Flávia Silva Arbex Borim[I]

Anita Liberalesso Neri[I]

Priscila Maria Stolses Bergamo Francisco[II]

Marilisa Berti de Azevedo Barros[II]

Dimensions of self-rated health in older adults

Dimensões da autoavaliação de saúde em idosos

ABSTRACT

OBJECTIVE: To analyze the association between negative self-rated health and indicators of health, wellbeing and sociodemographic variables in older adults.

METHODS: Cross-sectional study that used data from a population-based health survey with a probability cluster sample that was carried out in Campinas, SP, Southeastern Brazil,, in 2008 and 2009. The participants were older adults ($\geq$ 60 years) and the dependent variable was self-rated health, categorized as: excellent, very good, good, bad and very bad. The adjusted prevalence ratios were estimated by means of Poisson multiple regression.

RESULTS: The highest prevalences of bad/very bad self-rated health were observed in the individuals who never attended school, in those with lower level of schooling, with monthly *per capita* family income lower than one minimum salary. Individuals who scored five or more in the physical health indicator also had bad self-rated health, as well as those who scored five or more in the Self-Reporting Questionnaire 20 and those who did not refer feeling happiness all the time.

CONCLUSIONS: The independent effects of material life conditions, physical and mental health and subjective wellbeing, observed in self-rated health, suggest that older adults can benefit by health policies supported by a global and integrative view of old age.

DESCRIPTORS: Aged. Self-Assessment. Health Status. Cost of Illness. Socioeconomic Factors. Health Inequalities. Health Surveys.

[I] Programa de Pós-Graduação em Gerontologia. Faculdade de Ciências Médicas. Universidade Estadual de Campinas. Campinas, SP, Brasil

[II] Departamento de Saúde Coletiva. Faculdade de Ciências Médicas. Universidade Estadual de Campinas. Campinas, SP, Brasil

Correspondence:
Flávia Silva Arbex Borim
Rua Padre Francisco de Abreu Sampaio, 269 apto. 32B Parque Itália
13036-140 Campinas, SP, Brasil
E-mail: flarbex@hotmail.com

RESUMO

OBJETIVO: Analisar associação entre autoavaliação negativa de saúde e indicadores de saúde, bem-estar e variáveis sociodemográficas em idosos.

MÉTODOS: Estudo transversal utilizando dados de inquérito de saúde de base populacional com amostra probabilística por conglomerados, realizado em Campinas, SP, em 2008 e 2009. Os participantes eram idosos (≥ 60 anos) e a variável dependente foi autoavaliação de saúde, categorizada em: excelente, muito boa, boa, ruim e muito ruim. As razões de prevalências ajustadas foram estimadas por meio de regressão múltipla de Poisson.

RESULTADOS: Maior prevalência de autoavaliação de saúde como ruim/muito ruim foi observada nos indivíduos que nunca estudaram, naqueles com menor escolaridade, com renda familiar per capita mensal inferior a um salário mínimo. Tiveram também pior autoavaliação de saúde aqueles com pontuação igual ou maior a cinco no indicador de saúde física, cinco ou mais no *Self Reporting Questionnaire 20* e os que não referiram sentimento de felicidade todo o tempo.

CONCLUSÕES: Os efeitos independentes das condições materiais de vida, saúde física e mental e bem-estar subjetivo, observados sobre a autoavaliação de saúde, sugerem que idosos podem ser beneficiados por políticas de saúde apoiadas numa visão global e integrativa da velhice.

DESCRITORES: Idoso. Autoavaliação. Nível de Saúde. Efeitos Psicossociais da Doença. Fatores Socioeconômicos. Desigualdades em Saúde. Inquéritos Epidemiológicos.

INTRODUCTION

The increase in longevity and the change in the epidemiological profile have significantly enlarged the concept of health and the spectrum of indicators that are necessary to monitor it. Considering that people's subjective assessment of their own health status is an important indicator of the disease's impact on individual wellbeing,[4] this measure started to be used in population-based surveys, together with other self-report measures of: signs, such as falls and incontinence; symptoms, such as fatigue, sadness and anxiety; recall of clinical diagnoses made by doctors; and functional performance, indicated by the degree of the need of help to perform activities of daily living.

