

## Family functionality in oldest old household residents

Ivania Vera<sup>1</sup>, Roselma Lucchese<sup>1</sup>, Adélia Yaeko Kyosen Nakatani<sup>1</sup>, Valeria Pagotto<sup>1</sup>,  
Selma Rodrigues Alves Montefusco<sup>1</sup>, Geraldo Sadoyama<sup>II</sup>

<sup>1</sup> Universidade Federal de Goiás, School of Nursing, Nursing Graduate Program. Goiânia-GO, Brazil.

<sup>II</sup> Universidade Federal de Goiás, School of Biology, Department of Biological Sciences. Catalão-GO, Brazil.

Submitted: 04-11-2014    Approved: 30-11-2014

### ABSTRACT

**Objective:** the aim of this study was to identify factors associated with family functionality of non-institutionalized long-lived subjects, who were residents in Goiânia (GO), Brazil. **Method:** this was a population-based epidemiological study with cross-sectional outline. Evaluation scales of the functional and cognitive capacities were used. Family dynamics was measured using the Adaptation, Partnership, Growth, Affection, and Resolve (APGAR) instrument by making home interviews with 131 long-lived individuals. **Results:** there was prevalence of the female gender, average of age of 83.87 years old, widowhood condition, and residence in a big family, primary schooling, and self-perception of regular health. A great amount showed independence for self-care and partial dependence for daily life instrumental activities. Family functionality prevailed with score average of 9.06 points. **Conclusion:** in conclusion, family functionality in long-lived subjects is associated with self-perception of poor/bad health, osteoporosis, and fall. Results allowed characterizing long-lived subjects' family functionality with the aim of valuing and prioritizing family as a caregiver. **Key words:** Nursing; Aged, 80 Years or More; Family Relationships.

CORRESPONDING AUTHOR    Ivania Vera    E-mail: ivianiavera@gmail.com

## INTRODUCTION

The worldwide phenomenon of aging reveals that oldest old, identified as people aged greater than or equal to 80 years old are advancing rapidly in numbers, especially in developing countries<sup>(1)</sup>. The 14 million oldest old identified in the 20<sup>th</sup> century will correspond to, in 2050, more than 400 million worldwide. The highest prevalence is related to gender, for each group of 100 oldest old women, there are 61 men of the same age group<sup>(1)</sup>.

In Goiânia (GO), the oldest old have already reached 7.9% of the elderly population<sup>(2)</sup>. The heterogeneity of the elderly population is directly influenced by the decline in mortality in advanced ages, gender, marital status, geographic region and people's accessibility to social and economic conditions. The longevity of humanity should be seen as a triumph of development and one of the greatest achievements of humanity<sup>(3-4)</sup>.

Endless opportunities about this triumph of development are related to the adoption of new policies, strategies and laws on the development due to the different characteristics, such as age, gender, ethnicity, education, income and health<sup>(1)</sup>. Among the strategies, health promotion and healthy behaviours at all ages are needed to reduce, prevent and delay the onset of chronic diseases, through less exposure to risk behaviours throughout life<sup>(4)</sup>.

The challenges are related to the recognition that the aging of populations is a worldwide reality, and therefore, transformations are necessary in a society where these people are inserted, such as income guarantees, access to quality health-care services and environments that stimulate and facilitate the coexistence of people with functional disabilities, that is, their home<sup>(1)</sup>, above all, meeting this stratum of the population is essential in relation to demographic conditions and health, functional capacity and Family Functionality (FF).

This silent evolution in intergenerational family demographics has provided the conviviality of the elderly with a greater number of generations and a lesser amount of relatives by generation. Such conviviality is an opportunity for structural transformations inside the family context, with contributions and assignments linked to different actors.

The forms of family grouping have been modifying since 1960, being sculpted by social features (individualism and immediate consumption of material objects, among others), changing intra-family relations<sup>(5-6)</sup>.

The investigation of family dynamics explores and visualizes if there is harmony or disharmony in family relationships, from the perspective of the elderly in old age, in relation to care received from his/her family, as a stressor or protective factor<sup>(7)</sup>. Subjective aspects, such as adaptation to the new realities facing stressful situations, or sharing decisions and responsibilities in order to maintain its members protected and fed, supporting new ideas and directions, interacting emotionally in the family context and having shared time, can be evaluated before the family intervention.

