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MULTIMORBITY AND POLYPHARMACY IN ELDERLY RESIDENTS IN THE COMMUNITY

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ABSTRACT

Introduction: population aging is one of humanity's triumphs. **Objective:** To analyze sociodemographic characteristics, morbidities and medication use in the elderly of Vila Lângaro-RS Method: a population-based cross-sectional study. The population consisted of individuals aged 60 years or older registered in the Health Units of Vila Lângaro- RS. **Results:** of the 204 elderly participants 61% were female, the age ranged from 60 to 90 years, with an average of 71.18 (± 8.33) years. Of the elderly, 75.5% used the Unified Health System for health care. The most prevalent chronic diseases were: Hypertension with 70.6%, back problems with 57.4% and rheumatism / arthritis with 33.8% (n = 69). Medication use ranged from zero to 12 with an average of 3.5 and 56.8% use from 01 to 04 drugs per day. The most used drug classes were for the cardiovascular system with 34.9% (= 254), and for the central nervous system were mentioned by 24.6% participants, antidepressants are used by 21.9%. Polypharmacy was identified in 61.30% of respondents. Among the elderly with multimorbidity and polypharmacy were 88.5% (= 54). Conclusion: polypharmacy is more frequent in elderly with multimorbidity p <0.001, female p <0.025 and in the age group 71 to 80 years p <0.026.

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INTRODUCTION

The aging of the population has taken a significant proportion to the 21st century. For developing countries, this phenomenon is a major challenge because they are still seeking to control child mortality, sexually transmitted diseases and there is little pertinent confrontation of strategies for prevention and treatment of noncommunicable diseases (FONSECA, 2016). At age 60, various chronic diseases become part of the life of the elderly and the main chronic diseases that affect them are: Cardiovascular Diseases, Hypertension, Diabetes Mellitus, Stroke, Cancer, Chronic Obstructive Pulmonary Disease, Musculoskeletal Disorders (Arthritis and Osteoporosis), mental disorders (dementia and depression), blindness and decreased vision (THEME FILHA, *et al* 2015).

Chronic conditions are the leading cause of morbidity and disability worldwide. It is also emphasized that chronic conditions can no longer be viewed in the traditional and isolated way as unrelated, and this relationship can be called comorbidity (LE RESTE, 2015). The term comorbidity is relatively new in the medical literature and was first used by Feinstein in 1967, but only in 1989 was it introduced as a term in the Medical SubjectHeadings – MeSH (Olaya, *et al*., 2017). The concept of multimorbidity was first published in 1976 in Germany and remained almost entirely restricted to German publications for 14 years. In 1990, the concept became internationally recognized when the article entitled Future Research Perspectives on a Gerontopsychophysiological-Psychoanalytic Personality and the Aging Process, by Heuft, was published by ZeitschriftFurGerontologie (LE RESTE,

2015). We understand multimorbiditis as the presence of at least two or more simultaneous physical or mental chronic diseases in an individual (CAVALCANTI, 2017). The presence of multimorbidity in the individual generates two consequences, the greater use of medicines and also the greater demand for health services (NGO, 2018). The use of five or more medications by an individual is called polypharmacy (NASCIMENTO *et al*, 2017). Polypharmacy in the elderly can lead to several undesirable consequences, such as increased adverse reactions and drug interactions, poor adherence to drug therapy, decreased functional capacity, and cognitive decline. In addition, polypharmacy, when associated with self-medication observed in this age group, may decrease the quality of drug treatment (BALDONI *et al*., 2013). This study aimed to evaluate the occurrence of multimorbidity and polypharmacy in community elderly.

