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FACTORS ASSOCIATED WITH FAMILY DYSFUNCTION AMONG NON-INSTITUTIONALIZED OLDER PEOPLE¹

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ABSTRACT: The objective of this study was to analyze the factors and their prevalence associated with family dysfunction, as well as the functional capacity of the elderly population, in the capital of the state of Goiás, Brazil. This was a cross-sectional and analytical study, which was developed with elderly people who reported family dysfunction. Global capacity and family dynamics were analyzed. For the 149 elderly people with family dysfunction, there was prevalence of the female gender, aged between 60 to 69, married, multi-person home, normal health, and presence of pain. Functional capacity evaluation revealed partial dependence for self-care. In the family dynamics, dialog and time shared by the family were the most fragile aspects, with moderate satisfaction for all domains. High family dysfunction remained associated with falls ($p=0.003$) and previous episodes of acute myocardial infarction ($p=0.004$) using Poisson's analysis. The elderly expressed preserved functional autonomy and capacity regarding self-care and social living.

DESCRIPTORS: Nursing. Aged. Family. Family relations. Cross-sectional studies.

FATORES ASSOCIADOS À DISFUNCIONALIDADE FAMILIAR EM IDOSOS NÃO INSTITUCIONALIZADOS

RESUMO: O objetivo deste estudo foi analisar a prevalência e os fatores associados à disfuncionalidade familiar, bem como a capacidade funcional da comunidade idosa da capital do Estado de Goiás. Estudo transversal, analítico, desenvolvido com idosos que relataram disfuncionalidade familiar. Foram analisadas a capacidade global e a dinâmica familiar. Para os 149 idosos com disfuncionalidade familiar, houve prevalência do gênero feminino, faixa etária dos 60 a 69 anos, estado civil casado, lares multipessoais, saúde regular e presença de dor. A avaliação da capacidade funcional revelou dependência parcial para autocuidado. Na dinâmica familiar, os aspectos mais frágeis foram o diálogo e o tempo que a família compartilha, com satisfação moderada para todos os domínios. A elevada disfunção familiar permaneceu associada à queda ($p=0,003$) e ao episódio pregresso de infarto agudo do miocárdio ($p=0,004$) na análise de Poisson. Os idosos expressaram autonomia e capacidade funcional preservadas quanto ao autocuidado e ao convívio social.

DESCRIPTORES: Enfermagem. Idoso. Família. Relações familiares. Estudos transversais.

FACTORES ASOCIADOS CON DISFUNCIONALIDAD FAMILIAR EN ADULTOS MAYORES NO INSTITUCIONALIZADOS

RESUMEN: El objetivo de este estudio fue analizar la prevalencia y los factores asociados a la disfuncionalidad familiar y la capacidad funcional de la comunidad anciana de la capital de Goiás, en Brasil. Estudio trasversal, analítico, desarrollado con ancianos que relataron disfuncionalidad familiar. Fueron analizadas la capacidad global y la dinámica familiar. Para los 149 ancianos con disfuncionalidad familiar, hubo prevalencia del género femenino, edad de 60 a 69 años, estado civil casado, hogares multipersonales, salud regular y presencia de dolor. La evaluación de la capacidad funcional mostró dependencia parcial para autocuidado. En la dinámica familiar, los aspectos más frágiles fueron dialogo y tiempo que la familia se queda junto, con satisfacción moderada para todos los dominios. El alta disfuncionalidad familiar permaneció asociada a la queda ($p=0,003$) y al episodio anterior de infarto agudo de miocardio ($p=0,004$) en el análisis de Poisson. Los ancianos expresaron envejecimiento activo con autonomía y capacidad funcional preservadas con relación al autocuidado y al convívio social.

DESCRIPTORES: Enfermería. Anciano. Familia. Relaciones familiares. Estudios transversales.