A screening test is the Adaptation, Partnership, Growth, Affection and Resolve (APGAR) of family, through five questions, the test analyses the following domains: adaptation,

partnership, growth, affection and resolve<sup>(7-8)</sup>. High scores, resulting from the sum of the domains, reveal the family's ability to adapt to new situations and manage conflicts, with a view to FF, while low scores indicate an environment with low capacity to adapt to the new situation, requiring early intervention<sup>(9)</sup>.

Thereby, in the context of health care of people with 80 years or more, the APGAR instrument can be a strong ally in family relations evaluation and detection of risk factors that deserve intervention. Given the above, the objective of this study was to identify the factors associated with FF of the non-institutionalized oldest old residents in Goiânia (GO), Brazil.

## METHODS

Population-based epidemiological study with cross-sectional design through household interviews with elders, held in a Midwestern Brazilian capital, which had more than one million inhabitants. Of these, 7.9% were oldest old.

The study population consists of elderly living in urban areas from probabilistic sample array, from the database of the Network for Health Surveillance of the Elderly (REVISI). The sample calculation considered the following parameters: expected frequency of 30% for all the objectives of the research, a significance level of 5%, absolute precision of 5.0%, and design effect of 1.8. The representative sample was composed by 934 elderly.

The process of sampling was probabilistic by conglomerates, in multiple stages. In the first stage 56 census sectors were drafted, among 912 sectors of the urban municipality. For the second stage blocks, corners and domiciles to be visited were also drafted.

The sample met the following eligibility criteria: (1) age of 80 years or more; (2) residence in the Goiania urban area; (3) resident of the visited domicile; and (4) have answered all five questions about Family APGAR. Elderly who were drafted but did not reside in the family home were excluded, in addition to the questionnaires answered by caregivers and/or family members, the total number of excluded individuals was 131.

After the pilot test, we began data collection by trained interviewers, in the period of December 2009 to April 2010. Authorization was requested of the elderly by means of consent form (CF) and, in a private space, the semi-structured questionnaire was applied, it contained socioeconomic and demographic features, information about the caregiver, health condition and self-perceived pain, falls, hospitalization in the past year and access to health services. The assessment of functional capacity was measured by scales of basic activities of daily living (BADL), Instrumental Activities of daily living (IADL) and cognitive assessment via the Mini Mental State Examination (MMSE). The family dynamics, from the perspective of the elderly, was measured by Family APGAR index.

The BADL scale measures the independence in the performance of activities related to self-care<sup>(10)</sup>. This exposure variable was ordered in total independence, partial dependence and total dependence. The activities that assess the elderly in the environment and surroundings, through the IADL were scaled from 9 to 27 points, in which 9 refers to the total

dependence and 27 refers to independence in the performance of these activities<sup>(11)</sup>.

The MMSE was applied to verify the cognitive function, having been chosen to be used in populational studies in the various practical scenarios<sup>(12)</sup>. As cut-off points, we used the years of education: 20 points for illiterate; 25 points to 1-4 years of study; 26 points for 5-8 years; 28 points to 9-11 years; and 29 points for more than 11 years. This test does not replace the neuropsychological assessment in subjects with low scores, requiring a verticalized investigation of functional loss<sup>(12-13)</sup>.

In order to evaluate the family dynamics, we applied the APGAR Family<sup>(8)</sup>. The acronym APGAR derives from words Adaptation, Partnership, Growth, Affection and Resolve. The five domains are assigned values of zero, 1 and 2 points. Zero for the option "hardly ever", 1 for "some of the time" and 2 "almost always". The total sum of the scores oscillates on a scale from zero to ten points, in which: from zero to 4, indicates severely dysfunctional family (SDF); from 5 to 6, moderately dysfunctional family (MDF); and from 7 to 10, Functional Family (FF)<sup>(8,13)</sup>. In other words, the FF is expressed by  $\geq 7$  scores and Family Dysfunction (DF) by  $< 7$  points scores<sup>(8,13)</sup>.

In this sense, the exposure variables were socioeconomic and demographic characteristics, self-reported health conditions, functional and cognitive capacity. The FF was the outcome variable.

Data were entered in the Excel software for Windows<sup>®</sup> 2003-2007 after double check. Data analysis was conducted by measures of absolute and relative frequency, mean and standard deviation in the IBM software Statistical Package for the Social Sciences (SPSS) for Windows<sup>®</sup> version 20.0. For univariate association analysis between the FF of oldest old and exposure variables, Chi-square or Fischer tests were used, with significance level of 5%. The measurement of effect used was the prevalence ratio (PR). Multiple logistic regression was

applied to identify the factors associated with the FF through the construction of the model with the predictor variables, which obtained  $p$ -value  $\leq 0.20$  in univariate analysis.

