Happiness, Subjective Well-Being, and Life Satisfaction: A Compared Study between Long-Lived Elderly People in Northeast and Southeast Brazil

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Abstract

This cross-sectional study aims to investigate and compare factors associated with happiness, subjective well-being, and life satisfaction in elderly people aged 80 and older in two different regions of Brazil. Face-to-face interviews were performed with 417 Brazilians aged 80 years and older, 179 from Northeast and 238 from the Southeast. The prevalence of feelings of happiness, subjective well-being, and overall life satisfaction were very similar for the older elderly in both regions. While in the Southeast, the predictive factors were literacy, higher income, and better economic situation, with many elderly people living alone; in the Northeast, the affective ties with more people seem to predominate, as well as having a more frequent and diverse support network, and practice leisure activities. Our findings support a view of social bonds and family support enables the older elderly people to feel more satisfied with life, performing activities that bring happiness and subjective well-being.

Keywords: Happiness, subjective well-being, aging, public health, developing countries

1. Introduction

Since the 1940s, the World Health Organization (WHO) has broadened its understanding of the concept of health by reviewing its indicators, postulating that health is a state of complete physical, mental and social well-being. Thus, the concept of subjective well-being gained space in scientific literature and became a health indicator with different instruments to measure it. Subjective well-being means the assessment of people about their lives, grouping cognitive and affective components such as happiness, life satisfaction, positive feelings and low negative feelings (Diener & Tay, 2015). WHO itself has created an instrument called WHO-5, known as the "Welfare Index", as a parameter for measuring and comparing data between different populations.

In addition to subjective well-being, research has used other similar or associated concepts such as happiness and life satisfaction. Happiness is understood to be a positive psychological state resulting from the degree to which a person enjoys life, and life satisfaction can be considered a synonym for this, encompassing an overall assessment of life that involves all the criteria that involve the human mind (Veenhoven, 2015). Other scales were also created to measure these parameters such as the "Subjective Happiness Scale" (Lyubomirsky & Lepper, 1997) and the "Global Life Satisfaction Scale" (Cantril, 1966).

Changes in health, in addition to improvements in living conditions, especially after the second half of the twentieth century, an increase in life expectancy, lower mortality and lower fertility were verified, defining a process of demographic transition that led to a continual increase in the proportion of elderly people in the world, which leads to longer lifespan (OPAS, 2017). As a developing country, Brazil has followed the demographic transition, and is one of the fastest-growing countries in terms of population age. It was estimated that in 1995 there were 4.7% people aged 60 years and over in the total population of the country (Miranda, da Cruz Gouveia Mendes, & da Silva, 2017), and, according to IBGE, in the last census conducted in 2010, this contingent increased to 7.4%,

with 1.54% of older elderly people (aged 80 and over).

Given the recognition of the population aging process in Brazil, several laws and policies were created seeking to ensure social rights and promote the social integration of the elderly, valuing their autonomy and participation. In fact, the development of public policies for the elderly has been featured on the agenda of international health organizations regarding the proposition of guidelines for nations that still need to implement social and assistance programs to meet the emerging needs of this population group (OPAS, 2017).

At the beginning of the 21st century, the Pan American Health Organization (PAHO), in partnership with Argentina, Cuba, Uruguay, Barbados, Mexico, Chile, and Brazil, developed research on the health of the elderly known as the SABE Study (Health, Aging, and Well-being) to respond to the need for specialized information, as well as indicators on the various spheres of life and health of the elderly. In Brazil, this study has become a cohort study with over 2,000 elderly people evaluated every five years (Lebrão & Laurenti, 2005). In recent years, this study has expanded its collaborative network to conduct studies on aging and longevity processes in high consanguineous communities of Northeastern Brazil. There was also interest in broadening the study of other populations with vulnerability characteristics and biological characteristics different from those previously studied. This multicenter survey allowed to collect systemic information about the living conditions and health of the elderly, and has been important to propose new goals and specific care policies for this population.

From this scenario in which a longer lifespan is observed and from the range of factors involved in the health of an individual, including the insertion of subjective indicators of health, it is worth questioning: Does subjective well-being, happiness and life satisfaction contribute to increase the life expectancy of individuals? Do long-lived populations differ from these indicators, such as those living in poor regions of the Northeastern backcountry compared to other urban populations that did not have so many restrictions?

A few studies have been conducted in Brazil seeking to associate living conditions of older elderly people and the degree of happiness, subjective well-being, and life satisfaction. Therefore, it is relevant to understand the factors that lead to healthy aging and greater longevity, since these factors play a very relevant role in the Brazilian context, given the rapid process of demographic and epidemiological transition that the country is going through.

