|--------------------------------|--------------------|-----|
| Pillow organizers              | 25                 | 84.38|
| No Need/Denied use             | 5                  | 16.47|
| Pictograms                     | 3                  | 9.38 |
| Dosage schedules               | 1                  | 3.13 |
| Colored Sticker                | 1                  | 3.13 |
| Total                          | 35                 | 100  |

Table 9: Intervention referring to others professionals

| Professionals                  | Number of patients | %   |
|--------------------------------|--------------------|-----|
| Nutritionist                   | 8                  | 22.22|
| Physiotherapist                | 3                  | 8.33 |
| Psychologist                   | 2                  | 5.56 |
| Occupational therapist         | 2                  | 5.56 |
| Social Worker                  | 2                  | 5.56 |
| Others                         | 4                  | 18.76|
| No need                        | 15                 | 41.70|
| Total                          | 36                 | 100  |
Regarding the modifiable risk factors, the data of the present study showed the same worldwide trend as for physical inactivity. According to the World Trends Survey in insufficient physical activity, from 2001 to 2016, one in three women (32%) and one in four men (23%) did not reach the recommended levels of physical activity to stay healthy (at least 150 min of moderate intensity or 75 min of vigorous intensity per week) [20]. In São Paulo, according to data obtained in 2017 by Vigitel health (a supplemental report of a risk factor surveillance system for NCDs of the Ministry of Health, concerning physical activity), the percentage of adult smokers corresponds to 10.3% of the population, being 11.8% (male), and 9.1% (female). Regarding consumption of alcoholic beverages, the report shows that the percentage of alcoholic adults in the state of São Paulo is 16.7%, 22.1% (male), and 12.5% (female) [22].

Besides modifiable behavioral risk factors, some metabolic risk factors were observed during the PCs, the most common of which were hypertension, hyperglycemia, and dyslipidemia. The presence of comorbidity increases the number of prescribed drugs. In the present study, we observed that 85% of the patients take more than five
medications, and the majority of the drug classes are associated with patient comorbidities, with polypharmacy already a reported issue in patients of the UHS [16]. Similar results were obtained in other studies in which the most commonly used antihypertensive classes being Thiazide diuretics (28.44%), followed by angiotensin-converting enzyme inhibitors (27.49%) and Beta-blockers (20.55%) [23,24]. The most widely used drugs are among those recommended as first-line drugs for the control of arterial hypertension. The proportion of people using more than one drug seems to follow the behavior observed in other countries [16,25]. The maintenance of a free supply of antihypertensive drugs is very important for advancing the control of SAH. However, complementary actions are required to ensure adherence to the prescribed medication, the continuous care of the people treated, and the promotion of healthy habits [26]. In addition, improvements in population education and income may substantially contribute to SAH control [27].

Complex medication schemes related to polypharmacotherapy lead to non-adherence [28]. The number of drugs proved to be a stronger predictor of non-adherence than advanced age, with higher rates of non-adherence as the number of drugs increased. Non-adherence can lead to serious sequelae including disease progression, treatment failure, hospitalization, and adverse events [16,29].

Concerning drug-related problems, 85 were found in the present study, with drug-drug interactions being the most frequent, followed by missed doses and incorrect frequency or time of administration without changing daily dose. Drug-related problems seem to differ according to region and country [30-35].

The number of consultations carried out by pharmacists is associated with patients with greater difficulty in adhering to drug treatment and/or SBP control. Herein, during the period of the study, most of the patients had one or two PCs; however, some patients had up to 12 PCs. With the implementation of Pharmaceutical Care in Primary Health Care in Curitiba – Brazil, in April 2014, a gradual increase was observed in the number of consultations during the 1st year of implementation [36].

During PC, some of the interventions applied, such as patient guidance and supply of helpful materials, aided patients in understanding the schedule of medicine administration. Pillboxes are known to improve medication adherence [37,38]. However, taking the drugs out of the original container can compromise their stability and safeness [39]. Some of the patients were referred to other health-care professionals, mainly nutritionists. This professional is important for the management of overweight and obesity in adults [40].

A significant reduction in SBP was observed after PC, independently of the number of PCs. In agreement with this result, a systematic review showed that a reduction in SBP was the main outcome observed after pharmaceutical intervention in North America [41]. A study conducted in the city of Ribeirão Preto, Brazil, demonstrated that 54% of patients presented satisfactory SBP, and after PCs, this number increased to 95% [42]. A prospective clinical trial with a total of 194 patients evaluated the impact of pharmaceutical care in diabetic and/or hypertensive patients. The intervention group under pharmaceutical care demonstrated significant control of SBP and DBP, as well as glycemia, dyslipidemia, body mass index, and abdominal circumference [43]. In addition to pharmaceutical care, the Brazilian Longitudinal Study of Aging (ELSI-Brazil) showed that BP control is associated with education level, socio-economic status, a private health plan, and obesity [27]. Thus, pharmacist intervention is important to provide education of patient and to improve medication adherence of hypertensive and heart failure patients [44-46].