The variables entered into the multivariate analysis were scaled in two blocks, Block 1 socioeconomic demographic – (marital status, children, educational level, residents at household and type of residence); and Block 2 – self-perceived health conditions (self-perception of health, falls and demand for health services).

The ethical care that conduct research involving humans have been secured, according to Resolution 196/96 of the National Health Council, and the research was approved by the Research Ethics Committee of *Universidade Federal de Goiás* (UFG) under the protocol 050/2009.

## RESULTS

Among the 934 participants, 173 (18.5%) were oldest old. Of these, 131 (75.72%) responded the five questions of the Family APGAR. Table 1 shows demographic characterization and present an average age of 83.87 years, maximum of 94 years old ( $\pm 3.389$ ), prevalence of females (61.8%), widows (50.4%), with primary education (59.5%), living with a big family (40.5%), with children (92.4%), in their own home (82.4%) with income (96.2%) from retirement (55.7%) and by age (37.4%).

Among those interviewed, these are the items that prevailed: regular health self-perception (45.0%), complaint of pain (58.8%), hypertension (60.8%), visual impairment (90.8%), falls (41.2%) and seek for health service (70.2%) (Table 2).

Regarding functional capacity, more than half of the oldest old reported they needed assistance from someone for any activity (52.7%), however, a large part also revealed independence for BADL (93.1%) and partial dependence IADL (81.7%). When assessing cognitive function, the mean MMSE score was 23.5 points ( $\pm 3.242$ ). (Table 3).

**Table 1 -** Stratification of elderly according to socioeconomic and demographic conditions and factors associated with functional family residing in in the city of Goiânia (GO), 2010 (n = 131)

Variables	n (%)	Functional Family n (%)	Dysfunctional Family n (%)	RP (IC95%)	p-value
Gender					
Male	50 (38.2)	45 (90.0)	5 (10.0)	1.00	
Female	81 (61.8)	73 (90.1)	8 (9.9)	1.00 (0.89-1.12)	0.601
Marital status					
Married	51 (38.9)	47 (92.2)	4 (7.8)	1.04 (0.93-1.16)	0.519
Single	8 (6.1)	4 (50.0)	4 (50.0)	0.54 (0.27-1.08)	0.003*
Widow	66 (50.4)	63 (95.5)	3 (4.5)	1.13 (1.01-1.27)	0.061
Separated	5 (3.8)	3 (60.0)	2 (40.0)	1.00	
Education					
Illiterate	23 (17.6)	18 (78.3)	5 (21.7)	0.85 (0.68-1.06)	0.053
Literate	10 (7.6)	9 (90.0)	1 (10.0)	1.00 (0.81-1.24)	0.737
Primary school	78 (59.5)	75 (96.2)	3 (3.8)	1.19 (1.04-1.37)	0.004*
Secondary school	15 (11.5)	11 (73.3)	4 (26.7)	0.80 (0.58-1.08)	0.049*
Higher education	4 (3.1)	4 (100.0)	0 (0.0)	1.00	

To be continued

Table 1 (cont.)

Variables	n (%)	Functional Family n (%)	Dysfunctional Family n (%)	RP (IC95%)	p-value
Household resident					
Living alone	13 (9.9)	9 (69.2)	4 (30.8)	0.72 (0.50-1.04)	0.026*
With partner	21 (16.0)	20 (95.2)	1 (4.8)	1.07 (0.95-1.20)	0.340
With kids	21 (16.0)	20 (95.2)	1 (4.8)	1.07 (0.95-1.20)	0.340
With partner and kids	22 (16.8)	20 (90.9)	2 (9.1)	1.00	
With partner/kids/other	53 (40.5)	48 (90.6)	5 (9.4)	1.01 (0.90-1.13)	0.905
Has kids					
Yes	121 (92.4)	112 (92.6)	9 (7.4)	1.67 (0.93-3.00)	0.005*
No	9 (6.9)	5 (55.6)	4 (44.4)	1.00	
Income					
Up to 1 MW	39 (29.8)	33 (84.6)	6 (15.4)	1.00	
1-3 MW	40 (30.5)	36 (90.0)	4 (10.0)	1.01 (0.89-1.15)	0.561
> 3 MW	42 (32.1)	39 (92.9)	3 (7.1)	1.06 (0.94-1.20)	0.272
Source of income					
Retirement	73 (55.7)	63 (86.3)	10 (13.7)	0.91 (0.82-1.02)	0.242
Pension	23 (17.6)	21 (91.3)	2 (8.7)	1.00	
Other	30 (23.0)	29 (96.67)	1 (3.33)	1.10 (1.00-1.22)	0.133
Housing					
Own	108 (82.4)	100.0 (92.6)	8 (7.4)	1.20 (0.95-1.51)	0.044*
Rented	12 (9.2)	9 (75.0)	3 (25.0)	0.82 (0.59-1.14)	0.101
Borrowed	10 (7.6)	8 (80.0)	2 (20.0)	1.00	

