



The quality of life and the sociocultural, economic and health characteristics of the elderly living in the amazon region

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ABSTRACT. WHOQOL-Bref is widely used to assess quality of life. The present study estimated the prevalence of elderly people with low quality of life and the association of socio-cultural, economic and health variables. The elderly were classified as low (< 60 points) or regular/good (> 60 points). The elderly (1431) were investigated, most of the elderly were married, with low schooling, with own income and lived with their spouse or other relatives. A large part (20.8%) reported having performed some habitual physical activity, (24.7%) smoked and (7.1%) ingested high amounts of alcohol. The mean WHOQOL-Bref score was 87.9 ± 11.6 points, with 6.1% having poor quality of life and 93.9% regular/good. There was a high number of elderly people with hypertension, type 2 diabetes, cardiovascular diseases and stroke in the low quality of life group. Also, it showed a high frequency in the elderly who reported very poor/poor vision, hearing and the prevalence of hospitalizations. The results suggested that the quality of life standards assessed by the WHOQOL-Bref are similar to the Southern Brazilian regions and the cut-off point used here was reliable for detecting poor quality of life associated with chronic morbidities.

Keywords: quality of life; aging; morbidity; health.

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Introduction

Aging is part of natural human development increasing the risk of dysfunction and diseases in the elderly population (Roriz-Cruz et al., 2007; Celich, Creutzberg, Goldim, & Gomes, 2010). Therefore, elderly people experience reduced physical and mental functions, and consequently presents a higher probability of suffering from multiple health morbidities. The acceleration of aging process can be associated with health, environmental and social factors, including the perception of life quality by the elderly (Pereira et al., 2006). However, the impact of aging on life of elderly present an interaction between objective and subjective elements.

The World Health Organization (WHO) defined quality of life as the individual's perception of their position in life in the context of the culture and the value system they inhabit, in relation to expectancies, patterns and concerns (World Health Organization Quality of Life Group [WHOQOL Group], 1995; Power, Harper, & Bullinger, 1999). To evaluate some indicators of this concept based on the definition of health itself and interpreted WHO developed an easy and non-expensive instruments [World Health Organization Quality of Life Group (WHOQOL Group) including WHOQOL-Bref] (World Health Organization Quality of Life [WHOQOL-Bref], 2004).

The WHOQOL-Bref has being broadly used to evaluate quality of life being compound by five Likert style response scale. This scale evaluates three essential aspects: subjectivity, multi-dimensionality and the presence of positive and negative dimensions in their particular characteristics (Fleck, Chamovich, & Trentini, 2006; Maués, Paschoal, Jaluul, França, & Jacob Filho, 2010; Kumar & Majumdar, 2014). Despite the WHOQOL-Bref provide an overall evaluation for quality of life, only recently a cut-off point of WHOQOL-Bref was provided by Silva, Soares, Santos, and Silva (2014) that performed a cross-sectional study including 391 elderly living in Minas Gerais State (Brazil). The diagnostic interpretation of the ROC curve identify a cut-off < 60 for overall quality of life.

The Brazil is a diverse sociocultural country that presents specific aspects among their different geographic regions. The elderly living in the Brazilian North Region are incipient and must be carried out to

support health public policies. For this reason, an aging epidemiological project named Amazon Rainforest Elderly Project was implemented in 2006 of the elderly inserted in the Family Health Strategy (FHS), a Brazilian health public care program, which live in higher urbanized area of Amazonas (Manaus-AM) and in riverine elderly living in the Maués City. Comparison between urbanized and riverine elderly showed that urbanized elderly present a similar prevalence of epidemiological indicator than observed in more Southern and South regions, which are economic and sociocultural developed areas (Ribeiro et al., 2008; 2013).

As the quality of life indicators of elderly living in Amazonian region was not evaluated until now, we performed a complementary cross-sectional investigation in free-living community elderly of Amazon Rainforest Elderly Project that were inserted in Family Health Strategy, Manaus, State Amazonas. The study estimated the prevalence of elderly with poor life quality using the cut-point of WHOQOL-Bref of < 60 points as suggested by Silva et al. (2014) and the association of this low punctuation with sociocultural, economic and health variables.

