

## MULTIMORBIDITY AND POLYPHARMACY IN ELDERLY RESIDENTS IN THE COMMUNITY

Multimorbidade e polifarmácia em idosos residentes na comunidade

Multimorbidade y polifarmácia in elderly residents in the community

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### ABSTRACT

**Objective:** To identify the prevalence of multimorbidity and polypharmacy in the elderly **Methods:** A study with 100 elderly individuals from the elderly population of Joaçaba-SC. Data were collected in July 2018 through a structured questionnaire and presented by counts, percentages, mean and standard deviation. **Results:** Age ranged from 60 to 90 years, with a mean of 69.3 ( $\pm$  5.47). The female sex prevailed with 78 (78%). The total multimorbidity ranged from two to nine chronic conditions, with a prevalence of 75 (75%) of elderly individuals with multimorbidity. The most frequent chronic conditions were Arterial Hypertension, with 76 (76%) and Diabetes Mellitus, with 46 (46%). The use of continuous medication is present in 86 (86%) of the elderly and the prevalence of polypharmacy was 18 (18%). **Conclusion:** Among the elderly who had multimorbidity and polypharmacy, women belonging to the poorest economic class prevailed.

**Descriptors:** Aging ; Geriatric assessment ; Health of the elderly; Aged; Morbidity

### RESUMO

**Objetivo:** Identificar a prevalência da multimorbidade e polifarmácia em idosos. **Métodos:** Estudo com 100 idosos de grupos de idosos do Município de Joaçaba- SC. Os dados foram coletados em julho de 2018 por meio de questionário estruturado e apresentados por contagens, percentuais, média e desvio-padrão. **Resultados:** A idade variou de 60 a 90 anos, com média de 69,3 ( $\pm$ 5,47). O sexo feminino prevaleceu com 78,0%. O total de multimorbidade variou de duas a nove condições crônicas, com prevalência de 75,0% de idosos com multimorbidade. As condições crônicas mais referidas foram Hipertensão Arterial, com 76,0% e Diabetes Mellitus, com 46,0%. O uso de

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medicação continua está presente em 86,0% dos idosos e a prevalência de polifarmácia foi de 18,0%. **Conclusão:** entre os idosos que possuíam multimorbidade e polifarmácia prevaleceram as mulheres pertencentes à classe econômica mais pobre.

**Descritores:** Envelhecimento; Avaliação geriátrica; Saúde do idoso; Idoso; Morbidade.

## RESUMEN

Identificar la prevalencia de la multimorbidity y polifarmacia en ancianos. Métodos: Estudio con 100 ancianos de grupos de ancianos del Municipio de Joaçaba-SC. Los datos fueron recolectados en julio de 2018 por medio de un cuestionario estructurado y presentados por recuentos, porcentajes, media y desviación estándar. Resultados: La edad varía de 60 a 90 años, con una media de 69,3 ( $\pm$  5,47). El sexo femenino prevaleció con el 78 (78%). El total de multimorbidity varía de dos a nueve condiciones crónicas, con una prevalencia de 75 (75%) ancianos con multimorbidity. Las condiciones crónicas más referidas fueron Hipertensión Arterial, con 76 (76%) y la Diabetes Mellitus, con 46 (46%). El uso de medicación continua está presente en 86 (86%) de los ancianos y la prevalencia de polifarmacia fue de 18 (18%). Conclusión: entre los ancianos que poseía multimorbidity y polifarmacia prevalecieron las mujeres pertenecientes a la clase económica más pobre.

**Palabras clave:** Envejecimiento; Evaluación geriátrica; Salud de lo anciano; Anciano; Morbilidad

## INTRODUCTION

Aging causes changes in the body, which lead to the loss of muscle elasticity, bone strength, reduced visual and hearing acuity, and the onset of deterioration of body functions. Thus, there is a tendency towards the development of chronic health conditions, with the presence of four or more morbidities being common.<sup>1,2</sup>

Multimorbidity is the term used to characterize the coexistence of two or more conditions that affect the health of the individual, without prioritizing any one of them.<sup>3</sup>

This has two consequences, increased use of medicines and increased demand for health services. Older people are the largest per capita drug users and some use five or more drugs per day characterizing what is called polypharmacy.<sup>4</sup>

From the 5th decade of life onwards, the hospitalization rate increases progressively and quadruples in the age group over 80 years.<sup>5</sup> This finding is also evident in Primary Care services, where the extreme age groups (children and the elderly) use more services and the number of consultations requested increases with age.<sup>6</sup>

Polypharmacy has as its main feature the use of more than four daily medications for a period of more than three

months. Drug use can also be considered polypharmacy when the elderly uses less than four daily medications, but some of them are unnecessary for the individual.<sup>4</sup>

Thus, studies on multimorbidity, use of medicines and health services by the elderly population are imperative so that preventive, curative and rehabilitation actions can be planned. They will also allow creating mechanisms to focus on the four-year prevention as the objective. The main objective is to identify individuals at risk of excessive therapeutic interventions and protect them from inappropriate new interventions as well as suggest ethically acceptable alternatives.<sup>7</sup>

This study aimed to identify the prevalence of multimorbidity and polypharmacy among the elderly in the community.

