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Self-perceived health among adult and elderly users of Primary Health Care

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Abstract *A cross-sectional study was conducted with 1,246 adults and senior men and women in Pelotas (RS), Brasil to evaluate the negative self-perception of health among Primary Health Care users. The prevalence of negative self-perception of health was reported by 41.6% of respondents. Women, those who were unemployed, who reported a diagnosis of three or more chronic non-communicable diseases, who were food insecure and did not engage in physical activity reported a higher proportion of negative self-perceived health. Users with at least higher education level and those whose households had four or more residents were less predisposed to the outcome. The high prevalence of negative self-perceived health in this population, as well as the associations found, indicate the need for a better understanding of the influence of these factors on the search for care and, consequently, on adherence to treatment.*

Key words *Self-perception, Health status, Primary Health Care*

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Introduction

The health-disease process involves objective and subjective aspects that can be analyzed by health services from different perspectives. According to Andersen's Behavioral Model, the use of services would be associated with predisposing, training and health needs factors. The predisposing factors are those related to the susceptibility of individuals, according to their demographic and socioeconomic characteristics; training related to access to these services; and, the most proximal determinant of use is the individual health status[1,2].

The health status of the individual, in turn, can be described objectively and dichotomically as the absence or presence of disease and, subjectively, by self-perceived health. Self-perception has been used as a valid indicator of the quality of life, of morbidity and diminished functionality, analyzing physical, cognitive and emotional aspects and, mainly, as a good predictor of mortality.

The prevalence of negative self-perception of health in the general population of adults and the elderly has been around 20% both in studies conducted in Brazil and other countries, and is generally higher in women, people with more advanced age, with lower income and schooling, higher morbidity and inadequate lifestyle[3-10].

Although self-perceived health is a determinant of the use of services, few studies have evaluated it in the user population. In two studies conducted in Brazil, the prevalence found was similar to that of the general population, but an inconsistency with the associated factors was found, and no difference was identified mainly concerning gender, age and income[11,12]. Therefore, this study aimed to evaluate the negative self-perception of health and associated factors in PHC users in the city of Pelotas (RS), Brazil, to better elucidate the issue in such a population group.

Methods

This is a cross-sectional study with data from a survey conducted from May to October 2013, with individuals of both genders, aged 20 years or older and users of the PHC urban network of Pelotas, Rio Grande do Sul, with the aim of evaluating the promotion of healthy eating.

In 2010, the city's health network consisted of 51 primary healthcare facilities, one municipal emergency care, five first-aid rooms, one specialties center, seven psychosocial care centers, five general hospitals and one psychiatric hospital, and approximately 600 private practices. In a population-based study carried out with adults and the elderly, regarding the use of health services, the city's characteristics are similar to other Brazilian cities of the same size[13].

The sample size was calculated in the Epi Info 6.04 Program (Centers for Disease Control and Prevention, Atlanta, USA), taking into account different risk factors, relative risk of 2.0, 95% confidence level, 80% power, non-exposed/exposed ratio of up to 1:9 and an expected prevalence of the outcome in non-exposed individuals of at least 13%, which indicated the need for 936 participants. Adding 10% to possible losses and 25% to confounding factors, the total required was set at 1,264 subjects.

The 36 PHC facilities (UBS) of the urban area were included, with double-stage sampling. Initially, a proportional random-type sampling was used to define the number of users to be interviewed in each UBS, using as a criterion of proportionality the mean number of procedures of the month before the onset the data collection. The next stage considered convenience sampling, and in each UBS, users who waited for service until the stipulated "n" was completed were included consecutively. Pregnant women and people physical or mental disabilities were excluded, and data were obtained through a standardized and tested questionnaire, applied by trained interviewers, in the waiting room of the UBS, in the morning and afternoon shifts, before attendance. Any refusal would trigger two further attempts by the other interviewer of the pair and the field supervisor, and there was no replacement of losses.

In this analysis, the negative self-perception of health, generated from the *fair* and *inadequate* responses to the question "*How do you consider your state of health?*" was considered as a dependent variable. The association with four levels of independent variables was tested. In the first one, demographic and socioeconomic variables were considered: gender, age (in full years, 20-59/60 and over), self-reported skin color (white/non-white), presence of spouse (yes/no), quintiles of household income per capita, schooling (primary school/secondary school/higher education and over), occupation (work/not working) and number of residents in the household (1-3/4 or more). The second included the health status: number of self-reported chronic non-

communicable diseases (NCDs) (reference to the medical diagnosis of obesity/diabetes mellitus/hypertension/dyslipidemia/heart disease, categorized in none/1-2/3 or more), nutritional status (assessed from self-reported weight and height and classified as eutrophic/overweight as per Body Mass Index[14] and food insecurity (yes/no, assessed from the short assessment scale[15]). The third group included access to health information, measured by reference to the receipt of health information (yes/no), through friends, family, health professionals, the Internet or other means of communication, and the healthcare model (traditional/family health). Finally, the last set included life habits: follow-up of the Ten Steps of Healthy Eating[16] (none/1/2/3/4 and over), physical activity for at least 30 minutes every day, evaluated without using a specific questionnaire and without considering type and intensity (yes/no), tobacco use (yes/no), without considering type, quantity, frequency or former smokers, and consumption of alcoholic beverages (yes/no), without considering type, quantity and frequency.