\*p-value < 0,05. PR: prevalence ratio; 95%CI: 95% confidence interval; MW: minimum wage<sup>1</sup>

**Table 2** - Family Functionality and self-perception of disease, hospitalization and oldest old falls in the city of Goiânia (GO), 2010 (n = 131)

Variables	n (%)	Functional Family n (%)	Dysfunctional Family n (%)	RP (IC95%)	p-value
Self-perception of health					
Great/good	53 (40.4)	49 (92.45)	4 (7.55)	1.00	
Regular	59 (45.0)	54 (91.5)	5 (8.5)	1.06 (0.94-1.20)	0.529
Poor/very poor	12 (9.2)	8 (66.7)	4 (33.3)	0.72 (0.48-1.09)	0.022*
Pain					
Yes	77 (58.8)	69 (89.6)	8 (10.4)	0.99 (0.88-1.11)	0.831
No	54 (41.2)	49 (90.7)	5 (9.3)	1.00	
Self-reported disease					
Hypertension					
Yes	79 (60.8)	69 (87.3)	10 (12.7)	0.93 (0.83-1.04)	0.220
No	50 (38.5)	47 (94.0)	3 (6.0)	1.00	
Diabetes					
Yes	20 (15.3)	17 (85.0)	3 (15.0)	0.93 (0.77-1.13)	0.315
No	111 (84.7)	101 (91.0)	10 (9.0)	1.00	
COPD					
Yes	19 (14.5)	18 (94.7)	1 (5.3)	1.06 (0.94-1.20)	0.405
No	112 (85.5)	100 (89.3)	12 (10.7)	1.00	
Stroke					
Yes	10 (7.6)	9 (90.0)	1 (10.0)	1.00 (0.81-1.24)	0.662
No	121 (92.4)	109 (90.1)	12 (9.9)	1.00	
Musculoskeletal disease					
Yes	29 (22.1)	26 (89.7)	3 (10.3)	1.00 (0.87-1.15)	0.602
No	99 (75.6)	89(89.9)	10 (10.1)	1.00	

To be continued

1 The minimum wage in Brazil corresponds to R\$788,00 reais or U\$273,42 dollars according to the Central Bank of Brazil on February 26th, 2015.

Table 2 (cont.)

Variables	n (%)	Functional Family n (%)	Dysfunctional Family n (%)	RP (IC95%)	p-value
Osteoporosis					
Yes	48 (36.6)	46 (95.8)	2 (4.2)	1.10 (1.00-1.22)	0.080
No	83 (63.4)	72 (86.7)	11 (13.3)	1.00	
Cancer					
Yes	9 (6.9)	9 (100.0)	-	1.12 (1.05-1.19)	0.378
No	122 (93.1)	109 (89.3)	13 (10.7)	1.00	
AMI					
Yes	7 (5.3)	7 (100.0)	-	1.12 (1.05-1.19)	0.469
No	123 (93.9)	110 (89.4)	13 (10.6)	1.00	
Visual impairment					
Yes	119 (90.8)	106 (89.1)	13 (10.9)	0.89 (0.84-0.95)	0.268
No	12 (9.2)	12 (10.2)	-	1.00	
Hearing impairment					
Yes	62 (47.4)	57 (92.0)	5 (8.0)	1.04 (0.93-1.17)	0.482
No	68 (51.9)	60 (88.2)	8 (11.8)	1.00	
Falls					
Yes	54 (41.2)	52 (96.3)	2 (3.7)	1.13 (1.01-1.25)	0.085
No	76 (58.0)	65 (85.5)	11 (14.5)	1.00	
Seeking health service					
Yes	92 (70.2)	87 (94.6)	5 (5.4)	1.21 (1.01-1.44)	0.009*
No	37 (28.2)	29 (78.4)	8 (21.6)	1.00	
Hospitalization in the last 12 months					
Yes	34 (26.0)	32 (94.1)	2 (5.9)	1.07 (0.96-1.20)	0.255
No	91 (69.5)	80 (87.9)	11 (12.1)	1.00	

\*p-value < 0.05. PR: prevalence ratio; 95%CI: 95% confidence interval; COPD: chronic obstructive pulmonary disease; AMI: acute myocardial infarction.