## METHOD

Analytical, quantitative study conducted with 100 elderly participants of elderly social groups from a municipality in southern Brazil.

The sample was of the Causal Simple type composed of elderly aged 60 years and over, of both sexes.

Data was collected in 2018 by means of a structured questionnaire applied as an interview.

The elderly were classified according to the economic profiles, in line with the 2018 Brazilian Classification Association (ABEP) Economic Classification criteria in Class A - 35-46 points, Class B - 23-24 points, Class C - 12-22 points and Class DE - 1 to 16 points.<sup>8</sup>

The elderly with multimorbidity were those who reported 2 or more morbidities and those with polypharmacy who reported taking 5 or more medications a day.

Quantitative data were described by mean and standard deviation and categorical data by counts and percentages. The comparison of quantitative variables was performed by Chi-square test. The significance level adopted was  $\alpha = 0.05$ .

Project was approved by the Research Ethics Committee of UNOESC in June 2018 under opinion no. 2,690,436.

## RESULTS

One hundred elderly people were interviewed, 78 (78%) were female, the average age was 69.3 ( $\pm$  5.47); 42 (42%) had less than four years of study; and 76 (76%) belong to economy class C. (Table 1)

**Table 1 - Socioeconomic and demographic variables of the elderly - Brazil - 2018**

Variables	N°	%
<b>Gender</b>		
Female	78	78,0
Male	22	22,0
<b>Age</b>		
60-69 yrs	53	53,0
70-79 yrs	43	43,0
> 80	04	4,0
<b>Education (in yrs)</b>		
< 4 yrs	42	42,0
4 - 8 yrs	55	55,0
> 8 yrs	03	3,0
<b>Economic class</b>		
A	-	-
B	11	11,0
C	76	76,0
D	13	13,0
E	-	-
<b>Total</b>	<b>100</b>	<b>100,0</b>

Source: Research data, 2018

Regarding marital status, 46 (46%) are married or in a stable union, and 68 (68%) co-habitate.

**Table 2- Marital Status and Family Structure - Brazil - 2018**

Variables	N°	%
<b>Marital status</b>		
With companion	46	46,0
Without companion	54	54,0
<b>Family arrangements</b>		
Lives alone	32	32,0
Lives with a companion	41	41,0
Lives with companion and child	24	24,0
Lives with other relatives	03	3,0
<b>Total</b>	<b>100</b>	<b>100,0</b>

Source: Research data, 2018

Of the elderly interviewed 76 (76%) are patients of the Unified Health System (SUS) for the treatment of their health condition. The need for continuous medication was reported by 86 (86%), where 68 (68%) take one to four medications daily, and 44 (44%) know the name of the medication and its purpose. Polypharmacy was identified in 18 (18%) elderly, as shown in Table 3.

**Table 3 - Continuous medication use among elderly, Brazil. 2018**

VARIABLES	N°	%
<b>Continuous use of medication</b>		
Yes	86	86,0
No	14	14,0
<b>Number of medications taken daily</b>		
Does not use	14	14,0
1 to 4	68	68,0
More than 4 (polypharmacy)	18	18,0
<b>Knows the name of the drug</b>		
Yes, all of them	44	44,0
Yes, some	18	18,0
No	24	24,0
NA*	14	14,0
<b>Total</b>	<b>100</b>	<b>100,0</b>

Source: research data, 2018

\*- Not applicable.

The total number of self-reported chronic health conditions ranged from two to nine per participant, with a prevalence of 75 (75%) elderly with multimorbidity. The most prevalent chronic conditions in this study were hypertension, diabetes mellitus and hyperlipidemia. (Table 4)

**Table 4 - Presence of chronic conditions in the elderly, Brazil 2018.**

Variables	Yes n(%)	No n(%)
<b>Chronic conditions *</b>		
Arterial hypertension	76 (76,0)	24 (24,0)
Diabetes Mellitus	46 (46,0)	54 (54,0)
Pulmonary Disorder	10 (10,0)	90 (90,0)
Heart Disorder	11 (11,0)	89 (89,0)
Stroke	2 (2,0)	98 (98,0)
Rheumatism, Arthritis or Arthrosis	27 (27,0)	73 (73,0)
Back pain/issues	26 (26,0)	74 (74,0)
Cancer	7 (7,0)	93 (93,0)
Kidney Disorder	7 (7,0)	93 (93,0)
Depression	19 (19,0)	81 (81,0)
Thyroid Disorder	18 (18,0)	82 (82,0)
Hearing Disorder	2 (2,0)	98 (98,0)
Hyperlipidemia	28 (28,0)	72 (72,0)

Source: Research Data, 2016

\* There may be more than one chronic condition per participant.

In the comparison by sex demonstrated that both polypharmacy and multimorbidity are more prevalent in females with 16 (16%) and 62 cases (62%), respectively.

