Perception of health state and the use of vignettes to calibrate for socioeconomic status: results of the *World Health Survey* in Brazil, 2003

Percepção do estado de saúde e o uso de vinhetas para calibração por nível sócio-econômico: resultados da *Pesquisa Mundial de Saúde* no Brasil, 2003

Giseli Nogueira Damacena [1,2]
Mauricio Teixeira Leite de Vasconcellos [2]
Célia Landmann Szwarcwald [1]

[1] *Centro de Informação Científica e Tecnológica, Fundação Oswaldo Cruz, Rio de Janeiro, Brasil.*
[2] *Programa de Mestrado em Estudos Populacionais e Pesquisas Sociais, Escola Nacional de Ciências Estatísticas, Rio de Janeiro, Brasil.*

Correspondence
*G. N. Damacena
Departamento de Informações em Saúde, Centro de Informação Científica e Tecnológica, Fundação Oswaldo Cruz.
Av. Brasil 4365, Biblioteca de Manguinhos, Rio de Janeiro, RJ 21045-900, Brasil.
giselind@fiocruz.br*

Abstract

As part of the World Health Organization (WHO) project focused on assessing the performance of national health systems, the World Health Survey *(WHS) was carried out in many member countries. In order to enable comparison of self-rated health between different cultures of the same country or between different nations, the WHS questionnaire included vignettes of sample cases, that is, hypothetical stories that describe the health problems of third parties. The objective of the present study is to evaluate the possibility of using vignette ratings to implement a socioeconomic calibration scale for self-rated health in Brazil. Using Brazilian WHS data, perceptions of state of health, measured through two different strategies (self-rating and vignette-rating), were compared. The effects of socioeconomic status (educational level and number of household assets) on health domain ratings were estimated via multiple regression models, controlled for age and sex. The effects of socioeconomic status were significant for the majority of health domains in the case of self-perception, but statistically null in the case of third party ratings. It is concluded that the WHO vignettes are not appropriate for calibrating self-rated health measures in Brazil.*

Health Status; Socioeconomic Status; Vignettes

Introduction

Population surveys are being used with increasing frequency to understand health conditions and access to and use of health services. This type of study began in the 1920s, in industrialized countries, and in the 1950s, in developing countries. They are characterized by household interviews to capture morbidity, as reported by residents, as well as to evaluate the performance of healthcare from the point of view of the user [1].

The use of morbidity indicators reported in health surveys has been justified because of the difficulties involved in collecting diagnostic information, which requires rigorous standardization and has greater costs. Various indicators have been used to measure health needs using information furnished by the interviewees themselves or by other household members. Among the most commonly used are self-rated health, reporting of chronic disease or other signs and symptoms, and the restriction of routine activities [2].

The assessment of individual perception of one's own state of health has assumed an important role in evaluating the state of health of populations, due to the validity derived from its relationship to clinical conditions and morbidity and mortality indicators [3,4]. Nevertheless, while diagnostic information is objective from the medical point of view, self-rated health

is subjective, combining both physical and emotional components and reflecting the perception of wellbeing and satisfaction with life [5].

In the recent international literature, there is evidence that self-rated health varies according to the individual's socioeconomic *status*. The results indicate, in general, that the greater the level of poverty, the worse the perception of one's own health [6,7,8]. Similarly, in Brazil, studies based on the health study *National Survey by Household Sample*, from 1998, show a socioeconomic gradient in self-rated health [9,10].

By comparing the results of studies from different countries, cultural differences in the mode of evaluation of state of health have also been documented [11]. Explanatory hypotheses fall to the complexity of patterns of behavior, beliefs, education, and other spiritual and material values that collectively influence the distinct perceptions of feelings of suffering, pain, or discomfort [5].

In the year 2001, the World Health Organization (WHO) proposed the elaboration of the *World Health Survey* (WHS) in various member countries, as part of a project to evaluate the performance of national healthcare systems [12]. In order to enable comparison of the data collected between different cultures of a single country or between different countries, the WHO included in the questionnaire vignettes of sample cases, hypothetical stories that describe the health problems of third parties, in various health domains. Whether applied in different societies or individuals of the same population, the vignettes would permit the creation of a calibration scale for the above-referenced measures of morbidity by means of comparing the responses furnished for model cases with those obtained through self-evaluation.

According to the WHO, the necessity for calibrating self-rated health derives from the methodological difficulty in handling ordinal responses assigned to health domains, which would not be comparable between distinct sociodemographic groups. Or, in other words, there would be the need to calibrate the breaking points of the ordinal variable used to measure self-rated health, given that distinct populations apply the categories "very bad", "bad", "moderate", "good", and "very good" in different ways [13].

The strategy for using sample-case vignettes involves creating a concrete description of a problem related to one health domain and obtaining responses that reflect the health patterns and expectations of distinct population groups. By addressing other people's circumstances, the vignettes allow for capturing individual perceptions without the subjectivity of self-reporting, and, consequently, the differences in evaluations provide a basis for adjusting the scale of self-perception of health problems [14].

The WHS was conducted in Brazil in 2003, and included in the questionnaire a module addressing state of health in various domains, with direct questions about the individual's own state of health (self-evaluation) and similar questions aimed at evaluating the health of other people, referring to vignettes of sample cases. Preliminary results of the WHS show important socioeconomic disparities in health self-evaluation, using the degree of education or the possession of household assets as indicators of social condition [15]. However, the interpretation of these results in terms of objective measures of state of health may be prejudiced by lack of comparability between different understandings and distinct manners of responding to the questions.