INTRODUCTION

The family's crucial role in caring for the elderly in order for them to have an active and healthy aging process is recognized. The family is considered a live system and the individual's main social environment, in which there is the sharing of beliefs, values, actions, and behaviors built over the individual and collective history of this social group.¹⁻³

It is known that the more harmonious and balanced the family system is, the better the individual's adjustment to the requirements related to the aging process, because the preservation of good family relationships and positive changes in the family core are a result of strong links that have been previously established.¹⁻² On the other hand, when the family system presents problems in accepting and understanding the aging process of one of its members, family life becomes conflicted and may cause physical, emotional, social, and economic repercussions in the coping process for this stage in the family life cycle.⁴

Other factors also deserve attention when it comes to family functioning. Social conditions, family composition, and lack of adaptability to its members' changes and roles may require (re) structuring and (re)adjustment, in addition to aspects that are intrinsic to age, gender, and cognitive capacity.⁴⁻⁷

Families with elderly people face some challenges. These challenges are related to high rates of incapacity, functional limitations, sensory deficiencies, dementia, and the high frequency of chronic conditions associated with aging, such as heart diseases, diabetes, and osteomuscular diseases.⁵⁻⁷

In this sense, treatment and care for the elderly, the complexity of health conditions, and costs may determine the quality of family relationships and interfere with family functioning, which is recognized as a predictor variable for active and healthy aging.⁸ Therefore, family functioning has been the subject of studies related to aging⁹⁻¹⁰ associated with the caregiver's role¹¹⁻¹³ and with living with chronic conditions.^{9,14-15}

By definition, a family is considered functional when there is the separation of tasks or roles that are clearly defined and accepted by family members in order to help with problem solving, using their own resources.^{5,16} In the opposite position, the dysfunctional family is the one in which there is disrespect, an overlap in hierarchy, com-

munication noise, and a lack of (re)organization of the family system when articulating capacities for problem solving.^{5,16}

Previous scientific studies have associated family dysfunction with loneliness for the elderly,⁷ lack of attention and promotion of family care to people with chronic non-communicable diseases (NCDs),⁹ loneliness for carriers of HIV/AIDS,¹⁷ low social support and overload of the elderly's caregiver,¹² in addition to depression symptoms.¹⁸⁻¹⁹

With this in mind, this study focused on family dysfunction, because this condition indicates fragile relationships that deserve better investigation by health care professionals. In addition, there is not enough knowledge concerning the understating of elderly individuals' family functioning, as well as an analysis of factors associated with family dysfunction that need intervention in order to promote family health.^{4,20}

In this context, this study's aim was to analyze the factors associated with family dysfunction and their prevalence, as well as the functional capacity of the elderly community of the Brazilian capital.

METHOD

The current study is a cross-sectional, descriptive, and analytical study, which is a segment of the original research conducted by the Elderly Health Care Network (*Rede de Vigilância à Saúde do Idoso*) [REVISI], titled Health Situation of the Elderly Population of the City of Goiânia, state of Goiás (*Situação de saúde da população idosa do município de Goiânia, Goiás*).

The original research's sampling process was done through clustering in multiple stages. The size of the probability sample was calculated considering the elderly population in Goiânia (1,249,645 people, or 7% of the population, in the year 2007), with a confidence level of 95%, a significance level of 5%, an expected frequency of 30% for the health hazards studied in the original research, an absolute precision of 5%, a clustering sample design effect of 1.8, and an addition of 11% for possible losses.

The sample's calculus was done using the website OpenEpi®, version 2.3.1 (2010), resulting in a representative sample of 934 persons from the elderly population living in the urban area of Goiânia.

This study analyzed 149 elderly people who, in an analysis of family dynamics through

the family APGAR scale, presented final scores compatible with family dysfunction. Therefore, we considered the following eligibility criteria: (1) individuals aged 60 and older; (2) who lived in the urban area of Goiânia; and (3) who lived in the visited household. Data were gathered between the months of December 2009 and April 2010 by field researchers trained for sectional studies in the randomly chosen households.