Self-reports on morbidities, signs and symptoms and functional capacity focus on individual clinical conditions and are in good agreement with medical records or clinical examinations.[30] Self-rated health implies questions and answers of an evaluative and comparative nature. It is a complex measure, influenced by the same elements that control reports on signs, symptoms, functional performance and medical diagnoses. The difference between these two types of measure is the fact that self-reports on signs and symptoms have a descriptive character, while self-rated health has a global, evaluative nature, indicated by answers that are characterized as a personal judgment, which is based on individual and social-normative criteria of priority access to the respondent.[11]

Studies on the relationships between health assessment by objective criteria and by subjective criteria are based on comparisons of healthy or successful aging measured by the two assessment criteria. The correlation between the health status measured by objective and subjective indicators tends to weaken as age advances.[11] Among older adults, the incongruence reflected on low scores in objective health and high scores in self-rated health (or subjective health) may be explained by compensatory mechanisms of an affective nature, whose function is to protect the individual's self-esteem, sense of self-efficacy and subjective wellbeing.[26] However, there are limits to the action of these compensatory mechanisms,[20,21,29] which explains the positive correlations that have been found between objective and subjective health assessments among older adults with disability,[14] with disability and chronic diseases[11] and with depression,[18] or who live in poverty[21] and have low access to goods and social opportunities.[10]

A longitudinal study that included in its baseline individuals without illnesses and without disability has shown that morbidity, even when adjusted by sociodemographic variables, utilization of and access to health services and health risk factors is, over time, a predictor of self-rated health.[11] The study has also reported that disability has a direct relationship to subjective health assessment. In relation to depression, a meta-analysis involving longitudinal and cross-sectional studies has found that the presence of chronic diseases and of a poor perceived health was associated with depression in older adults, and that self-rated health presented a higher association with depression than with self-reported chronic diseases.[7]

In Brazil, population-based studies have shown an association among self-rated health, morbidity and functional capacity in older adults,[17,25] but the magnitude of this relationship, when variables like mental health and subjective wellbeing are included, has not been investigated yet.

The aim of the present study was to analyze the association between negative self-rated health and health indicators, wellbeing and sociodemographic variables in older adults.

METHODS

Data from the population-based Campinas Health Survey (ISACamp 2008/2009)[a] were analyzed in terms of health status profiles, health behaviors and use of health services in different segments of the population. This survey collected household information about people aged 10 years or older, considering three age groups: 10 to 19, 20 to 59 and 60 years and older, living in the urban area of the city of Campinas, SP, Southeastern Brazil, between 2008 and 2009. Sample size calculation totaled 1,000 individuals in each age group. A two-stage probability cluster sampling was performed: census tracts and households were drawn.[6,b]

To compensate for 20.0% of refusals and empty homes, 3,900 households were selected so that at least 1,000 interviews with older adults could be obtained. Among the drawn households, there was a 6.5% loss due to the impossibility of finding a dweller or because a dweller refused to list the individuals that lived in the household. Of the 1,558 older adults identified in the drawn households, 2.4% refused to participate in the study; thus, 1,520 older adults were interviewed. Among these, in 5.8% of the cases the interviews were conducted with a caregiver or relative and were excluded from the study. Therefore, we analyzed data from 1,432 older adults with a mean age of 69.5 years (95%CI 69.1;69.9).

The participants' data were collected by means of a questionnaire administered by trained interviewers. The questions were organized in blocks that approached topics related to morbidity, accidents and violence, emotional health, quality of life, use of services, preventive practices, use of medicines, health-related behaviors and socioeconomic characteristics. The analyzed variables concerning older adults were:

1. Global subjective health indicator. It corresponded to the answer to a scale item with five alternatives: "Generally speaking, would you say that your health is: excellent, very good, good, bad or very bad?".

2. Physical health indicator. It was based on the older adults' answers to the items corresponding to chronic diseases and health problems, and whether or not they caused limitations. A zero score was attributed to individuals who did not present diseases or chronic health problems; a score of one was attributed to each reported disease or problem that did not cause limitations; and a score of two was attributed to each reported disease and problem that caused limitations in daily activities. This indicator was supported by data related to the following aspects:

    a) Chronic diseases. It corresponded to the question: "Has a doctor or health professional ever told you that you have any of the following diseases?", with the possibility of a dichotomous response (yes or no) to: hypertension, diabetes, heart disease, cancer, rheumatism, osteoporosis, asthma/bronchitis/emphysema, tendinitis and circulation problems.

    b) Physical signs and symptoms. The following question was asked: "Do you have any of the following health problems?", with the possibility of a dichotomous response (yes or no) to: headache, backache, allergy, emotional problem, dizziness, insomnia and urinary problem.

    c) Functional limitation. It was investigated by means of the question: "Does the disease or health problem (sign or symptom) limit your daily activities or not?", for each disease or health problem reported by the older adults.