Statistical analyses were performed in Stata version 12.0 (Stata Corp., College Station, USA), starting with the description of the sample and the calculation of the prevalence of the dependent variable and its 95% confidence interval (95% CI). The association of the independent variables with the negative self-perception of health was tested by the bivariate analysis (crude prevalence ratios and their CIs) and, later, through backward stepwise multivariate analysis, with Poisson regression, cluster-robust variance (adjusted prevalence ratios and their CIs). We adopted a pre-established hierarchical model, with the variables of each level entering the model and those with $p>0.20$ were withdrawn one by one, inserting those of the lower level, and so forth, until the last level. The linear trend (Wald test) was tested in the ordered polytomous categorical variables, and heterogeneity was tested in the non-ordered ones. All statistical analyses adopted a p-value of $p<0.05$ of a two-tailed test.

The Health Research Ethics Committee of the Federal University of Rio Grande (CEPAS/FURG) approved the research protocol CAAE 09931212.3.0000.5324, and all participants agreed by signing an Informed Consent Form.

Results

Of the 1,264 service users eligible for the study, 1,246 agreed to participate, resulting in 1.4% losses and refusals. The sample consisted mainly of adults (77.8%), women (83.7%), individuals who self-referred as white (63.3%) and with spouse (60.2%). Regarding the monthly household income, individuals belonging to extreme quintiles had an average income of R$ 142.9 (±71.7) and R$ 1,034.8 (±304.8). As for schooling, having completed primary school was more frequent among the participants (67%). About 70% were not working and more than half of the sample reported having at home up to three residents (56%) (Table 1).

Regarding health-related aspects, although the lack of NCDs in 46% of the sample was evident, almost 40% of them self-reported having up to two diseases, and approximately 15% three or more chronic diseases. The most observed nutritional status was overweight (61%), and food insecurity was identified in 14% of the sample. More than 60% reported having access to health information. The Family Health Strategy served more than half of the users. When asked about Follow-up of the Ten Steps of Healthy Eating, more than 50% reported as maximum adherence up to two of them, and no participant reported adherence to all steps. Participants reported approximately 75% of physical inactivity, similar to the absence of tobacco use, and 85% of them did not consume alcoholic beverages (Table 1). The study outcome, namely, negative self-perception of health, was identified in 41.6% (95% CI, 38.8-44.3) of the individuals.

In the hierarchical analysis, according to the theoretical model, in the first level, the following variables were associated with the outcome after adjustment: gender, schooling, occupation and number of dwellers in the household. There was a higher prevalence of negative self-perception of health for the female gender, PR=1.25 (95% CI 1.05-1.50) and those who were unemployed at the time of the interview PR=1.37 (95% CI, 1.14-1.65). The lowest prevalence of the outcome was found in the respondents with higher education PR=0.52 (95% CI, 0.35-0.78) and who reported four or more people residing in the household PR=0.84 (95% CI, 0.76-0.92). In the second level, the number of self-reported NCDs and food insecurity remained associated with the outcome, with a higher prevalence of negative self-perception in those with a higher number of chronic and food-insecure diseases PR=2.40 (95% CI, 2.08-2.76) and PR=1.33 (95% CI, 1.17-1.51), respectively. The variables of access to health information and care model included in the third hierarchical level were not shown to be

Table 1. Characterization of a sample of adults and elderly Primary Care users. Pelotas (RS), Brazil, 2013. (n = 1,246).

Variables	n	%
Gender		
Male	203	16,3
Female	1,043	83.7
Age in full years		
20-59	969	77.8
60 and over	277	22.2
Self-reported skin color (n = 1.244)		
White	787	63.3
Non-white	457	36.7
Presence of spouse		
No	496	39.8
Yes	750	60.2
Quintiles of monthly household income per capita	**Mean**	**SD**
1st	142.95	71.69
2nd	289.53	37.90
3rd	416.78	51.78
4th	629.13	67.08
5th	1,034.87	304.83
Schooling		
Primary school	832	66.8
Secondary school	276	22.1
Higher education and over	138	11.1
Occupation		
Working	396	31.8
Not working	850	68.2
Number of people living in the household		
1-3	692	55.5
4 and over	554	44.5
Number of self-reported NCDs		
None	576	46.2
1-2	486	39.0
3 and over	184	14.8
Nutritional status (n = 1.113)		
Eutrophy	434	39.0
Overweight	679	61.0

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associated with the outcome (Table 2). At the last level, consisting of variables on life habits, only physical activity was associated with the outcome, showing a higher prevalence of negative self-perception for the physically inactive individuals PR=1.29 (95% CI, 1.10-1.51) (Table 2).