Under the hypothesis that there exist variation by socioeconomic level in how people understand the health domain questions, there would be the need for an adjustment (calibration) of the ordinal classification scale of the self-reporting instrument for a more appropriate analysis of the results. The present study seeks to evaluate the use of vignettes for calibrating the self-evaluation measures of health in Brazil by comparing the effects of socioeconomic level on the evaluations of state of health of third parties, obtained via vignettes.

Materials and methods

The WHS sample was conducted in three stages. In the first, 250 census sectors were selected, with probability proportional to size. Situation (urban or rural) and municipal size (< 50,000; 50,000 to 399,999; 400,000 + inhabitants) explicitly stratified the primary selection units. Each sector's average head of household income was used for implicit stratification by socioeconomic level. In the second stage, for each sector selected, twenty household were interviewed, these being selected with equiprobability and by inverse sampling. In each household, one resident was identified to respond to the questions relative to the characteristics and composition of the household, which served as a basis, in the third stage, for the equiprobable selection of an adult resident (18 years of age or more) to respond to the individual questionnaire. In conducting this study, the five thousand questionnaires from the WHS were used.

To analyze state of health perception in the Brazilian population, the questionnaire module addressing "health state description" was used. In this module, interviewees responded to questions about diverse domains of health, such as state of animus, mobility, pain and discomfort, interpersonal activities, vision, sleep and energy, cognition and self care, being based in the *International Classification of Functioning, Disability and Health* [16]. Such questions were made using two strategies suggested by the WHS: (1) self-rated health, and (2) sample-case vignettes called "vignettes to describe health state".

In the self-evaluation, interviewees responded to direct questions about their own health state, aimed at capturing their perceptions regarding each state of health domain, formulated as, "*Overall, in the last 30 days, how much difficulty did you have in carrying out such activity?*", the responses of which were obtained on a scale of 1 to 5 (1 = none; 2 = mild; 3 = moderate; 4 = severe; 5 = extreme/cannot do).

On the other hand, sample-case vignettes were used to obtain the interviewee's perception of state of health based on hypothetical scenarios, containing questions formulated similarly to those applied in the self-evaluation, but referring instead to the health of the individual described in the story (third person) rather than to the health of the interviewee himself. For example, presented below is a vignette from the *pain* domain:

• Case vignette for pain (hypothetical story): "*Marcelo has pain in his knees, elbows, wrists, and fingers, and the pain is present almost all of the time. It gets worse during the first half of the day. Although medication helps, he feels uncomfortable when moving around, holding and lifting things*".

Question 1: "*Overall in the last 30 days, how much of bodily aches or pains did Marcelo have?*". Response options: *1. None*; *2. Mild*; *3. Moderate*; *4. Severe*; *5. Extreme*.

Question 2: "*In the last 30 days, how much bodily discomfort did Marcelo have?*". Response options: *1. None*; *2. Mild*; *3. Moderate*; *4. Severe*; *5. Extreme*.

In order to cover all the domains dealing with self-rated health questions without excessively increasing the questionnaire length, the vignettes were divided into four groups, identified as rotation A, B, C, and D. The distribution of vignette rotation among interviewees was accomplished according to circumstances, such that, approximately one-quarter of interviewees responded to each rotation.

The study of each health state domain through vignettes was based on five stories, each of which was subdivided into two associated problems (Figure 1).

Self-evaluation analysis for each of the health domains related to "state of animus", "pain or discomfort", "vision", "cognition", and "self care" utilized the average of the responses to the two questions (one direct question for each of the two problems associated with a particular domain). Vignette evaluation involved averaging responses to ten questions (one question for each of the two problems per story, totaling ten questions per household).

For the three health domains *"mobility"*, *"interpersonal"*, and *"sleep and energy"*, analysis was based upon only one associated problem: "locomotion", "personal relationships", and "sleeping well", respectively, because there were in general, difficulties responding to the second question. In these cases, self-evaluation analysis was accomplished using the direct response given for the one question pertaining to each problem. Vignettes analysis was based on the average of responses to the five questions (each problem involved one question per story, totaling five questions per household).

Comparison of the perspectives obtained through self-evaluation with those obtained through vignettes was accomplished by sex, age, and two variables representing socioeconomic status: degree of education (primary education incomplete; primary education or more complete); and number of assets (1-4 assets; 5 or more assets), which correspond to the total of assets in the household (television, refrigerator, stereo, microwave, telephone, cellular telephone, washing machine, dishwasher, computer, or car).

In the statistical analysis, evaluation averages were calculated for each domain and for each evaluation strategy (self-evaluation and vignettes), according to sex, age group (18 to 39; 40 or more), level of education, and number of goods.

The effects of socioeconomic status, as measured by level of education or by number of household assets, on perception of state of health were compared between evaluations strategies, for each domain, with linear regression models, in which the dependent variable was alternated, first with self-evaluation responses and second with vignette responses. Sex and age were included as covariables in the models.

By treating an assemblage of data obtained with a complex sample, which combines census sector stratification, conglomeration, and unequal selection probabilities, information regarding the selection stratum and the sam-

