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Quality of life of elderly hypertensive and diabetics of the community: an observational study

Qualidade de vida de idosos hipertensos e diabéticos da comunidade: um estudo observacional

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RESUMO | INTRODUÇÃO: O envelhecimento da população brasileira provocou modificações no perfil das morbidades, aumentando as doenças crônicas não transmissíveis (DCNT), principalmente hipertensão e diabetes, interferindo na qualidade de vida. **OBJETIVO:** Avaliar a qualidade de vida de idosos hipertensos e diabéticos da comunidade, analisar suas correlações e caracterizar o perfil desses idosos. **MATERIAIS E MÉTODO:** Estudo observacional, transversal, com 108 idosos da comunidade com 60 anos ou mais. Na coleta de dados, aplicaram-se questionários sociodemográficos, antropométricos, de morbidades, avaliação do comprometimento cognitivo, por meio do Mini Exame do Estado Mental, e da qualidade de vida por meio do WHOQOL-OLD. Os dados foram submetidos à estatística descritiva, análise de variância para comparação de médias entre os grupos e correlação de Pearson para testar a associação da qualidade de vida com o quantitativo de DCNT. **RESULTADOS:** A média de idade foi 70±6 anos, predominância do sexo feminino (85,2%); baixa escolaridade (75,8%); baixa renda (51,9%); morando com familiares (80,6%) e casados (46,3%). Em relação às DCNT, 37,0% eram hipertensos, 18,5% diabéticos e 14,8% tinham associação das duas. Os idosos sem DCNT apresentaram médias do WHOQOL-OLD maiores que os demais grupos com pelo menos uma DCNT e houve correlação negativa da quantidade de DCNT e a qualidade de vida. **CONCLUSÃO:** DCNT influenciam negativamente a qualidade de vida dos idosos, sendo que idosos sem DCNT apresentaram melhor qualidade de vida, comparados aos hipertensos, diabéticos ou com associação de ambas e, o medo de morrer foi a variável que apresentou maior interferência na qualidade de vida dos idosos.

PALAVRAS-CHAVE: Idoso. Qualidade de vida. Doenças Crônicas Não Transmissíveis.

ABSTRACT | INTRODUCTION: With the aging of the Brazilian population, there was a change in the morbidity profile, with a consequent increase in chronic noncommunicable diseases (CNCD) **OBJECTIVE:** To evaluate the quality of life of elderly diabetic and hypertensive in the community and characterize the profile of these elderly people. **MATERIALS AND METHODS:** 108 elderly subjects were investigated in a cross-sectional observational study. Data collection included questionnaires containing sociodemographic, anthropometric and self-reported morbidity data, as well as the evaluation of cognitive impairment through the Mini Mental State Examination and quality of life through the WHOQOL-OLD. Data were submitted to descriptive statistics, analysis of variance for comparison of means between groups and Pearson correlation to test the association of quality of life with the quantitative of CNCD. **RESULTS:** Mean age 70 ± 6, predominantly female (85.2%); low schooling (75.8%); low income (51.9%); living with relatives (80.6%) and married (46.3%). They were hypertensive (37.0%), diabetics (18.5%) and both (14.8%). Elderly non-CNCD had WHOQOL-OLD averages higher than the other groups with at least one CNCD, and there was a moderate and statistically significant negative association of the amount of CNCD and quality of life. **CONCLUSION:** CNCD negatively influence the quality of life of the elderly, and the elderly without chronic disease presented better quality of life when compared to the elderly with the presence of hypertension, diabetes or both, and the fear of dying was the variable that presented greater interference in the quality of life of the elderly.

KEYWORDS: Elderly. Quality of life. Chronic Non Communicable Diseases.

Introduction

The aging process of the Brazilian population is one of the most significant phenomena today and has been occurring intensely in recent years as a consequence of the demographic dynamics, which profoundly affected the age composition of the Economically Active Population. This demographic transition, which still in the process of development, has led to a considerable reduction in fertility and birth rates and a progressive increase in life expectancy[1].

