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Associated factors with negative health perception and quality of life of Brazilian older adults

Felipe Douglas Silva Barbosa[1], Danilo Barbosa Morais[1], Gilberto Santos Morais Júnior[1,2], Cristiane Kelly Aquino dos Santos[1], Ricardo Aurélio Carvalho Sampaio[1], Roberto Jerônimo do Santos Silva[1*]

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ABSTRACT

The purpose of this study was to analyze the factors associated with negative Health Perception and Quality of Life (QoL) of older adults. This was a cross-sectional study composed of 224 older adults with a median age of 70.58±6.43 years old. A questionnaire was designed to incorporate ABEP (socio-economic questionnaire), WHOQOL-bref, IPAQ, and Senior Fitness Test (SFT). Binary logistic regression with p>0.05, organized in univariate and multivariate models in SPSS version 22. Variables upper extremities poor flexibility OR = 2.43 (1.37 – 4.31) and lower extremities poor flexibility OR = 2.69 (1.54 – 4.69) were significantly associated with negative health perception. Being not financial responsible OR= 0.33 (0.12 – 0.85) presented lower odds of negative QoL perception. The variable Lower extremities poor flexibility univariate OR= 2.52 (1.45 – 4.39) and multivariate model OR= 2.42 (1.38 – 4.24) showed almost three times higher probabilities of negative QoL perception.

Keywords: Quality of life; Aging; Health perception.

INTRODUCTION

Regarding the unquestionable reality of Brazil's demographic and epidemiological changes that began in the last century, the aging population is facing difficulties in the health and social security systems. It is well known that, although the aging process is not necessarily related to diseases and disabilities (Miranda et al., 2016), it is perceived the challenges of the multiple health, psychosocial and economic issues that can be generated by the growth of an aging population (Canedo et al., 2018; Knapik et al., 2019)

To understand this problem, countries worldwide have sought to understand how this aging process occurs, its implications, and what actions should be taken from public policies to maintain older adults' integration into society. So, it is important to assure the importance of guaranteeing the older adults not only a greater survival but also a good Quality of Life (QoL), guaranteeing to these individuals public policies aimed at their physical, psychological and social well-being (Andrade et al., 2018; Rosa et al., 2016).

According to the World Health Organization, quality of life can be defined as "an individual's perception of their position in life in the context of the culture and value systems in which they live and concerning their goals, expectations, standards, and concerns". QoL includes a number of aspects, such as functional capacity, socio-economic level, emotional state, social interaction, intellectual activity, self-care, family support, health status, cultural, ethics and religion, lifestyle, satisfaction with the job and/or daily activities, and the environment in which one lives (de Oliveira et al., 2019; Noronha et al., 2016; Uchmanowicz & Gobbens, 2015).

[1] *Universidade Federal de Sergipe, São Cristóvão, Brasil*
[2] *Universidade de Brasília, Brasília, Brasil*
* *Autor correspondente*: Universidade Federal de Sergipe, Centro de Ciências Biológicas e da Saúde, Departamento de Educação Física. Av. Marechal Rondon S/N, Jd. Roza Elze, CEP: 49100000 - São Cristóvão, SE – Brasil.
E-mail: rjeronimoss@gmail.com

Among the factors that influence or compose the perception of quality of life, health is an important factor. Regarding the forms of health evaluation, the self-reported perception has been widely used in population studies because it indicates a better relationship with the actual health status of the individual (de Oliveira et al., 2019; Uchmanowicz & Gobbens, 2015). Health perception is an indicator used in health surveys that, although subjective, provides an effective, fast, and cost-effective measure on the health of population groups (MacLeod et al., 2016; Silva et al., 2012; Tkatch et al., 2017).

Thus, understanding the factors that influence older adults' health perception and quality of life indicates an important strategy to reduce the difficulties faced by this population. The expansion of knowledge of these factors may help in adopting preventive strategies and implementing public policies specifically aimed at mitigating the deleterious effects of certain determinants on the health status of the older adult population (Dao-Tran et al., 2018; Scarabottolo et al., 2019).

As a result of the geographic, population, cultural and socio-economic differences, more studies are needed to understand the factors associated with the perception of quality of life and health of older adults in different Brazil regions. Considering the relevance of the topic, this study has as main goal to analyze factors associated with the negative perception of health and quality of life of older adults of a city in the countryside of the northeast of Brazil.