Discussion

The prevalence of negative self-perception of health was double that of the overall population, both in other countries[7,8] and in Brazil[3,5]. It was also higher than the almost 30% found in elderly PHC users in Goiânia (GO)[12], but approximately half that found in adult PHC users in Porto Alegre (RS)[11]. Such gaps may be due to the different nature of the study participants, showing that PHC users comprise a group with specific characteristics and that requires specific care in this aspect.

Regarding the associated factors, similar to that observed in other studies, it was found that, among the participants, the outcome was

Table 1. Characterization of a sample of adults and elderly Primary Care users. Pelotas (RS), Brazil, 2013. (n = 1,246).

Variables	n	%
Food insecurity (n = 982)		
No	845	86.0
Yes	137	14.0
Access to health information		
Yes	780	62.6
No	466	37.4
Healthcare model		
Family health	669	53.7
Traditional	577	46.3
Follow-up of the Ten Steps of Healthy Eating		
None	47	3.8
1	255	20.5
2	391	31.4
3	337	27.0
4 and over	216	17.3
Physical activity		
Yes	318	25.5
No	928	74.5
Tobacco use		
No	954	76.6
Yes	292	23.4
Alcoholic beverage consumption		
No	1,061	85.2
Yes	185	14.8

NCDs: Noncommunicable diseases.

Table 2. Crude and adjusted analysis of factors associated with negative self-perception of health referred to by the adult and elderly users of Primary Health Care. Pelotas (RS), Brazil, 2013. (n = 1,246).

Variables	Crude PR (CI95)	p	Adjusted PR (CI95)	p
1st level: demographic and socioeconomic variables *				
Gender		0.024[a]		0.013[a]
Male	1.00		1.00	
Female	1.25 (1.03-1.51)		1.25 (1.05-1.50)	
Age in full years		0.006[a]		0.448[a]
20-59	1.00		1.00	
60 and over	1.25 (1.07-1.46)		1.07 (0.90-1.26)	
Self-reported skin color		0.992[a]		0.860[a]
White	1.00		1.00	
Non-white	1.00 (0.89-1.13)		1.01 (0.90-1.14)	
Presence of spouse		0.805[a]		0.721[a]
No	1.00		1.00	
Yes	0.98 (0.82-1.17)		1.03 (0.86-1.24)	
Quintiles of monthly household income per capita		0,146[b]		0,443[b]
1°	1.00		1.00	
2°	0.86 (0.67-1.09)		0.85 (0.68-1.06)	
3°	0.85 (0.70-1.03)		0.90 (0.76-1.08)	
4°	0.85 (0.70-1.04)		0.87 (0.71-1.06)	
5°	0.79 (0.67-0.95)		0.87 (0.73-1.04)	

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Table 2. Crude and adjusted analysis of factors associated with negative self-perception of health referred to by the adult and elderly users of Primary Health Care. Pelotas (RS), Brazil, 2013. (n = 1,246).

Variables	Crude PR (CI95)	p	Adjusted PR (CI95)	p
Schooling		0.001[c]		0.001[c]
Primary school	1.00		1.00	
Secondary school	0.71 (0.61-0.83)		0.74 (0.63-0.87)	
Higher education and over	0.49 (0.33-0.72)		0.52 (0.35-0.78)	
Occupation		0.001[a]		0.001[a]
Working	1.00		1.00	
Not working	1.50 (1.26-1.78)		1.37 (1.14-1.65)	
Number of people living in the household		0.001[a]		0.001[a]
1-3	1,00		1,00	
4 and over	0.82 (0.75-0.91)		0.84 (0.76-0.92)	
2nd level: health situation **				
Number of self-reported NCDs		0.001[c]		0.001[c]
None	1.00		1.00	
1-2	1.77 (1.52-2.05)		1.74 (1.46-2.07)	
3 and over	2.80 (2.48-3.17)		2.40 (2.08-2.76)	
Nutritional status		0.001[a]		0.422[a]
Eutrophy	1.00		1.00	
Overweight	1.25 (1.11-1.42)		1.06 (0.92-1.24)	
Food insecurity		0.001[a]		0.001[a]
No	1.00		1.00	
Yes	1.49 (1.31-1.70)		1.33 (1.17-1.51)	
3rd level: knowledge of health and nutrition and healthcare model ***				
Access to health information		0.204[a]		0.181[a]
Yes	1.00		1.00	
No	1.11 (0.95-1.29)		1.09 (0.96-1.23)	
Healthcare model		0.856[a]		0.437[a]
Family health	1.00		1.00	
Traditional	0.99 (0.84-1.15)		0.94 (0.80-1.10)	
4th level: life habits ***				
Follow-up of the Ten Steps of Healthy Eating		0.216[b]		0.134[b]
None	1.00		1.00	
1	0.88 (0.57-1.36)		0.90 (0.61-1.33)	
2	0.95 (0.65-1.40)		0.88 (0.62-1.23)	
3	0.86 (0.59-1.24)		0.79 (0.57-1.09)	
4 and over	0.81 (0.58-1.14)		0.80 (0.59-1.09)	
Physical activity		0.001[a]		0.002[a]
Yes	1.00		1.00	
No	1.33 (1.14-1.55)		1.29 (1.10-1.51)	
Tobacco use		0.787[a]		0.659[a]
No	1.00		1.00	
Yes	0.99 (0.88-1.10)		0.97 (0.86-1.10)	
Alcoholic beverage consumption		0.002[a]		0.769[a]
No	1.00		1.00	
Yes	0.75 (0.63-0.90)		0.96 (0.71-1.29)	