MATERIALS AND METHODS

This is a population-based cross-sectional study. The target population consisted of individuals 60 years or older identified from the records of the Family Health Strategy (FHS) Units of a small municipality in southern Brazil. The municipality has 2,185 inhabitants and the population aged 60 and over is 397 individuals. To calculate the sample size, a margin of error of 5% with a confidence interval of 95% and a response distribution of 50% using the Simple Random Sample were considered. The calculation was made by the Bioestat 5.0 program, requiring a minimum of 185 participants. A simple random selection was performed and 234 elderly were visited, distributed by the coverage area of the Community Health Agents, totaling 204 elderly participants. The dependent variable is multimorbidity. Multimorbidity was verified by counting self-reported morbidities from a list of 9 diseases (Hypertension, Spinal Problems, Rheumatism / Arthritis, Heart Problems, Diabetes, Bronchitis / Emphysema / Chronic Obstructive Pulmonary Disease, Cancer, Kidney Problem, and Stroke Brain). These diseases were measured based on participants' answers to the question, “Has any doctor ever said you have…?”. Elderly people who reported two or more chronic conditions were considered multimorbidities. Independent variables included polypharmacy (which had five or more medications) (gender (male, female) and age group (60 to 70 years old, 71 to 80 years old, 81 years old or older), Health Plan (does not have). Medication use was verified through the following question: “Could you bring the boxes or packages of all the medicines you took in the last 7 days. The classification used was according to the anatomic therapeutic classification system (ATC) 1993 (VIDOTTI, 1993). To compare the variables between the groups of elderly with and without multimorbidity, the chi-square test was used. Variables were expressed as mean values ± standard deviation and the significance level used was 5% ($p < 0.05$). The study was approved by the Research Ethics Committee of the West University of Santa Catarina, under the opinion 1,920,315.

RESULTS

The study included 204 elderly, with a predominance of females with 61.0%. Age ranged from 60 to 90 years, with a mean age of 71.18 (± 8.33) years, with the most prevalent age group from 60 to 70 years, with 51%. Regarding marital status, 80.4% were married and 19.6 single, separated or widowed. Of these, 87.3% lived accompanied and 12.7% lived alone, the most prevalent economic class being class C in 47.1%. Overall schooling was low. Of the elderly interviewed, 75.5% do not have health insurance. Regarding health care, 75.5% depend exclusively on the Unified Health System. We found a higher prevalence of elderly people in class C, followed by class B.
The elderly had, on average, two morbidities, the most frequent being Hypertension (70.6%) and Spinal Problems.

Table 1. Socio-demographic characteristics of elderly - Vila Lângaro – RS, 2017

Variable	N	Porcentage (%)
Sex		
Female	124	61
Male	80	39
Age Range		
60 to 70 years	104	51
71 to 80 years	80	39,2
81 years and over	20	9,8
Marital Situation		
Married	164	80,4
Separated	2	1,0
Single	7	3,4
Widower	31	15,2
Schooling(in years)		
0	18	8,9
1-8	178	87,1
>8	8	4
Health insurance		
yes	50	24,5
No	154	75,5
Lives alone		
Yes	26	12,7
No	178	87,3
Income		
Class A	25	12,3
Class B	83	40,6
C Class	96	47,1

Table 2. Chronic di seases referred to the elderly. Vila Lângaro-RS, 2017

Variable*	Yes		No	
	N	(%)	N	(%)
Hypertension	144	(70,6%)	60	(29,4%)
Spinal problems	115	(57,4%)	89	(43,6%)
Rheumatism,arthitis	69	(33,8%)	135	(66,2%)
Heart problems	48	(23,5%)	156	(76,5%)
Diabetes Mellitus	35	(17,2%)	169	(82,8%)
Bronchitis,emphysema,COPD	34	(16,7%)	170	(83,3%)
Cancer	24	(11,8%)	180	(88,2%)
Kidney problems	22	(10,8%)	182	(89,2%)
Sroke	13	(6,4%)	191	(93,6%)

*table value is not 100% because the variable admits more tham one answer.

Table 3. Anatomic classification of medicinal products used by th elderly, second therapeutic anatomic. Vila Lângaro – RS, 2017

Variable	N= 739	Porcentage (%)
Drug class		
Cardiovascular system	254	34,9
Digestive tract and metabolism	183	24,7
Nervous system	182	24,6
Other systemic hormones	44	5,9
Respiratory system	18	2,4
Anticoagulants, thrombolytics	11	1,4
Musculaskeletal system	11	1,4
Antineoplastics and immunosuppressants	9	1,2
Genitourinary system and sex hormones	2	0,2
General anti-infectives systemic	1	0,1
Other	24	3,2

Among the elderly interviewed, 86.8% consumed some type of medication in the last month before the interview, and 30% consumed five or more medications.