After consenting, the elderly persons were interviewed in their homes, in a private space. An interview script was applied, which consisted of information regarding the subject's identity, socio-demographic characterization, social profile, data regarding the caregiver, the person's self-reported general health status, self-reported pain evaluation and functional evaluation through the Basic Activities of Daily Living (BADL) scale²¹ and Instrumental Activities of Daily Living (IADL),²² falls, access to health care services, family APGAR, and Mini-Mental State Exam (MMSE).

In the functional evaluation, we used the evaluation scales from the BADL²¹ and the IADL,²² which are recommended by the Ministry of Health⁵ to evaluate the elderly person's functional capacity in primary health care and used in national studies.^{11,23}

The evaluated BADL were: transferring, toileting, continence, dressing, bathing, and eating. To measure the dependence level, a scale was established that varied from A (independence in all activities) to G (dependence in all activities).²¹ In this study, this variable for the BADLs was scaled as: total independence; partial dependence (when the elderly person mentioned some functional incapacity); and full dependence.

The evaluated IADL were: using the telephone, using transportation, shopping, preparing meals, maintaining the home, managing medications, and managing finances.²² These activities comprised a scale from 9 to 27 points, in which 9 referred to total dependence and 27 to total independence. From these activities, we considered total independence, partial dependence, and total dependence for the IADLs.

To evaluate subjective satisfaction with the care received from family participants, we used the family APGAR scale. Translated and validated in Brazil, the scale measures the dynamics of family functioning as either a resource or a stress factor.²⁴ The acronym APGAR is derived from Adaptation, Partnership, Growth, Affection, and Resolve. This instrument helped to magnify concepts of rela-

tionships in the family context by being practical and quick to apply, in addition to being easily interpreted.²⁵

Values are given to domains that, in the end, are added, resulting in a total score whose numerical interpretation is directly related to the conditions of family dynamics (good functionality, moderate or elevated dysfunction).^{5,24,26}

The answer options for all questions in the scale are 0, 1, and 2 points: 0 for the option "never;" 1 for "sometimes;" and 2 for "always." Total scores range from 0 to 10 points. Family functioning rating corresponds to 0 to 4, if there is high family dysfunction (HFD); from 5 to 6 for moderate family dysfunction (MFD); and from 7 to 10 for low family dysfunction (GFD).^{5,24,26}

The internal consistency of the family APGAR in relation to the domains showed it as capable of representing the phenomenon, ensuring reliability in its psychometric properties, with an alpha result of 0.875 (Kruskal-Wallis test).²⁴ Cronbach's alpha in the questionnaire employed in the sample of 149 elderly people was 0.711.²⁷⁻²⁸

Cognitive function was evaluated through the MMSE. This is a multi-professional instrument that gives information regarding orientation to time; orientation to place; registration, attention, and calculation; recall; language; repetition; and complex commands. Considering that education in Brazil has particular regional characteristics, the following cutoff points were weighted by years of education, according to recommendations from researchers in the area: 20 points for illiterates; 25 points for 1 to 4 years of education; 26 points for 5 to 8 years of education; 28 points for 9 to 11 years of education; and 29 years for more than 11 years of education. The MMSE is easily applied and quick in determining cognitive function, and is recommended for use in several practice scenarios. In this research, it was categorized by "years of education" and dichotomized to illiterates and individuals with various levels of education.^{5,29} Lower scores were to be referred to neuropsychological evaluation for further investigation of functional losses.^{5,29}

For data analysis, we took into consideration the outcome variable of this study, expressed through HFD. The predictor variables were socio-demographic data, self-reported health conditions, and functional and cognitive capacities.

