

Quality of life among the Brazilian adult population using the generic SF-8 questionnaire

Qualidade de vida da população adulta brasileira através do questionário SF-8

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Abstract

The objective of this study was to assess the quality of life in the Brazilian adult population, based on the U.S. standard population. It involved a cross-sectional population-based study with probabilistic sampling of 2,420 individuals (725 men and 1695 women) aged 40 or more in different geographic regions of Brazil. A socio-demographic questionnaire and the SF-8 (Short Form-8) were administered in interview form. Descriptive statistics, analysis of variance, the Mann-Whitney test and Tukey's test were used in the analysis. Females, populations in the northeastern region, the population of the regions of Brasília (Distrito Federal), Campo Grande (Mato Grosso do Sul State) and Goiania (Goiás State), Brazil, demonstrated worse quality of life. Age, education and income had influence over quality of life domains. This study presents quality of life estimates for the Brazilian adult population, based on the SF-8 questionnaire. The mean values on the subscales and components of the SF-8 appeared to be influenced by gender, geographic region, family income, age and schooling.

Quality of Life; Socioeconomic Survey; Demography; Health Status

Introduction

In recent decades, research into quality of life has become an emerging phenomenon in the medical literature. A large part of the current interest in this field of investigation may be attributed to concerns regarding environmental degradation and human wellbeing as well as the increasing impact of chronic disease on the health of populations ^{1,2,3,4}. The quest for a greater understanding of the processes involved in quality of life is aimed at broadening the perspectives of social equality as well as ecological and cultural diversity to allow a reassessment of the urban lifestyle and quality of consumption, work, distribution of wealth and access to goods and services ⁵.

In this context, *Health-Related Quality of Life* (HRQL) has been proposed as those aspects of self-perceived well-being that are related to or affected by the presence of disease or treatment ⁴. An array of scores representing individual dimensions or domains of HRQL can be provided by health profiles (or health status questionnaires). The rationale is that since such questionnaires focus on those aspects of existence that are affected by ill health, they may give some indication of the impact of illness on quality of life ^{6,7}. The *Short Form-36* (SF-36) is a well known example of such health profiles. In contrast to condition specific measures, which may be criticized for their narrowness, health profiles attempt to capture aspects of health that are important

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to all patients. They are useful for health status comparison both among patients with the same condition and between patients with different conditions. Such measures can also be administered to the general population to see how a particular condition causes health to depart from a "health standard" ⁸. A large number of quality of life assessment tools have been produced and validated in different countries ⁴.

Among these questionnaires for measuring quality of life, the *Short Form-8* (SF-8) is an advancement toward achieving the ideal combination of scope and brevity ⁹. The aim of the development of this instrument was to offer an assessment tool that could be administered in one to two minutes and accurately reproduce the physical and mental results of the eight subscales in the widely used SF-36 ¹⁰. The ease and quickness of administration are the most attractive aspects of this new tool, which can be either self-administered or administered in interview form. The results are comparable to those of the SF-36 when administered to large samples, with differences in terms of precision, as the SF-8 is capable of distinguishing a lower number of health levels ⁹.

The SF-36 has been translated and validated for use on the Brazilian population and is increasingly used in clinical studies ^{11,12,13,14}. As the SF-8 was drafted in a similar manner to the SF-36, the results of the two assessment tools can be compared and interpreted using the same interpretation guidelines ^{9,10}.

The lack of population-based studies in Brazil hinders the comparison of investigations carried out in the country with estimates on quality of life parameters for the population. Moreover, there are no data on the geographic and socioeconomic distribution of quality of life among the Brazilian adult population, using the SF-8 or the SF-36 instrument.

Objectives

The aim of the present study was to assess the quality of life of the Brazilian adult population (aged 40 years or more), using the generic SF-8 quality of life questionnaire.

Methods

Population and sampling

According to the last official census, Brazil has 5,507 municipalities, covering 8,514,215.3km² over 27 Federative Units. By the time the present

study was carried out, the Brazilian population totaled approximately 169,799,170 inhabitants, most of which have a mixed ethnic background. Officially, the population is made up of whites (53.95%), mulattos (38.92%), blacks (6.2%), Asians (6.19%), indigenous peoples (0.43%) and undeclared peoples (0.66%). The majority of the population (81.2%) lives in urban areas.