3. Mental health indicator, which consisted of the score obtained by each older adult in the Self Reporting Questionnaire 20 (SRQ-20)[22] – an instrument with 20 dichotomous items in which each affirmative

answer is equivalent to one point. Three ranges were constructed: zero to four, five to ten and ten points or more.

4. Demographic characteristics: sex and age.

5. Indicators of material life conditions: schooling and monthly *per capita* family income.

6. Wellbeing indicators. We considered the answers to two items of a quality of life questionnaire with 36 items the Health Survey Questionnaire – short form (SF-36):[8]

   a) Feeling of happiness (level of pleasure in daily life). It was assessed by means of the question: "Have you been feeling happy in the last four weeks?", with the following alternatives of answer: all the time/most of the time, some of the time and a small part of the time/never.

   b) Vitality (level of energy perceived in daily life). It was assessed by means of the question: "Have you been feeling you have a lot of energy in the last four weeks?", with the possibilities of answer: all the time/most of the time, some of the time and a small part of the time/never.

The survey's data were keyboarded into a database developed with the use of the EpiData software, version 3.1, and submitted to a consistency analysis. For the analyses, prevalences and their respective 95% confidence intervals were estimated. The associations between independent variables and self-rated health were analyzed by the Chi-square test, with level of significance of 5%. Poisson simple and multiple regression analyzes were also used to estimate crude and adjusted prevalence ratios. The variables that presented a level of significance lower than 20.0% (p < 0.20) were introduced into Poisson multiple regression model, in the association with the dependent variable, and the ones with p < 0.05 remained in the model. The regression model was developed in four stages. In the first stage, the demographic and socioeconomic variables were introduced; in the second, the physical health indicator was added; in the third stage, the mental health indicator was introduced; and in the fourth stage, the wellbeing indicators were added. Data analysis was carried out with the svy commands of the Stata software, version 11.0. The weights deriving from sample design were used and the existence of primary sampling units was considered.

The study was approved by the Research Ethics Committee of the *Faculdade de Ciências Médicas* of the *Universidade Estadual de Campinas*, in an addendum to Opinion 079 of 2007, referring to the project ISACamp 2008/2009 on April 27, 2010.

RESULTS

Table 1 presents the prevalence of bad/very bad self-rated health according to demographic and socioeconomic variables, physical and mental health indicators and subjective wellbeing indicators (happiness and vitality). We observed that older adults with level of schooling equal to or lower than four years and with *per capita* income up to three minimum salaries presented higher prevalence of bad/very bad self-rated health.

Older adults with score equal to or higher than five in the physical health indicator and who scored five or more in the SRQ-20 presented higher prevalence of negative self-rated health, with PR = 17.0 and PR = 10.1, respectively, in the categories of highest scores (Table 1). The prevalence of bad/very bad self-rated health was significantly higher among individuals who reported having a lower feeling of happiness and vitality (Table 1).

By means of the multiple regression model, we verified, in the first stage, a higher prevalence of bad/very bad self-rated health in individuals without formal schooling, in those with one to four years of schooling and whose monthly *per capita* family income was lower than one minimum salary. In the second stage of the analysis, those whose score was equal to or higher than five in the physical health indicator presented higher prevalence of negative self-rated health. In the third stage (Table 2), those who scored five or more in the SRQ-20 and, in the fourth stage, the categories low and intermediate level of feeling of happiness presented a higher prevalence of negative self-rated health. We observed that, even in the presence of congruence between the global self-rated health and the self-reports on diseases, signs and symptoms, disability and limitations, mental health and the feeling of happiness were important variables in the relation to self-rated health in older adults (Table 2).

DISCUSSION

A prevalence of 10.9% (95%CI 8.9;13.2) of negative self-rated health was observed among older adults, as well as an association of this subjective condition with physical and mental health indicators, with the feeling of happiness and with socioeconomic variables. These data suggest that health perception is characterized not only by favorable socioeconomic conditions and preserved physical and mental health, but also by a positive subjective wellbeing, indicated by the feeling of happiness.[28]

Age and sex did not have a significant relationship to self-rated health. Studies that investigated self-rated health in older adults in Brazil have found the same result,[6,17,19] in spite of gender differences in relation to health and of the relationships among advanced age, morbidities and disabilities which, together, can

Table 1. Prevalence and prevalence ratio of self-assessment and indicators among people ≥ 60 years. Campinas, SP, Southeastern Brazil, 2008-2009. (N = 1,432)