Data were registered in the software Excel for Windows® 2003-2007 after double-checking. Data analysis was obtained through measurements of

absolute and relative frequency, and mean and standard deviation, in the software IBM Statistical Package for the Social Science (SPSS) for Windows, version 20.0. For univariate association analysis among HFD and the predictor variables, we used the chi-squared or Fischer test and a significance level of 5%. The chosen effect measure was the prevalence ratio (PR).

Multivariate analysis was conducted using Poisson's regression, with high variance, to identify the possible independent effect of factors associated with HFD. For the model construction, the following independent variables were used, which obtained values of $p \leq 0.20$ in univariate analysis. We performed the chi-squared goodness of fit test to verify the adequacy of the multivariate analysis model.

The variables that were included in the multivariate analysis were scaled in three blocks: block 1 included socioeconomic and demographic vari-

ables, such as marital status, education level, and having children; block 2 included self-reported health conditions, such as pain, diabetes, chronic obstructive pulmonary disease (COPD), acute myocardial infarction (AMI), auditory deficit, and falls; and block 3 included functional capacity (partial dependence and total dependence).

The research was approved by the Research Ethics Committee of the *Universidade Federal de Goiás* under protocol 050/2009, and met national and international rules for ethics in research involving human beings.

RESULTS

Based on the family APGAR, we identified 149 elderly persons with family dysfunction (FD), corresponding to 18.1% of the sample. The average score on the APGAR test was 4.01 (± 1.842). Socio-demographic characteristics of the sample are shown in table 1.

Table 1 - Socio-economic and demographic variables used to classify elderly people according to family dysfunction. Goiânia, Goiás, Brazil, December 2009 to April 2010 (n=149)

Variable	n (%)	High family dysfunction n (%)	Moderate family dysfunction n (%)	PR (IC95%)*	P value†
Gender					
Female	90 (60.4)	42 (46.7)	48 (53.3)	1.25 (0.84-1.86)	0.258
Male	59 (39.6)	22 (37.3)	37 (62.7)	1.00	
Age group					
60-69 years	96 (64.4)	41 (42.7)	55 (57.3)	0.94 (0.65-1.37)	0.761
70-79 years	40 (26.8)	17 (42.5)	23 (57.5)	0.97 (0.64-1.47)	0.866
80 years or older	13 (8.8)	7 (53.8)	6 (46.2)	1.00	
Marital status					
Married	71 (47.7)	24 (33.8)	47 (66.2)	0.66 (0.45-0.97)	0.003†
Widowed	44 (29.5)	17 (38.6)	27 (61.4)	0.86 (0.56-1.33)	0.490
Single	20 (13.4)	15 (75.0)	5 (25.0)	1.97 (1.41-2.76)	0.002†
Divorced	14 (9.4)	8 (57.1)	6 (42.9)	1.00	
Education					
Illiterate	29 (19.5)	7 (24.1)	22 (75.9)	0.51 (0.26-1.00)	0.022†
Can read and write	6 (4.0)	4 (66.7)	2 (33.3)	1.00	
Secondary school	76 (51.0)	34 (44.7)	42 (55.3)	1.09 (0.75-1.58)	0.653
High school	21 (14.1)	11 (52.4)	10 (47.6)	1.27 (0.80-2.00)	0.346
College	17 (11.4)	8 (47.1)	9 (52.9)	1.11 (0.65-1.91)	0.716
Children					
Yes	133 (89.3)	51 (38.3)	82 (61.7)	0.55 (0.39-0.78)	0.017†
No	16 (10.7)	13 (81.25)	3 (18.75)	1.00	
Family income of the elderly‡					
Up to 1	49 (35.8)	22 (44.9)	27 (55.1)	1.07 (0.72-1.59)	0.746
1-3	57 (41.6)	23 (40.4)	34 (59.6)	0.90 (0.60-1.33)	0.588
>3	31 (22.6)	14 (45.2)	17 (54.8)	1.00	
Residents in the household					
Alone	27 (18.5)	16 (59.3)	11 (40.7)	1.50 (1.02-2.20)	0.061