For the present study, the sample size was calculated by probabilistic sampling to represent the urban and rural populations as reported in the *2000 Brazilian National Census* (Brazilian Institute of Geography and Statistics – <http://www.ibge.gov.br>) and the *2003 National Household Sample Survey* (PNAD 2003).

The sample was selected in three phases, with control of gender, age and occupation; homes were randomly selected. Interviews were performed on weekdays and weekends both day and night in order to maximize the possibility of encountering the target population at home. Sample distribution according to social class, education, marital status, ethnic group and geographic region reflected official data for the Brazilian population. The data were further weighted to respect the distribution and proportionality of the overall Brazilian population. The sampling error was estimated as 2.2% for a 95% confidence interval (95%CI).

From March to April 2006, a total of 2,420 individuals (725 men and 1695 women) aged 40 or above, representative of all socioeconomic classes in 150 cities (less than 20,000 inhabitants; between 20 and 100,000 inhabitants; and more than 100,000 inhabitants) of the five regions of Brazil, were assessed in a cross-sectional population-based survey. The participants pertained to different socioeconomic classes, had different degrees of schooling and held different occupations. Individuals with cognitive impairment that could compromise the consistency of the responses on the questionnaire (those with neurological diseases or dementia) were excluded from the study. If a household with more than two individuals over 40 years of age were selected, which is not uncommon in Brazil, many more individuals with very similar characteristics (diet, genetics, etc.) would be included. In order to avoid selection bias, if this happened, these households were automatically randomized again.

Measurement

Face-to-face interviews were performed by a team of trained professionals at the homes of the interviewees. Socio-demographic data (age, gender, schooling, household income and geographic region) were gathered by means of a structured

questionnaire. Household income was calculated in the Brazilian currency (Real).

The SF-8 has three different versions: a standard version with a one-month response time (used in the present study), a version with a one-week response time and a version with a 24-hour response time. The questionnaire is structured with eight items, none of which is identical to those on the SF-36, but there are many similarities. It is divided into eight subscales (*physical functioning, role physical, bodily pain, general health, vitality, social functioning, role emotional and mental health*) and two summary components (physical and mental) through which the results are expressed.

The scores on the subscales and summary components are presented in the form of variations in relation to the population of the United States of America (mean score = 50, standard deviation – SD = 10), where the instrument was validated. Thus, scores below 50 points correspond to deviations from normality and indicate a poorer quality of life, whereas scores above 50 points represent a better quality of life than that of the average adult American population.

As the present study is part of the *Brazilian Osteoporosis Study* (BRAZOS)¹⁵, the aim of which is to determine the prevalence of risk factors for osteoporotic fractures in the Brazilian population, a greater number of women were included due to the fact that women are more frequently affected by osteoporosis. So, this is a possible analysis, considering the characteristics of the sampled population.

The mean administration time of the entire BRAZOS questionnaire was 60 minutes for each individual. Approximately 25% of the questionnaires were verified *in loco* or through telephone contact. All questionnaires were reviewed by an independent supervisor and were submitted to continual critiquing. Inconsistently filled out questionnaires were sent back for corrections. All participants signed terms of informed consent, which received approval from the Ethics Committee of the Universidade Federal de São Paulo.

Statistical analysis

The data are expressed as mean and SD, with 95%CI. The distribution of variables was assessed using Kolmogorov-Smirnov's test. Analysis of variance (ANOVA), the Mann-Whitney test and Tukey's test were used for the comparisons of means on the subscales and components of the SF-8 according to gender, age group, schooling, geographic area and household income. The SPSS for Windows, version 12 (SPSS Inc., Chicago, USA) and Statistical Analysis System for Win-

dows, version 8.02 (SAS Inst., Cary, USA), programs were used, with the level of significance set at 5% ($p < 0.05$).

Results

The mean value on the SF-8 for the Brazilian population was generally lower than that of the American population (Table 1). The *role social*, the *bodily pain* and the *mental health* subscales achieved scores above 50 points, in men. Women exhibited poorer quality of life on all subscales than men, with the exception of Vitality (Table 1). Women also scored lower on the *physical* and *mental summary components* ($p < 0.001$ – Mann-Whitney test).