Figure 1

Distribution of health domains by rotation type and organization of associated problems.
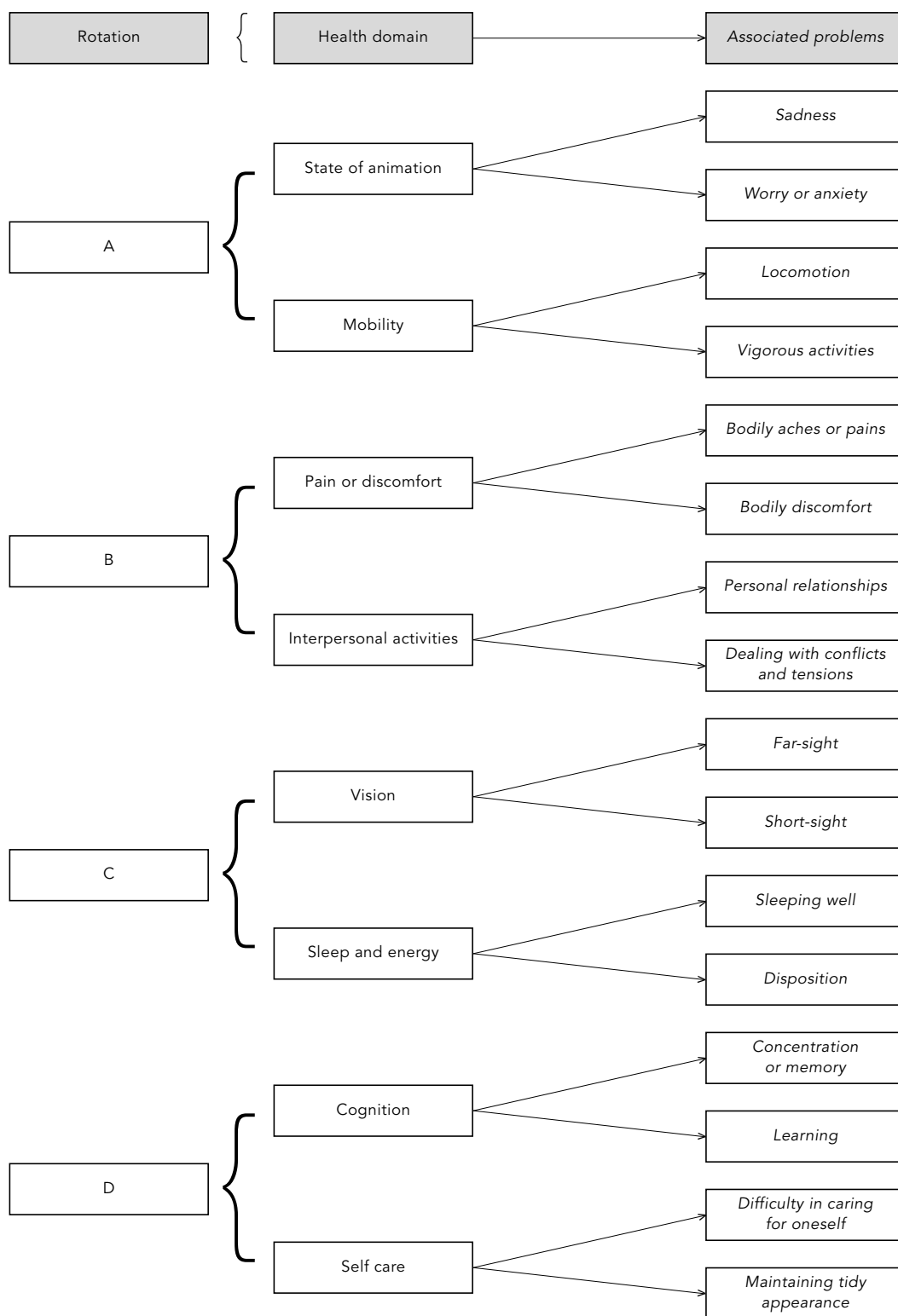
pling weight were incorporated in data analysis, which was accomplished with the SUDAAN software.

Results

Of the five thousand interviewees, 24.96% responded to rotation code A, covering questions about "*state of animus*", and "*locomotion*"; 25.06% responded to rotation code B, covering "*pain*" and "*personal relationships*"; 25.16% responded to rotation code C, covering "*vision*" and "*sleeping well*"; and 24.82% responded to rotation code D, covering "*cognition*" and "*self care*".

Table 1 shows that, in general, averages for self-evaluation are lower than for health evaluations of third parties (vignettes). The influence of level of education, sex, and age group is greater in the evaluation of one's own health, since the evaluation averages obtained from vignettes were nearly constant at a moderate grade of around three.

In general, the results presented in Table 1 indicate that, with respect to self-rated health, females have worse perceptions than do men, older people report more problems, and those with incomplete education have worse perceptions than those with more education. In contrast, the evaluation averages obtained by vignette questions represent little variation by sex, age group, and education level, for any of the health domains considered.

In the case of "*pain or physical ill-being*", the mean self-evaluation varied from 1.81, among females, to 2.23, among males; from 1.82, among individuals from 18 to 39 years of age, to 2.28, among older individuals; from 1.85, among those with primary education complete, to 2.20, among those with incomplete education. For the same domain, evaluation of sample-cases remained practically invariable, with values close to the overall mean of 2.95 for both sexes, age groups, and levels of education (Table 1).

With regard to "*state of animus*", self-rated mean scores varied from 1.91 (males, 18 to 39 years of age, primary education or more complete) to 2.72 (females, 40 or more years of age, primary education incomplete), with range of 0.81, whereas vignette evaluations for the same domain varied from 3.05 (males, 18 to 39 years of age, primary education incomplete) to 3.22 (females, 18 to 39 years of age, primary education or more complete), with total range of 0.17 (Table 1).

The same pattern can be observed when comparing the results by number of assets (Table 2). For "*pain or discomfort*", for example, the variation amplitude of health self-evaluation is 1.09, with the best perception corresponding to males, 18 to 39 years of age, with five or more household goods. The worst perception corresponds to females of greater age and lower socioeconomic level. The mean of the vignettes evaluation scores has a much lower range, close to zero (0.09), remaining practically constant, independent of sex, age group, or number of household goods.

The results of multiple linear regression (Table 3) show significant effects of sex and age for self-rated health, in the great majority of state of health domains considered here. The negative coefficients for males indicate better health self-evaluations among males, while the positive correlations with age indicate worse self-evaluation with increased age.