Variable	n (%)	High family dysfunction n (%)	Moderate family dysfunction n (%)	PR (IC95%)*	P value†
With somebody	119(81.5)	47 (39.5)	72 (60.5)	1.00	
Type of household					
Owned	105(70.5)	42 (40.0)	63 (60.0)	0.89 (0.59-1.35)	0.584
Rented	27 (18.1)	12 (44.4)	15 (55.6)	1.09 (0.68-1.76)	0.719
Others	13 (8.8)	6 (46.2)	7 (53.8)	1.00	

*PR=Prevalence ratio, IC95% =Confidence interval 95%; †p<0.05; ‡minimum wage in Brazilian *reais* which, at the time of the study, was R\$510.00.

When evaluating the degree of satisfaction with the family APGAR domains, we found that, for all evaluated domains, the elderly mentioned moderate satisfaction (Table 2).

Table 2 - Frequency of Family APGAR domains answered by the elderly with family dysfunction. Goiânia, Goiás, Brazil, December 2009 to April 2010 (n=149)

	Adaptation n (%)	Partnership n (%)	Growth n (%)	Affection n (%)	Resolve n (%)
[0] Never	38 (25.5)	43 (28.9)	36 (24.2)	36 (24.2)	42 (28.2)
[1] Sometimes	97 (65.1)	99 (66.4)	104 (69.8)	107 (71.8)	93 (62.4)
[2] Always	14 (9.4)	7 (4.7)	9 (6.0)	6 (4.0)	14 (9.4)
Total	149 (100.0)	149 (100.0)	149 (100.0)	149 (100.0)	149 (100.0)

Regarding health conditions and HFD, there was a prevalence of self-reported bad/terrible health (53.6%), pain in the last three months (47.1%), COPD (48.3%), osteoporosis (48.3%), cancer (50%), previous AMI (75%), and falls (60.5%). Of those responding, 43% had sought health care services, and the hospitalization prevalence in the last year was 42.4% (Table 3).

Table 3 - Health condition variables used to classify the elderly according to family dysfunction. Goiânia, Goiás, Brazil, December 2009 to April 2010 (n=149)

Variables	n (%)	High family dysfunction n (%)	Moderate family dysfunction n (%)	PR (CI95%)*	p value†
Health self-report					
Great/good	48 (32.2)	21 (43.75)	27 (56.25)	1.00 (0.68-1.48)	1.000
Normal	68 (45.6)	27 (39.7)	41 (60.3)	0.84 (0.58-1.22)	0.354
Bad/terrible	28 (18.8)	15 (53.6)	13 (46.4)	1.00	
Pain					
Yes	104 (70.3)	49 (47.1)	55 (52.9)	1.38 (0.87-2.19)	0.143
No	44 (29.7)	15 (34.1)	29 (65.9)	1.00	
Self-reported illness					
Hypertension					
Yes	94 (63.1)	38 (40.4)	56 (59.6)	0.86 (0.59-1.24)	0.415
No	55 (36.9)	26 (47.3)	29 (52.7)	1.00	
Diabetes					
Yes	32 (21.5)	10 (31.3)	22 (68.8)	0.68 (0.39-1.17)	0.131
No	117 (78.5)	54 (46.2)	63 (53.8)	1.00	
Chronic obstructive pulmonary disease					
Yes	24 (16.1)	14 (48.3)	10 (41.7)	1.45 (0.97-2.16)	0.103
No	124 (83.3)	50 (40.3)	74 (59.7)	1.00	