For most of the subscales and components, the different geographic regions of Brazil exhibited poorer quality of life than the mean of the American population. Only some of the regions exhibited a better quality of life than the mean score of the American population: Central West-Interior, Northeast-Metropolitan and South-Interior (Table 2), however, these estimates may not be true since the confidence interval includes values below 50.00. With regard to the physical summary component, Northeast-Interior had the worst quality of life scores ($p < 0.05$, with the exception of the Northeast-Metropolitan – Tukey's test). For the mental summary component, Brasília (Distrito Federal)/Campo Grande (Mato Grosso do Sul State)/Goiânia (Goiás State) had the worst quality of life scores ($p < 0.05$ for all regions – Tukey's test).

Table 3 shows a progressive reduction in quality of life with the advance in age on the different subscales of the SF-8 ($p < 0.01$). ANOVA revealed no significant differences between age groups on the *mental health* subscale ($p = 0.424$). Table 4 shows an increase in quality of life with a greater number of years of schooling on most of the subscales ($p < 0.01$). *Mental health* was the only subscale that was not significantly influenced by schooling ($p = 0.388$ - ANOVA). Table 5 shows that *household income* had a significant influence over quality of life on all subscales ($p < 0.05$). Individuals with lower incomes achieved worse quality of life scores on the physical summary component (ANOVA).

Discussion

The use of quality of life measures for the description of the health of a population makes it possible to identify the most compromised dimensions of wellbeing and to establish priority

Table 1

Mean values on subscales and summary components of the *Short Form-8* according to gender. Brazil, 2007.

	n	Mean	SD	95%CI
General health				
Male	725	45.36	8.14	44.77-45.96
Female	1,695	42.82	7.76	42.45-43.19
Physical functioning				
Male	725	49.24	8.29	48.64-49.85
Female	1,695	46.58	9.15	46.15-47.02
Role physical				
Male	725	49.09	8.40	48.48-49.71
Female	1,695	45.96	9.70	45.50-46.42
Bodily pain				
Male	725	52.16	10.16	51.42-52.91
Female	1,695	47.14	11.35	46.60-47.68
Vitality				
Male	725	43.01	10.79	42.22-43.80
Female	1,695	44.86	10.00	44.39-45.34
Role social				
Male	725	52.04	6.87	51.54-52.54
Female	1,695	49.32	8.82	48.90-49.74
Mental health				
Male	725	52.40	7.49	51.85-52.94
Female	1,695	48.71	9.75	48.25-49.18
Role emotional				
Male	722	49.62	6.39	49.15-50.09
Female	1,683	47.39	7.87	47.01-47.76
Physical summary component				
Male	725	48.22	8.94	47.56-48.87
Female	1,695	44.79	9.87	44.32-45.26
Mental summary component				
Male	725	50.96	7.10	50.44-51.48
Female	1,695	48.39	9.01	47.96-48.82

SD: standard deviation; 95%CI: 95% confidence interval.

areas for investments and more specific studies⁴. Measures that offer normalized scores, such as the SF-8, also enable a direct comparison of the results to a reference population, allowing losses in quality of life to be interpreted in terms of deviations from normality⁹. Scores can be understood as departures from expected or typical scores. So, norm-based interpretation answers the questions of whether or not an observed score is typical: Is the score expected for this individual or group of individuals? In the present study, the assessment of the quality of life among the Brazilian population can be directly compared to that of the population of the United States, where the SF-8 was validated. For example, in Table 1 an average of 45.36 for the General Health subscale

in males (an atypical score), indicates that in the Brazilian population, men are at 0.54 standard deviations below the mean of the reference population (mean score = 50, SD = 10).