In this paper, the objective is to investigate, understand and compare the factors associated with subjective well-being, life satisfaction, and happiness in two different older elderly populations: one in Northeast Brazil and one in Southeast Brazil, explaining the differences and specificities and suggesting associations between subjective factors and indicators.

2. Methods

This study is a cross-sectional, descriptive and analytical design. It was carried out in two locations: in a rural area in the Northeastern Brazilian backlands, in the state of Paraíba, in 2017, and in an urban region of southeastern Brazil, in the state of São Paulo, in the last cohort in 2015. The inclusion criteria was people aged 80 years or older residing in the area at the time of collection, and having answered all questions of self-assessment and the scales used in the dependent variables (happiness, subjective well-being and overall life satisfaction) on their own, without the help of an informant or substitute. Out of 179 respondents in the Northeast, 135 was included in the sample for the variable happiness, 134 elderly participants for the variable subjective welfare, and 140 elderly participants for the variable overall life satisfaction. In the Southeast region, out of 238 respondents, 208 was included in the analysis for the variable happiness, 202 elderly people for well-being, and 224 elderly participants for the variable global life satisfaction were totaled.

The Health, Aging, and Well-being - SABE questionnaire has been applied for twenty years in São Paulo (SABE-SP). In Paraíba, the questionnaire was adapted to local conditions with the removal of some items, but continues to encompass the eleven sections of the last version (A15), which covers various aspects of the elderly people's life and health, such as: personal data, cognitive assessment, health status, functional status, medications, use and access to services, family and social support network, work history and sources of entry, housing characteristics, anthropometry, flexibility and mobility.

The data was collected by interviewees, in both regions, at the homes of the participants after explaining the aims of the study. On agreeing, they signed the Informed Consent Form. Thus, the research is in accordance with the ethical aspects involving research with human beings, in accordance with Resolution number 466/2012 of the National Health Council of the Ministry of Health.

The dependent variables were happiness, subjective well-being, and overall life satisfaction. To analyze the self-perception of happiness, only the first question of the Happiness Scale was used. To investigate the level of subjective well-being, the entire WHO5 (Adapted) instrument (WHO) was used. To study overall life satisfaction,

we used the question on overall life satisfaction (questionnaires attached). Independent variables include gender, age, self-reported ethnicity, literacy, marital status, income adequacy, family economic status in childhood, starvation in childhood, co-residence, self-rated health, number of chronic noncommunicable diseases, medication use, depressive symptoms, physical activity, importance of religion, smoking, taking walks or leisure, having pets, importance and interference of animals in the mood, living with other people in daily life, home arrangements, family and social support network, and role of the elderly person in this network, offering and/or receiving support.

Data were tabulated in the Epidata 3.1 double data entry program. The statistical software R was used for descriptive analysis showing the frequency of the data, and in order to identify associations between the variables, the initial multiple logistic regression model was adjusted with all variables taking as an association measure the odds ratio (OR) and confidence intervals at 95% (IC95%). Adjustment variables with p≤0.20 in the initial model were included in the final multiple analyses. In the interpretation of the regression results, p<0.05 was considered as indicating a statistically significant association for the dependent variable.

3. Results

Regarding sociodemographic characteristics, the two populations studied show a very different profile. In rural Northeastern Brazil, there is a predominance of older females (54.7%) compared to males (45.3%), and most of them had no access to formal education (62%) and live with up to one minimum wage (67%). The vast majority (86%) lives in the company of other people, especially spouses and children; only 14% lived alone. Regarding the older elderly in the southeastern urban center, a higher predominance of women (70.6%) was observed. Most of the elderly had self-reported white ethnicity (61.7%), with good literacy conditions (78.7%) and income (57.8%); and live mainly with their children. In the Southeast there is almost twice the proportion of the elderly people (27.3%) living alone than in the Northeast (Table 1).