**Table 3 -** Family functionality according to the presence of caregiver, functional capacity and Mini Mental State Examination (MMSE) in the oldest old in the city of Goiânia (GO), 2010 (n = 131)

Variables	n (%)	Functional Family n (%)	Dysfunctional Family n (%)	RP (IC95%)	p-value
Needs help					
Yes	69 (52.7)	62 (89.9)	7 (10.1)	1.00 (0.89-1.12)	0.814
No	61 (46.6)	55 (90.2)	6 (9.8)	1.00	
Has someone to help					
Yes	72 (55.0)	67 (93.1)	5 (6.9)	1.09 (0.96-1.24)	0.253
No	54 (41.2)	46 (85.2)	8 (14.8)	1.00	
BADL					
Totally independent	122 (93.1)	110 (90.2)	12 (9.8)	1.01 (0.80-1.29)	0.621
Partially dependent	8 (6.1)	8 (100.0)	-	1.12 (1.05-1.19)	0.422
Totally dependent	1 (0.8)	-	1 (100.0)	1.00	
IADL					
Totally independent	24 (18.3)	21 (87.5)	3 (12.5)	1.00	
Partially dependent	107 (81.7)	97 (90.65)	10 (9.35)	1.04 (0.88-1.22)	0.438
Totally dependent	-				
Education					
Illiterate	17 (16.8)	14 (82.4)	3 (17.6)	0.90 (0.71-1.13)	0.221
1-4 years	55 (54.5)	49 (89.1)	6 (10.9)	0.98 (0.86-1.11)	0.488
5-8 years	18 (17.8)	17 (94.4)	1 (5.6)	1.06 (0.93-1.21)	0.434
9-11 years	4 (4.0)	4 (100.0)	-	1.00	
> 11 years	7 (6.9)	7 (100.0)	-	1.12 (1.04-1.20)	0.470

\*p-value < 0,05. PR: prevalence ratio; 95%IC: 95% confidence interval; DLBA: Daily Life Basic Activities; IADL: Instrumental Activities of Daily Living.

Family dynamics expressed by FF was estimated at 90.1% (n = 118). DF was estimated at 9.9% (n = 13), divided in 5.3% with MDF (n=7) and 4.6% (n = 6) with SDF. The average score was 9.06 points (± 2.067).

Regarding Family APGAR domains, the first domain, “I am satisfied, because I can count on my family in case I need help when there is a disturbance or preoccupation” referred to the adaptation component. In this matter, 5 (3.8%) oldest old reported never being satisfied with the family member about the care received, 12 (9.2%) responded sometimes and 114 (87.2%) were always pleased to able to rely on family for help when needed.

The second domain referred to the Partnership component, “I am satisfied with the way my family and I talk and share problem”. In this domain, 6 (4.6%) oldest old reported never being satisfied with the ability of the family to share decisions and responsibilities, 9 (6.9%) responded sometimes and 116 (88.5%) responded they were always satisfied with communication between his/her family members, as well as protection and food intended for them. This was the domain with the highest percentage of acceptability of the oldest old.

The third area, “I am satisfied with the way my family accepts and supports my desires to begin or to search for new activities and to search for new paths and directions”, referred to the Growth domain. In this item, 6 (4.6%) oldest old reported never being satisfied with the way the family unit was managed, both in the structural and emotional areas, 16 (12.2%) responded sometimes and 109 (83.2 %) were always satisfied with the way which his/her family helped him/her.

The fourth domain, “I am satisfied with the way my family demonstrates affection and reacts to my emotions, such as anger, regret or love” referred to the Affection domain. In this item, 3 (2.3%) oldest old reported never being satisfied with the way the family unit was managed, both in the structural and emotional areas, 15 (11.5%) answered sometimes and 113 (86.3 %) were always satisfied with the care for the emotional interactions in the family context.

The fifth area, “I am satisfied with the way my family and I spend time together”, referred to the Resolve domain in the family unit. In this latter domain, 5 (3.8%) oldest old reported never being satisfied with the response capacity of their family, 21 (16.0%) answered sometimes and 105 (80.2%) were always satisfied with the time they shared.