The subscales and components of the measure generally reveal a lower quality of life among Brazilians. The *role social* subscale was an exception, on which the Brazilian population achieved a score of more than 50 points, which is above the mean of the population of the United States. The lesser sensitivity of the scale with regard to social aspects may be related to this finding¹⁰. In this sense, the values could be overestimated, since in Brazil these are expected to be more strongly influenced by social factors, than in the U.S. population. The subscales Bodily Pain

Table 2

Mean values on physical and mental components of the *Short Form-8* according to geographic region. Brazil, 2007.

	n	Mean	SD	95%CI
Physical summary component				
Brasília/Campo Grande/Goiânia	200	46.18	0.66	44.88-47.47
Central-west interior	192	45.78	0.73	44.33-47.22
Northeast interior	280	45.71	0.58	44.58-46.85
Northeast metropolitan region	220	47.44	0.60	46.26-48.61
North interior	200	43.21	0.69	41.84-44.58
North metropolitan region	104	44.53	0.96	42.62-46.43
Southeast interior	376	45.94	0.52	44.92-46.96
Southeast metropolitan region	436	45.11	0.48	44.17-46.05
South interior	200	46.49	0.64	45.22-47.75
South metropolitan region	212	47.67	0.64	46.40-48.94
Mental summary component				
Brasília/Campo Grande/Goiânia	200	47.23	0.57	46.12-48.35
Central-west interior	192	50.54	0.56	49.44-51.63
Northeast interior	280	49.94	0.56	48.84-51.04
Northeast metropolitan region	220	48.14	0.58	46.99-49.29
North interior	200	49.29	0.60	48.11-50.46
North metropolitan region	104	50.54	0.84	48.87-52.22
Southeast interior	376	48.91	0.44	48.04-49.79
Southeast metropolitan region	436	48.49	0.42	47.66-49.32
South interior	200	50.50	0.56	49.39-51.62
South metropolitan region	212	49.49	0.57	48.37-50.61

SD: standard deviation; 95%CI: 95% confidence interval.

and Mental Health also showed scores above 50 points, in this case the poor distribution of wealth and social inequalities may have influenced this result^{10,16,17,18}. Some studies have shown that low socio-economic development can lead to a lower expectation in relation to health, causing individuals to assess their quality of life with values higher than expected. This effect has been noted mainly in males, in which different values assigned to the body, the pressing need of work, can be observed^{19,20,21,22}. Thus, the observed values may be overestimated in relation to the U.S. population, where the best socio-economic status cannot exert the same influence as in the case of Brazil.

The female gender had worse quality of life scores than males. The scientific literature has demonstrated that, although women have a longer life expectancy, they have shorter periods than males in which they are free of disabilities, which suggests a gender difference in terms of compromised quality of life. The factors commonly addressed to explain the poorer quality of life among women are related to gender dif-

ferences in social opportunities and higher mortality rates among men at younger ages^{23,24,25}. Different distributions of chronic diseases and functional capacity by gender, may also influence these differences between men and women. In a population-based study conducted in Brazil, to evaluate the quality of life of seniors through the SF-36, women were in a worse situation than men in all SF-36 scales. According to the authors, the fact that women exhibit a worse self-assessed level of health may be attributed to the greater perception and knowledge that they have regarding diseases and symptoms, considering the role as a family health caregiver, that makes women dedicate more attention to the signs of diseases²⁰.

The assessment of quality of life in the different geographic regions of Brazil reveals that the northeastern region scored lowest with regard to the physical component, whereas the Brasília/Goiânia/Campo Grande region scored lowest on the mental component. The analyses of the present study do not allow an investigation into the regional factors involved in the findings on

Table 3

Mean values on subscales of the *Short Form-8* according to age group. Brazil, 2007.

	n	Mean	SD	95%CI
General health (years)				
40-50	824	45.54	8.19	44.98-46.10
51-60	480	43.86	7.90	43.15-44.57
61-70	452	42.58	7.46	41.89-43.27
71 or more	664	41.63	7.45	41.06-42.20
Physical functioning (years)				
40-50	824	49.05	8.07	48.50-49.60
51-60	480	48.29	8.24	47.56-49.03
61-70	452	46.57	8.86	45.75-47.39
71 or more	664	45.20	10.08	44.43-45.97
Role physical (years)				
40-50	824	49.02	8.15	48.47-49.58
51-60	480	47.51	9.22	46.68-48.34
61-70	452	46.06	9.51	45.18-46.93
71 or more	664	44.39	10.35	43.60-45.18
Bodily pain (years)				
40-50	824	50.34	11.08	49.58-51.10
51-60	480	49.02	11.29	48.01-50.03
61-70	452	47.21	10.86	46.21-48.22
71 or more	664	47.25	11.37	46.39-48.12
Vitality (years)				
40-50	824	47.22	9.70	46.48-47.96
51-60	480	45.19	9.58	44.30-46.07
61-70	452	43.32	10.33	42.40-44.25
71 or more	664	42.95	10.46	41.34-42.77
Role social (years)				
40-50	824	50.95	7.93	50.41-51.49
51-60	480	50.58	7.88	49.87-51.29
61-70	452	49.94	8.30	49.18-50.71
71 or more	664	48.93	9.14	48.23-49.63
Mental health (years)				
40-50	824	49.64	9.55	48.99-50.30
51-60	480	50.10	9.10	49.28-50.91
61-70	452	49.34	9.67	48.45-50.23
71 or more	664	50.16	8.80	49.49-50.83
Role emotional (years)				
40-50	822	48.78	6.80	48.32-49.25
51-60	478	48.61	7.07	47.97-49.24
61-70	449	47.00	8.00	46.26-47.74
71 or more	656	47.47	8.22	46.84-48.10