Variable	n	Prevalence	PR	95%CI
Sex		p = 0.927		
Male	580	10.8	1	
Female	852	10.9	1.01	0.75;1.36
Age group (years)		p = 0.228		
60 to 69	800	10.5	1	
70 to 79	470	12.9	1.22	0.82;1.83
≥ 80	162	6.8	0.65	0.29;1.44
Level of schooling (years of study)		p < 0.001		
≥ 9	339	5.9	1	
5 to 8	166	5.9	1.01	0.48;2.10[a]
1 to 4	682	12.2	2.08	1.37;3.16[a]
Never went to school	242	17.7	3.01	1.84;4.91[a]
Per capita income (minimum salary)		p < 0.004		
> 3	269	4.9	1	
1 to 3	591	10.7	2.15	1.14;4.07[b]
< 1	572	14.0	2.84	1.42;5.64[b]
Physical health indicator		p < 0.001		
0	156	1.9	1	
1	176	3.3	1.69	0.39;7.38[a]
2/4	557	5.4	2.75	0.80;9.40[a]
5/8	360	16.0	8.10	2.42;27.10[a]
9/25	163	33.5	17.00	5.15;56.10[a]
Mental health indicator		p < 0.001		
0 to 4	100	4.7	1	
5 to 9	302	16.1	3.44	2.39;4.95[a]
≥ 10	130	47.4	10.11	7.04;14.50[a]
Happiness		p < 0.001		
All the time	502	2.5	1	
Most of the time/Some of the time	810	10.2	4.00	2.26;7.03[a]
A small part of the time/Never	120	50.9	19.80	11.81;33.23[a]
Vitality		p < 0.001		
All the time	349	2.8	1	
Most of the time/Some of the time	811	7.9	2.82	1.48;5.40[a]
A small part of the time/Never	272	30.2	10.70	5.10;22.40[a]

[a] p < 0.001
[b] p < 0.004

influence self-rated health.[11,14] Sex and age were maintained in the regression model as adjustment variables, as the analysis included variables that suffer direct influences of sex and age, as it is possible to observe in some surveys that have detected higher prevalence of chronic diseases in women and in older adults.[1,3]

The socioeconomic variables are important physical health correlates. Socioeconomic disadvantages influence lifestyle, use of and access to health services and social relations, and may be related to individuals' and

populations' worse health status.[29] In the present investigation, self-rated health presented a significant association with income and schooling. Due to the insufficiency of supports such as education and the satisfaction of health, housing and transportation needs in Brazil, income plays a fundamental role in relation to the acquisition of goods and services that are necessary for social reproduction.[10] Robert et al[20] (2009) analyzed quality of life and stratified adult participants by socioeconomic status and age. They found a significant association among self-rated health, income and schooling.

Table 2. Poisson multiple regression model[a] of the association between self-rated health and socioeconomic variables, health indicators and wellbeing among people ≥ 60 years. Campinas, SP, Southeastern Brazil, 2008-2009.

Variable	First stage[b] PR	95%CI	Second stage[c] PR	95%CI	Third stage[d] PR	95%CI	Fourth stage[e] PR	95%CI
Level of schooling (years of study)								
≥ 9	1		1		1		1	
5 to 8	0.89	0.44;1.80	0.96	0.49;1.91	0.87	0.45;1.70	0.87	0.44;1.73
1 to 4	**1.77**	**1.21;2.59**	**1.66**	**1.04;2.65**	1.58	0.99;2.56	1.57	
Never went to school	**2.50**	**1.57;3.95**	**2.29**	**1.42;3.68**	**2.00**	**1.22;3.25**	**1.93**	**1.20;3.10**
Per capita income (minimum salary)								
> 3	1		1		1		1	
1 to 3	1.66	0.90;3.06	**1.92**	0.99;3.76	**2.03**	**1.10;3.74**	**2.00**	**1.11;3.60**
< 1	**1.95**	**1.00;3.82**	1.91	0.91;4.01	1.93	0.97;3.84	**1.99**	**1.07;3.70**
Physical health indicator								
0			1		1		1	
1			1.55	0.35;6.85	1.60	0.37;6.82	1.67	0.42;6.58
2/4			2.64	0.77;9.06	2.12	0.63;7.13	2.16	0.67;6.96
5/8			**8.25**	**2.45;27.81**	**4.82**	**1.44;16.10**	**4.36**	**1.35;14.08**
9/25			**17.1**	**5.22;56.44**	**6.14**	**1.79;21.03**	**4.96**	**1.51;16.30**
Mental health indicator								
0 to 4					1		1	
5 to 9					**2.43**	**1.59;3.72**	**2.03**	**1.36;3.04**
≥ 10					**5.26**	**3.36;8.22**	**2.92**	**1.74;4.90**
Happiness								
All the time							1	
Most of the time/Some of the time							**2.73**	**1.56;4.77**
A small part of the time/Never							**6.44**	**3.11;13.31**

[a] Poisson multiple regression model adjusted by sex and age.
[b] PR adjusted by the demographic and socioeconomic variables.
[c] PR adjusted by the demographic and socioeconomic variables and by the physical health indicator.
[d] PR adjusted by the demographic and socioeconomic variables, by the physical health indicator and by the mental health indicator.
[e] PR adjusted by all the variables of the table.
Values with statistical significance are in bold.

