

FACTORS ASSOCIATED WITH SELF-RATED POSITIVE HEALTH IN ACTIVE YOUNG MEN FROM SERGIPE STATE, BRAZIL



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ABSTRACT

Introduction: Self-rated positive health seems to be associated with various factors in the general population. Among active men, the association with such traits seems to be unclear. **Objective:** This work has aimed to verify the factors associated with self-rated positive health in active young men. **Material and Methods:** cross sectional research was carried out with a sample of 695 male conscripts, taken from the male population (age of 18 years), in the mandatory army enlisting process. The study variables were: socio-economic status, marital status, education, work, smoking, alcohol consumption, stress, regular physical activity practice and self-rated health. In order to analyze the data likelihood, ratio tests were calculated and hierarchical logistic regression analysis applied. **Results:** Association between self-rated positive health and high education –eight or more years (OR=3.38; CI 95%; 1.83-6.23), and non-smoking (OR=3.42; CI 95%; 1.69-6.92) was found. When the analysis was adjusted to social-demographic variables, high education (OR=3.05; CI 95%; 1.63-5.73), and non-smoking (OR=3.03; CI 95%; 1.47-6.25) kept on the model being associated with self-rated positive health. **Conclusion:** Such findings suggest the need to develop intervention strategies in an intersectional and multi-professional manner in the public health departments, related to risk behavior and social factors.

Keywords: self-rated health, army enlisting, active men, Sergipe, Brazil.

INTRODUCTION

The analysis of the self-rated health is fairly complex; however, evidence derived from longitudinal studies show that the negative self-rated analysis is related to mortality in general¹ and in individuals with diabetes². Such relationship can be boosted when combined with low levels of physical fitness³. Similarly, some demographic and socio-economic factors as well as other related to lifestyle are directly associated with health self-evaluation in industrialists^{4,5}, adults^{6,7} and in the elderly⁸, being able to determine a positive or negative perception, which contributes to the development of future interventions in many population subgroups⁹. Moreover, negative self-rated health is associated with higher frequency of chronic diseases¹⁰, smoking over 20 cigarettes a day, insufficient levels of physical activities^{11,12}, low weight or obesity¹³, female sex, advanced age, low educational background and compromised health¹⁴.

Some studies have shown that physically active men present better self-rated health compared to the insufficiently active ones¹⁵⁻¹⁷. Others point out regular practice of physical activity as predictor of positive self-rated health¹⁵, and, therefore, it is believed that different associated factors may boost even more the wellness of physically active individuals, reinforcing the need of research which evidences this correlation. In the northeast of Brazil, there are not many studies about the associations of factors with health evaluation in young subjects. Thus, in this study, we tried to verify the factors associated with health in active young subjects from Sergipe state, Brazil.

MATERIALS AND METHODS

The research was epidemiological and of transversal cohort, carried out with young adults at military enlistment age in Sergipe state, Brazil. According to data provided by the military institution (Brazilian Army), 5,114 men enlisted enrolled in the mandatory military enlistment in 2007.

The criteria adopted for inclusion of the participants in the research were the following: willingness to participate in the research, correctly filling out of the given questionnaire, absence of refractoriness (age above 18 years) and absence of insufficient levels of physical activity (< 150 min/week).

Data collection was performed in the 28th Snipers Rank – Brazilian Army, located in the city of Aracaju, Sergipe, under authorization of the Higher Command of the Institution. The mentioned research was approved by the Ethics in Research Committee of the Tiradentes University (file # 1,612/07).

Simple random process in two stages was performed for sample selection. On the first stage, before starting the study, three days of the week were raffled (Tuesday, Thursday and Friday) and, on the second one, 30 young men were selected per raffled day to answer a questionnaire. In the selection of the individuals who constituted the sample, they were organized and the raffle was randomly performed among the participants.

Estimation of sample size considered confidence interval of 95%, prevalence of adolescents with insufficient levels of physical activity of 39%¹⁸ and acceptable error of sample in four percentage points, reaching to a total of 514 individuals¹⁹. In order to guarantee sample

representativeness, 20% were added to perform multivariate analysis and 10% to occasional loss, collecting hence data of 740 illegible young subjects. Due to the sample loss of 45 subjects who did not fill out the questionnaire correctly, 695 young subjects participated in the final research.

Information about socio-economic and behavior aspects as well as self-rated health was collected. The socio-economic status was identified through questions concerning the Brazilian Economical Classification Criteria ²⁰. The variables were initially analyzed in a descriptive manner. The socio-economic variable was categorized in: A/B classes = 1; and C/E classes = 2 for better adjustment. In order to calculate the weekly energy expenditure (MET/min/week), in different dimensions of the physical activity (walks and moderate and vigorous physical exertion), the International Physical Activities Questionnaire, short version (IPAQ) was used²¹. The level of physical activity was classified according to the Guidelines for data processing and analysis of the International Physical Activity Questionnaire (IPAQ)²².