Table 1. Profile of elderly people aged 80 years and older in the Northeast (PB) and Southeast (SP) regions regarding sociodemographic characteristics, health aspects and lifestyle. SABE-SP study, 2015 / SABE- PB, 2017

Brazilian Populations	SABE Study	PB			SP		
Variables	Categories	N total	n	%	N total	n	%
Dependent							
Happiness	Most happy	135	97	71.9	208	150	72.1
	Less happy		38	28.1		58	27.9
Subjective Well-being	Best well-being	134	103	76.9	202	159	78.7
	Worst well-being		31	23.1		43	21.3
Overall Life Satisfaction	High satisfaction	140	122	87.1	224	181	80.8
	Low satisfaction		18	12.9		43	19.2
Independent							
Gender	Feminine	179	98	54.7	238	168	70.6
	Masculine		81	45.3		70	29.4
Age	80-89 years	179	142	79.3	238	173	72.7
	90 or more years		37	20.7		65	27.3
Literacy	Literate	179	111	62.0	230	49	21.3
	Illiterate		68	38.0		181	78.7
Co-Residence	Lives Alone	179	25	14.0	238	65	27.3
	Lives with other people		154	86.0		173	72.7
Self-reported Ethnicity	White	168	91	54.2	227	140	61.7
	Non-white		77	45.8		87	38.3
Marital Status	With Partner	179	102	57.0	238	188	79.0
	Without Partner		77	43.0		50	21.0

Income	Up to 1 MW	176	118	67.0	204	86	42.2
	More than 1 MW		58	33.0		118	57.8
Income Sufficiency	Doesn't consider sufficient	177	69	39.0	225	90	40.0
	Considers sufficient		108	61.0		135	60.0
Religion	Has	178	177	0.6	223	215	3.6
	Doesn't Have		1	99.4		8	96.4
Economic Situation in childhood	Good	160	34	21.3	224	74	33.0
	Regular		52	32.5		100	44.6
	Bad		74	46.3		50	22.4
Starved in Childhood	Yes, I was hungry	162	67	41.4	223	33	14.8
	No, I wasn't hungry		95	58.6		190	85.2
Health self-assessment	Bad	131	14	10.7	214	28	13.1
	Regular		66	50.4		93	43.5
	Good		51	38.9		93	43.5
Number of chronic diseases (nDCNT)	Two or more	179	94	52.5	223	164	73.5
	One		64	35.8		42	18.8
	None		21	11.7		17	7.6
Depression Symptoms (GDS)	Suggestion of depression symptoms	90	38	42.2	238	118	49.6
	No depression symptoms		52	57.8		120	50.4
Number of drugs	Five or more (Polypharmacy)	179	94	52.5	219	139	63.5
	Between 1 and 4		80	44.7		80	36.5
	None		5	2.8		0	0.0
Physical Activity (last 3 months)	Didn't Practice	179	144	80.4	235	186	79.1
	Practiced		35	19.6		49	20.9
Importance of Religion	Little importance	168	13	7.7	209	24	11.5
	Important		155	92.3		185	88.5
Leisure Activity (Walking)	Doesn't do any	169	70	41.4	226	93	41.2
	Does		99	58.6		133	58.8
Smoking	Smokes/Has smoked	178	102	57.3	234	83	35.5
	Never smoked		76	42.7		151	64.5
Spends Most of the Time With	Alone	156	3	1.9	231	75	32.5
	Children and teenagers		7	4.5		12	5.2
	Adults		63	40.4		67	29.0
	Elderly People		83	53.2		77	33.3
Family Arrangements	Alone	179	25	14.0	233	62	26.6
	Only Spouse		37	20.7		29	12.4
	Only Children		45	25.1		64	27.5
	Children and Grandchildren		32	17.9		41	17.6
	Other Arrangements		40	22.3		37	15.9
Receives support	No	179	34	19.0	237	73	30.8
	Yes		145	81.0		164	69.2

Gives Support	No	179	41	22.9	237	95	40.1
	Yes		138	77.1		142	59.9
Support Network – has someone to count on	Never	137	10	7.3	205	6	2.9
	Sometimes		16	11.7		11	5.4
	Always		111	81.0		188	91.7
Domestic Animal (Pet)	Doesn't have	179	104	58.1	235	158	67.2
	Has		75	41.9		77	32.8
Interference of the animal in the mood	Doesn't interfere	71	18	25.4	76	15	19.7
	Interferes positively		53	74.6		61	80.3
Importance of the domestic animal (Pet)	Little importance	71	21	29.6	75	9	12.0
	Important		50	70.4		66	88.0

In the Northeast, the elderly lived in poverty and experienced periods of drought that restricted access to food. When the elderly was asked if they "starved" in childhood, 41.4% of the Northeast population answered affirmatively; this contrasts with 14.8% of the Southeast population in the same condition (Table 1). Therefore, regional economic asymmetries are associated with social inequalities between the two groups studied.

Despite differences in material and educational conditions, the indexes of happiness, subjective well-being, and overall life satisfaction   are very similar in both populations studied, with 71.9% (rural Northeast) and 72% (urban Southeast) for happiness; 76.9% (rural) and 78.7% (urban) for better subjective well-being, and 87.1% (rural) and 80.8% (urban) for overall life satisfaction. There are practically no differences in the proportion of elderly people who experience happiness, subjective well-being, and overall life satisfaction between both groups (Table 1).