During the socioeconomic transformations there was a change in the morbidity profile of the Brazilian population with a consequent significant increase in chronic non-communicable diseases (CNCD), including systemic arterial hypertension (SAH) and diabetes mellitus (DM), both prevalent and considered as an important public health problem[2].

In this sense, quality of life has become more valued and the importance of its evaluation has been progressively more recognized and incorporated into scientific research[3], whereas that the World Health Organization (WHO) defines quality of life as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns"[4].

The CNCD of multifactorial and noninfectious origin, are considered an important health problem, mainly in developing countries[5], and due to the increase in the incidence of elderly affected by these diseases[6], it is necessary to search constantly for studies that stimulate public policies aimed at promoting the health and quality of life of this population, providing a reduction in the overload on the health services and minimizing the complications caused by these diseases[7]. In view of the above, the present study aims to evaluate the quality of life of the elderly with hypertension, diabetes, both conditions (hypertension and diabetes) and without CNCD living in the community, comparing the means of quality of life scores of these four conditions and analyzing the correlation between them, and characterize the profile of these elderly.

Methods

This is a cross-sectional, observational study with a descriptive and analytical approach on the quality of life of elderly with chronic non-communicable diseases from the community. This research was based on data from a larger study that verified the effect of a home physical exercise program on the quality of sleep of the elderly from the community, which was developed by researchers linked to the "Quality of life and healthy aging" (QUALES) research group from the Universidade do Estado da Bahia, Ba, Brazil. The design and conduct of this study followed the recommendations of the Reporting of Observational Studies in Epidemiology (STROBE).

The data collection was performed from July to December 2015, after approval by the Ethics Committee for research involving human from the Escola Bahiana de Medicina e Saúde Pública - EBMSP, with CAAE: 39072514.6.0000.5544. All participants of this study agreed to participate and signed the informed consent form.

Elderly with 60 years or older residing in the municipality of Senhor do Bonfim in the northern region of Bahia, Brazil, participated in the study. Recruitment took place throughout the community, initially through the dissemination of the research in local newspapers, radios, religious centers, elderly meeting groups, senior residency, neighborhood association, and the senior citizen project developed by the municipal government. In this ad was provided a telephone so that the interested ones contacted the research team. Inclusion criteria were: elderly subjects of both genders aged 60 and over from the community. It was excluded: participants with cognitive decline according to the Mini-Mental State Exam (MMSE)[8].

The data were collected in an appropriate room through an interview and in a single session, and was obtained the self-reported morbidities, sociodemographic and anthropometric characteristics. It was applied the instruments for cognitive impairment assessment (MMSE)[8] and quality of life (WHOQOL-OLD)[9].

In the verification of anthropometric variables, body mass was obtained using a Welmy® scale with a capacity of 150 kilograms (Kg); the heigh in meters (m) was measured by means of a vertical stadiometer attached to the scale; to measure abdominal circumference (AC) was used an anthropometric, flexible and inelastic Cescorf® tape and the Body Mass Index (BMI) was calculated from the weight in kilograms divided by the height in meters squared. The AC measurements were collected at the lowest curvature localized between the ribs and the iliac crest at the end of the expiratory movement, and without compressing the tissues. The cut-off points adopted for the degree of risk for cardiovascular diseases were: increased risk for women (AC > 80cm) and for men (AC > 94cm)[10].

To evaluate the quality of life was used the World Health Organization Quality of Life Group-old (WHOQOL-OLD) questionnaire, which contains six facets of 4 items each, evaluated by the Likert scale (1 to 5 points): Facet I – "Sensory Abilities"; Facet II – "Autonomy"; Facet III – "Past, Present and Future Activities"; Facet IV – "Social Participation"; Facet V – "Death and Dying"; Facet VI – "Intimacy". Each of the facets has 4 items, so for all facets the score of the possible values can range from 4 to 20, and the scores of these six facets or the values of the 24 items can be combined to produce a "global" score for the quality of life in elderly[9].