Table 4. Use of medicinal products in the last 7 days of the interviеew date of elderly interviewd. Vila Lângaro – rs, 2017

Variable	N	Porcentage (%)
Medication use		
Yes	177	86,8
No	27	13,2
Namber of medicines		
0	27	13,2
01 to 04	116	56,8
05 or more	61	30,0
Polyphamacy		
Yes	61	30,0
No	143	70,0
Acecess to obtain medicines		
Hea lth unit	130	63,7
The 3rd	13	6,4
Health unit+pharmacy	50	24,5
Does not use medicine	11	5,4

Tabela 5. Characteristics of multimorbidities according to the age age range Vila Lângaro – RS, 2017

Variable	yes		No		P
Multimorbitities	N= 113	(%)	N= 91	(%)	
Age Range					
60 to 70 years	48	(42,5)	56	(61,6)	
71 to 80 years	52	(46)	28	(30,8)	0,026
81 years and over	13	(11,5)	7	(7,6)	
Sex					
Feminine	76	(37,3)	48	(23,5)	
Male	37	(18,1)	43	(21,1)	

Tabela 6. Polypharmacy according to multimorbity in elderly. Vila Lâgaro - rs, 2017

Variable	Polypharmacy				
	yes		No		
	N= 61	(%)	N= 143	(%)	P
Multimorbidity					
Yes	54	(88,5)	59	(41,2)	
No	7	(11,5)	84	(58,8)	0,001
Total		204		100,0	

The average medication used by the elderly was 3.5 and the maximum medication used by the elderly was 12. Regarding the polypharmacy classification, 30%. The drugs consumed totaled 739. Those used for the cardiovascular system are the most prevalent with 34.9%, and antihypertensive drugs are the most used (23.6%). Then, the drugs of the digestive and metabolic system stand out with 24.7% predominating vitamins with 7.6%, and nervous system with 24.6%), where antidepressants are the most used in this group with 21.9%. .As to the mode of access to medicines, 63.7% buy it in the health unit, free of charge.

DISCUSSION

Observing the sociodemographic data of the interviewees, it is found that the prevalence of female participants is in agreement with Luz (2014) who found 68.4% of elderly women in their study. According to IBGE (2016) there is a predominance of the elderly female population corresponding to 55.7%. We highlight the process of feminization of aging that has been observed and discussed over time and women constitute the majority of the elderly population in all regions of the world (NICODEMO; GODOI, 2010). One of the factors that interfere with the feminization of old age is male mortality, which has higher rates for circulatory diseases, alcoholism, and external causes (LUZ *et al*, 2014). For every 100 women aged 60 and over worldwide, there are only 84 men and this reality increases in the age group of 80 years or older where for every 100 women there are only 61 men. From this it can be inferred that aging is a process that affects men and women differently, where sex actually structures the whole course of life (UNFRA, 2012). Our study shows a prevalence of 87.3% of elderly people living with their partners, children or family members. Some studies indicate that mortality rates may vary by marital status. Married men and women have lower mortality rates than single, divorced or widowed people. Thus suggesting that the company is a positive factor for the increase of life in old age (VERAS, 1994). A determining factor for the health of the elderly is their income. In general, older people with lower incomes have more health problems (CESAR *et al*., 2008). Per capita income is associated with disability of the elderly, that is, as income decreases, disability increases. This statement resides in the fact that higher income levels allow the search for better services as well as a more active social insertion (MELO, *et al* 2014). The private sector of health services has been increasing each year, however, for the majority of the elderly is not yet accessible, which also shows the study by Melo (2019), which found a prevalence of 68.3% of elderly without health insurance, a result that resembles our study. Junior's research (2014) has an even higher prevalence, with 89% of the elderly without health insurance, depending exclusively on the SUS. In our study hypertension was the most mentioned disease, similar data were observed in a study conducted in the state of Minas Gerais where 69.9% of elderly hypertensive patients were found (PIMENTA *et al*., 2014). Cardiovascular Diseases are the leading cause of death in the world. The World Health Organization estimates that by 2030 nearly 23.6 million people will die from cardiovascular disease. Systemic Arterial Hypertension is an important risk factor for the development of cardiovascular and cerebrovascular diseases, being a determining element in morbidity and mortality, and considered a public health problem in a global environment (WHO, 2011).