In the univariate analysis, we

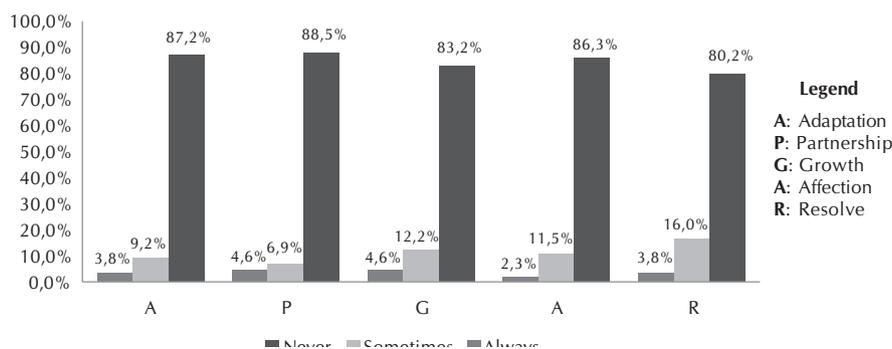
associated FF in the oldest old block 1: single (p=0.003), primary school level (p=0.004), secondary school level (p = 0.004), lives alone (p=0.026), has children (p=0.005) in own house (p=0.044). We associated to Block 2: poor/very poor self-reported health (p=0.022) and seeking health services (p=0.009). After Poisson multivariate analysis remained associated FF to the exposure variables: poor/very poor health (PR: 1.33; 95% CI: 1.13-1.57), osteoporosis (PR: 1.11; 95% CI: 1,02-1,21) and falls (PR: 1.14; 95% CI: 1.06-1.23) (Table 4).

**DISCUSSION**

Most oldest old reported family dynamic with FF, demonstrating that the family was able to care for their elderly, as found in other studies<sup>(9,14-15)</sup>.

Among the domains of Family APGAR, FF was estimated in the Partnership domain, followed by adaptation, indicating that there is a greater family care for the elderly in relation to sharing decisions, responsibilities, protection and affection facing family stress situations, regarding family balance. Regarding time shared and problem solving, this domain was reported by the elderly as less attention by family members,

**Figure 1 -** Family dynamics of the oldest old for the domains Adaptation, Partnership, Growth, Affection and Resolve (APGAR) of Families in the city of Goiânia (GO), 2010 (n = 131)



**Tabelas 4 -** Predictor variables that remained associated with the Family Functionality in the oldest old in the city of Goiânia (GO), 2010 (n = 131)

Variables	RP (IC95%) crude	p-value*	RP (IC95%) adjusted	p-value*
Self-perceived health				
Great/good	1.00		1.00	
Regular	1.06 (0.94-1.20)	0.529	1.00	
Poor/very poor	0.72 (0.48-1.09)	0.022*	1.33 (1.13-1.57)	0.000*
Osteoporosis				
Yes	1.10 (1.00-1.22)	0.080	1.11 (1.02-1.21)	0.014*
No	1.00		1.00	
Falls				
Yes	1.13 (1.01-1.25)	0.085	1.14 (1.06-1.23)	0.000*
No	1.00		1.00	

\*p-value < 0,05. PR: prevalence ratio; 95%IC: 95% confidence interval

On the other hand, this result suggests a vertical analysis of relationships and intergenerational living, as this greater contact with the elderly and greater family care demands can lead to DF by the impact of chronic diseases, in addition to triggering conflicts and dissatisfaction on the part of the elderly, who can promote changes of intra-family roles and main caregiver selection<sup>(17)</sup>. In this context, we highlight the ischemic heart disease, stroke (CVA), visual impairment and chronic obstructive pulmonary diseases (COPD)<sup>(4)</sup>.

Regarding self-reported health conditions, the elderly who reported worse health conditions showed a better family dynamics. It is known that the family is decisive for a successful aging process and the elderly quality of life (QOL)<sup>(18-19)</sup>. In this context of aging and self-reported health conditions, there is a higher consumption of health services to the elderly, which is related to the individual's life path, resulting in lifestyle<sup>(4)</sup>, showing that the association between health and behaviour throughout life influences the QOL of elderly and the FF<sup>(20)</sup>.

In other words, aging and FF influence the QOL of people, that is, the higher the FF, the better QOL, and the older they get, the worse is their QOL<sup>(21)</sup>. The role of intra-family support in the elderly QOL proved to be a motivation factor for QOL and better health<sup>(22)</sup>. In this sense, the oldest old generation, because they are not homogeneous, requires vertically integrated policies to the real needs, considering gender, ethnicity, education, income and health<sup>(1)</sup>.