As concerns the effects of level of education, controlled for sex and age, the results of multiple regression, presented in Table 3, indicate that self-evaluation was significantly worse among those with less education, for the following domains: "state of animus", "locomotion", "pain or discomfort", "personal relationships", "vision", and "cognition". There was no significant contribution by educational level for the domains referring to "*self care*" and "*sleeping well*". With regard to vignette evaluations, "*self care*" and "*state of animus*" were the only aspects to show statistically significant differences for educational level. However, these effects were in the opposite direction to those observed for self-evaluation.

The results of multiple linear regression, presented in Table 4, show that the differences in self-evaluation by number of goods are still more accentuated than those obtained for level of education. The only domain that did not show statistically significant effect for number of assets was "*sleeping well*". Inversely, in relation to the vignette evaluations, no other domain showed significant contribution by number of household assets.

Discussion

Given the hypothesis that there exist variations, according to socioeconomic status, in understanding the questions relative to health domains, the analysis conducted in the present study sought to verify the possibility of implementing a calibration scale for ordinal responses to these questions, based on evaluations of third party vignettes. Observed differences in the perception of state of health domains were

Table 1

Mean of self-rated health scores and vignette evaluations according to sex, age, and level of education. Brazil, 2003.

Sex/Age group (years)	Level of education	State of animus		Locomotion		Pain		Personal relationships		Vision		Sleeping well		Cognition		Self care	
		Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation
Females																	
18-39	PE incomplete	3.15	2.45	3.09	1.44	2.95	2.12	3.12	1.51	3.14	1.29	3.09	1.76	2.72	1.84	2.95	1.12
	PE complete or +	3.22	2.17	3.02	1.15	2.99	1.88	3.09	1.28	3.11	1.27	3.12	1.73	2.77	1.45	3.08	1.04
	Total	3.19	2.29	3.05	1.27	2.97	1.96	3.10	1.36	3.12	1.28	3.11	1.74	2.75	1.63	3.02	1.08
40 or +	PE incomplete	3.21	2.72	3.08	1.93	2.93	2.57	3.14	1.49	3.17	1.91	3.09	2.46	2.81	2.20	3.03	1.30
	PE complete ou +	3.21	2.43	3.20	1.41	2.99	2.30	3.22	1.17	3.19	1.42	3.18	2.00	2.87	1.79	3.05	1.17
	Total	3.21	2.62	3.12	1.75	2.94	2.50	3.16	1.41	3.17	1.75	3.12	2.31	2.82	2.11	3.04	1.27
Total	PE incomplete	3.18	2.60	3.09	1.71	2.93	2.42	3.13	1.50	3.16	1.66	3.09	2.18	2.78	2.06	3.00	1.23
	PE complete or +	3.22	2.25	3.08	1.23	2.99	2.00	3.13	1.25	3.14	1.32	3.14	1.83	2.79	1.54	3.07	1.08
	Total	3.20	2.43	3.08	1.48	2.96	2.23	3.13	1.38	3.15	1.52	3.12	2.03	2.78	1.86	3.03	1.17
Males																	
18-39	PE incomplete	3.05	2.05	2.95	1.22	2.90	1.74	2.93	1.20	3.09	1.24	3.11	1.67	2.76	1.66	2.90	1.12
	PE complete or +	3.17	1.91	3.01	1.18	2.92	1.60	3.00	1.22	3.07	1.12	3.15	1.66	2.73	1.37	3.05	1.06
	Total	3.12	1.97	2.99	1.20	2.91	1.67	2.97	1.21	3.08	1.17	3.13	1.66	2.74	1.49	2.98	1.09
40 or +	PE incomplete	3.16	2.16	3.11	1.61	2.98	2.09	3.14	1.22	3.08	1.88	3.02	1.97	2.85	1.74	2.94	1.26
	PE complete or +	3.20	1.95	3.15	1.35	3.00	1.75	3.08	1.29	3.05	1.30	3.11	1.70	2.75	1.63	2.99	1.15
	Total	3.17	2.09	3.12	1.52	2.98	1.99	3.12	1.24	3.07	1.70	3.05	1.89	2.82	1.70	2.96	1.22
Total	PE incomplete	3.11	2.11	3.04	1.45	2.94	1.94	3.04	1.21	3.08	1.61	3.06	1.85	2.82	1.71	2.93	1.20
	PE complete or +	3.18	1.93	3.06	1.23	2.95	1.65	3.03	1.24	3.06	1.17	3.14	1.67	2.74	1.46	3.03	1.09
	Total	3.14	2.03	3.05	1.35	2.95	1.81	3.04	1.23	3.07	1.41	3.10	1.77	2.78	1.60	2.97	1.15
Total																	
18-39	PE incomplete	3.10	2.27	3.03	1.34	2.92	1.92	3.02	1.34	3.12	1.27	3.10	1.72	2.74	1.76	2.93	1.12
	PE complete or +	3.20	2.06	3.02	1.16	2.96	1.76	3.05	1.26	3.09	1.19	3.14	1.70	2.75	1.41	3.07	1.05
	Total	3.16	2.15	3.02	1.24	2.94	1.82	3.04	1.29	3.10	1.23	3.12	1.71	2.74	1.57	3.01	1.08
40 or +	PE incomplete	3.19	2.46	3.10	1.78	2.95	2.37	3.14	1.38	3.13	1.90	3.06	2.24	2.83	2.00	3.00	1.28
	PE complete or +	3.21	2.22	3.18	1.38	2.99	2.05	3.16	1.22	3.13	1.36	3.15	1.87	2.80	1.70	3.01	1.16
	Total	3.19	2.38	3.12	1.65	2.96	2.28	3.14	1.33	3.13	1.73	3.09	2.12	2.82	1.91	3.00	1.25
Total	PE incomplete	3.15	2.38	3.07	1.59	2.94	2.20	3.09	1.36	3.12	1.64	3.08	2.03	2.79	1.90	2.97	1.22
	PE complete or +	3.20	2.11	3.07	1.23	2.97	1.85	3.08	1.25	3.10	1.25	3.14	1.76	2.76	1.50	3.05	1.09
	Total	3.17	2.25	3.07	1.42	2.95	2.04	3.09	1.31	3.11	1.47	3.11	1.91	2.78	1.73	3.00	1.16

PE = Primary education.