Variables	n (%)	High family dysfunction n (%)	Moderate family dysfunction n (%)	PR (CI95%)*	p value†
Stroke					
Yes	8 (5.4)	2 (25.0)	6 (75.0)	0.57 (0.17-1.92)	0.250
No	141 (94.6)	62 (44.0)	79 (56.0)	1.00	
Osteomuscular disease					
Yes	30 (20.1)	15 (50.0)	15 (50.0)	1.21 (0.80-1.84)	0.395
No	116 (78.9)	48 (41.4)	68 (58.6)	1.00	
Osteoporosis					
Yes	29 (19.5)	14 (48.3)	15 (51.5)	1.16 (0.75-1.78)	0.518
No	120 (80.5)	50 (41.7)	70 (58.3)	1.00	
Cancer					
Yes	4 (2.7)	2 (50.0)	2 (50.0)	1.17 (0.43-3.17)	0.576
No	145 (97.3)	62 (42.8)	83 (57.2)	1.00	
Acute myocardial infarction					
Yes	8 (5.4)	6 (75.0)	2 (25.0)	1.82 (1.17-2.85)	0.065
No	141 (94.6)	58 (41.1)	83 (58.9)	1.00	
Visual deficit					
Yes	131 (87.9)	55 (42.0)	76 (58.0)	0.79 (0.49-1.30)	0.390
No	17 (11.4)	9 (52.0)	8 (47.1)	1.00	
Auditory deficit					
Yes	39 (26.2)	13 (33.34)	26 (66.66)	0.72 (0.44-1.17)	0.157
No	110 (78.8)	51 (46.4)	59 (53.6)	1.00	
Falls					
Yes	43 (28.9)	26 (60.5)	17 (39.5)	1.67 (1.18-2.37)	0.006†
No	105 (70.5)	38 (36.2)	67 (63.8)	1.00	
Looked for health care services					
Yes	93 (62.4)	40 (43.0)	53 (57.0)	0.95 (0.65-1.39)	0.790
No	53 (35.6)	24 (45.3)	29 (54.7)	1.00	
Hospitalization in the last 12 months					
Yes	33 (22.2)	14 (42.4)	19 (57.6)	0.93 (0.59-1.46)	0.754
No	101 (67.8)	46 (45.5)	55 (54.5)	1.00	

*PR=Prevalence ratio, CI 95% =Confidence interval 95%; †p<0.05.

In relation to having caregivers, functional capacity, and cognitive capacity in the domain of HFD, it was observed that 40.7% had caregivers, 66.7% self-reported a compromised functional capacity with partial dependence for BADLs, and 43.9% reported functional independence for

IADLs. In relation to mental state, 46.6% of the elderly with HFD presented varied education, with an average MMSE score of 23.85 points (± 3.761), thus showing cognitive capacity considered normal for education (Table 4).

Table 4 - Family dysfunction according to presence of caregiver, functional capacity and Mini-mental state examination for the elderly. Goiânia, Goiás, Brazil, December 2009 to April 2010 (n=149)

Variables	n (%)	High family dysfunction n (%)	Moderate family dysfunction n (%)	PR (CI95%)*	P value†
Caregiver					
Yes	27 (18.1)	11 (40.7)	16 (59.3)	0.91 (0.55-1.50)	0.713
No	112 (75.2)	50 (44.6)	62 (55.4)	1.00	
Basic Activities of Daily Living					
Independent	142 (95.3)	60 (42.3)	82 (57.0)	0.59 (0.36-0.98)	0.129
Partial dependence	6 (4.0)	4 (66.7)	2 (33.3)	1.56 (0.86-2.84)	0.228
Total dependence	1 (0.7)	1 (100.0)	-	1.00	

Variables	n (%)	High family dysfunction n (%)	Moderate family dysfunction n (%)	PR (CI95%)*	P value†
Instrumental Activities of Daily Living					
Independent	66 (44.3)	29 (43.9)	37 (56.1)	1.04 (0.72-1.51)	0.828
Partial dependence	83 (55.7)	35 (42.2)	48 (57.8)	1.00	
Total dependence	-	-	-	-	
Mini-Mental State Exam					
Illiterate	23 (18.3)	9 (39.1)	14 (60.9)	0.84 (0.48-1.46)	0.515
Varied education	103 (81.7)	48 (46.6)	55 (53.4)	1.00	

*PR=Prevalence ratio, CI 95% =Confidence interval 95%; †p<0.05.