The screening of cognitive impairment was performed through the Mini Mental State Exam, which is an instrument composed by questions in five dimensions: registration, language, orientation, recall and attention, containing a maximum score of 30 points. The cut-off points adopted were: 20 points for the illiterate, 25 points for the elderly with one to four years of study, 26.5 points for the elderly with five to eight years of study, 28 points for those with nine to eleven years of study and 29 points for those who had more than eleven years of study[8].

The questionnaires were applied by students of the third year of the Nursing course, who were previously trained in a systematic way and did not know the objectives of the research minimizing the risks of the measurement bias.

The sample was categorized into three groups according to the number of chronic diseases presented by the elderly: group without disease, group with one disease (hypertension or diabetes) and group with both diseases. This categorization made it possible to analyze the association of quality of life with the number of diseases.

The data were tested for normality through histogram, mean and median, standard deviation, asymmetry and kurtosis analysis, and for confirmation was used the Kolmogorov-Smirnov normality test, then they were subjected to descriptive analysis through absolute and percentage frequencies for categorical variables, and measures of central tendency and dispersion for numerical variables. In order to compare the quality of life score among the four groups (without CNCD, hypertensive, diabetic and with hypertension and diabetes), in each facet of the WHOQOL-OLD was used the One-Way ANOVA, followed by Tukey's multiple comparison test, and the magnitude of the difference between the groups was verified by the effect size calculated by Cohen's methodology (Cohen's d), which represents how much two means differ in terms of standard deviations[11]. The Pearson's correlation coefficient (r) was also used to analyze the association of quality of life with the quantitative of chronic diseases. For decision criteria, it was used the significance level of 5% ($p < 0.05$).

Results

One hundred and ninety-one potential participants were recruited from the community. Of this total, 28 refused to participate in the study and 55 were excluded according to the eligibility criteria, ending with 108 subjects. A summary of participants' flow over the study is presented in figure 1.