No studies that associate FF by Family APGAR and osteoporosis were found. However, the association between FF and osteoporosis may reflect family dynamics, as appropriate environments for physical activity, social support and infrastructure

contribute to a more active behaviour and therefore greater functional independence and improved QOL<sup>(23)</sup>.

Regarding FF and the exposure variable falls, it is known that it can worsen the health status, on a downward spiral, resulting in long-term care due to the increased possibility of dependence, loss of autonomy, confusion, immobilization, depression and death<sup>(4)</sup>. These factors can influence the FF and changing family dynamics, due to increased demand for attention, the changing roles and new styles of family relationships<sup>(9)</sup>.

## CONCLUSION

After multivariate analysis, the Family Functionality, in the oldest old, remained associated with self-perceived poor/very poor health, osteoporosis and falls. These results fill a gap in the literature, since this ground breaking research in the Brazilian Midwest also allows better characterization of the oldest old on Family Functionality.

Given the demographic and epidemiological transition experienced in contemporary times, the elaboration and the applicability of existing public policies to the real needs of low income women are necessary. Therefore, the results contribute to clinical practices for better planning and family strengthening in home care with support and care of Nursing professionals engaged in primary care, that is, in home care, family should be prioritized as a caregiver and partner in the care of these people.

However, methodological limitations of this study should be considered, especially the cross-sectional design, which did not allow causal relationship inferences between Family Functionality and associated factors.

## REFERENCES

1. United Nations Population Fund (UNFPA). Ageing in the Twenty-First Century. A Celebration and a Challenge [Internet]. UNFPA; 2012 [acesso em 29 de setembro de 2014]. Disponível em: <http://unfpa.org/ageingreport/>.
2. Instituto Brasileiro de Geografia e Estatística (IBGE). População total - Goiás. Contagem da População 2010. Censos, 2010. [Internet]. Brasília, DF: Ministério do Planejamento, Orçamento e Gestão (BR); 2011 [acesso em 29 de setembro de 2014]. Disponível em: [http://www.ibge.gov.br/home/estatistica/populacao/censo2010/tabelas\\_pdf/total\\_populacao\\_goiias.pdf](http://www.ibge.gov.br/home/estatistica/populacao/censo2010/tabelas_pdf/total_populacao_goiias.pdf)
3. Gomes MMF, Turra CM, Fígoli MGB, Duarte YAO, Lebrão ML. Associação entre mortalidade e estado marital: uma análise para idosos residentes no Município de São Paulo, Brasil, Estudo SABE, 2000 e 2006. Cad Saúde Pública [Internet]. 2013 [acesso em 29 de setembro de 2014];29(3):566-78. Disponível em: [http://www.scielo.org/scielo.php?script=sci\\_arttext&pid=S0102-311X2013000700014&lng=en](http://www.scielo.org/scielo.php?script=sci_arttext&pid=S0102-311X2013000700014&lng=en)
4. World Health Organization (WHO). Good health adds life to years. Global brief for World Health Day 2012 [Internet]. WHO; 2012 [acesso em 29 de setembro de 2014]. Disponível em: [http://www.who.int/ageing/publications/upcoming\\_publications/en/index.html](http://www.who.int/ageing/publications/upcoming_publications/en/index.html)
5. Moragas RM. Gerontologia social. Envelhecimento de qualidade de vida. São Paulo: Paulínea; 2010.
6. Sayão R. Filhos... melhor não tê-los? In: Aquino JG, Sayão R, Rizzo S, Taille Y de L, editores. Família e educação: quatro olhares. Campinas (SP): Papyrus; 2011. p. 17-48.
7. Duarte YAO. Família: rede de suporte ou fator estressor. A ótica de idosos e cuidadores familiares. [Tese]. São Paulo: Escola de Enfermagem da USP; 2001.
8. Smilkstein G. The family APGAR: a proposal for a family function test and its use by physicians. J Fam Practice. 1978;6(6):1231-9.
9. Gonçalves LHT, Costa MAM, Martins MM, Nassar SM, Zunino R. A dinâmica da família de idosos mais idosos no contexto do Porto, Portugal. Rev. Latino-Am Enfermagem [Internet]. 2011 [acesso em 29 de setembro de 2014];19(3):9 telas. Disponível em: [http://www.scielo.br/pdf/rlae/v19n3/pt\\_03.pdf](http://www.scielo.br/pdf/rlae/v19n3/pt_03.pdf)
10. Katz S, Ford AB, Moskowitz RW, Jackson BA, Jaffe MW. Studies of illness in the aged: the index of ADL: a standardized measure of biological and psychosocial function. JAMA. 1963;185(12):914-9.
11. Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living.