Table 2

Mean of self-rated health scores and vignette evaluations according to sex, age, and number of household assets. Brazil, 2003.

Sex/Age group (years)	Number of assets	State of animus		Locomotion		Pain		Personal relationships		Vision		Sleeping well		Cognition		Self care	
		Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation	Vignette	Self-evaluation
Females																	
18-39	0-4	3.17	2.31	3.07	1.40	2.96	2.03	3.13	1.45	3.15	1.32	3.08	1.73	2.76	1.77	3.02	1.10
	5 +	3.20	2.25	3.02	1.16	2.97	1.91	3.07	1.28	3.11	1.25	3.13	1.77	2.72	1.48	3.03	1.05
	Total	3.19	2.28	3.05	1.27	2.97	1.97	3.10	1.36	3.13	1.28	3.11	1.75	2.74	1.64	3.02	1.08
40 +	0-4	3.20	2.65	3.08	1.79	2.98	2.72	3.10	1.57	3.15	2.12	3.05	2.45	2.85	2.39	3.06	1.33
	5 +	3.22	2.60	3.15	1.73	2.91	2.30	3.21	1.25	3.19	1.47	3.16	2.20	2.81	1.87	3.01	1.23
	Total	3.21	2.62	3.12	1.75	2.94	2.50	3.16	1.40	3.17	1.74	3.12	2.31	2.83	2.12	3.03	1.28
Total	0-4	3.18	2.45	3.08	1.56	2.97	2.38	3.12	1.51	3.15	1.69	3.07	2.06	2.80	2.05	3.04	1.20
	5 +	3.21	2.41	3.08	1.43	2.94	2.10	3.14	1.27	3.15	1.37	3.15	2.00	2.77	1.67	3.02	1.14
	Total	3.20	2.43	3.08	1.48	2.96	2.23	3.13	1.38	3.15	1.52	3.11	2.03	2.78	1.87	3.03	1.17
Males																	
18-39	0-4	3.09	2.05	2.97	1.21	2.90	1.67	2.93	1.26	3.03	1.19	3.09	1.67	2.78	1.59	2.98	1.12
	5 +	3.15	1.88	3.01	1.19	2.91	1.63	3.00	1.18	3.12	1.15	3.17	1.64	2.71	1.41	2.99	1.06
	Total	3.12	1.97	2.99	1.20	2.91	1.65	2.97	1.22	3.08	1.17	3.13	1.66	2.74	1.49	2.98	1.09
40 +	0-4	3.19	2.15	3.14	1.57	2.96	2.24	3.17	1.25	3.06	1.99	3.03	1.95	2.90	1.72	2.94	1.23
	5 +	3.16	2.04	3.11	1.48	3.00	1.77	3.08	1.24	3.07	1.48	3.08	1.84	2.75	1.70	2.98	1.22
	Total	3.17	2.09	3.12	1.52	2.98	1.99	3.12	1.24	3.07	1.70	3.05	1.89	2.82	1.71	2.96	1.22
Total	0-4	3.13	2.09	3.04	1.36	2.93	1.93	3.04	1.25	3.05	1.55	3.06	1.80	2.85	1.65	2.96	1.18
	5 +	3.16	1.96	3.06	1.33	2.95	1.70	3.03	1.21	3.09	1.30	3.13	1.74	2.73	1.55	2.98	1.13
	Total	3.15	2.02	3.05	1.35	2.94	1.80	3.04	1.23	3.07	1.41	3.10	1.77	2.78	1.60	2.97	1.15
Total																	
18-39	0-4	3.14	2.20	3.03	1.31	2.94	1.87	3.04	1.36	3.09	1.26	3.08	1.70	2.77	1.70	3.00	1.11
	5 +	3.18	2.09	3.02	1.17	2.94	1.78	3.04	1.24	3.11	1.20	3.15	1.71	2.72	1.45	3.01	1.05
	Total	3.16	2.14	3.02	1.24	2.94	1.82	3.04	1.29	3.10	1.23	3.12	1.70	2.74	1.57	3.01	1.08
40 +	0-4	3.19	2.42	3.11	1.69	2.97	2.52	3.13	1.43	3.11	2.06	3.04	2.22	2.88	2.08	3.00	1.28
	5 +	3.19	2.35	3.14	1.62	2.95	2.06	3.15	1.25	3.14	1.47	3.12	2.04	2.78	1.78	2.99	1.23
	Total	3.19	2.38	3.12	1.65	2.96	2.28	3.14	1.33	3.12	1.72	3.09	2.12	2.83	1.92	3.00	1.25
Total	0-4	3.16	2.29	3.06	1.47	2.95	2.18	3.08	1.39	3.10	1.62	3.06	1.94	2.82	1.88	3.00	1.19
	5 +	3.19	2.22	3.07	1.38	2.95	1.91	3.09	1.24	3.12	1.34	3.14	1.88	2.75	1.61	3.00	1.14
	Total	3.18	2.25	3.07	1.42	2.95	2.04	3.09	1.31	3.11	1.47	3.10	1.91	2.78	1.74	3.00	1.16

compared according to level of education and number of household goods, measured using two distinct strategies: perception of one's own health and evaluation of the health of third parties (vignettes).