SD: standard deviation; 95%CI: 95% confidence interval.

the quality of life of these populations, but suggest that future analyses regarding these regions should respectively focus on these aspects.

The only quality of life subscale that was not significantly influenced by an advance in age

was *mental health*. This suggests that losses related to normal ageing may be more related to the physical component, which undergoes inexorable transformations over time²⁵. Compromised mental health, on the other hand, is more

Table 4

Mean values on subscales of the *Short Form-8* according to schooling. Brazil, 2007.

	n	Mean	SD	95%CI
General health				
Illiterate/Incomplete Elementary	1,103	41.94	7.59	41.49-42.39
Complete Elementary/Incomplete Middle School	601	43.81	7.92	43.17-44.44
Complete Middle School/Incomplete High School	295	44.97	8.05	44.05-45.89
Complete High School/Incomplete University	330	46.04	7.74	45.20-46.88
Complete University or more	91	48.53	7.79	46.91-50.15
Physical functioning				
Illiterate/Incomplete Elementary	1,103	45.71	9.73	45.14-46.29
Complete Elementary/Incomplete Middle School	601	47.93	8.44	47.25-48.61
Complete Middle School/Incomplete High School	295	48.87	8.06	47.94-49.79
Complete High School/Incomplete University	330	49.73	7.46	48.92-50.54
Complete University or more	91	50.57	6.60	49.19-51.94
Role physical				
Illiterate/Incomplete Elementary	1,103	44.80	10.18	44.20-45.40
Complete Elementary/Incomplete Middle School	601	47.76	8.89	47.05-48.47
Complete Middle School/Incomplete High School	295	48.61	8.36	47.66-49.57
Complete High School/Incomplete University	330	49.72	7.67	48.89-50.55
Complete University or more	91	50.82	6.59	49.45-52.20
Bodily pain				
Illiterate/Incomplete Elementary	1,103	46.96	11.47	46.28-47.64
Complete Elementary/Incomplete Middle School	601	49.18	11.19	48.29-50.08
Complete Middle School/Incomplete High School	295	50.39	10.73	49.16-51.62
Complete High School/Incomplete University	330	50.53	10.36	49.41-51.65
Complete University or more	91	53.10	10.05	51.00-55.19
Vitality				
Illiterate/Incomplete Elementary	1,103	40.77	10.63	38.56-42.99
Complete Elementary/Incomplete Middle School	601	42.01	10.46	40.87-43.14
Complete Middle School/Incomplete High School	295	43.35	10.30	42.17-44.53
Complete High School/Incomplete University	330	43.79	10.16	42.98-44.61
Complete University or more	91	45.83	10.01	45.23-46.42
Role social				
Illiterate/Incomplete Elementary	1,103	49.38	8.76	48.86-49.89
Complete Elementary/Incomplete Middle School	601	50.50	8.17	49.84-51.15
Complete Middle School/Incomplete High School	295	50.32	8.23	49.38-51.27
Complete High School/Incomplete University	330	51.29	7.64	50.46-52.11
Complete University or more	91	52.12	6.88	50.69-53.56
Mental health				
Illiterate/Incomplete Elementary	1,103	49.55	9.43	48.99-50.10
Complete Elementary/Incomplete Middle School	601	50.07	9.19	49.33-50.81
Complete Middle School/Incomplete High School	295	49.95	8.82	48.94-50.96
Complete High School/Incomplete University	330	49.71	9.47	48.69-50.74
Complete University or more	91	51.40	8.93	49.54-53.26
Role emotional				
Illiterate/Incomplete Elementary	1,093	47.36	8.08	46.88-47.84
Complete Elementary/Incomplete Middle School	598	48.59	7.13	48.01-49.16
Complete Middle School/Incomplete High School	294	48.78	6.40	48.04-49.51
Complete High School/Incomplete University	329	48.27	7.52	47.46-49.09
Complete University or more	91	49.82	5.50	48.68-50.97