Figure 1. Flow diagram of participants throughout the study
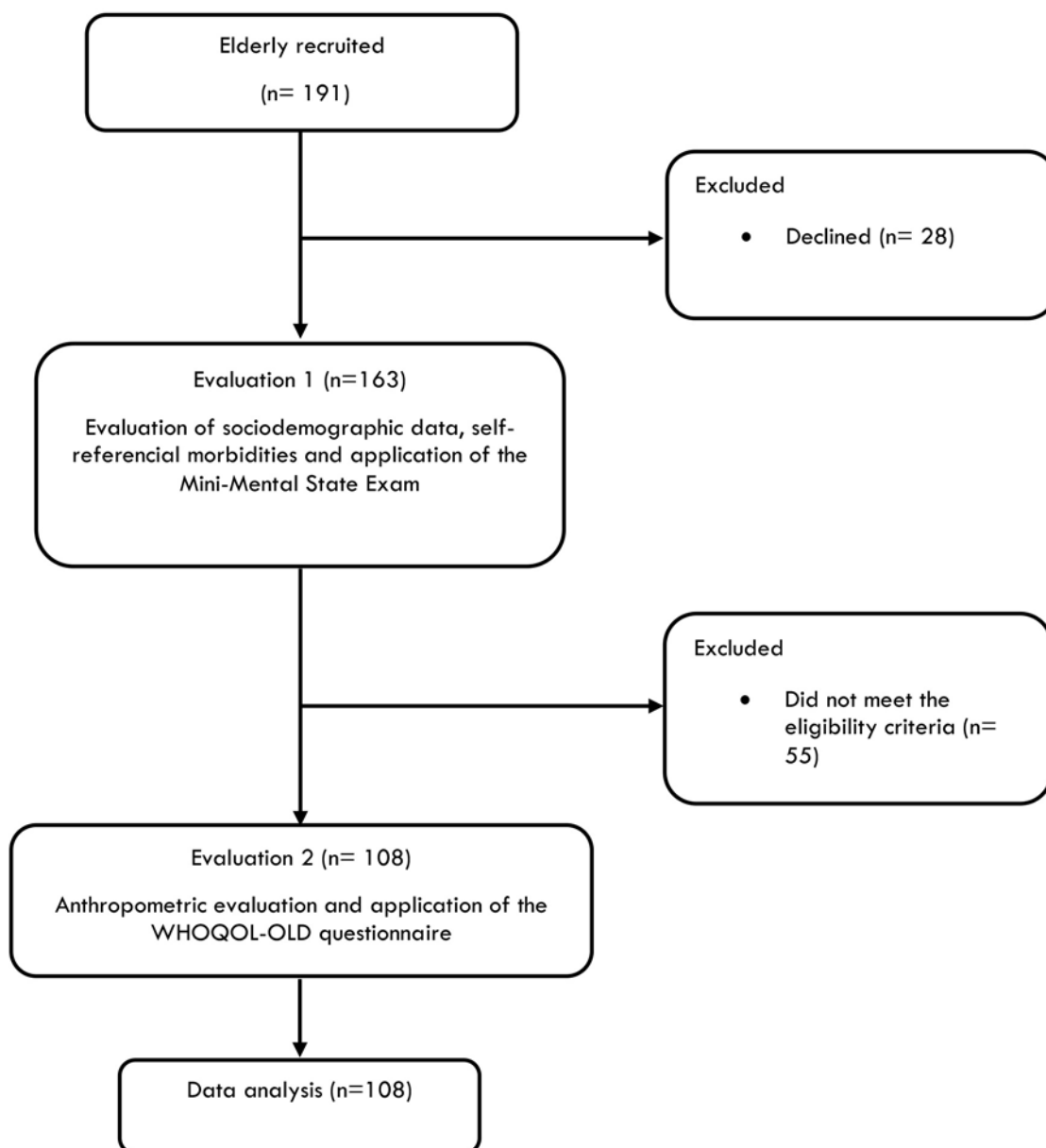
The sample of the present study consisted of 108 elderly people. As shown in table 1, there was a predominance of females (85.2%), the majority in the age group of 60 to 69 years with mean of 70 ± 6 years, presenting low education, being 63.7% with elementary school and 12.1% illiterates. The majority with low income (66.7% ≤ 2 minimum wages), living with relatives (80.6%) and married (46.3%). It was verified that 8.9% of the elderly were alcoholics, 6.5% were smokers and the majority (63.5%) participated in social programs.

Table 1. Sociodemographic characteristics of the subjects enrolled in the study. Senhor do Bonfim, BA, 2015

Sociodemographic characteristics	n (%)	Mean ± SD
Gender		
Female	93 (86.1)	-
Male	15 (13.9)	-
Age (years)	-	70 ± 6
60 a 69	63 (58.3)	-
70 a 70	35 (32.4)	-
≥ 80	10 (9.3)	-
Education (years)	-	5.3 ± 2.4
Illiterate	15 (13.9)	-
Elementary	63 (58.3)	-
High school	25 (23.1)	-
College	5 (4.6)	-
Monthly income per capita (MW)	-	1.8 ± 3.5
< 1 MW	16 (14.8)	-
1 a 2 MW	56 (51.9)	-
> 2 a 3 MW	26 (24.1)	-
> 3 MW	10 (9.3)	-
Family composition		
Lives alone	21 (19.4)	-
Lives with relatives	87 (80.6)	-
Marital status		
Singles	6 (5.6)	-
Married	50 (46.3)	-
Widow/Widower	43 (39.8)	-
Cohabiting	3 (2.8)	-
Divorced	6 (5.6)	-
Alcoholism		
Yes	10 (8.9)	-
No	98 (90.7)	-
Smoking		
Yes	7 (6.5)	-
No	101 (93.5)	-
Participation in social programs		
Yes	63 (52.9)	-
No	45 (37.8)	-

MW (minimum wage) at the time of the survey (in reais) = R$ 788.00 and SD = standard deviation

The mean weight of the elderlies was 64.6±10 kg, and the majority of women had an increased risk for cardiovascular disease (73.4%) with mean PAS of 138.5±23.2 and mean PAD of 83.3±10.7mmHg. Regarding self-reported morbidities most of the elderly had systemic arterial hypertension followed by diabetes mellitus (table 2).