NCDs: Noncommunicable diseases. Tests: a) Chi-square; b) heterogeneity; c) linear trend. * 2 losses; ** 372 losses; *** 264 losses.

positively associated with females[4,5,7,8,11], at the diagnosis of some NCD[5,6,9,11] not to be working[4] and to physical inactivity[4,10,12], which suggests that, in fact, the probability of negative self-perception of health is higher in these groups.

From the studies available in the literature, none evaluated a possible association between food insecurity and negative self-perceived health. Food and nutritional insecurity are characterized as a lack of regular, permanent and sufficient access to quality foods[17]. Besides the vital prevalence of food insecurity in both Pelotas (RS) and throughout the country, which ranges between 10 and 30%,[18,19] this condition may be associated with a higher probability of negative self-perception of health. In this study, it was observed that the insecure individuals evidenced a higher probability of the outcome, which is plausible, considering that, in such analysis, they are considered criteria for access to food[15] and, of course, individuals who do not feed themselves in sufficient quantity or quality may show a predisposition to show negative self-perception of their health

Moreover, the probability of negative self-perception of health was lower among those with higher schooling and in other population groups studied[3,5,7,11]. It was also lower in those who reported a higher number of residents in the household, which, while different from the literature[12], is plausible, since direct contact with other people and the support received from them can improve the perception of one's health.

No differences were observed for age, as in the other studies performed with PHC users[11,12]. However, most studies with the general population point to the positive effect of old age on the occurrence of negative self-perceived health[4,6,7,9]. It may be that such a distinction is because PHC users are precisely seeking care and, at that moment, perceive their health more negatively, regardless of age. The situation is repeated in the income analysis of the respondents, since it did not affect the outcome, corroborating the findings of another study conducted only with adults attended in the public health system[11], but disregarding the results of studies with the general population[3,5,9].

The self-reported skin color was not associated with the outcome, which is in agreement with the literature[3,12], as well as alcohol consumption[11]. On the other hand, there was no association between nutritional status and negative self-perception of health, unlike other studies[4,7,9], as well as for tobacco use[4,9-11], unhealthy eating habits[8,9] and marital status[12], which suggests, considering the hierarchical analysis, that such factors do not affect the occurrence of negative self-perceived health.

Comparison of results with other available data points to the need for additional studies specifically with adults and elderly PHC users to better elucidate the inconsistencies, mainly because negative self-perception of health can influence the demand for healthcare and, in some situations, in adherence to health treatment, especially in chronic patients, who require a change of lifestyle. Thus, determining how this population self-perceives its health status can also be useful for health planning, as well as contributing to the success of interventions performed by health professionals.

Positive points are the low percentage of losses and the adequate statistical power for most of the comparisons, as well as their contribution to the knowledge related to self-perceived health, specifically among adults and the elderly attended in the PHC, a subject that has not yet been explored.

One of the limitations of the study is its cross-sectional design, which allows only the identification of the association between factors and outcome, besides the possibility of reverse causality for some variables. Also, the fact that the interviews conducted in the waiting room of the health services may have under- or overestimated some observations.

Collaborators

Ivana Loraine Lindemann participated in the planning and implementation of the project, data collection and entry supervision, data analysis, writing and discussing the results and writing the paper. Natasha Rodrigues Reis participated in the data collection, entry and analysis, writing and discussing the results and writing the paper. Gicele Costa Mintem participated in the data analysis, discussion of results and paper review. Raúl Andrés Mendoza-Sassi participated in the planning and implementation of the project, data analysis, discussion of results and paper review.

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