METHODS

It is a descriptive study with a cross-sectional design. The descriptive studies aim to determine health conditions according to the time, place, and characteristics of individuals through data collected for the research development (Cavalcanti et al., 2018). Cross-sectional studies measure factor and effect at a particular historical moment, and they are useful for assessing the health needs of the population by providing indicators of trends and personal and demographic characteristics (Tolonen et al., 2006).

Population and sample

The study population was composed of 906 older people registered in the SIAB (Primary care information system) database (Pinto et al., 2018) of the urban and rural area from Cedro de São João – SE, mesoregion of Sergipe, micro-region of Propriá. Due to the easy access and convenience, the city of Cedro de São João was chosen to develop the study in which the Municipal Health Department showed support for the access of all data, facilitating the intervention procedure in its citizens.

It was included in the study individuals aged 60 years old and older registered in the SIAB database and participants of the primary care units' intervention groups and health gym of the city under study. Older individuals who had some physical or mental limitations to answer the questionnaire questions or perform the Senior Fitness Test were excluded.

Of the 906 eligible participants for the study, 233 were interviewed; however, for this analysis, nine interviews were excluded due to lack of sociodemographic and physical activity level data or physical weakness to perform the Senior Fitness Test, totaling the sample in 224 older adults. Participants were chosen through convenience sampling, prevailing to the accessibility of these older adults to participate in the study.

All participants were informed of the aims, risks, and benefits. All procedures were done according to the National Health Council (CNS) resolution 510/2016 and based on the principles of the Helsinki Declaration of 1964, revised in October 2013. Participants signed a Free and Informed Consent Term (TCLE) approved by the Research Ethics Committee of the Federal University of Sergipe under the number CAAE-0213.0.107.000-11 of July 18, 2011.

Instruments

The instruments that evaluated the variables were compiled into a single document, as follows:

Identification questionnaire for socio-economic and epidemiological variables

The classification used to estimate participants' socio-economic status was proposed by the Brazilian Association of Research Companies (Ribas Jr et al., 2003). This instrument estimates individuals and families' purchasing power, abandoning the claim to classify the population in terms of social classes.

The WHOQOL-bref instrument assesses the perception of quality of life in adults. It is consists of 26 questions, with first and second questions about general health satisfaction and quality of life, and the answers follow a Likert scale (from 1 to 5, the higher the score, the better the health perception and quality of life). The other 24 facets comprise four domains of quality of life: physical, psychological, social relations, and environment (Fleck et al., 2000).

The International Physical Activity Questionnaire (IPAQ)

IPAQ was another instrument used which estimates the levels of physical activity, establishing four categories of classification: "very active", "active", "irregularly active" and "sedentary", proposed by the World Organization (WHO) in 1998. It was validated in a sample of the Brazilian population by the CELAFISCS (Physical Fitness Laboratory Studies Center of São Caetano do Sul) (Matsudo et al., 2001).

Senior Fitness Test

Senior Fitness Test (SFT) was used to evaluate the participants' physical fitness. This battery of tests measures the physical fitness of older adults to perform their activities of daily living (Rikli & Jones, 2013). It consists of six motor tests that assess: flexibility of the upper limbs measuring how close the hands can be brought together behind the back; flexibility of lower limbs with the elderly sitting on the edge of the chair trying to reach their toes with the hand; strength of the upper limbs with the individual sitting and flexing the forearm with the use of halter; strength of the lower limbs, with the movement of standing up and sitting on the chair; agility and dynamic balance, starting the test with the participant seated, then stands up, walks in 2.44m and finally returning to sit; and, aerobic fitness with the 6-minute walk test (Rikli & Jones, 2013).

Data collection

Initially, training was conducted with the Community Health Agents (ACS) for comprehension and clarification of the socio-economic questionnaire, WHOQOL-bref, and IPAQ. This training with the ACS was carried out in February 2016, with the data collection between March and May.

Data collection was divided into two stages. The first stage occurred between March and May when the ACS conducted the interview, either individually at the elderly's residence or in the Health Gym's intervention groups. Participants answered the socio-economic questionnaire, WHOQOL-bref, and IPAQ short version. In addition, it was scheduled the second stage's appointment.