Table 2. Anthropometric and clinical data of 108 elderlies. Senhor do Bonfim, BA, 2015

Variables	n (%)	Mean±SD
Weight	-	64.6±10
BMI (Kg/m²)		
Normal (18.5 a 24.9)	21 (19.4)	-
Overweight (25.0 a 29.9)	62 (57.4)	-
Obese (≥ 30)	25 (23.1)	-
Abdominal Circumference (cm)		
Women		
*Increased risk (AC ≥ 80 cm)	91 (73.4)	-
Men		
*Increased risk (AC ≥ 94 cm)	02 (1.6)	-
Systolic blood pressure	-	138.5±23.2
Diastolic Blood Pressure	-	83.3±10.7
Morbidities		
Without Morbidities	32 (29.6)	-
Hypertension	40 (37.0)	-
Diabetes	20 (18.5)	-
Diabetes and Hypertension	16 (14.8)	-

SD = Standard Deviation and *Increased risk for cardiovascular diseases

Table 3 presents the means and standard deviations of all facets and the global score of the WHOQOL-OLD for the groups of elderly without chronic disease and the presence of one or both diseases (hypertension and diabetes). The one-way analysis of variance demonstrated significant differences between the means of these groups in all quality of life assessment scores, and the group of the elderly without chronic disease presented higher averages than all the other groups, with statistical significance confirmed by the Tukey post hoc test (p < 0.01) and showing large effect size (d > 0.8).

Still referring to table 3, it is important to highlight that the facet related to the fear of dying presented the smallest means in all the groups, when compared to the other facets.

When performing the analysis of variance only between the means of the groups with the presence of one or both chronic diseases, it was verified that there was no significant difference in any of the facets nor in the global score of the WHOQOL-OLD.

Table 3. Descriptive analysis of the WHOQOL-OLD regarding to the chronic diseases of the 108 elderly involved in the study. Senhor do Bonfim, BA, 2015

Facet	Disease	n	Mean±SD	F	p^* (between the groups)
Sensory Abilities	WCD	32	17.8±2.8		
	SAH	40	15.2±3.1		
	DM	20	14.9±2.5	6.85	< 0.01
	SAH/DM	16	15.3±2.4		
Autonomy	WCD	32	16.4±2.0	15.91	< 0.01
	SAH	40	12.9±2.8		
	DM	20	13.1±1.9		
	SAH/DM	16	11.8±3.4		
Past, present and future activities	WCD	32	17.1±6.5	10.47	< 0.01
	SAH	40	14.4±3.0		
	DM	20	14.0±2.2		
	SAH/DM	16	13.6±1.8		
Social Participation	WCD	32	17.2±2.0	16.25	< 0.01
	SAH	40	14.3±2.9		
	DM	20	12.1±2.5		
	SAH/DM	16	14.7±2.9		
Death and dying	WCD	32	16.1±3.4	17.03	< 0.01
	SAH	40	12.4±4.3		
	DM	20	9.4±1.6		
	SAH/DM	16	10.8±3.2		
Intimacy	WCD	32	16.8±2.2	12.67	< 0.01
	SAH	40	14.3±3.3		
	DM	20	12.8±3.0		
	SAH/DM	16	12.0±3.1		
Global Score	WCD	32	101.7±12.0	32.5	< 0.01
	SAH	40	83.6±12.0		
	DM	20	75.1±7.8		
	SAH/DM	16	76.9±9.0		

Data in mean ± standard deviation; *One-way ANOVA (p<0.05). WCD: Without chronic disease; SAH: Systemic arterial hypertension; DM: Diabetes Mellitus.