In order to evaluate further health risk behavior, questions concerning stress perception, drinking habit and smoking habits have been added³. The behavior variables were presented in the following manner: smoking habit (smokers versus non-smokers), drinking habit (yes versus no). Stress was evaluated with the use of a Likert scale with four possibilities for an answer (rarely stressed, sometimes stressed, almost always stressed and excessively stressed); however, in order to better adjust the data analysis, (rarely stressed added to sometimes stressed) was classified as positive perception and (almost always stressed added to excessively stressed) as negative perception; while self-rated health was performed using the following question¹¹: How do you evaluate your health? with five choices for an answer (very good, good, average, bad and very bad). However, for data analysis, the answers were dichotomized in: positive health (very good/good) and negative health (average/bad/very bad).

Verosimilarity ratio test was used in the data analysis in order to confirm which predicting variables would be associated with self-rated health. Subsequently, using the forward selection method, raw analysis and multivariate analysis by hierarchy logistics regression were applied, and the socio-demographic variables were found in the most distal determination level (marital status, educational background, socio-economic class and whether or not the person works), while the behavior variables were in the most proximal level (smoking habit, drinking habit and stress perception). It is worth mentioning that the multivariate analysis was only used for the variables of the same level and higher level with *p value* < 0.20 in the raw analysis. The significance level adopted was ≤ 5%. The statistical package SPSS, version 15.0 was used for the analysis.

RESULTS

The socio-demographic and behavior characteristics are presented in table 1. The young subjects studied here were predominantly single, of lower socio-economic class (C/E classes), with over eight years of education, with low stress level and non-workers. In the verosimilarity ratio analysis, only education and smoking habit were associated (*p* < 0.05) with self-rated health.

The raw and multivariate analyses for the independent variables

concerning the positive self-rated health are presented in table 2. In the raw analysis of the variables the young subjects with higher educational level – eight years or more of study (raw OR analysis = 3.38, 95% CI: 1.83-6.23) and non-smokers (raw OR analysis = 3.42, 95% CI: 1.69-6.92) presented higher chance of perceiving themselves with positive health than the young subjects with less than eight years of education and smokers, respectively.

When the analyses were adjusted to the socio-demographic variables, again the young subjects with higher educational level and non-smokers presented higher chance of positive self-rated health (*p* < 0.05). Among the young subjects with eight or more years of education the probability of presenting better self-rated health was three times higher compared to the less educated (adjusted OR = 2.91; 95% CI: 1.53-5.54). Likewise, the non-smokers also presented higher proportion of presenting positive self-rated health when compared to the smokers (adjusted OR = 3.08; 95% CI: 1.40-6.76).

Table 1. Socio-demographic and behavior characteristics associated with health self-evaluation in men in the military enlistment age. Sergipe, Brazil, 2007.

Variables	Self-rated health			p ¹
	n	Positive %	Negative %	
Marital status				
Living without a partner	677	93.2	6.8	0.162
Living with a partner	18	16.7	83.3	
Educational background				
< 8 years	121	84.3	15.7	<0.001 ²
8 or more years	574	94.8	5.2	
Socio-economic class				
A/B	189	91.0	9.0	0.232
C/E	506	93.7	6.3	
Works				
Yes	163	91.4	8.6	0.377
No	533	93.6	6.6	
Smoking habit				
Smoker	68	82.4	17.6	0.002 ²
Non-smoker	627	94.1	5.9	
Drinking habit				
Yes	345	92.2	7.8	0.440
No	34	93.7	6.3	
Stress perception				
Negative	54	88.9	11.1	0.257
Positive	641	93.3	6.7	

¹Analysis of the likelihood ratio ²p < 0,05.

DISCUSSION

The present study, whose aim was to verify the factors associated with self-rated health in active young subjects, was performed with a specific young population who were under mandatory military enlistment in the state of Sergipe, Brazil.

The contribution of the present study can be divided in three important aspects. The first one point out to the need of designing intervention proposals to simultaneously act in the general health in this population subgroup, considering the high prevalence of some factors of life and health status, psychological factors and

Table 2. Raw and multivariate Odds ratio (OR) for independent variables concerning self-rated positive health among young subjects (Sergipe. Brazil. 2007).

Variables	Self-rated positive health			
	Raw analysis		Multivariate analysis*	
	OR (CI 95%)	p-value	OR (CI 95%)	p-value
Socio-economic class				
A/B	1	0.223	1	0.592
C/E	1.46 (0.79-2.70)		1.19 (0.62-2.27)	
Works				
Yes	1	0.368	1	0.792
No	1.35 (0.70-2.57)		1.09 (0.55-2.14)	
Marital status				
Living without a partner	1	0.121	1	0.424
Living with a partner	0.36 (0.10-1.30)		0.58 (0.15-2.19)	
Education				
< 8 years	1	<0.001 ¹	1	0.001 ¹
8 or more years	3.38 (1.83-6.23)		2.91 (1.53-5.54)	
Smoking habit				
Smoker	1	0.001 ¹	1	0.005 ¹
Non-smoker	3.42 (1.69-6.92)		3.08 (1.40-6.76)	
Drinking habit				
Yes	1	0.441	1	0.796
No	1.26 (0.70-2.26)		0.91 (0.48-1.74)	
Stress perception				
Positive	1	0.230	1	0.823
Negative	0.57 (0.23-1.42)		0.89 (0.34-2.33)	