In univariate analysis, there was a significant statistical association with HFD for married marital status, with $p=0.003$ (PR: 0.66; IC95%: 0.45-0.97); single, with $p=0.002$ (PR: 1.97; IC95%: 1.41-2.76); no education, with $p=0.022$ (PR: 0.51; IC95%: 0.26-1.00); and having children, with $p=0.017$ (PR: 0.55; IC95%: 0.39-0.78). In other words, the single elderly had a higher measurement of association with HFD (PR: 1.97) in relation to the elderly who had children (PR: 0.55) and illiterates (PR: 0.51) (Table 2).

Falls were prevalent in 60.5%, with an average of 1.79 falls (± 0.864) per individual. The statistically significant variable for the analysis of health conditions was previous episode of fall, with $p=0.006$ (PR: 1.67; IC95%: 1.18-2.37) (Table 3).

After multivariate analysis, the predictor variables in block 2 retained statistical significance and were associated with HFD; previous episode of MAI ($p=0.003$; PR: 1.16; IC95%: 1.05-1.28); and fall ($p=0.004$; PR: 1.10; IC95%: 1.03-1.17) (Table 5).

Table 5 – Predictor variables that remained associated to high family dysfunction. Goiânia, Goiás, Brazil, December 2009 to April 2010 (n=149)

Variables	PR (CI95%)* raw	p value†	PR (CI95%)* adjusted	p value†
Acute Myocardial Infarction				
Yes	1.82 (1.17-2.85)	0.065	1.16 (1.05-1.28)	0.003
No	1.00		1.00	
Falls				
Yes	1.67 (1.18-2.37)	0.006	1.10 (1.03-1.17)	0.004
No	1.00		1.00	

*PR= Prevalence ratio, CI 95% =Confidence interval 95%; †p<0.05.

DISCUSSION

The 2010 census revealed that there are 96 men for each 100 women in Brazil, showing a historical tendency of female predominance. In the Midwest region, the number of elderly people also had significant growth between the years 2000 (5.8%) and 2010 (7.2%), reinforcing tendencies of decreasing fertility and an increasing elderly population.³⁰

The higher percentage of females in this study (60.4%) confirms studies in the country, such as that in Jequié, state of Bahia, with 70.09%,³¹ Fortaleza, state of Ceará, with 76.3%,³² São Carlos, state of São Paulo, with 62%,⁴ Uberaba, state of Minas Gerais, with 63.8%,³³ and São Paulo, state of São Paulo, with 61.2%.³⁴ In Porto, Portugal,¹⁰ and in

Bogotá,¹⁴ Colombia, feminization is also prevalent (72.9 and 60%, respectively).

The increase in the number of elderly people in the age group from 60 to 69 years prevailed in the study's population (64.4%), and was higher than what was described in the Northeast (37.5%)³² and Southeast (53.1%).³³ These factors are a result of the aging process of the population that comes from socio-economic development, which happens quickly in countries with average and low income. This presents both a challenge and an opportunity for society to look for new models.⁸

Regarding marital status, being married (47.65%) presented higher estimations than those found in other studies in the country, such as the ones conducted in the Southeast (45%)¹¹ and in

the Northeast (45.8%),³⁵ and in comparison to the study conducted in Porto, with 31.8%.¹⁰ However, still in Portugal, in Tondela, the married elderly were more numerous than in this study at 59.5%,³⁶ similar to the province of Anhui, in China (97.38%).⁷