After dividing the sample into three groups according to the amount of chronic diseases presented by the elderly, in which 0 corresponds to no chronic disease, 1 represents the group with only one of the diseases (hypertension or diabetes) and 2 represents the group with both diseases, it was performed the Pearson correlation analysis of the three groups with the WHOQOL-OLD global score, and identified the presence of moderate and statistically significant negative association with r = -0.50 and p < 0.001 (Figure 2).

Figure 2. Distribution in boxplot of the WHOQOL-OLD global score for each of the three groups, according to the number of chronic diseases presented by the elderly
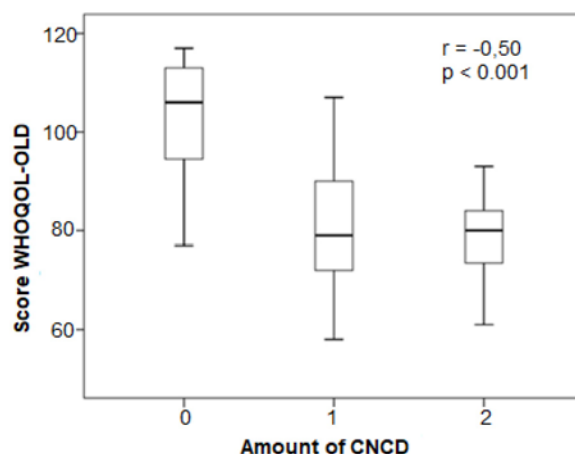
Discussion

When analyzing the results obtained in the present study, it was possible to perceive that the CNCD are related to the lower quality of life of the elderly. The WHOQOL-OLD scores, related to the groups studied in our sample, did not present uniform variations when compared to other studies[12,13]. However, when comparing the quality of life of the elderly without chronic diseases with those that present at least one CNCD, it is possible to verify convergence with a similar research carried out in the city of Uberaba/ Minas Gerais[14], in which the impact of the chronic disease on the quality of life of 3,198 elderly from the community was evaluated and concluded that the higher the number of chronic diseases, the worse the quality of life, in addition to verifying that the elderly without chronic disease present the best quality of life scores as demonstrated by the results of our study, in which the elderly without CNCD had higher quality of life scores than the scores of the elderly groups with systemic arterial hypertension, diabetes mellitus or the association of the two diseases.

Regarding the domains of the WHOQOL-OLD, the "Autonomy" facet related to the subjects' ability to live autonomously and make their own decisions presented a low score, which allows us to infer that the decline in functional capacity that occurs concomitantly with aging leads to losses in autonomy and contributes negatively to the quality of life of the elderly, and it is important to recognize their capabilities and potential and create conditions to promote autonomy, integration and effective participation in society[15,16].

The understanding of finitude from the perspective of the elderly can generate the sensation of the proximity of death. In the present study, the "Death or Dying" facet presented a lower score in relation to the other domains, as demonstrated in other studies that showed a positive association between the presence of chronic diseases and the fear of dying, since situations such as dependence, suffering and the presence of chronic diseases can cause concern about the way in which they will die, negatively interfering in the quality of life of the elderly[17].

The "Past, Present and Future Activities" and the "Intimacy" facets presented high scores, revealing that the elaboration and / or implementation of projects increase the self-esteem among the elderly, and can be intensified by the conjugal bond that allows feelings of companionship, dedication and intimacy, providing satisfaction in their achievements, goals achieved and projects during life, generating a positive impact on the quality of life of this population[14,15].

The "Sensory Abilities" and the "Social Participation" domains also presented high scores. The sensory abilities presented results within the expected, considering that the elderly had capacities of

interaction with the environment and other people, since the fact that they are frequenters of social programs increases the interactivity, helping them to maintain the biopsychosocial balance[17]. The great social participation detected in the present study reveals the way that the elderlies occupy their free time and the intensity of their social relations in the community, providing a satisfactory meaning on their quality of life as demonstrated in other studies, in which the elderlies felt that the losses in the senses do not affect their daily lives and that social interactions satisfy their needs[15].