CONCLUSION
Overall, to establish effective performance in Primary Health Care and Specialized Care, the pharmacist must work and be inserted in healthcare teams, as already occurs with other professionals, to avoid fragmented and isolated work. Finally, to develop future research, investigations should be carried out in other health units in São Paulo, and the data collected in this study should be followed up.

AUTHORS’ CONTRIBUTIONS
JEPS: Collected and organized the data; wrote the manuscript.
ES: Collected and organized the data.
NFN: Made statistical analysis.
MTS: Organized the data, wrote, and submitted the manuscript.

DECLARATION OF CONFLICTING INTERESTS
The author(s) declare no conflicts of interest regarding the research, authorship, or publication of the present work.
REFERENCES

1. Costa KS, Tavares NU, Nascimento JM, Mengue SS, Alves J, Guerra AA, et al. Pharmaceutical services in the primary health care of the Brazilian unified health system: Advances and challenges. Rev Saúde Pública 2017;51:3S.

2. Strand LM, Guerero RM, Nickman NA, Morley PC. Integrated patient-specific model of pharmacy practice. Am J Hosp Pharm 1990;47:550-4.

3. Ministério da Saúde. Diário Oficial do Brasil: Diário Oficial da União Brasil. Lei No. 8.808. Brazil: Ministério da Saúde; 1990.

4. Araújo AL, de Freitas O. Conceptions of the pharmaceutical profession and of the pharmaceutical assistance in basic health care units: Difficulties and elements for change. Rev Bras Cienc Farm 2006;42:134-46.

5. Fegadoli C, Cavaco AM, Fonseca DC. Revisiting concepts, attitudes and expectations of Brazilian pharmacists to the practice of pharmaceutical care: A qualitative perspective. Indian J Pharm Educ Res 2018;52:1-9.

6. Silva BB, Fegadoli C. Implementation of pharmaceutical care for older adults in the Brazilian public health system: A case study and evaluation. BMC Health Serv Res 2020;20:37:51.

7. Que Institui Os Cuidados Farmacêuticos No Âmbito da Secretaria Municipal de Saúde do Município de São Paulo 1918/2016-SMS.G, Portaria No. 1.918/2016-SMS.G, 2016.

8. Saklayen MG. The global epidemic of the metabolic syndrome. Curr Hypertens Rep 2018;20:12-20.

9. GBD 2015 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990-2015: A systematic analysis for the global burden of disease study 2015. Lancet 2016;388:1659-724.

10. World Health Organization. Communicable Diseases Country Profiles 2018. Geneva: World Health Organization; 2018.

11. Plavnik FL, Machado CA, Malta D, Scala LC, Fuchs S. Cardiovascular chronic diseases and conditions: Challenges and Perspectives. Brasília: Ministério da Saúde; 2019. p. 414.

12. Ministério da Saúde. Relatório Anual de Gestão-2018; 2018. Available from: https://www.prefeitura.sp.gov.br/cidade/secretarias/upload/saude/relatorio_anual_gestao_2018.pdf. 2018.

13. Ministério da Saúde. In: Ministério da Saúde SDC, Tecnologia e Insumos Estratégicos, editor. Secretaria de Ciência. Resultados do Projeto de Implantação do Cuidado Farmacêutico no Município de Curitiba. Brasília: Ministério da Saúde; 2015. p. 100.

14. Conn VS, Ruppar TM, Chan KC, Dunbar-Jacob J, Pepper GA, de Geest S. Packaging interventions to increase medication adherence: Systematic review and meta-analysis. Curr Med Res Opin 2015;31:145-60.

15. Howatson A, Wall CR, Turner-Benny P. The contribution of dietitians to the primary health care workforce. J Prim Health Care 2015;7:324-32.

16. Ayub PM, Balasa-Rocha BJ, Brito GC, da Silva WB, Machado M, Lyra DP Jr., Pharmaceutical care in hypertensive patients: A systematic literature review. Rev Saude Publica 2013;47:119S.

17. dos Santos A, do Rosário M, Stillman B, de Sousa E, de Jesus M, de Souza P, et al. The impact of pharmacist intervention in screening and assessment of pharmaceutical care in the management of hypertension and coronary risk factors after discharge. PLoS One 2016;11:e0155204.