Chronic non-communicable diseases, which are highly prevalent in the older population, have a significant impact on the quality of life of the individuals who have them and of their relatives, with repercussions in the health sector. As the number of comorbidities of an older adult increases, his/her quality of life sharply decreases.[12] The prevalence of chronic diseases increases as age advances, reaching more than 70.0% in people aged 70 years or older,[4] and their presence has a direct influence on self-rated health.[2,13] Functional decline, the main consequence of chronic conditions, has a robust relationship with perceived health.[14]

The present study found a higher prevalence ratio of negative self-rated health ("bad") among older adults who scored five or more in the physical health indicator. The absence of an association between scores of one to four in this indicator and negative self-rated health may be related to the control of chronic diseases. This indicates the importance of reducing, diagnosing and treating common morbidities as early as possible in order to promote the quality of life of older adults. Prioritizing the control of morbidities and providing integral and continuous care are political strategies that focus on the prevention and management of chronic diseases.[23]

The older adults' score in the assessment of common mental disorder (characterized by somatic and depression symptoms, anxiety status, irritability, insomnia, fatigue, memory and concentration difficulties) was associated in a statistically significant way with negative self-rated health. A cross-sectional study that analyzed self-rated health in a representative sample of older adults verified that depression symptoms are the main predictors of self-rating one's own health as bad.[15] Although physical and mental health are correlated, the independent effect of each one on self-rated health is evident in the present study.

Depression generates high expenditures on health in the population aged 60 years or older, negatively affects functional capacity, is associated with somatic diseases, leads to social isolation and causes a significant decrease in the individuals' quality of life.[7] In old age, the etiology and the psychological, behavioral and physical symptoms of depression may vary and may manifest themselves in a heterogeneous way, demanding adaptations of the forms of diagnosis and treatment.[5] Due to the singularity of this disease in old age and to the findings of the present study, we emphasize the need to invest more in the prevention of depression and in the promotion of mental health as a way of contributing to improve subjective health and, consequently, older adults' wellbeing and quality of life.

The association that was found between the feeling of happiness and self-rated health was the strongest of all the investigated relationships. A longitudinal study that investigated the determinants of self-rated health and happiness found that these variables reflect the different facets of a common basis of physical and mental wellbeing.[27] Siahpush et al[24] (2008) assessed relationships among happiness, life satisfaction and health and observed that people with high levels of feelings of happiness had better objective and subjective health statuses.

Happiness is a hedonic state of pleasure that derives from satisfying needs and meeting goals. It is translated as the predominance of positive emotional states or as the balance between positive and negative states. It is influenced by environmental stimuli, past experiences, physiological states and intrapsychic experiences.[16] The concept of happiness integrates the concept of subjective wellbeing, which reflects the assessment that the individual himself makes of the dynamics of the relations among the conditions of the environment in which he lives, his own behavioral competence and the perceived quality of life.[16] Subjective wellbeing is connected with positive affections and, consequently, with emotional health. Older adults with higher levels of positive affections tend to use constructive coping strategies when they face the challenges that are inherent in advanced age.[9]

The associations that were found between physical and mental health statuses assessed by self-report and subjective appraisals of health quality suggest foci for research investment, such as the test of more detailed measures of mental health, vitality and happiness, as well as the investigation of variables that mediate the effects of health status on subjective health assessments. Other studies will be able to assess the effects of positive self-rated health among poor health statuses and on the continuity of psychosocial functioning and of the sense of happiness among older adults. Future studies will also be able to focus on prospective research to evaluate risk and protection factors for outcomes like mortality, morbidity and disability based on somatic, psychiatric and psychological risks, on subjective wellbeing and on self-rated health.

The study enables to verify independent effects on self-rated health in relation to material life conditions, physical health, mental health and wellbeing, and emphasizes the integral approach to the older adult in different dimensions. The findings show that, even in the presence of congruence between global self-rated health and self-reports on diseases, signs and symptoms, disability and limitations, mental health and the feeling of happiness are important variables in the relationship to self-rated health among older adults.

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