SD: standard deviation; 95%CI: 95% confidence interval.

Table 5

Mean values on subscales and components of the *Short Form-8* according to household income. Brazil, 2007.

	n	Mean	SD	95%CI
General health				
Up to R\$300	479	41.26	7.56	40.58-41.94
R\$301 to R\$500	435	43.45	8.36	42.66-44.23
R\$501 to R\$1,000	831	44.10	7.69	43.57-44.62
R\$1,001 to R\$1,800	263	45.13	8.05	44.15-46.10
R\$1,801 or more	145	46.28	7.89	44.98-47.57
Physical functioning				
Up to R\$300	479	45.79	9.63	44.92-46.65
R\$301 to R\$500	435	47.07	9.10	46.21-47.93
R\$501 to R\$1,000	831	47.49	8.96	46.88-48.10
R\$1,001 to R\$1,800	263	49.25	7.77	48.31-50.19
R\$1,801 or more	145	50.42	6.40	49.37-51.47
Role physical				
Up to R\$300	479	45.22	9.84	44.34-46.11
R\$301 to R\$500	435	46.43	9.72	45.52-47.35
R\$501 to R\$1,000	831	47.08	9.32	46.44-47.71
R\$1,001 to R\$1,800	263	48.98	8.34	47.97-50.00
R\$1,801 or more	145	49.81	6.91	48.67-50.94
Bodily pain				
Up to R\$300	479	46.80	11.80	45.75-47.86
R\$301 to R\$500	435	48.30	11.19	47.24-49.35
R\$501 to R\$1,000	831	48.81	10.95	48.06-49.55
R\$1,001 to R\$1,800	263	49.87	10.85	48.55-51.18
R\$1,801 or more	145	51.46	10.18	49.79-53.13
Vitality				
Up to R\$300	479	40.84	9.49	39.28-42.40
R\$301 to R\$500	435	41.96	9.78	40.77-43.14
R\$501 to R\$1,000	831	44.25	10.21	43.56-44.95
R\$1,001 to R\$1,800	263	44.36	10.53	43.37-45.36
R\$1,801 or more	145	46.45	10.00	45.56-47.35
Role social				
Up to R\$300	479	48.25	9.29	47.42-49.09
R\$301 to R\$500	435	50.28	8.23	49.51-51.06
R\$501 to R\$1,000	831	50.58	7.89	50.04-51.11
R\$1,001 to R\$1,800	263	51.59	7.54	50.67-52.50
R\$1,801 or more	145	51.01	7.57	49.77-52.25
Mental health				
Up to R\$300	479	48.65	9.61	47.78-49.51
R\$301 to R\$500	435	49.98	8.77	49.15-50.80
R\$501 to R\$1,000	831	50.22	9.18	49.59-50.84
R\$1,001 to R\$1,800	263	50.59	8.98	49.50-51.69
R\$1,801 or more	145	50.64	8.59	49.23-52.05
Role emotional				
Up to R\$300	474	46.63	8.37	45.87-47.38
R\$301 to R\$500	434	48.00	7.39	47.30-48.69
R\$501 to R\$1,000	825	48.48	7.21	47.99-48.97
R\$1,001 to R\$1,800	262	49.04	6.47	48.26-49.83
R\$1,801 or more	145	49.48	6.08	48.48-50.47

(continues)