The second most self-reported chronic disease in the study was a back problem, corroborating with IBGE data, where 28.1% of the elderly aged 60 years or older had back problems (ROMERO *et al*, 2018). The incidence of diabetes mellitus in the elderly population studied was similar to studies by Pimenta *et al* (2014), with 17.7%. Diabetes has high morbidity and mortality and significant loss in quality of life. In addition to being a major cause of mortality, renal failure, lower limb amputation, blindness and cardiovascular disease (BRAZIL, 2006). The prevalence of multimorbidity found was higher than the study by (CAVALCANTI *et al*., 2017) conducted in a small city north of Rio Grande do Sul where it resulted in 45% of participants, but similar values were found in the study by (MELO, 2019) who presented 53.1% of multimorbidities in the elderly using the National Health Survey database. The most prevalent chronic diseases resemble the study by (NUNES, 2015) where hypertension was 55.3% followed by spinal disease with 37.4%. The findings of the polypharmacy study, characterized by the use of 5 or more medications, were similar to those reported in the study by Carvalho (2012) that found polypharmacy in 36% of the elderly, and Cavalcanti (2017) queen found a percentage 27.1%. of the elderly with this feature. Another study in the state of Mato Grosso do Sul was observed in 35.4% of the elderly (LOBO, 2015). In the result of the study with Data from the National Survey on

Access, Use and Promotion of the Rational Use of Medicines, in Brazilian urban municipalities a total of 18.0% of the elderly were classified with polypharmacy (TAVARES *et al*, 2016). The prevalence of polypharmacy in surveys conducted with Brazilian elderly varied from 10.3% to 62.8% (ALMEIDA, 2017; MUNIZ, 2017). There are numerous reasons for the high prevalence of polypharmacy. With aging occurs the appearance of morbidities, which in turn require drug treatment. The practice of seeking several physicians to treat their morbidities, generating several prescribers who, at the time of the consultation, cannot obtain patient information on the use of all medications (LOBO, 2015). Polypharmacy is higher among older people with multimorbidity, as they often use more drugs to treat diseases. This consumption without adequate control can cause clinical changes or even drug interactions. The clinical follow-up of the elderly with chronic diseases goes beyond diagnosing such diseases and medicating, but also understanding how morbidities interact with each other (CAVALCANTI, 2017). On the other hand, we understand that for the treatment of Noncommunicable Chronic Diseases (NCDs), using as an example treatment of hypertension and diabetes both use drug association, with polypharmacy as reversible associativity. Facilitating treatment and even better quality of life guaranteed (LOBO, 2015). We conclude that polypharmacy is more common in elderly women with multimorbidity, female and aged 71 to 80 years. Considering the progressive aging of the population, attention should be given to the elderly, not only looking at treatment for chronic diseases but, above all, to accompany and provide healthy aging, health professionals need to understand this logic of providing health to those involved, without knowledge fragmentation, with a dynamic look at the various subjects involved taking through this interdisciplinary behavior a new context for this society ensuring satisfaction with life and experiencing the aging process with greatness.

REFERENCES

ABEP- Associação Brasileira de Empresas de pesquisa (2015). Critério de Classificação Econômica**.** Disponível em: <www.abep.org>. Acesso em: 12 abr. 2018.

Almeida, NA. *et al* (2017). Prevalência e fatores associados à polifarmácia entre os idosos residentes na comunidade. Rev.bras. Geriatr. Gerontol. Rio de Janeiro. 20(1):143-153.

Baldoni, AO, *et al* (2013)Pharmacoepidemiological profile andpolypharmacy

Brasil (2006). Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Envelhecimento e saúde da pessoa idosa**:** caderno de atenção básica n. 19. Brasília (DF): Ministério da Saúde; 2006.

Carvalho, MFFC. *et al* (2012). Polifarmácia entre idosos do munícipio de São Paulo-Estudo SABE. Revista Brasileira de Epidemiologia, São Paulo.15(4):817-827.

Cavalcanti, G. *et al* (2017). Multimorbidade associada à polifarmácia e autopercepção negativa da saúde. Rev. bras. Geriatr. Gerontol. Rio de Janeiro. 20(5):634-642

Cesar, J. *et al* (2008). Perfil dos Idosos residentes em dois municípios pobres das regiões Norte e Nordeste do Brasil**:** resultado de estudo transversal de base populacional. Cad. saúde pública**.** Rio de Janeiro. 24(8):1835-1845

Fonseca SC (2016). O envelhecimento ativo e seus fundamentos. Portal edições São Paulo. 1ed.