Regarding health conditions, the two populations show significant differences. More than half of the older elderly people in the Northeast (61.1%) and Southeast (56.6%) rate their health status as fair or poor; 73.5% of the elderly in urban areas have one or more chronic diseases and 63.5% of them use more than five drugs. In rural areas, 52.5% of the elderly have one or more chronic diseases and use polypharmacy. Regarding mental health, the results are similar: 42.2% of the older elderly people in the Northeast and 49.6% in the Southeast showed symptoms suggestive of depression.

Regarding whether they have religion, most of the older elderly people in this study have religion (99% in the NE and 96.4% in the SE). In relation to the practice of physical activity, most practice some leisure activity, such as walking (58.6% in the NE and 58.8% in the SE). In the urban region, there was a higher proportion of elderly people who reported having someone to turn to when they needed it (91.7%) than in the rural region (81%), receiving financial and material support, personal care and tasks, emotional support and companionship. In the Southeast, 30.8% of the elderly reported living alone and not having support from anyone compared, to 19% in the Northeast.

In the Northeast, the elderly lives more with other elderly (53.2%) and more adults (40.4%) in their daily lives than in the Southeast (33.3% and 29%, respectively). The configuration of family arrangements shows us that in the urban center of the Southeast 26.6% of the elderly live alone and 75.4% live with other people. Most of them live with only their children (27.5%), or with only a spouse (12.4%), with children and grandchildren (17.6%) or have other arrangements (15.9%). In the rural Northeast, only 14% of the elderly live alone. Of the 86% who live with other people, most live with their children (25.1%), their spouses (20.7%), children and grandchildren (17.9%) or have other arrangements (22.3 %). Regarding the presence of animals in the home and their influence on the mood of the elderly, the elderly in the Northeast have more domestic animals (pets)(41.9%) than those in the Southeast (32.8%), showing their positive influence on mood more (74.6%) in relation to the urban population (80.3%) (Table 1).

Table 2 shows the gross and adjusted values of factors associated with happiness among the elderly in the Northeast and among the elderly in the Southeast. In both populations, the absence of symptoms suggestive of depression was a predictor of happiness; In the Northeast, this group is 8.06 times more likely to feel happy than those with depressive symptoms, while in the Southeast those without these symptoms are 3.73 times more likely to feel happy.

In the Northeast, three more variables were associated with happiness, the most important of which was the

support network. More than 80% of the Northeast's older elderly people said they had someone to turn to when they needed to. Older people who receive support from their family or friends are 27.46 times more likely to feel happy than those who do not. Those who live with a partner feel happier than those without a partner. Elderly people who practice leisure activities, such as walking, are 5.28 more likely to feel happy than non-practitioners (Table 2).

In the Southeast, the results were quite different, as no other variable besides the absence of depressive symptoms was associated with happiness, as shown in Table 2.

The results for the association study with the dependent variable subjective well-being were shown in Table 3. In this case, for the Northeast population, the only variable that had a significant association was self-assessed health. Elderly people with good self-assessed health are 5.51 more likely to have better subjective well-being than those who report their own health as regular or bad. For most of the other variables it was not possible to obtain the value of odds ratio.

For the Southeast population, marital status, income sufficiency and absence of depressive symptoms were associated with the dependent variable. In this region, elderly people with no symptoms suggestive of depression are 9.43 more likely to have better subjective well-being than the group with symptoms. Those who live with their partners, being married or living together, are 5.77 more likely to have better subjective well-being than the single, widowed, separated, or divorced. Those with income sufficiency are 3.2 more likely to also have a better perception of well-being.

Table 4 presents the results found from the analytical point of view for the dependent variable overall life satisfaction, and it can be verified that no odds ratio results were obtained for some of the independent variables. For the Southeast region, again it was found that the elderly who do not have symptoms suggestive of depression are 6.29 more likely to be satisfied with their life. Elderly people with good support network are 9.3 times more likely to be more satisfied with life than those who reported never receiving support. In the Northeast region, the factor that showed a strong association with life satisfaction was the practice of leisure activity. Elderly people who perform walking or walking activities are 8.1 times more likely to be satisfied with life than those who do not (Table 4).