In the second stage, the anthropometric measurements and physical fitness tests were performed. This stage was carried out by the researchers during June and July of 2016, utilizing the health gym's physical space and a sports court next to the gym. The anthropometric measurement obeyed the following sequence: height, body mass, waist and hip circumferences. Finally, a physical fitness test was performed using the Rikli and Jones protocol (Rikli & Jones, 2013), checking for upper and lower limb flexibility, upper and lower limb strength, agility and cardiorespiratory fitness.

This study belongs to the Project "Sociodemographic characteristics, cardiovascular risk and quality of life of older adults", approved by the Research Ethics Committee of the Federal University of Sergipe under the number CAAE-0213.0.107.000-11 of July 18, 2011.

Statistical analysis

An electronic spreadsheet was used to organize the database, and IBM SPSS Statistics for Windows, Version 22.0 (Armonk, NY: IBM Corp) was used for data analysis. The descriptive statistics were performed by simple frequency and percentage. For an easier interpretation of the data, some variables were dichotomized as described in Chart 1. Univariate and multivariate analyses were performed using binary logistic regression to identify associated factors with Negative Perception of Health and Quality of Life. In order to build the multivariate model, it was only considered the variables that obtained $p \leq 0.20$ in the univariate analysis. When necessary, the inverse ratio of OR (1 / OR) was used for better understanding. A significance level of $p < 0.05$ and a 95% confidence interval (CI) were considered.

Chart 1

Categorization of variables used in the study, 2016.

			DICOTOMIZATION	DICOTOMIZATION EXPLANATION
DEPENDENT VARIABLE	Quality of life perception		Bad Good	It was dichotomized as follows: answers with results between 1 and 3, "bad" perception was established, and answers with results 4 and 5 "good" perception was established. Questions 1 and 2 of the WHOQOL-bref instrument were utilized.
	Health satisfaction		Bad Good	
INDEPENDENT VARIABLE	**SOCIODEMOGRAPHIC VARIABLES**			
	Sex		Male Female	It was utilized the biological criteria.
	Age		Young old Middle/very old	It was calculated the Median (70 years), and dichotomized as follows: Young old ≤ 70 years old; Middle/very old > 70 years old
	Financially responsible		No Yes	It was classified as "yes" the individual financially responsible for the family and "no" when it does not happen.
	Family relationship		No Yes	It was classified as "yes" the participant who lives with relatives and it has a positive impact on its life and "no" when it does not happen.
	PHYSICAL FITNESS VARIABLES			
	Upper limbs flexibility		Poor Good	It was calculated the Median of the right and left upper limbs flexibility, and then a sum of them was performed. Finally, from this sum was established at the Median, being dichotomized in: "Good": ≥ 16,7 "Poor": < 16,7
	Lower limbs flexibility		Poor Good	It was calculated the Median of the right and left lower limbs flexibility, and then a sum of them was performed. Finally, from this sum was established at the Median, being dichotomized in: "Good": ≥ 0,0 cm "Poor": < 0,0 cm
	Agility		Poor Good	It was calculated the variable Median (6,6 seconds) and then dichotomized as follows: "Good": ≤ 6,6 seconds "Poor": ≥ 6,7 seconds
	PHYSICAL ACTIVITY VARIABLE			
	Physical fitness Activity		Active LPAL*	It was categorized as follows: "Active" – Participants classified as "very actives" e "actives". "LLPA" – Participants classified as "irregularly actives" e "sedentary".

*LLPA: Low Physical Activity Level

RESULTS

Sample characterization is described in Table 1, being the majority female, prevailing young, and retired older adults.

Table 1
Sample characterization. Cedro de São João – SE, 2016.