IBGE-INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA (2016) - Coordenação de População e Indicadores Sociais. Síntese de indicadores sociais**:** uma análise das condições de vida da população brasileira: 2016 / - Rio de Janeiro.

indicators in elderlyoutpatients. Brazilian Journal of Pharmaceutical Sciences.49, (3):443-452.

Junior,V ;Marques ,W ; Mrtins, M (2015). Idosos e planos de saúde no Brasil: análise das reclamações recebidas pela Agência Nacional de Saúde Suplementar. Ciên. saúde colet. 20(2):3817-3826.

Le Reste JY, *et al*. (2013). AResearchGroupfromtheEuropean General PracticeResearch Network (EGPRN) Explores the Concept of Multimorbidity for Further Research into Long Term Care. Journal of the American Medical Directors Association.14(2):132-133.

Lobo, L.B. (2015). Polifarmácia entre idosos de Dourados, Mato Grosso do Sul: um estudo de base populacional. Dissertação (Mestrado)- Universidade Federal da Grande Dourados, Mato Grosso.

LUZ, *et al* (2014) Perfil sócio demográfico e de hábitos de vida da população idosa de um município da região norte do Rio Grande do Sul, Brasil. Rev. bras. geriatr.gerontol. 17(2) p:303-314.

Melo LA; (2019). Prevalência e fatores associados a multimorbidades em idosos brasileiros. Tesse de doutorado, Universidade Federal do Rio Grande do Norte, Natal. Centro de Ciências da saúde.

MeloNCV *et al* (2014). Condições de vida dos idosos no Brasil: uma análise a partir da renda de escolaridade. Revista Brasileira de Economia Doméstica. 25(1):004-019.

Nascimento RCRM do *et al* (2017). Polifarmácia: uma realidade na atenção primária do Sistema Único de Saúde. Rev. Saúde Pública, São Paulo. 51(2):19.

Nicodemo D; Godoi MP (2010). Juventude dos anos 60-70 e envelhecimento: estudo de casos sobre feminização e direitos de mulheres idosas. Rev. Ciênc.Ext. 6(1):40

Nunes BP; ThuméE; FacchiniI. (2015)Multimorbidity in older adults: magnitude and challenges for the Brazilian health system. BMC Public Health 2015; 25;15:1172.

OLAYA B *et al* (2017). Latent class analysis of multimorbidity patterns and associated outcomes in Spanish older adults: a prospective cohort study. BMC Geriatrics**.** 17:186. doi:10.1186/s12877-017-0586-1.

ONG, SM *et al* (2018). Variation of polypharmacy in older primary care attenders occurs at prescriber level. BMC Geriatrics. 18 (1):,1 doi.org/10.1186/s12877-018-0750-2.

Pimenta, *et al* (2014). Fatores associados a doenças crônicas em idosos atendidos pela Estratégia de Saúde da Família.Ciência e Saúde coletiva. 20 (8):2489-2498

Ramos LR, *et al*. (2016). Polifarmácia e polimorbidade em idosos no Brasil: um desafio em saúde pública,Rev Saúde Pública.50(supl 2):9s.

Romero DE *et al*. (2018). Prevalência, fatores associados e limitações relacionados ao problema crônico de coluna entre adultos e idosos no Brasil. *Cad. SaúdePública*. 34(2): eddd12817.

Theme Filha MM *et al* (2015). Prevelência de doenças crônicas não transmissíveis e associaçãoo com auto avaliação de saúde: pesquisa nacional de saúde, 2013. Rev. Bras. Epidemiolg. 18(2):83-96.

UNFRA - Fundo de populações das Nações Unidas e Help Age International. Envelhecimento no Século XXI (2012). Celebração e desafio. Londres.

VIDOTTI CCS.Sistema de Classificação Anatômica Terapêutica Química (ATC).1993. Centro de Informações sobre medicamentos.Conselho federal de 2(6):

WHO - World Health Organization (2011) . Global Atlas on Cardiovascular DiseasePreventionandControl. Mendis S, Puska P, Norrving B editors. Geneva: World Health Organization; 2011.

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