Table 2. Multiple logistic regression model for the association between happiness and sociodemographic, health, and lifestyle aspects of older elderly people living in the Northeast (SABE-PB) and Southeast (SABE-SP) of Brazil

	HAPPINESS - SABE-PB						HAPPINESS- SABE-SP					
	Less happy N(%)	More happy N(%)	OR gross (IC 95%)	p	OR ajusted (IC 95%)	p	Less happy N(%)	More happy N(%)	OR gross (IC 95%)	p	OR Ajusted (IC 95%)	p
Gender				0.147		0.154				0.130		0.128
Feminine	26 (37)	44 (63)	1		1		38 (26)	107 (74)	1		1	
Masculine	12 (18)	53 (82)	2.43 (0.86-6.84)		2.64 (0.7-10.03)		20 (32)	43 (68)	2.32 (1.06-5.09)		2.07 (0.81-5.26)	
Literacy				0.097		0.117						
Yes	14 (25)	43(75)	2.06 (0.71-6.01)		3.58 (0.73.17.7)		41(25)	126(75)				
No	24 (31)	54(69)	1		1		17(45)	21(55)				
Co-residence				**0.02**		**0.029**						
Lives alone	7(29)	17(71)	**1**		**1**		16(26)	45(74)				
Lives With Others	31(28)	80(72)	**0.69 (0.18-2.75)**		**0.03 (0-0.7)**		42(29)	105(71)				
Ethnicity				0.24		0.25						
White	15(22)	52(78)	1.85 (0.67-5.09)		2.23 (0.56-8.89)		35(27)	93(73)				
Non white	21(33)	43(67)	1		1		23(29)	56(71)				
Economic Situation in childhood				0.318		0.135				< 0.001		0.104
Good	10(33)	20 (67)	0.65 (0.18-2.31)		0.27 (0.05-1.51)		10 (14)	61 (86)	4.33 (1.48-12.66)		2.87 (0.81-10.24)	
Regular	13(33)	26 (67)	0.83 (0.26-2.68)		0.61 (0.13-2.88)		32 (36)	58 (64)	0.89 (0.39-2.01)		0.44 (0.15-1.3)	
Bad	15(23)	50 (77)	1		1		16 (35)	30 (65)	1		1	
Insufficiency of food up to 15 Years				-		-				0.613		0.611
Yes	17(31)	37(69)	-		-		10(36)	18(64)	1		1	
No	21(26)	59(74)	-		-		47(26)	132(74)	1.53 (0.6-3.86)		1.35 (0.42-4.34)	
Number of chronic diseases				0.117		0.062						

(nDCNT)								
Two or more	21(30)	48(70)	1	1	37(26)	107(74)		
One	13(25)	38(75)	1.11 (0.38-3.27)	0.19 (0.03-1.09)	11(28)	28(72)		
None	4(27)	11(73)	1.36 (0.31-5.9)	0.68 (0.09-5.21)	6(40)	9(60)		
Depression Symptoms			**0.011**	**0.006**			**0.001**	**< 0.001**
Yes	15(41)	22 (59)	**1**	**1**	38 (43)	51 (57)	**1**	**1**
No	8(16)	42 (84)	**3.64 (1.28-10.35)**	**8.06 (1.6-40.48)**	20 (167)	99 (83)	**3.66 (1.8-7.44)**	**3.73 (1.68-8.26)**
Importance of Religion			0.065	0.053				
Little importance	3(30)	7(70)	1	1	7(29)	17(71)		
Important	34(28)	89(72)	1.53 (0.26-9)	8.83 (0.97-79.96)	50(28)	126(72)		
Leisure Activity (Walking)			0.024	0.03				
Doesn't perform	20(43)	27(57)	**1**	**1**	22(29)	53(71)		
Performs	18(20)	70(80)	**3.43 (1.2-9.81)**	**5.28 (1.17-23.83)**	33(26)	96(74)		
Receives support			0.02	0.027				
Yes	28(26)	79(74)	**1.3 (0.4-4.26)**	**27.46 (1.44-521.92)**	40(28)	101(72)		
No	10(36)	18(64)	**1**	**1**	18(27)	49(73)		
Support Network			-	-				0.157
Never	0	0	-	-	3(50)	3(50)	1	1
Sometimes	4(27)	11(73)	-	-	6(55)	5(45)		
Always	24(24)	75(76)	-	-	44(24)	141(76)	2.55 (0.65-9.97) 0.122	3.35 (0.72-15.52)

Table 3. Multiple logistic regression model for the association between subjective well-being and sociodemographic, health and lifestyle aspects of older elderly people in the Northeast (SABE-PB) and Southeast (SABE-SP) of Brazil