The results show the small influence socioeconomic level has on health state evaluations based on third-party stories. This contrasts with the pattern observed for health self-evaluation, in which socioeconomic status had an important effect, as has been documented in studies in other countries [17]. The effects of education level on the evaluation of health state of third parties, when they exist,

are contrary to those observed for self-evaluation, and appear to derive from poor comprehension of the vignettes by interviewees with incomplete education, which, at times, could not grasp the severity of the problems related in the stories.

The results of the present study indicate, therefore, that the methodology proposed by the WHO, of using evaluations of vignettes to calibrate the breaking points of the self-reporting categories, does not appear to be appropriate in the case of the WHS in Brazil. These Brazilian findings were similar to those obtained for Mexico, where the evaluations of vi-

Table 3

Regression results for different evaluation strategies of health domains: effects of educational level adjusted for sex and age. Brazil, 2003.

Health domains	Type of approach	Variables	Model coefficient (β)	p-value (t test β = 0)
State of animus	Vignette	Intercept	3.0046	0.0000
		Male sex	-0.0551	0.0422
		Age	0.0021	0.0327
		Level of education	0.0741	0.0109
	Self-evaluation	Intercept	2.4406	0.0000
		Male sex	-0.4173	0.0000
		Age	0.0073	0.0005
		Level of education	-0.2013	0.0091
Locomotion	Vignette	Intercept	2.8916	0.0000
		Male sex	-0.0329	0.3685
		Age	0.0034	0.0009
		Level of education	0.0362	0.2806
	Self-evaluation	Intercept	1.2552	0.0000
		Male sex	-0.1477	0.0030
		Age	0.0139	0.0000
		Level of education	-0.2189	0.0000
Pain or discomfort	Vignette	Intercept	2.8680	0.0000
		Male sex	-0.0104	0.7383
		Age	0.0007	0.4615
		Level of education	0.0406	0.1874
	Self-evaluation	Intercept	1.9238	0.0000
		Male sex	-0.4007	0.0000
		Age	0.0143	0.0000
		Level of education	-0.1966	0.0037
Personal relationships	Vignette	Intercept	2.9719	0.0000
		Male sex	-0.0880	0.0207
		Age	0.0029	0.0129
		Level of education	0.0256	0.5230
	Self-evaluation	Intercept	1.6004	0.0000
		Male sex	-0.1632	0.0025
		Age	-0.0007	0.7155
		Level of education	-0.1299	0.0234
Vision	Vignette	Intercept	3.1485	0.0000
		Male sex	-0.0755	0.0445
		Age	0.0005	0.7115
		Level of education	-0.0132	0.7644
	Self-evaluation	Intercept	1.1923	0.0000
		Male sex	-0.1021	0.0382
		Age	0.0157	0.0000
		Level of education	-0.2175	0.0000

(continues)

Table 3 (continued)

State of health domains	Type of approach	Variables of the model	Coefficient β	p-value (test |t| β =0)
Sleeping well	Vignette	Intercept	3.0222	0.0000
		Male sex	-0.0317	0.3699
		Age	-0.0003	0.8039
		Level of education	0.0696	0.0632
	Self-evaluation	Intercept	1.6330	0.0000
		Male sex	-0.2626	0.0009
		Age	0.0138	0.0000
		Level of education	-0.1165	0.1860
Cognition	Vignette	Intercept	2.6892	0.0000
		Male sex	-0.0035	0.8939
		Age	0.0024	0.0190
		Level of education	-0.0027	0.9316
	Self-evaluation	Intercept	1.7658	0.0000
		Male sex	-0.2483	0.0000
		Age	0.0113	0.0000
		Level of education	-0.2649	0.0000
Self care	Vignette	Intercept	2.8025	0.0000
		Male sex	-0.0662	0.0163
		Age	0.0020	0.0693
		Level of education	0.1061	0.0010
	Self-evaluation	Intercept	0.9889	0.0000
		Male sex	-0.0177	0.6292
		Age	0.0066	0.0000
		Level of education	-0.0616	0.0981

gnettes also showed small variation and was situated, in general, around the expected response value for each vignette question [18].

It is necessary to add that the vignettes were introduced to the WHS in the expectation that individuals, when evaluating the health state of others, would put themselves in the hypothetical situations as if the problems were their own and, consequently, would reproduce their perceptions of health. As in Mexico, the Brazilian results show that this transposition (of the individual for the other person) did not occur, since the perception of health state in the various domains, as made through the vignettes, was fixed at the level "moderate", with, in general, non significant effects of the individual's social condition. Deserving of attention is the finding that as regards feelings of pain, the multivariate model shows a lack of variation in the evaluation of others by sex, age, level of education, and number of assets, although self-perception shows significant effects for all these variables.

Besides the possibility that the model-case scenarios were formulated inappropriately, which would prevent individuals from reproducing their perceptions of health, another reason for the inadequate performance of the methodology proposed by the WHS is the need for adapting the calibration instrument to the local cultural context, a need that is becoming ever more acknowledged in the specialized literature [19]. The complexity or length of some vignettes may have affected their comprehension among those individuals with incomplete primary education, especially the elderly.

Despite increasing evidence of the validity of self-evaluation for measuring health state, not only for its association with objective conditions (ascertained through clinical diagnostics and exams), but also, for its relevance for predicting future mortality and morbidity [3,20] and utilization of health services [21,22], some authors have hypothesized that distinct social groups can interpret the notion of health differently, systematically affecting the responses obtained from self-reporting instruments. For example, psychosomatic illness may be more common in some sociocultural groups than in others [23].

Table 4

Regression results for different evaluation strategies of health domains: effects of number of household assets adjusted for sex and age. Brazil, 2003.