**Table 5-** Presence of polypharmacy and multimorbidity, by sex, Joaçaba- SC. 2018.

Variables	Male		Female		P*
	Yes n(%)	No n(%)	Yes n(%)	No n(%)	
Polypharmacy	2(2,0)	20(20,0)	16(16,0)	62(62,0)	0.03
Multimorbidity	14(14,0)	8(8,0)	62(62,0)	16(16,0)	0.02

Source: Research Data

\* - Test X2

## DISCUSSION

Most of the participants in this study are female, which corroborates other studies<sup>9-11</sup>, characterizing the feminization of old age.<sup>12</sup> Notably, the female predominance found in this study is higher than the Brazilian average of 55.7 %.<sup>13</sup>

The higher prevalence of females in the elderly population may be due to the tendency of women to take more care and seek health care,<sup>14</sup> or a reflection of higher male mortality, especially among young and adult males, caused by deaths from external causes that are more prevalent among men.<sup>15</sup>

Life expectancy in Brazil is 75.8 years, while in Santa Catarina it reaches 79.1 years, the highest in the country.<sup>16</sup> This data is similar to the findings of the current study, since most of the elderly participants are between 70 to 90 years of age. However, when comparing this life expectancy with developed countries such as Japan and Italy where life expectancy is over 85, we realize that there is still much progress to be achieved, especially with regard to expanding social security coverage and increasing access to health services.

With regard to education, the elderly who have more than eight years of study (high school) are a minority, and those who attended between four to eight years of school (elementary school) are a majority, in line with findings of the study by Bortoluzzi<sup>17</sup>. Low levels of literacy of the elderly are reflections of education focused basically on learning to read and write, a sufficient level for the time-period.

The elderly with low education, as well as the non-elderly, have greater difficulty in understanding their own health condition and have less access to care networks.<sup>18</sup> The lack of education among the elderly is closely linked to difficulties in following the treatment of their illnesses, especially those related to drug handling, diet follow-up, prescriptions and others.

In our study most of the elderly belong to Economic Class C, the poorest. Income is an important factor for the development of dependence of the elderly, as it provides resources necessary for maintaining health, such as access to food, leisure, transportation and others.<sup>19</sup> This fact is very well illustrated by the data of the Brazilian Institute of Geography and Statistics (IBGE), that indicates a decrease in the reports of disability as income increases.<sup>20</sup>

The elderly without a partner are the majority in the present study. Having a partner can be considered a psychosocial protection factor, improving mutual support and coping with

adverse situations<sup>21</sup>. Married elderly people are less likely to develop depression, a fact found in the study by Sass<sup>22</sup>, which found that 77.5% of depressed individuals did not have a partner.

The second largest family model was that of elderly people living alone. Choosing to live alone does not necessarily mean abandonment, neglect or loneliness, but may represent an innovative and successful form of aging.<sup>23</sup>

Continuous use of medication is common among the elderly population and is present in 86.0% of the surveyed elderly. The prevalence of polypharmacy (18%) was the same as found in the study by Ramos<sup>24</sup>, however in the study by Pereira<sup>25</sup>, the prevalence was 32%, showing the inequality of this characteristic in the elderly Brazilian population. In developed countries polypharmacy is present in 30% of people aged 65 and over.<sup>26</sup> It should be noted that concomitant use of medication by the elderly is often necessary, as many have multiple illnesses and symptoms that require the use of various medications to prevent them thus ensuring a better quality of life.<sup>14</sup> However, the Ministry of Health warns that the use of various medications increases the risk of adverse reactions and drug interactions.<sup>7</sup>

The most commonly used drug groups in the practice of polypharmacy reflect high rates of cardiovascular disease and diabetes mellitus within the elderly population.<sup>25</sup>

Systemic Arterial Hypertension is the most important modifiable cardiovascular risk factor, associated with very frequent conditions in the elderly, such as coronary artery disease (CAD), cerebrovascular disease (CVD), heart failure (HF), terminal renal disorder, peripheral vascular disorder, left ventricular hypertrophy (LVH) and systolic dysfunction.<sup>27</sup>

Diabetes mellitus stands out as an important cause of morbidity and mortality among the elderly, although with lower prevalence compared to other morbidities. It is a highly limiting disease and can cause blindness, amputations, nephropathies, cardiovascular and encephalic complications, among others, which limit the functional capacity, autonomy and quality of life of the individual.<sup>28</sup>

When comparing the prevalence of polypharmacy and multimorbidity between the genders, we noted that they are more frequent among the elderly, findings similar to the study by Ramos<sup>24</sup>. This may be because women seek more health services once they have their diagnoses and consequently have a higher rates of prescription drug use.

## CONCLUSION

This study indicates that among the elderly with multimorbidities and polypharmacy, women from the poorest classes were the majority. It also showed that the main association of two diseases was hypertension and diabetes mellitus.

The data also indicates that continuous medication use by the elderly is important information to be considered for their care and polypharmacy must be carefully monitored, with supervision of professionals and family members being aware of adverse effects and changes in the functional capacity of the elderly.

We also found that polypharmacy information is scarce in the studied region and that studying it is an important tool for the prevention of diseases arising from it.

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