	SUBJECTIVE WELL-BEING (SWB) - SABE-PB						SUBJECTIVE WELL-BEING (SWB) - SABE-SP					
	Worse SWB N(%)	Best SWB N(%)	OR gross (IC 95%)	P	OR ajusted (IC 95%)	p	Worse SWB N(%)	Best SWB N(%)	OR gross (IC 95%)	P	OR ajusted (IC 95%)	p
Literacy				0.923		0.923						
Yes	13(23)	43(77)	0.92 (0.38-2.26)		1.05 (0.39-2.79)		32(20)	129(80)				
No	18(23)	60(77)	1		1		10(26)	28(74)				
Ethnicity				0.903		0.903						
White	16(23)	55(77)	1.06 (0.43-2.58)		1.06 (0.4-2.79)		22(18)	102(82)				
Non white	13(22)	46(78)	1		1		21(27)	56(73)				
Marital status			-		-					0.023		0.031
No partner	21(30)	49(70)	-		-		37(23)	121(77)	1		1	
With partner	10(16)	54(84)	-		-		6(14)	38(86)	**2 (0.73-5.53)**		**5.77 (1.18-28.33)**	
Income Sufficiency				0.434		0.44				0.035		0.037
Yes	20 (24)	64 (76)	0.89 (0.36-2.25)		0.67 (0.24-1.85)		18 (15)	106 (85)	**3.4 (1.63-7.11)**		**3.2 (1.07-9.52)**	
No	11 (22)	39 (78)	1		1		25 (33)	50 (67)	1		1	
Insufficient food up to 15 Years			-		-					0.201		0.199
Yes	18(32)	38(68)	-		-		8(30)	19(70)	1		1	
No	13(17)	62(83)	-		-		35(20)	140(80)	1.71 (0.65-4.49)		2.38 (0.63-8.95)	
Self-assessment of health				0.062		0.037				< 0.001		0.926
Bad	5 (45)	6 (55)	**1**		**1**		18 (67)	9 (33)	1		1	
Regular	16 (27)	43 (73)	**1.82 (0.45-7.36)**		**2.08 (0.49-8.84)**		16 (18)	73 (82)	0.12 (0.05-0.32)		0.11 (0.03-0.41)	
Good	6 (13)	41 (87)	**4.56 (1.02-20.99)**		**5.51 (1.1-27.5)**		8 (9)	77 (91)	2.69 (0.99-7.34)		0.94 (0.28-3.24)	
Depression Symptoms			-		-					< 0.001		< 0.001
Yes	12(34)	23(66)	-		-		35(43)	47(57)	1		1	

	Low OLS N(%)	High OLS N(%)	OR gross (IC 95%)	p	OR adjusted (IC 95%)	p	Low OLS N(%)	High OLS N(%)	OR gross (IC 95%)	p	OR ajusted (IC 95%)	p
No	7(14)	43(86)	-		-		8(7)	112(93)	**8.69 (3.69-20.47)**		**9.43 (3.02-29.42)**	
Physical Activity (last 3 months)				-		-				0.253		0.27
Didn't do any	27(26)	78(74)	-		-		39(25)	114(75)	1		1	
Did	4(14)	25(86)	-		-		4(8)	45(92)	3.32 (1.11-9.94)		2.28 (0.53-9.88)	
Importance of Religion				-		-				0.756		0.755
Little importance	3(30)	7(70)	-		-		6(26)	17(74)	1		1	
Important	28(23)	94(77)	-		-		35(20)	136(80)	1.42 (0.52-3.9)		1.26 (0.29-5.52)	
Leisure Activity (Walking)				-		-				0.083		0.086
Doesn't perform	16(33)	32(67)	-		-		24(35)	44(65)	1		1	
Performs	14(16)	71(84)	-		-		16(12)	113(88)	3.52 (1.68-7.37)		2.56 (0.88-7.48)	
Domestic Animal (Pet)				-		-				0.102		0.104
Doesn't Have	16(21)	62(79)	-		-		22(17)	108(83)	1		1	
Has	15(27)	41(73)	-		-		21(30)	50(70)	0.5 (0.24-1.02)		0.42 (0.15-1.19)	

Table 4. Multiple logistic regression model for the association between overall life satisfaction and sociodemographic, health and lifestyle aspects of older elderly people living in Northeast (SABE-PB) and Southeast (SABE-SP) Brazil