Health domains	Type of approach	Variables	Model coefficient (β)	p-value (t test β = 0)
State of animus	Vignette	Intercept	3.1339	0.0000
		Male sex	-0.0538	0.0476
		Age	0.0015	0.1279
		Number of assets	0.0015	0.7860
	Self-evaluation	Intercept	2.2502	0.0000
		Male sex	-0.4202	0.0000
		Age	0.0094	0.0000
		Number of assets	-0.0373	0.0031
Locomotion	Vignette	Intercept	2.9220	0.0000
		Male sex	-0.0294	0.4251
		Age	0.0031	0.0029
		Number of assets	0.0071	0.2574
	Self-evaluation	Intercept	1.0342	0.0000
		Male sex	-0.1556	0.0022
		Age	0.0160	0.0000
		Number of assets	-0.0363	0.0005
Pain or discomfort	Vignette	Intercept	2.9311	0.0000
		Male sex	-0.0137	0.6599
		Age	0.0005	0.6232
		Number of assets	0.0008	0.8893
	Self-evaluation	Intercept	1.7628	0.0000
		Male sex	-0.4044	0.0000
		Age	0.0162	0.0000
		Number of assets	-0.0414	0.0013
Personal relationships	Vignette	Intercept	2.9669	0.0000
		Male sex	-0.0873	0.215
		Age	0.0028	0.0142
		Number of assets	0.0089	0.2388
	Self-evaluation	Intercept	1.4881	0.0000
		Male sex	-0.1512	0.0046
		Age	0.0005	0.7548
		Number of assets	-0.0260	0.0219
Vision	Vignette	Intercept	3.1121	0.0000
		Male sex	-0.0756	0.0446
		Age	0.0006	0.6069
		Number of assets	0.0021	0.8047
	Self-evaluation	Intercept	1.0863	0.0000
		Male sex	-0.1112	0.0238
		Age	0.0177	0.0000
		Number of assets	-0.0586	0.0000

(continues)

Table 4 (continued)

Health domains	Type of approach	Variables	Model coefficient (β)	p-value (t test β = 0)
Sleeping well	Vignette	Intercept	3.0188	0.0000
		Male sex	-0.0233	0.5083
		Age	-0.0010	0.3690
		Number of assets	0.0257	0.0018
	Self-evaluation	Intercept	1.5189	0.0000
		Male sex	-0.2719	0.0007
		Age	0.0151	0.0000
		Number of assets	-0.0207	0.1801
Cognition	Vignette	Intercept	2.7388	0.0000
		Male sex	-0.0021	0.9368
		Age	0.0024	0.0102
		Number of assets	-0.0112	0.0840
	Self-evaluation	Intercept	1.5558	0.0000
		Male sex	-0.2605	0.0000
		Age	0.0141	0.0000
		Number of assets	-0.0549	0.0000
Self care	Vignette	Intercept	2.9579	0.0000
		Male sex	-0.0598	0.0316
		Age	0.0008	0.4194
		Number of assets	0.0079	0.2350
	Self-evaluation	Intercept	0.9453	0.0000
		Male sex	-0.0173	0.6386
		Age	0.0073	0.0000
		Number of assets	-0.0153	0.0353

In contrast, studies have shown that the comparability of self-rated health measurements remains valid, even when compared in distinct social contexts. Chandola & Jenkinson [24] show that there was no significant difference in the association between self-rated health and other more objective measures of morbidity among distinct ethnic groups in England. Similarly, a study in Sweden demonstrated that the relative risks of mortality among individuals with good self-rated health in relation to those with poor perceptions were similar in all socioeconomic groups [25].

In the present study, differentiation in self-rated health by socioeconomic status, invariably unfavorable among individuals of lower social status for the majority of health state domains, appears to be explained, at least in part, by adverse living conditions. Nevertheless, the results presented here show the influence of the subjective character of self-evaluation in certain domains that exceed the scope of the health system, such as difficulties in relating to other people.

The findings presented here suggest that it is necessary to better understand systematic variation in measurements of self-rated health and to comprehend how different population subgroups see and evaluate their health in its different domains. The challenge is to develop alternative strategies to reduce the subjective variation in health perception in its various domains and to make possible greater comparability between distinct social groups, so that the self-reporting measures characterize reliably the health needs of the Brazilian population.

Resumo

Como parte do projeto da Organização Mundial da Saúde (OMS) de avaliação de desempenho dos sistemas de saúde das nações, a Pesquisa Mundial de Saúde (PMS) foi realizada em vários países membros. Para possibilitar a comparação de estimativas de auto-avaliação do estado de saúde coletadas entre culturas distintas, a OMS utilizou a estratégia de incluir vinhetas de casos-padrão, estórias hipotéticas que descrevem problemas de saúde de terceiros. Utilizando os dados da PMS brasileira, objetivou-se, neste trabalho, avaliar a utilização de vinhetas de casos-padrão para calibração da percepção de saúde por nível sócio-econômico. Na análise estatística foram comparadas as médias de avaliação de cada domínio por estratégia de mensuração (auto-avaliação e vinhetas) segundo sexo, faixa etária, e nível sócio-econômico (grau de escolaridade e número de bens no domicílio). Os efeitos do nível sócio-econômico sobre as avaliações dos domínios de saúde foram estimados por regressão múltipla, controlando-se por idade e sexo. No caso da auto-avaliação, os efeitos do nível sócio-econômico foram significativos para a maioria dos domínios, mas estatisticamente nulos, no caso de vinhetas. Conclui-se que a utilização das vinhetas propostas pela OMS para calibração das medidas de auto-reporte não se mostrou apropriada no caso do Brasil.