Material and methods

Design and population of study

The present study analyzed the baseline data of the Amazon Rainforest Elderly Project a population-based cohort study of older adults (≥ 60 years) in Amazonas Brazil (Ribeiro et al., 2008). Amazon State University Ethical Board previously approved this project and all subjects signed Consent Term. The study involved the elderly population living in Manaus, Amazonas State, and Northeast Brazil. The municipality of Manaus had some 1.646.602 inhabitants in 2007. Manaus is a high-urbanized area of Amazonia, being the 8th city more populated of Brasil. Manaus is situated in a Tropical Forest Area with 80-90% relative humidity and mean temperature around 28°C (14-40°C). In the moment of Amazon Rainforest Project was implanted the most part of Manaus population was concentrated in the East and West areas. In 2007, the main elderly causes of death in this municipality was cardiovascular, respiratory diseases and neoplasia; infant mortality rate until five years old was 21.26/1000 child, fecundity rate was 3.74 child/woman. The Human Development Index (HDI) was 0.788 that represented a moderate development and life expectance was 67.7 years old that was lower the Brazil (71.2 years old). The Manaus's population is a very ethnical mixed, compound primarily by Native South-American people (indigenous), European (mainly Portuguese) and Africans. More lately, other populations, specially Arabians, Judies and Japanese people immigrated to Manaus and now are part of this City.

The FHS of Manaus is distributed in four districts of health (North, South, East and West) being compound by 169 Health Service Units (HSU). Each HSU have one physician (general practioner), nurse and health assistance agents. In 2007, 675.105 people were inserted by FHS. From these data, the sample representative number of elderly was calculated to be 1.680 subjects (1420-1735). The study tried to collected data from 1:1 male/female proportion despite do exist high frequency of women than males, in the Manaus's elderly population.

The present investigation was performed by a conglomerate sample in two stages: In the first stage the HSU were considered basic units of selection. The number of HSU was proportionally distributed according the four Health Districts. From the choose of HSU was performed a second stage selection constituted by elderly to be investigated. The selection was made randomically from health records found in each HSU. Data collection was performed in the home of elderly by trained health professionals ($n = 70$). Each interviewer included 24 elderly from two different HSU. The interviewers were accompanied by the health agent who regularly attends the elderly included the study. The elderly that wasn't be interviewed because of cognitive deficit or for some other health reason was excluded of the sample analysis, since the WHOQOL-Bref includes some personal questions that required a subjective statement.

Depend variable

The depend variable of the present study was the quality of life evaluated by WHOQOL-Bref previously validated to Brazilian Portuguese Language (Fleck et al., 2006). From instrument application, the prevalence of elderly with Poor Quality of Life (PLQ < 60 points) or Regular/Good Quality of Life (RGLQ ≥ 60 points) was initially determined. The cut-point of WHOQOL-Bref was based in the Silva et al. (2014) investigation. From results, sociocultural, economic, health and lifestyle variables were compared between elderly were categorized in two WHOQOL-Bref groups (PLQ and RGLQ).

Independent variables

The following variables from the baseline interview were compared between PLQ and RGLQ elderly groups: (1) socio-demographic characteristics (age, gender, marital status, education and monthly income). Monthly family income was reported as 'number of times the prevailing Brazilian monthly minimum wage' (approximately US\$ 100) and schooling was reported by number of years studied in the School by the elderly; (2) lifestyle (current smoking status and physical activity); (3) self-rated health in the previous 6 months. Self-reported health conditions including the presence of hypertension, type 2 diabetes, obesity, coronary diseases, stroke, cancer and rheumatic diseases; (3) annual immunizations; (4) and falls and fractures within the past six months. The health data self-report approach has been well documented as a reliable predictor of functional disability and mortality in aged populations (Sun et al., 2007); (4) health services indicators (doctor visits in past 12 months and hospitalizations in past 12 months).

Statistical analysis

All analyses were completed using the statistical package for social studies (SPSS) version 17.0 (SPSS Inc., Chicago, IL). Chi-squared tests and t-tests were conducted to examine differences in the sociodemographic and clinical characteristics of the PLQ and RGLQ elderly groups. Multivariate logistic regression analysis (Backward Wald method) was used to investigate the adjusted odds of having any disability and/or specific chronic diseases, adjusting for sex and age. All variables that showed univariate statistical significance were included in the logistic regression test. All significance levels were two-tailed. The self-reported causes of hospitalization and medical record data were correlated using Spearman's rho non-parametric correlation. The alpha value considered was $p < 0.05$.