	Overall Life Satisfaction (OLS) - SABE-PB						Overall Life Satisfaction (OLS) - SABE-SP					
	Low OLS N(%)	High OLS N(%)	OR gross (IC 95%)	p	OR adjusted (IC 95%)	p	Low OLS N(%)	High OLS N(%)	OR gross (IC 95%)	p	OR ajusted (IC 95%)	p
Gender				-		-				0.436		0.442
Feminine	11(15)	61(85)	-		-		33(21)	126(79)	1		1	
Masculine	7(10)	61(90)	-		-		10(15)	55(85)	1.42 (0.64-3.14)		1.44 (0.57-3.67)	
Literacy				-		-				0.438		0.433
Yes	8(14)	50(86)	-		-		31(18)	142(82)	1.64 (0.69-3.88)		1.52 (0.54-4.29)	
No	10(12)	72(88)	-		-		11(24)	34(76)	1		1	
Co-residence				0.053		0.053				0.371		0.369

Lives alone	5 (20)	20 (80)	1	1	11 (17)	52 (83)	1	1
Lives with others	13 (11)	102 (89)	3.81 (1.04-14.02)	4.71 (0.98-22.64)	32 (20)	129 (80)	0.82 (0.37-1.81)	0.46 (0.08-2.52)
Health self-assessment			-	-			0.215	0.180
Bad	3(21)	11(79)	-	-	12(43)	16(57)	1	1
Regular	7(11)	55(89)	-	-	20(22)	71(78)	0.43 (0.17-1.07)	0.74 (0.25-2.15)
Good	6(12)	44(88)	-	-	11(12)	81(88)	2.4 (1.02-5.68)	2.01 (0.72-5.56)
Depression Symptoms			0.567	0.567			**< 0.001**	**< 0.001**
Yes	7 (19)	30 (81)	1	1	34 (33)	70 (67)	**1**	**1**
No	5 (10)	46 (90)	2.15 (0.62-7.39)	1.54 (0.35-6.76)	9 (8)	111 (92)	**7.43 (3.28-16.85)**	**6.29 (2.54-15.59)**
Importance of Religion			0.151	0-133				
Little importance	3(27)	8(73)	1	1	6(25)	18(75)		
Important	15(12)	112(88)	0.35 (0.06-2.06)	0.19 (0.02-1.66)	36(20)	144(80)		
Leisure Activity (Walking)			**0.008**	**0.012**				
Doesn't perform	10(21)	38(79)	**1**	**1**	20(24)	64(76)		
Performs	8(9)	83(91)	**3.47 (1.02-12.16)**	**8.1 (1.6-41.13)**	21(16)	110(84)		
Smoking			0.081	0.102				
Smoked/Has smoked	14(18)	63(82)	1	1	18(23)	61(77)		
Never smoked	4(6)	59(94)	2.43 (0.61-9.68)	3.83 (0.77-19.21)	25(17)	118(83)		
Support network			-	-			0.008	0.004
Never	0	0	-	-	2(33)	4(67)	**1**	**1**
Sometimes	2(13)	13(87)	-	-	7(64)	4(36)	**3.5 (0.43-28.45)**	**2.99 (0.25-35.39)**
Always	14(14)	89(86)	-	-	31(17)	155(83)	**8.58 (2.36-31.14)**	**9.3 (2.07-41.79)**

4. Discussion

For the first time in Brazil, this study compared two populations of older elderly people with very different profiles in relation to sociodemographic, health and lifestyle aspects, in order to investigate how these differences could influence the perception of happiness, subjective well-being, and life satisfaction. In the Northeast, the older elderly people have lower incomes and had little access to formal education, and part of them suffered from childhood food restriction. These restrictions, however, do not seem to have negatively influenced the perceptions of the elderly people aged 80 or older to the point where they feel less happy, less well-being, or dissatisfied with their lives compared to elderly people in a large urban center. The prevalence of these feelings was not different between the two populations despite the evident socioeconomic differences.

These results corroborate other studies that did not associate happiness and income (Easterlin, 2003; Lawrence, Rogers, & Wadsworth, 2015). On the other hand, the findings of this paper differ from a study in Germany, where low socioeconomic status was a robust and independent risk factor for low subjective well-being in both genders, thus highlighting the detrimental effect of severe economic constraints on elderly people (Lukaschek, Vanajan, Johar, Weiland, & Ladwig, 2017). The southeastern population is more diverse in relation to literacy than the Northeastern, and for this reason, the results corroborate literature, verifying the association between literacy and subjective well-being (Blanchflower & Oswald, 2000).