- Gerontologist. 1969;9(3):179-86.
12. Brucki SMD, Nitrini R, Caramelli P, Bertolucci PHF, Okamoto IH. Sugestões para o uso do mini-exame do estado mental no Brasil. *Arq Neuropsiquiatr*. 2003;61(3B):777-81.
  13. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Envelhecimento e saúde da pessoa idosa. Brasília, DF: Ministério da Saúde; 2007.
  14. Santos AA, Pavarini SCI. Funcionalidade familiar de idosos com alterações cognitivas em diferentes contextos de vulnerabilidade social. *Rev Eletr Enf [Internet]*. 2011 [acesso em 29 de setembro de 2014];13(2):361-7. Disponível em: <http://www.fen.ufg.br/revista/v13/n2/v13n2a24.htm>
  15. Polaro SHI, Gonçalves LHT, Nassar SM, Lopes MMB, Ferreira VF, Monteiro HK. Dinâmica da família no contexto dos cuidados a adultos na quarta idade. *Rev Bras Enferm [Internet]*. 2013 [acesso em 29 de setembro de 2014];66(2):228-33. Disponível em: <http://www.scielo.br/pdf/reben/v66n2/12.pdf>
  16. Navarro R, Duarte YAO, Lebrão ML, Nunes DP. Envelhecimento e funcionalidade familiar: panorama do município de São Paulo/SP- Estudo SABE. Programa de Iniciação Científica-Universidade de São Paulo 2009-2010. São Paulo; USP: 2010.
  17. Santos AL, Cecílio HPM, Teston EF, Marcon SS. Conhecendo a funcionalidade familiar sob a ótica do doente crônico. *Texto Contexto Enferm [Internet]*. 2012 [acesso em 29 de setembro de 2014];21(4):879-86. Disponível em: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0104-07072012000400019&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-07072012000400019&lng=en)
  18. Gonçalves LH, Nassar SM, Daussy MFS, Santos SMA, Alvarez AM. O convívio familiar do idoso na quarta idade e seu cuidador. *Cienc Cuid Saude [Internet]*. 2011 [acesso em 29 de setembro de 2014];10(4):746-54. Disponível em: <http://www.periodicos.uem.br/ojs/index.php/CiencCuidSaude/article/view/18319>
  19. Paiva ATG, Bessa MEP, Moraes GLA, Silva MJ, Oliveira RDP, Soares AMG. Avaliação da funcionalidade de famílias com idosos. *Cogitare Enferm [Internet]*. 2011 [acesso em 29 de setembro de 2014];16(1):22-8. Disponível em: <http://ojs.c3sl.ufpr.br/ojs/index.php/cogitare/article/viewFile/21107/13933>
  20. Lim AT, Manching I, Penserga EG. Correlation between Family APGAR scores and health-related quality of life of Filipino elderly patients with knee osteoarthritis. *Int J Rheum Dis*. 2012;15(4):407-13.
  21. Andrade A, Martins R. Funcionalidade familiar e qualidade de vida dos idosos. *Millenium*. [Internet]. 2011 [acesso em 29 de setembro de 2014];40:185-99. Disponível em: <http://www.ipv.pt/millenium/Millenium40/13.pdf>
  22. Marques EMBG, Sánchez CS, Vicário BP. El apoyo como factor promotor de la calidad de vida de la persona mayor. *Pedagogía social. Revista interuniversitaria [Internet]*. 2013 [acesso em 29 de setembro de 2014];23:253-71. Disponível em: [http://www.upo.es/revistas/index.php/pedagogia\\_social/article/view/683/647](http://www.upo.es/revistas/index.php/pedagogia_social/article/view/683/647)
  23. Giehl MWC, Scheider IJC, Corseul HX, Benedetti TRB, d'Orsi E. Physical activity and environment perception among older adults: a population study in Florianópolis, Brazil. *Rev Saúde Pública [Internet]*. 2012 [acesso em 29 de setembro de 2014];46(3):516-25. Disponível em: [http://www.scielo.br/pdf/rsp/v46n3/en\\_2699.pdf](http://www.scielo.br/pdf/rsp/v46n3/en_2699.pdf)