Results

From 1509 elderly interviewed, 1431 (94.8%) answered the WHOQOL-Bref instrument. The mean age of sample was 70.9 ± 7.6 years old. Table 1 presents the characteristics baseline of elderly investigated here. Almost elderly was married, with no or low education level, with very low income (< 200 US\$ month⁻¹) and lived with spouse or spouse and other relatives.

Considering some lifestyle aspects, 297 (20.8%) of elderly people self-reported to perform some habitual physical activity, 353 (24.7%) subjects reported that smoke or smoked in the past and 102 (7.1%) said that believe to intake high quantity of alcoholic beverages.

A high prevalence of hypertension, diabetes, and rheumatic disorders were reported by the elderly studied here (Table 2). The diagnosis, medical prescription and orientation were performed by health service.

A total of 229 (16.4%) elderly reported to be hospitalized in the last ten years and 432 (30.2%) reported to fall in the last five years and 105 reported to present some fracture due fall. In the elderly that reported to experiment fall, 154 fell in the home. An excellent vision was self-reported by 3 (6.6%), a very good vision by 351 (24.8%), a regular vision by 447 (31.2%), a poor vision by 498 (35.2%) and a very poor vision including blindness by 24 (1.7%) of elderly.

An excellent hearing was self-reported by 983 (68.7%), a very good hearing by 160 (11.2%), a regular hearing by 163 (11.5%), a poor hearing by 95 (6.6%) and a very poor hearing by 10 (0.7%) of elderly included in the study.

The absolute frequency distribution and the percentiles of WHOQOL-Bref scores were initially determined and are presented in Figure 1. The mean WHOQOL-Bref score was 87.9 ± 11.6 points with minimum of 26 and maximum of 130 points. From this analysis the prevalence of PLQ was 6.1% ($n = 88$) and the RGLQ was 93.9% ($n = 1342$). Table 3 presents a summary of the results considering each WHOQOL-Bref questions. The questions more frequency of poor answer were about to opportunity for leisure activities money to meet elderly needs; sex life satisfaction and transport.

The sociocultural, health and lifestyle variables were compared between two elderly groups classified with WHOQOL-Bref score. The marital status was the only sociocultural variable associated with life quality ($p = 0.013$). A high number of widow was observed in PLQ group ($n = 36$, 41.4%) when compared to RGLQ group ($n = 351$, 26.2%). On the other hand, high number of divorced was observed in RGLQ ($n = 98$, 7.3%) than PLQ group ($n = 01$, 1.1%).

Table 1. Characteristics baselines of free-living community elderly (Manaus, State Amazonas).

Variables		n	%
Sex	Male	659	46.1
	Female	772	53.9
Marital status	Married	807	56.5
	Widow	387	27.1
	Divorced	99	6.9
	Single	134	9.4
	Illiterate	358	25.6
Education	Alphabetized	278	19.8
	< 4 years	354	25.3
	4 years	237	16.9
	> 4 < 8 years	64	4.6
	> 8 < 12 years	40	2.9
	≥ 12 years	70	4.9
Family Monthly income (US\$)	No income	152	10.9
	≤ 200	813	58.1
	200 ≤ 400	343	24.5
	> 400	83	5.9
Occupation	Did not answer	152	13.4
	Retired	864	64.5
	0	50	3.5
	1	57	4.0
	2	96	6.8
Number of children	3	127	9.0
	4	115	8.2
	5	126	8.9
	> 6	838	49.5
	Alone	103	7.2
Who lives	Spouse	578	40.4
	Spouse and relatives	524	47.4

Table 2. Self-reported of health conditions of free-living community elderly inserted in Family Health Strategy (Manaus, State Amazonas, Brazil).