Regarding the profile of the elderly, the predominance of the female gender is verified, which is justified by the fact that women present higher life expectancy due to lower exposure to risk factors for mortality due to external causes, lower exposure to licit drugs as alcohol and tobacco, and differences in attitudes about health care[18].

It was verified that the predominant age group is of a "young" elderly population, in agreement with other studies[19,20] and in line with the idea that population aging in developing countries is a relatively rapid and new process when compared to developed countries[20].

The majority of the elderly in our sample have only elementary education, associated to the low economic condition, which converges with data presented in important population-based studies[22,23]. Considering that the scientific evidence indicates the degree of schooling and the economic condition as being protective factors for public health, besides demonstrating that the elderly with less education can be more predisposed to develop chronic diseases, this low socioeconomic situation can directly and negatively influence the quality of life of this population[23].

In the present study, the majority of the elderly live with relatives, corroborating with other studies in which they demonstrated that, although there are cases of domestic violence against the elderly, the family life can be considered a fundamental condition for the improvement of physical and psychological health, because coexistence and family support can provide benefits that are directly related to the well-being and quality of life of this age group[24]. However, more than half of the elderly in our sample have a family income of one to two minimum wages, most of which comes from their retirement, a condition that is similar to other cross-sectional studies that have demonstrated the economic dependence of the relatives to the elderly, which may explain, in parts, the presence of the family living with them[25].

Regarding the central distribution of body fat, evaluated through the abdominal circumference, the majority of women presented an increased risk factor for cardiovascular diseases, configuring the higher prevalence of obesity among them. The high frequency of cardiovascular risk factors among the elderly, such as central obesity, systemic arterial hypertension and diabetes mellitus has already been evidenced by other studies carried out in Brazil[26,27]. This concentration of adiposity in the abdominal region is positively associated with the presence of chronic diseases, which may negatively influence the quality of life of the elderly[27].

The study presents limitations that should be considered. The cross-sectional design shows the reverse causality bias because it is not possible to obtain information regarding the natural history of the diseases and/or events; investigations were used in the elderly of varying degrees of schooling, which may interfere in the quality of the responses; self-reported morbidity assessment may not reliably reflect the participants' diagnosis; possible influence of other variables other than the CNCD on the quality of life of the elderly people, increasing the risk of bias.

Conclusion

Among the hypertensive and/or diabetic elderly from the community, there was a predominance of females, with a mean age of 70 ± 6 years, mostly of low socioeconomic class, low education, with an increased risk of cardiovascular diseases and living with relatives.

Chronic non-communicable diseases negatively influence the quality of life of the elderly, in which those without chronic disease presented better quality of life when compared to the elderly with

diabetes mellitus, hypertension or both, and it was found that the variable that presented the greatest interference on the quality of life of the elderly was related to the fear of dying. This information should stimulate public policies to develop strategies for the prevention and treatment of chronic diseases, enabling a higher quality of life for the elderly.

Author contributions

Borges JES participated in the conception of the study, the creation of the hypotheses, wrote the original proposal, participated in the collection and analysis of the data, prepared the manuscript and wrote the final version. Oliveira LVF participated in writing and critical analysis of the final version of the manuscript. Camelier AA participated in the writing and critical analysis of the final version of the manuscript. Brandão GS was responsible for designing and delineating the study, creating the hypotheses, wrote the original proposal and obtained ethical approval, participated in the collection and analysis of the data, prepared the manuscript and wrote the final version.

Competing interests

No financial, legal or political competing interests with third parties (government, commercial, private foundation, etc.) were disclosed for any aspect of the submitted work (including but not limited to grants, data monitoring board, study design, manuscript preparation, statistical analysis, etc.).

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