VARIABLES	N	%	CI 95%
Age group			
Less than 70 years old	116	51.8	(69.74–71.43)
More than 70 years old	108	48.2	
Sex			
Female	149	66.5	(0.27–0.40)
Male	75	33.5	
Financially responsible			
Yes	199	88.8	(0.85–0.93)
No	25	11.2	
Family relationship			
Yes	207	92.4	(0.88–0.95)
No	17	7.6	
Occupation			
Self-employed worker	4	1.8	
Public servant	05	2.2	(3.87-3.96)
Retires	215	96.0	
Health satisfaction			
Unsatisfied	105	46.9	(0.46–0.59)
Satisfied	119	53.1	
Perception of quality of life			
Good	120	53.6	(0.46–0.60)
Bad	104	46.4	
Socioeconômic status			
High	15	6.7	(0.03–0.11)
Intermediate	104	46.4	(0.40–0.53)
Low	105	46.9	
Level of physical activity			
Active	122	54.5	(0.38–0.52)
LLPA	102	45.5	
Upper limbs flexibility			
Poor	145	64.7	(0.28-0.41)
Good	79	35.3	
Lower limbs flexibility			
Poor	131	58.5	(0.35–0.48)
Good	93	41.5	
Agility			
Poor	144	64.3	(0.29–0.42)
Good	80	35.7	

Regarding socio-economic variables, it was identified that 96% of the older adults included in this study are retired, and 88.8% of the sample are financially responsible for the family. The study also showed that the majority of the participants (93.7%) were classified in an extract for the middle / low class, even though most of them believe that living with relatives has a positive impact on their life.

Regarding the variables health satisfaction and perception of QOL, it was demonstrated that most of the older adults included in this study presented positive responses, which means they are satisfied with their health, as well as with a good perception of quality of life.

Finally, regarding the level of physical activity, 54.5% of the older adults were considered active. However, a large portion of this sample had poor physical fitness scores for upper limb flexibility, lower limb flexibility, and agility.

The association's results in the univariate and multivariate analysis between negative perception of health and independent variables are presented in table 2. In the univariate model, only the upper and lower limb flexibility variables were significantly associated with the Negative Health Perception outcome ($p = 0.007$ ep = 0.002, respectively).

Regarding the variable upper limbs, the flexibility of older adults, two and a half times greater odds of association between poor flexibility and negative health perception were verified, compared to the older adults who presented good flexibility. There was a similarity in the results of lower limbs flexibility; older adults with poor flexibility had almost three times greater chances of association with the negative health perception. The variables gender and financially responsible were included in the multivariate model, besides variables with significant values ($p \leq 0.20$).

In the multivariate model, the variables poor flexibility of the upper limbs and lower limbs remained significant for the association, showing both almost two and a half times more chances of negative health perception ($p = 0.007$ and $p = 0.002$, respectively). The other variables were not significantly associated.

Table 3 shows the association's significance values between negative perception of quality of life and the independent variables in the univariate and multivariate models.

Table 2
Association between Negative Health Satisfaction and Independent Variables of Brazilian Older Adults. Cedro de São João - SE, 2016.

Variables	Negative Health Perception			
	Univariate analysis		Multivariate analysis	
	OR (CI 95%)	p value	OR (CI 95%)	p value
Sex				
Female	1.51 (0.85 – 2.65)	0.155*	1.67 (0.92–3.05)	0.092
Male	1			
Age group				
Less than 70 years old	1.21 (0.71 – 2.05)	0.483		
More than 70 years old	1			
Financially responsible				
Yes	0.48 (0.20 – 1.17)	0.109*	0.54 (0.21–1.37)	0.196
No	1			
Family relationship				
Yes	0.85 (0.31 – 2.39)	0.76		
No	1			
Level of physical activity				
Active	0.85 (0.50 – 1.44)	0.547		
LLPA	1			
Socio-economic status				
High	0.81 (0.27 – 2.40)	0.704		
Intermediate	0.69 (0.40 – 1.19)	0.185		
Low	1			
Upper limbs flexibility				
Poor	2.43 (1.37 – 4.31)	**0.002***	2.27 (1.25-4.11)	**0.007**
Good	1			
Lower limbs flexibility				
Poor	2.69 (1.54 – 4.69)	**0.000***	2.49 (1.40–4.41)	**0.002**
Good	1			
Agility				
Poor	1.06 (0.62 – 1.85)	0.815		
Good	1			

* There were included in the multivariate model only the variables that obtained p ≤ 0.20 in the univariate analysis.