Diseases	Yes, with medical prescription and orientation N (%)	Yes, without medical prescription and orientation N (%)	Yes, without medical prescription and no-orientation N (%)	No N (%)
Hypertension	818 (57.7)	12 (0.8)	19 (1.3)	568 (40.1)
Diabetes type 2	340 (24.1)	13 (0.9)	07 (0.5)	1047 (74.3)
Coronary disease	174 (12.2)	9 (0.6)	31 (2.2)	1184 (82.7)
Stroke	81 (5.7)	12 (0.8)	0	1327 (93.4)
Gastritis	72 (5.0)	04 (0.3)	31 (2.2)	1324 (92.5)
Renal disorders	88 (6.1)	08 (0.6)	42 (2.9)	1293 (90.4)
Rheumatism	412 (28.8)	62 (4.3)	184 (12.9)	773 (54.0)
Pain of spinal column	218 (15.2)	31 (2.2)	119 (8.3)	1063 (74.3)
Varicose veins	57 (4.0)	28 (2.0)	109 (7.6)	1237 (86.4)
Bronchitis	209 (14.6)	22 (1.5)	83 (5.8)	1117 (78.1)
Cancer	33 (2.3)	02 (0.1)	0	1396 (97.6)
Prostate disorders*	121 (18.4)	09 (1.4)	09 (1.4)	513 (77.8)

*Frequency considering just male sample.

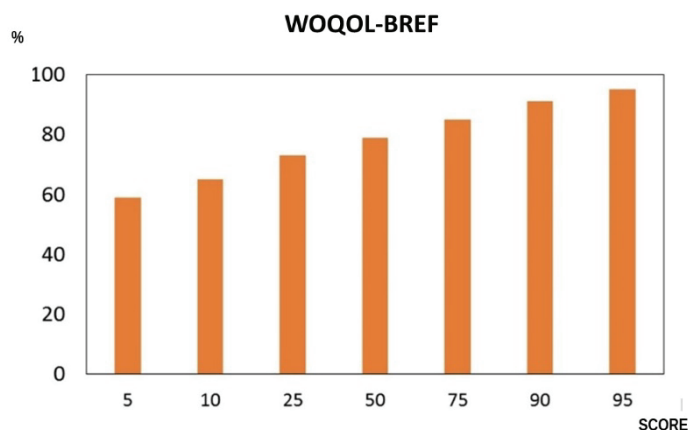


Figure 1. Percentiles distribution of community elderly inserted in Family Health Strategy, Manaus, State Amazonas.

Table 3. Frequency of WHOQOL-Bref questions answered by free-living community elderly inserted in Family Health Strategy (Manaus, State Amazonas, Brazil).