Table 5 (continued)

	n	Mean	SD	95%CI
Physical component				
Up to R\$300	479	43.90	10.13	42.99-44.81
R\$301 to R\$500	435	45.31	9.98	44.37-46.25
R\$501 to R\$1,000	831	45.99	9.76	45.33-46.66
R\$1,001 to R\$1,800	263	47.73	8.48	46.70-48.76
R\$1,801 or more	145	49.15	7.39	47.94-50.37
Mental component				
Up to R\$300	479	48.41	8.95	47.60-49.21
R\$301 to R\$500	435	49.51	7.98	48.76-50.26
R\$501 to R\$1,000	831	49.63	8.57	49.05-50.21
R\$1,001 to R\$1,800	263	49.15	7.97	48.18-50.12
R\$1,801 or more	145	48.64	8.12	47.31-49.98

SD: standard deviation; 95%CI: 95% confidence interval.

related to health complications, which become more prevalent in old age, than with age *per se*, as demonstrated in previous studies carried out in Brazil^{19,26,27,28}.

The impact of schooling on health conditions has been widely studied and the association to socioeconomic status is well established^{16,19,29}. In terms of quality of life, *mental health* was the only subscale that was not significantly influenced by this variable. Thus, compromised physical health appears to be more sensitive to socio-cultural adversities.

Household income had an influence over all the subscales in both the physical and mental components. The economic factor has been addressed in a number of studies that compare the expectation of a healthy life among populations in regions with different socioeconomic levels^{16,29,30}. The influence of income on health and wellbeing is well known and the data of the present study underscore the importance of this aspect in a large country with striking social disparity, such as Brazil. In this sense, studies conducted in Brazil showed that the higher the level of income and lower educational level, the worse the quality of life^{19,20,21,22}.

This study has limitations that should be addressed. No young individuals were included, as the study focused on the adult and elderly population based on the interest in studying the risk factors of osteoporosis within the scope of the BRAZOS Study. Since a multivariate analysis of the socio-demographic factors that affect quality of life among the Brazilian population was not performed, the results must be interpreted with caution, concerning the influence of socio-demographic factors on quality of life.

Although the SF-8 method was been developed in another culture, the use of this tool in our environment, facilitates the comparison of quality of life of the Brazilian population, with other international studies using the same measures. In addition, the norm-based score allow for an interpretation of population data as deviations of normality and they have the advantage of a direct interpretation in this regard, which facilitates decision-making. However, instruments for assessing quality of life have been developed specifically for the Brazilian population^{31,32}, representing a major contribution to this field of research in our country and encouraging further studies that move in the same direction.

Conclusions

This study provides the mean values for the subscales and components of the SF-8, according to different socio-demographic factors, serving as the basis for comparisons with future clinical trials that use this measure for quality of life assessment in Brazil.

The Brazilian population has a lower degree of quality of life than the population of the United States of America, and the SF-8 values seemed to be influenced by gender, geographic region, family income, age and schooling.

Resumo

Avaliar a qualidade de vida da população adulta brasileira, com base em normas populacionais norte-americanas. Estudo transversal de base populacional, por amostragem probabilística. Dois mil, quatrocentos e vinte indivíduos (725 homens e 1.695 mulheres) com idade de 40 anos ou mais foram avaliados em diferentes regiões geográficas brasileiras. Um questionário sociodemográfico e o SF-8 (Short Form-8) foram aplicados através de entrevista. Estatísticas descritivas, a análise de variância (ANOVA), o teste de Mann-Whitney e o teste de Tukey foram utilizados. O sexo feminino, a população da Região Nordeste e de Brasília (Distrito Federal), Goiânia (Goiás) e Campo Grande (Mato Grosso do Sul) apresentaram os piores níveis de qualidade de vida. A idade, a escolaridade e a renda familiar influenciaram negativamente vários domínios de qualidade de vida. O presente estudo apresenta estimativas de qualidade de vida, baseadas no SF-8, para a população adulta brasileira. As médias dos domínios e componentes sumários do SF-8 parecem sofrer influência do sexo, da região geográfica, da renda familiar, da idade e da escolaridade dos participantes.

Qualidade de Vida; Enquete Socioeconômica; Demografia; Nível de Saúde

Contributors

A. G. Campolina was responsible for the study design, statistical analysis and elaboration of the paper. M. M. Pinheiro, R. M. Ciconelli and M. B. Ferraz were responsible for the study design and paper elaboration.

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