Concerning the univariate model, there were associations with negative perception of quality of life, the variable financially responsible, and poor flexibility of lower limbs (p = 0.022 and p = 0.001, respectively). In the study, the older adults who were not financially responsible for their family showed a 67% lower chance of a negative perception of quality of life compared to the older adults responsible for their family financially. Poor lower limb flexibility showed almost three times greater chances of negative perception of quality of life. Variables gender, age, family relationship, physical activity level, socio-economic status, upper limb flexibility, and agility were not significant; therefore, they were not included in the multivariate analysis.

The multivariate analysis observed an association between the negative perception of quality of life and the variables financially responsible and lower limbs flexibility (p = 0.040 and p = 0.002, respectively). The older adults who were not responsible for the family had a 64% less chance of negative perception of quality of life, and older adults with poor flexibility in the multivariate analysis had almost three times higher odds of negative perception of quality of life.

Table 3
Association between Negative Perception of Quality of Life and Independent Variables of Brazilian Older Adults. Cedro de São João – SE, 2016.

Variables	Negative Perception of Quality of Life			
	Univariate analysis		Multivariate analysis	
	OR (CI 95%)	p value	OR (CI 95%)	p value
Sex				
Female	1.31 (0.75–2.31)	0.342		
Male	1			
Age group				
Less than 70 years old	0.73 (0.43–1.24)	0.241		
More than 70 years old	1			
Financially responsible				
Yes	0.33 (0.12–0.85)	**0.022***	0.36 (0.13–0.95)	**0.040**
No	1			
Family relationship				
Yes	1.17 (0.42–3.23)	0.764		
No	1			
Level of physical activity				
Active	1.15 (0.67 – 1.95)	0.615		
LLPA	1			
Socio-economic status				
High	0.48 (0.15 – 1.50)	0.209		
Intermediate	0.75 (0.43 – 1.29)	0.295		
Low	1			
Upper limbs flexibility				
Poor	1.40 (0.80 – 2.44)	0.238		
Good	1			
Lower limbs flexibility				
Poor	2.52 (1.45 – 4.39)	**0.001***	2.42 (1.38 – 4.24)	**0.002**
Good	1			
Agility				
Poor	0.93 (0.54 – 1.62)	0.805		
Good	1			

* There were included in the multivariate model only the variables that obtained $p \leq 0.20$ in the univariate analysis.

DISCUSSION

The main objective of the present study was to analyze the associated factors with negative health perception and quality of life in a sample of older adults registered in the SIAB database of the municipality of Cedro de São João - SE.

In this study, the older adults included in the sample had a slightly higher percentage of health satisfaction and a positive perception of quality of life, 53.1% and 53.6%, respectively. This result is also seen in other studies in Brazil regarding health satisfaction, with variations between 50.4% and 80.9% (Borim & Neri, 2012; Confortin et al., 2015) and a positive perception of quality of life, varying between 46.8% and 84.3% (Guimarães et al., 2011).

According to Sodergren et al. (Södergren et al., 2008), demographic and socio-economic factors are related to lifestyle and directly associated with health perception of older adults, being able to determine a positive or negative perception. Studies have shown that older adults with a higher level of physical activity have greater associations with higher levels of positive perception of quality of life (Guimarães et al., 2011). In addition, the study by Souza et al. (Souza et al., 2014), in consonance with other studies (Lee et al., 2012; Lu et al., 2017; Wang et al., 2015; Wang & Zhao, 2012), reported that family interactions that characterize a better family functionality (organization, cohesion and family support), interfere positively in the quality of life of the older adults. Thus, the health satisfaction and positive perception of quality of life described in the present study can be explained as most of the included elderly

individuals showed higher levels of physical activity and had a positive perception of living with the family.

Based on studies found in the literature, even though it was inferred that the previously described variables positively influenced the health satisfaction and perception of quality of life, other variables may have influenced the result of the percentage of older adults who reported health dissatisfaction and negative perception of quality of life, which was quite high. Thus, the associations made between the independent variables, negative health satisfaction and negative perception of quality of life, with the dependent variables, sociodemographic, physical fitness, and physical activity levels, could demonstrate their relation.

Regarding the negative health satisfaction, statistically significant associations were demonstrated only with the variables upper limb flexibility and lower limb flexibility, which means older adults with worse levels of flexibility of upper and lower limbs were more likely to be dissatisfied with their health condition.