Questions	N (%)	N (%)	N (%)	N (%)	N (%)
How would you rate your quality of life?	Very Poor 12 (0.8)	Poor 59 (4.1)	Neither poor nor good 455 (31.8)	Good 765 (53.8)	Very Good 132 (9.2)
How satisfied are you with your health?	Very dissatisfied 24 (1.7)	Dissatisfied 142 (9.9)	Neither satisfied nor dissatisfied 408 (28.5)	Satisfied 697 (48.7)	Very satisfied 152 (10.6)
To what extent do you feel that physical pain prevents you from doing what you need to do?	Not all 41 (2.9)	A little 278 (19.4)	A moderate amount 323 (22.6)	Very much 292 (20.4)	An extreme amount 487 (34.3)
How much do you need any medical treatment to function in your daily life?	140 (9.8)	309 (21.7)	439 (30.4)	479 (33.6)	64 (4.5)
How much do you enjoy life?	69 (4.8)	204 (14.3)	368 (25.7)	672 (47.0)	115 (8.0)
To what extent do you feel your life to be meaningful?	23 (1.6)	68 (4.8)	280 (19.6)	802 (56.0)	258 (17.8)
How well are you able to concentrate?	33 (2.3)	141 (9.9)	414 (29.1)	710 (49.3)	133 (9.3)
How safe do you feel in your daily life?	27 (1.9)	104 (7.3)	374 (26.1)	766 (53.5)	146 (10.1)
How healthy is your physical environment?	65 (4.5)	151 (10.6)	466 (32.6)	629 (44.1)	120 (8.1)
Do you have enough energy for everyday life?	Not at all 12 (0.8)	A little 59 (4.1)	Moderately 455 (31.8)	Mostly 765 (53.8)	Completely 132 (9.2)
Are you able to accept your bodily appearance?	32 (2.2)	93 (6.5)	294 (20.5)	657 (45.9)	351 (24.5)
Have you enough money to meet your needs?	184 (12.9)	581 (40.6)	483 (33.8)	132 (9.2)	48 (3.3)
How available to you is the information that you need in your day-to-day life?	68 (4.8)	252 (17.7)	501 (38.2)	437 (30.5)	123 (8.6)
To what extent do you have the opportunity for leisure activities?	293 (20.5)	372 (26.0)	417 (29.1)	267 (18.7)	76 (5.3)
How well are you able to get around?	Very Poor 39 (2.7)	Poor 110 (7.7)	Neither poor nor good 158 (11.0)	Good 599 (41.9)	Very Good 501 (35.0)
How satisfied are you with your sleep?	Very dissatisfied 28 (2.0)	Dissatisfied 196 (13.7)	Neither satisfied nor dissatisfied 204 (14.3)	Satisfied 763 (53.3)	Very satisfied 238 (16.6)
How satisfied are you with your ability to perform your daily living activities?	23 (1.6)	139 (9.7)	238 (16.6)	804 (56.2)	223 (15.6)
How satisfied are you with your capacity for work?	46 (3.2)	238 (16.7)	288 (20.2)	687 (47.5)	172 (12.1)
How satisfied are you with yourself?	12 (0.9)	60 (4.2)	195 (13.6)	850 (59.1)	313 (21.9)
How satisfied are you with your personal relationships?	12 (0.8)	51 (3.6)	165 (11.5)	902 (63.0)	298 (20.8)
How satisfied are you with your sex life?*	112 (7.8)	175 (12.2)	340 (23.8)	602 (42.1)	131 (9.6)
How satisfied are you with the support you get from your friends?	21 (1.5)	72 (5.0)	229 (16.0)	893 (62.4)	216 (14.5)
How satisfied are you with the conditions of your living place?	30 (2.1)	99 (6.9)	217 (15.2)	830 (58.1)	252 (17.6)
How satisfied are you with your access to health services?	36 (2.5)	124 (8.7)	258 (18.1)	817 (57.1)	189 (13.2)
How satisfied are you with your transport?	77 (5.4)	234 (16.4)	309 (21.6)	694 (48.4)	115 (8.0)
How often do you have negative feelings such as blue mood, despair, anxiety, depression?	Never 522 (36.5)	Seldom 663 (46.3)	Quite often 130 (9.1)	Very often 61 (4.3)	Always 47 (3.3)

*71 elderly did not answer this question.

There was a high frequency of elderly with stroke ($p = 0.0001$) in the PLQ group and RGLQ (Figure 2). Other chronic diseases were also compared among groups, such as arterial hypertension ($p = 0.009$), type 2 diabetes ($p = 0.0001$), cardiovascular diseases ($p = 0.039$). Regarding the complaints, the elderly reported high frequency of very poor / poor vision ($p = 0.0001$) and hearing ($p = 0.0001$).

A high prevalence of hospitalizations was also described by elderly classified in PLQ group ($n = 25$, 29.4%) than RGLQ group ($n = 204$, 15.5%) ($p = 0.0001$).

A multivariate statistical analysis showed that the association between these variables with life quality using < 60 cut-point WHOQOL-Bref score was independent of sex and age of sample.

Discussion

In the present study a large free-living community sample of elderly inserted in the Family Health Strategy of Manaus, Amazonas was investigated in relation to quality of life. The analysis was performed using the WHOQOL-Bref score and also considered the cut-point of this score proposed by Silva et al. (2014) study. The prevalence of PLQ elderly was slightly lower than for described by Silva et al. (2014).

When the elderly were categorized by the WHOQOL-Bref cut-off proposed by Silva et al. (2014) was observed significant association with just one sociocultural variable and several morbidities indicating that this cut-off point is realistic to identify elderly with diseasibilities impact on quality of life. Marital status was significantly associated with categorization of quality of life. In the case, high frequency of widows was observed in PQL than RGQL elderly group. Fried (2000) considering the marital status as a non-modifiable longevity predictor. Elderly lives alone could be more chance to present morbi-mortality than elderly living in family or with their spouses. The results found here corroborates indirectly the suggestion that marital status can be a predictor of longevity since window present less punctuation of WHOQOL-Bref.