In the studied population, there is a higher prevalence in the Northeast of Brazil of men aged 80 years or older than in the Southeast, as well as more elderly people living with their spouses and fewer older people living alone; the support network for the elderly was one of the factors most strongly associated with the perception of happiness. In the Southeast, the elderly were found to be lonelier; however, those who live with a partner have a better perception of subjective well-being. These results corroborate findings in literature showing an association between marital status and happiness, subjective well-being and life satisfaction (Haring-Hidore, Stock, Okun, & Witter, 1985; Lucas, Clark, Georgellis, & Diener, 2003; Veenhoven, 2005; Marks & Fleming, 1997). Regarding the support network, a longitudinal study conducted in England (Rafnsson, Shankar, & Steptoe, 2015) showed that the size of the social network and the frequency of network contact were positively and independently associated with life satisfaction and quality of life. That is, frequent contact with other people is important for the elderly to feel more satisfaction with life.

In the Northeast, there was a positive association between leisure activities, such as walking, and life satisfaction. These results corroborate other studies conducted in the United States (Chang, Wray, & Lin, 2014; Ragheb & Griffith, 1982). In addition, the elderly interviewed in this paper reported that domestic animals (pets) contribute positively to mood enhancement. Although no associations were found between the presence of domestic animals (pets) and feeling happier and more satisfied with life, frequency data show a tendency towards that. Some studies have already suggested the potential benefits of animals on physical and psychological health in humans (Cherniack, Paul Cherniack, & Cherniack, 2014); and others, specifically from a cohort of the elderly, demonstrated that owning animals was associated with improved cardiovascular disease survival in a hypertensive population (Chowdhury, Nelson, Jennings, Wing, & Reid, 2017).

The self-assessed health indicator is a widely used and recommended tool in studies with the elderly to understand the aspects that influence it and its relationship with well-being (Confortin, Giehl, Antes, Schneider, & d'Orsi, 2015). A Korean study revealed that better self-assessed health increases life satisfaction (Lee, Choi, & Lee, 2020). Elderly people in the Northeast reported having suffered food restrictions in childhood due to poverty. Overcoming these difficulties and being older may have contributed to better acceptance of current health conditions, awakening an overall sense of positive happiness and subjective well-being.

Another factor that contributes significantly to the improvement of these perceptions is the absence of symptoms suggestive of depression. In the elderly, the development of depression is common, mainly because, over the years, the number of successive losses of loved ones and the withdrawal from their daily activities lead the elderly to question about life and its meaning. These questions may or may not lead the elderly to the construction of new meanings in life, which may happen from the creation and execution of a job or practice of an act; experiencing something or finding someone to love; or by the attitude towards suffering that cannot be changed (Frankl, 2013). For this reason, family members and others who make up the elderly support network should be aware of signs of loss of interest in performing daily activities and the desire for isolation, as well as other signs of depression. A Korean study showed that emotional support from family and/or friends attenuated the negative influence of life satisfaction events. The results revealed that the life satisfaction trajectories of the elderly increased with maturity and good family relationships (Lee, Choi, & Lee, 2020).

The study has its limitations, such as the cross-sectional design itself that does not allow associations of cause and

effect. The analyses performed are not intended to define the origin of the results found, but to explore the factors associated with the variables in the two different regions studied, contributing to expose the importance of studying health indicators related to subjective health. It is noteworthy that the international studies brought to discuss the studied aspects present different cultural issues, which limits the comparison with our results. Another limitation concerns the population itself that has an advanced age and low cognition, and sometimes needs an auxiliary informant to answer some questions, which may cause some bias. In addition, it was not possible to perform statistical analysis for many of the Northeast population variables, which may be improved in the near future.

Regarding the sampling methods, because the surveys were financiered by two different funding agencies (FAPESP and CAPES/CNPq), data was collected in different years (2015 and 2017). In Brejo dos Santos, the totality of seniors aged 80 or older was included in the study while, in São Paulo, the sample was randomly chosen, being probabilistic and representative of the population. The SABE questionnaire has been used for many years, having been validated previously; and a few adaptations was performed for its application in Brejo dos Santos. This population was selected by convenience, because the health workers had already participated in a previous research (Lopes et al., 2017).

5. Conclusion

The prevalence of feelings of happiness, subjective well-being, and overall life satisfaction were very similar for the older elderly in the Northeast and southeast of Brazil. However, different factors were associated with these perceptions in each region. While in the Southeast, the predictive factors were literacy, higher income, and better economic situation, with many elderly people living alone, in the Northeast the affective ties with more people seem to predominate, as well as having a more frequent and diverse support network, and practice leisure activities.

Our findings allows us to broaden the health view of elderly populations with different lifestyles, seeking to understand which bio-psycho-social factors are inserted in the contexts in which they live, and how health polices can contribute to the promotion of new practices appropriate to each reality, in order to provide the elderly with a better quality of life and healthy long life within their means in their territory.

Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

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