*Adjusted to the proximal level. ¹p < 0.05.

lifestyle constantly evidenced in the literature. In this investigation, interesting characteristics concerning lifestyle of the young subjects were found. Prevalence of smoking habit was of 49.1%, relatively lower compared to the ones found by Alves *et al.*²⁴, in which 57% of the adolescents of Feira de Santana (BA) had already ingested alcoholic drinks. The use of alcohol among adolescents seems to be associated with work, and alcoholism with the male sex and alcoholism family history²⁵. Likewise, alcohol dependence is related to age range from 14 to 39 years, higher income, lower educational level, undefined religion and use of illicit drugs²⁶.

Concerning smoking, only 9.8% of the active adolescents from this study reported being smokers. In investigations held in South America, the main factors among young subjects to adopt the smoking habit were: smoking among siblings and friends, advanced age, low school performance, male sex, parents' divorce and paid work²⁷. The indicators described point to multidimensional measures of the aspects related to alcohol and smoking habits, which may directly interfere in the self-rated health.

A study carried out using a telephone survey, with broad sampling aged 18 years or older, in the 26 Brazilian capitals, including the ones in the Federal State, evidenced that smoking more than 20 cigarettes/day, not regularly practicing leisure physical activity and presenting low weight or obesity, besides the number of present morbidities, associated with negative self-rated health¹³.

Another questionnaire performed with individuals older than 13 years pointed out that the main determinants of self-rated health are inversely related to socio-economic status (income per capita), age, with additional contributions from the educational level for men^{9,28}.

The second aspect refers to the evidence about other factors associated with self-rated health in active men. The main evidence of this study was that self-rated positive health in active men and at military enlistment age, also seems to be influenced by educational level and smoking habit, suggesting hence interventions which try to modify a set of associated factors. Despite the specific characteristics of this sample, the prevalence of positive self-rated health in the mentioned investigation was high, similarly to the one found in further studies^{6,27,29}, for different population subgroups, proving that regardless of age, sex and other risk factors may determine the self-rated health.

Additionally, other investigations found in the literature tried to verify the association of lifestyle factors with positive or negative self-rated health, using many research instruments in populations in different ages and sex, but not aiming at active individuals. Research held in Sweden⁶ with subjects from both sexes, shows that age, the absence of the smoking habit and the high educational level were associated with positive self-rated health, similar results to the ones found in this study. Another study held in Greece¹⁴ evidenced that being female, having lower educational level, presenting advanced age and compromised health were determinant in the negative self-rated health. On the other hand, regular physical exercise, better sleeping quality, healthy eating habits and religious habits determined the positive self-rated health.

Dachs and Santos⁹, in a representative sample of the Brazilian population, found dependence of positive self-rated health to high educational level and socio-economic class. In research followed for five years and carried out with middle-aged adults, they evidenced the association between practice of leisure physical activity and positive self-rated health, being more evident among the younger ones¹⁶. Similar data were found in the investigation in 15 countries members of the European Union¹⁷. Additionally, material, psychosocial and lifestyle conditions seem to be independent in the determination of negative health⁷. In the present investigation, association between education and smoking habit with self-rated health was found after adjustment to the variables of the distal level with p < 0.20 in the raw analysis.

And the last but not the least third aspect refers to the performance of study only with male young subjects at the same age. Research carried out about self-rated health in Brazil, more specifically in the northeast, is limited, especially with specific population subgroup. Investigation held with three European countries evidenced some similar and some different factors associated with self-rated health; however, the psychosomatic complaints were the most important aspects in the determination of self-rated health in university students³⁰. In a population of diabetic individuals², middle-aged¹⁵ and elderly men³¹, the evidence of the lack of homogeneity between the population subgroups justify this study.

CONCLUSION

Such findings are of great relevance, since adolescence is a transition moment in which people should take new identity in society,

favoring conflict with one's self and the environment where one lives, due to the need of self-assurance within his/her culture. Thus, the mentioned investigation presented some important information to the Sergipe state.

This study presented as limitations: the use of questionnaire, which may favor errors in the transcription of the answers; difference of the used instrument from other studies makes comparative analyses difficult; restriction to data generalization to the young subjects participating in this research and finally, since it is a transversal investigation, it presents limitations intrinsic to the method for the impossibility to have the participants of the sample followed (retrocausality).

The data described in the present study enabled to identify

strong association between smoking and education with the dependent variable positive self-rated health among active young subjects. Thus, it is suggested that the public sectors are more attentive, considering the multidimensional aspects, highlighting health education in an attempt to modify some risk behavior, such as keeping active, not smoking and avoiding excessive alcohol consumption so that the risks to health of this population subgroup can be minimized.

All authors have declared there is not any potential conflict of interests concerning this article.

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