Regarding HFD, this study's findings (7.9%) were close to those described by national authors in other geographical regions, such as the Southeast (7%)¹¹ and Northeast (8.8%).³² Ascending values were also found, such as those described in the North (10.9%)³⁷ and South (25%).⁹ In other countries, such as Portugal, the HFD was estimated to be between 10.5%³⁶ and 18.7%.¹⁰ When the test was applied exclusively to many elderly people in Portugal, 18.7% mentioned HFD,¹⁰ a figure higher than the one found in Brazil for the same age group (10%),³⁸ which indicates that age and family functioning must be considered when planning actions for this population group.³⁶

When related to gender, HFD was predominant among females (46.7%). This fact was observed in studies conducted in the countryside of the Southeast.^{4,38} This phenomenon makes it clear that functionality is temporal, dynamic, and is influenced by gender, age group, and geographical region.^{18,36}

The permanence of the association between HFD and falls among the elderly in the adjusted analysis reinforces the need for improvements in social support for the elderly. If the elderly stated that their families were deficient in dialog and time spent together, such inattentive and uncaring behaviors in relation to the elderly point to an increase in the incidence of falls. This is true, mainly in face of scientific evidence that points to the home environment as the place where most falls happen.³⁹⁻⁴⁰

In this sense, social support and adequate environments, with infrastructure for accessibility and physical activities for leisure, contribute to a more active behavior,⁴¹ as well as to the prevention of falls among the elderly in the family environment during BADLs.³⁹ Such support and infrastructure are the determinants that compose the multifactor context for active aging.⁹ Therefore, there is an instruction to identify the groups and environments that are more vulnerable in order to conduct care for the elderly and to create/execute public policies for the prevention of falls.³⁹⁻⁴⁰

Data also revealed that a higher percentage of elderly people with HFD live alone (59.3%). The reasons may be the dissolution of marriage,

having no children, seeking better socioeconomic conditions, autonomy, good functional capacity, advanced age, and health,³ which result from advancements in medicine, technology, and sanitary policies.⁴² This situation must be considered by managers, those in charge of public policies, and also by researchers.³

On the other hand, the family acts as a protective factor and as caregivers for the elderly, especially in bi- and tri-generational households.² Equally, family composition reveals that the family adapts to the role of caregiver¹⁸ who, in the presence of disease, must promote changes in intrafamily roles, with the possible election of a main caregiver.⁹

However, the elderly person's right to take care of him- or herself must not be excluded. This phenomenon can be accommodated by a higher financial independence, by the guarantee of social security, by the improvements in the level of education in the last decades, and by greater access to health care services.⁴²

HFD remained associated with AMI, suggesting that, in the disease's acute stage, physical worsening, absence or lack of family support, and psychological stress may influence family functionality quality.⁴²

In relation to chronic non-communicable diseases, the level of family dysfunction is shown to be significant for other health conditions, such as controlling and living with diabetes. In these people, controlled glycemic levels were linked to better family functioning.¹⁴ Another condition was the association between the increase in family APGAR score and the decrease in number of complaints of pain and rigidity of the skeleton, aspects that have influence in the elderly's better quality of life.¹⁵

CONCLUSIONS

Among the elderly analyzed in this study, previous episodes of AMI and falls were associated with HFD. As for the family APGAR domains, the most fragile aspects were dialog and time shared by the family with the elderly person, which can reveal the absence of a caregiver in most cases. This part of the population does not appear to participate actively in the decision processes of family life and to share an adequate amount of time with the family, in addition to the lack of dialog with them.

Even in the face of scant presence of the family, the elderly people in the study expressed

an active sense of aging, with autonomy, and preserved functional capacity in relation to self-care and social life by BADL and IADL evaluations.

Finally, the factors associated with HFD must be investigated through mixed methods, so that health care professionals can more effectively direct proposals for therapeutic actions, both in relation to the family as a whole and in relation to the elderly person.

This study gained traction by unveiling knowledge where there was formerly a gap regarding family function in the elderly population in Brazil's Midwest. It is recognized that this research does not exhaust the identification of elderly people with HFD and associated factors, since it employed a temporal approach that is inherent to cross-sectional studies, which does not infer causality.

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