18. Mossop S, Suiter J, Guidoni CM, Baldoni AO, Renovato RD, Obreli-Neto PR, et al. Economic evaluation of a pharmaceutical care program among ambulatory type 2 diabetes patients with hypertension: A cross-sectional retrospective study. BMC Endocr Disord 2013;13:2.

19. Azzam SI, Alzough KH, Asiri MS, Abu Ruz S, Alenein F. Drug-related problems in a sample of outpatients with chronic diseases: A cross-sectional study from Jordan. Ther Clin Risk Manag 2016;12:233-9.

20. Farha RA, Bashieti H, Al Ruz HA, Alsaleh A, AbuRuz S. Assessment of drug-related problems and their impact on blood pressure control in patients with hypertension. Eur J Hosp Pharm 2016;23:126-30.

21. Ministério da Saúde. In: Ministério da Saúde SDC, Tecnologia e Insumos Estratégicos, Departamento de Assistência Farmacêutica e Insumos Estratégicos, editor. Secretaria de Ciência. Resultados do Projeto de Implantação do Cuidado Farmacêutico no Município de Curitiba. Brasília: Ministério da Saúde; 2015. p. 100.

22. Bory-Joséphine CR. Pill organizers and pill cutters: Risks and limitations. Rev Saúde Pública 2013;47:123-7.

23. Howatson A, Wall CR, Turner-Benny P. The contribution of dietitians to the primary health care workforce. J Prim Health Care 2015;7:324-32.

24. Ayub PM, Balasa-Rocha BJ, Brito GC, da Silva WB, Machado M, Lyra DP Jr., Pharmaceutical care in hypertensive patients: A systematic literature review. Rev Social Adm Pharm 2012;8:383-96.

25. Cazamis MS, de Freitas O, Penafort FF, Alcântara E, Farias MR, Oliveira MA, et al. Assessment of SOAP note evaluation tools in colleges and schools of pharmacy. Curr Pharm Clin Res 2016;9:339-43.

26. Gabriel D, Sales EF, Moraes F, Souza GO, Souza D, de Macedo LF, et al. Prevalence of and factors associated with self-reported high blood pressure in Brazilian adults. Rev Saude Publica 2017;51:115S.

27. Navhe-Josephine CR. Pill organizers and pill cutters: Risks and limitations. Rev Saúde Pública 2013;47:123-7.

28. Bouza-Oliveira CR. Pill organizers and pill cutters: Risks and limitations. Rev Saúde Pública 2013;47:123-7.

29. Howatson A, Wall CR, Turner-Benny P. The contribution of dietitians to the primary health care workforce. J Prim Health Care 2015;7:324-32.

30. Ayub PM, Balasa-Rocha BJ, Brito GC, da Silva WB, Machado M, Lyra DP Jr., Pharmaceutical care in hypertensive patients: A systematic literature review. Rev Social Adm Pharm 2012;8:383-96.

31. Afrasiabi Y, Mohraz S, Alsaleh A, AbuRuz S, Alenein F. Drug-related problems in a sample of outpatients with chronic diseases: A cross-sectional study from Jordan. Ther Clin Risk Manag 2016;12:233-9.

32. Farha RA, Bashieti H, Al Ruz HA, Alsaleh A, AbuRuz S. Assessment of drug-related problems and their impact on blood pressure control in patients with hypertension. Eur J Hosp Pharm 2016;23:126-30.

33. Ministério da Saúde. In: Ministério da Saúde SDC, Tecnologia e Insumos Estratégicos, Departamento de Assistência Farmacêutica e Insumos Estratégicos, editor. Secretaria de Ciência. Resultados do Projeto de Implantação do Cuidado Farmacêutico no Município de Curitiba. Brasilia: Ministério da Saúde; 2015. p. 100.

34. Conn VS, Ruppar TM, Chan KC, Dunbar-Jacob J, Pepper GA, de Geest S. Packaging interventions to increase medication adherence: Systematic review and meta-analysis. Curr Med Res Opin 2015;31:145-60.

35. Wali H, Husaini Z, Wali S, Mercer K, Grimond K. A systematic review of interventions to improve medication information for low literate populations. Res Soc Adm Pharm 2016;12:830-64.

36. Potters J, Park J, Cheung R, Chu F, Schuster J, et al. Impact of pharmacist intervention in screening and assessment of pharmaceutical care in the management of hypertension and coronary risk factors after discharge. PLoS One 2016;11:e0155204.

37. Souza et al.

Asian J Pharm Clin Res, Vol 13, Issue 11, 2020, 122-127

FUNDING
The fellowship program of the Family Health Association and UNISA supported J.E.P.

ETHICAL APPROVAL
The Research Ethics Committee of the University Santo Amaro (UNISA) approved the present study, protocol No. 3.073.126 and CAAE 77408717.5.0000.0081.

Souza et al.