Nível de Saúde; Posição Sócio-econômica; Vinhetas

Contributors

G. N. Damacena conducted the data analysis, defined the content, and drafted the main body of the article. M. T. L. Vasconcellos participated in defining and selecting the WHS sample and drafting of the article. C. L. Szwarcwald coordinated the WHS and participated in defining the sample design and drafting of the article.

Acknowledgements

References

1. Chester LGC, Figueiredo GM, Westphal MF, Cardoso MRA, Costa MZA, Gattás VL. Morbidade referida e utilização de serviços de saúde em localidades urbanas brasileiras: metodologia. Rev Saúde Pública 1996; 30:153-60.
2. Pinheiro RS, Viacava F, Travassos C, Brito AS. Gênero, morbidade, acesso e utilização de serviços de saúde no Brasil. Ciênc Saúde Coletiva 2002; 7:687-707.
3. Idler EL, Benyamini Y. Self-rated health and mortality: a review of twenty-seven community studies. J Health Soc Behav 1997; 38:21-37.
4. Franks P, Gold MR, Fiscella K. Sociodemographics, self-rated health, and mortality in the US. Soc Sci Med 2003; 56:2505-14.
5. Blank N, Diderichsen F. The prediction of different experiences of long-term illness: a longitudinal approach in Sweden. J Epidemiol Community Health 1996; 50:156-61.
6. Borg V, Kristensen TS. Social class and self-rated health: can the gradient be explained by differences in life style or work environment? Soc Sci Med 2000; 51:1019-30.
7. Cavelaars AE, Kunst AE, Geurts JJ, Crialesi R, Grotvedt L, Helmert U, et al. Differences in self reported morbidity by educational level: a comparison of 11 western European countries. J Epidemiol Community Health 1998; 52:219-27.
8. Martikainen P, Adda J, Ferrie JE, Smith GD, Marmot M. Effects of income and health on GHQ depression and poor self rated health in white collar women and men in the Whitehall II study. J Epidemiol Community Health 2003; 57:718-23.
9. Lima-Costa MF, Barreto S, Giatti L, Uchoa E. Desigualdade social e saúde entre idosos brasileiros: um estudo baseado na Pesquisa Nacional pos Amostra de Domicílios. Cad Saúde Pública 2003; 19:745-57.
10. Dachs JNW. Determinantes das desigualdades na auto-avaliação do estudo de saúde no Brasil: análise dos dados da PNAD/1998. Ciênc Saúde Coletiva 2002; 7:641-57.
11. Jylha M, Guralnik JM, Ferruci L, Jokela J, Heikkinen E. Is self-rated health comparable across cultures and genders? J Gerontol B Psychol Sci Soc Sci 1998; 53:S144-52.
12. Üstün TB, Chatterji S, Villanueva M, Çelik LBC, Sadana R, Valentine N, et al. WHO multi-country survey study on health and responsiveness 2000-2001. WHO/GPE Discussion Paper 37; 2001. http://www3.who.int/whosis/discussion_papers/pdf/paper37.pdf (accessed on Dec/2004).
13. World Health Organization. Report on WHO meeting of experts on statistical methods for enhancing the cross-population comparability of survey results. http://www.who.int/health-systems-performance/technical_consultations/crosspop-comp_draftreport.pdf (accessed on Dec/2004).
14. Salomon JA, Tandon A, Murray CJ. Comparability of self rated health: cross sectional multi-country survey using anchoring vignettes. BMJ 2004; 328:258.
15. Szwarcwald CL, Viacava F, Vasconcellos MTL, Leal MC, Azevedo LO, Queiroz RSB, et al. Pesquisa

Mundial de Saúde 2003: o Brasil em números. Radis 2004; 23:14-33.

16. World Health Organization. International classification of functioning, disability and health: ICF. Geneva: World Health Organization; 2001.

17. Mackenbach JP, Kunst AE, Cavelaars AEJM, Gronhof F, Geurts JJM. Socioeconomic inequalities in morbidity and mortality in Western Europe. The EU Working Group on Socioeconomic Inequalities in Health. Lancet 1997; 349:1655-9.

18. Palácios AV, Gutierrez JP. Percepción de los estados de salud en la Republica Mexicana. In: Anais do I Congresso de Economia da Saúde da América Latina e Caribe. http://www.abres.cict.fiocruz.br/trabalhos/index.html (accessed on Dec/2004).

19. Fernandez-López JA, Siegrist J, Hernandez-Mejía R, Broer M, Cueto-Espinar A. Assessment of the transcultural equivalence of the Spanish version of the profile of quality of life for chronic patients (PECVEC). Med Clin (Barc) 1997; 109:245-50.

20. Mossey JM, Shapiro E. Self-rated health: a predictor of mortality among the elderly. Am J Public Health 1982; 72:800-8.

21. Blaum CS, Liang J, Liu X. The relationship of chronic diseases and health status to the health services utilization of older Americans. J Am Geriatr Soc 1994; 42:1087-93.

22. Miilunpalo S, Vuori I, Oja P, Pasanen M, Urponen H. Self-rated health status as a health measure: the predictive value of self-reported health status on the use of physician services and on mortality in the working-age population. J Clin Epidemiol 1997; 50:517-28.

23. Shetterly SM, Baxter J, Mason LD, Hamman RF. Self-rated health among Hispanic vs. non-Hispanic white adults: the San Luis Valley Health and Aging Study. Am J Public Health 1996; 86:1798-801.

24. Chandola T, Jenkinson C. Validating self-rated health in different ethnic groups. Ethn Health 2000; 5:151-9.

25. Burstrom B, Fredlund P. Self rated health: Is it as good a predictor of subsequent mortality among adults in lower as well as in higher social classes? J Epidemiol Community Health 2001; 55:836-40.

———