The impact of quality of life by the presence of chronic morbidities has been previously described in the literature. For example, diabetes was among the diseases more prevalent in PLQ group. Quality of life is an important aspect in diabetes because poor quality of life leads to diminished self-care, which in turn leads to worsened glycemic control, increased risks for complications, and exacerbation of diabetes overwhelming in both the short run and the long run. A study performed by Jain, Shivkumar, and Gupta (2014) also found association with poor life quality measured by WHOQOL-Bref and diabetes type 2 in Indians patients. Another investigation that can be considered was performed by Martínez, Prado-Aguilar, Rascón-Pacheco, and Valdivia-Martínez (2008) that included 238 Mexican diabetic patients. Despite there is not association between quality of life and treatment adherence, the authors found a strong association between diabetics and several domains of quality of life measured by WHOQOL-Bref. Huang and Hung (2007) also described association between predictors of quality of life with self-care behaviors, economic status and frequency of hospitalization.

A recent investigation performed by Tchicaya, Lorentz, Demarest, Beissel, and Wagner (2015) of diabetic's patients underwent coronary angiography showed that patients that self-reported weight loss and no weight change were positively associated with high quality of life score than patients with weight gain.

Association between life quality evaluated by WHOQOL-Bref and hypertension has being previously reported. This is the case of study performed by Khosravi et al. (2010) that described a negative association between each domain of health-related QOL and systolic blood pressure after adjustment for socio-demographic variables. Increasing systolic blood pressure was associated with a lower score of health-related QOL.

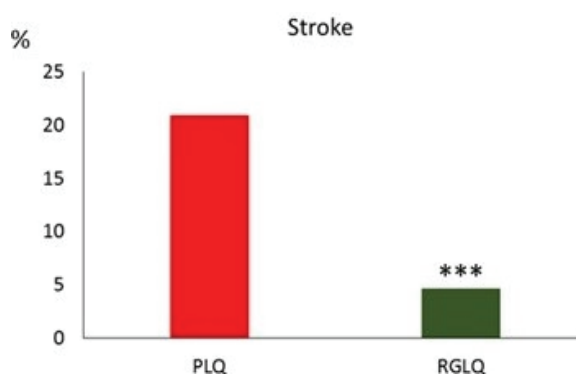


Figure 2. Comparison of self-reported stroke by elderly people with low quality of life (PLQ < 60 points) or regular / good quality of life (RGLQ > 60 points), based on Silva et al. (2014). Prevalence was compared between the groups by the chi-square statistical test. ** $p < 0.01$; *** $p < 0.0001$.

Several investigations also described association with low quality of life and stroke. This is the case of study conducted by Jeong et al. (2012) that included 422 stroke patients. Psychological distress and impaired cognitive function were associated with lower QOL in patients with acute stroke. The authors suggested that application of instruments can be measure quality of life could be applied and to be relevant to implement psychological interventions mainly to improve quality of life during the acute phase following stroke.

On the other hand, the number of study using WHOQOL-Bref to evaluate quality of life in patients with cardiovascular diseases is less than stroke. Najafi, Sheikhatan, Montazeri, and Sheikhatollahi (2013) examined the WHOQOL-Bref validity in 275 patients um Coronary Artery Disease (CAD). However, the findings suggested that the WHOQOL-Bref might only be a measure of the overall quality of life in patients with CAD.

It is important to comment some methodological concerns related with the present investigation. Despite the large sample number of elderly included in the present study, this is a cross-sectional investigation and, for this reason, the results need to be interpreted carefully.

For our best knowledgment, this is the first investigation about quality of life of elderly living in the Brazilian Amazonian tropical region.

Conclusion

The results suggest that quality of life patterns evaluated by WHOQOL-Bref are similar with developed Brazilian Southern and South regions, despite the large cultural and ecological differences existents among these regions.

Finally, the results described here confirmed that WHOQOL-Bref cut-point described by Silva et al. (2014) are reliable to detect elderly with poor quality of life due previous chronic morbidities highly prevalent in the population such as hypertension and diabetes type 2.

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