A plausible explanation for this association may be related to the fact that, according to the American College of Sports Medicine (Chodzko-Zajko et al., 2009), flexibility is one of the components responsible for the functional capacity of the individual. The International Classification of Functioning, Disability, and Health (WHO, 2018) defines functionality as the result of the interaction between the dysfunction presented by the individual, the ability to participate in their activities and socialization, and environmental factors that can influence positively or negatively on performance and participation in these activities. Thus, in agreement with other studies, it is understood that the older adults who present difficulties to perform functional activities have a significant association with negative health perception (Alves et al., 2008; Boring et al., 2017; Tkatch et al., 2017)

Despite the considerations made by authors that only physical conditions would not be enough to determine the health perception (Tkatch et al., 2017), this study understands the complexity of the variable flexibility and its relation with an extremely important condition for the older adults health, which is the functional capacity. Thus, the study becomes valid as it considers not only the variable flexibility but the relations it presents and its representation in the life of older adults.

Regarding the negative perception of quality of life, statistically significant associations were found with the variables being financially responsible and lower limbs flexibility. The association verified with the financial responsibility of the older adults showed a protective factor, which means older adults who were not financially responsible for the home environment presented lower chances of having a negative perception of quality of life, both in the univariate and multivariate analysis.

In regions of the low-income population in Brazil, it is common for older adults to be the main financially responsible family member. Their income usually comes from retirement income divided by the number of people who live or depend on it to survive. This can negatively influence the older adults health, as a high portion of their income should be earmarked for the purchase of medicines, food, and the satisfaction of their basic needs (Chen & Chen, 2017; Gerino et al., 2015; Muszalik et al., 2011; Silva, 2016).

Studies have shown an association between socio-economic conditions and quality of life of older adults. The study done by Paiva et al. (2016), which included 3430 older adults from the southern triangle of Minas Gerais, revealed that the absence of income is associated with a negative perception of quality of life, and the authors explained that the low scores of the environment domain from WHOQOL-bref questionnaire could have occurred because most of the older adults have income between 1 and 3 minimum wages.

Furthermore, the study done by Alexandre et al. (2009) points out that older adults who have income above 5 minimum wages are associated with better results in the environmental domain of the WHOQOL-bref questionnaire. The present study found that the majority of the older adults included in the sample were retired, middle / lower class, and financially responsible in their families.

Regarding poor flexibility of the lower limbs, the association verified a risk ratio, which means the worse the level of flexibility, the greater the chance of the older adults presenting a negative perception of quality of life. This finding can also be explained by the relationship between flexibility and functional capacity of older adults. Guimarães and Farinatti (2005) mention that reduced lower limb flexibility is associated with falls in the older adults, mainly due to the loss of mobility of the hip, knee, ankle, and spine joints, with consequent changes in gait pattern and difficulties in performing daily tasks, such as using public transport or walking.

Finally, there was no association between physical activity level and negative health satisfaction, and negative perception of quality of life. However, it is worth mentioning that almost 55% of the older adults reported being active / very active in relation to the practice of physical activity but presented poor results in the variables of physical fitness analyzed. This result can be explained by the fact that the instrument used to assess the level of physical activity includes several domains of physical activity, enabling the older adults to reach the recommendations of physical activity, but not necessarily performing activities that enable the development of flexibility and agility skills, which were evaluated objectively. In addition, the physical activity level assessment instrument collects data from self-report, which the answers depend on the memory and veracity of the information offered by the participants, which may influence the result.

CONCLUSION

In general, socio-economic factors and physical fitness presented significant associations to negative health satisfaction and negative perception of quality of life. The variable flexibility was associated with negative health satisfaction, both upper and lower limb flexibility, and the negative perception of quality of life, only with lower limbs, demonstrating the importance of this motor capacity and its relation with the functional capacity of the older adults. Also, being financially responsible was associated with a negative perception of quality of life, demonstrating the influence of the socio-economic conditions of the older adults included in the study on their quality of life.

Researches on this theme are important and enable the knowledge, monitoring, and comparison of results to guide the decision-making regarding the formulation of health policies. Thus, it is important to create public policies aiming at the health and well-being of older adults, including constant monitoring of the conditions that can affect this population regarding the diverse contexts that they are submitted.

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