Physical Activity and Aging Male Symptoms in a Southern Brazilian Population

EXERCISE AND SPORTS MEDICINE CLINIC

ORIGINAL ARTICLE

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ABSTRACT

The aim of this study was to verify the association of aging male symptoms with physical activity in leisure and commuting time in men aged 40 years or older from Pelotas, a city in Southern Brazil. Methods: a population-based cross-sectional study was carried out including 421 men, living in the urban area. To verify the aging male symptoms, the Aging Males' Symptoms Scale (AMS) was used and to evaluate physical activity level, the International Physical Activity Questionnaire (IPAQ), long version was used. Results: the prevalence of sedentarism in the leisure and commuting physical activity domains was of 82.9% (CI 95% 78.9-86.4). The psychological, somatic and general score of aging significantly differed between sedentary and active men ($p<0.05$; $p=0.001$; $p=0.02$ respectively). The severity of the general score was also more prevalent among sedentary subjects ($p=0.01$), with 90% of them presenting severe symptoms. Conclusion: psychological, somatic and general scores symptoms, as well as their severity were lower among those subjects who reached the current recommendations for physical activity during leisure and commuting time.

Keywords: motor activity, cross-sectional studies, epidemiology, male symptoms.

INTRODUCTION

Aging male is a result of a complex multifactorial process and the symptoms related to it are consequence of three distinct factors: psychological, somatic and sexual, being the sum of these the diagnosis of the general symptomatology [1].

Aging male is followed by signs and symptoms which remind of androgenic deficiency in young adults, such as decrease in muscular mass and strength; increase of abdominal fat (especially visceral, with insulin resistance and atherogenic lipid profile); decrease in libido and sexual life; osteopenia; decrease of cognitive performance; depression; insomnia; sudoresis and decrease of general wellness. Such symptoms can affect the quality of life and increase the risk for non-transmissible chronic diseases in men aged over 40 years[2,3].

Epidemiological evidence has stated that physical activity is able to provide a series of benefits to physical and mental health, as well as to play a protective role on countless diseases, including cardiovascular, hypertension, type II diabetes, osteoporosis, some types of cancer, anxiety, depression, as well as to decrease the risk of early mortality in those individuals with good physical fitness and with high energetic expenditure[4-7].

Despite the many benefits of physical activity to health and quality of life, there is still a very high number of sedentary or physically inactive individuals. Moreover, the literature has shown an inverse association between physical activity and population strata with more advanced ages [4,8,9].

Regarding the aging male, there are few studies verifying the association between physical activity and symptoms of aging male. The existing studies are limited to describe the prevalence of these symptoms in some populations [1,10,11].

Thus, the present study had the aim to verify the association between the aging male and the level of physical activity in leisure and commuting time in a representative male sample aged 40 or older and who reside in the city of Pelotas, RS.

METHODS

A cross-sectional populational-based study was carried out in the urban area of the city of Pelotas. This southern city of Rio Grande do Sul, has 340,000 inhabitants, from whom, approximately 112,000 (32% of population) present age equal or above 40 years.

The Brazilian Institute of Geography and Statistics divides this city in 404 urban census sectors, out of which 45 were drawn to be included in the study. In each census sector drawn the starting point of the study was identified, from which the households to be visited were systematically selected. After the starting point was identified the following households were selected respecting a set interval of five residences, until 20 households in each sector had been reached. The total number of 900 households was selected where all men who presented age 40 or older were initially considered illegible for the study.

Exclusion criteria were institutionalized individuals (old age homes, hospitals, prisons and military headquarters), individuals with severe motor disability (tetraplegic, cerebral palsy, among others) and individuals who were not able to answer and/or understand the questionnaire.

In order to verify the prevalence of the aging male symptoms, the AMS scale (The Aging Male's Symptoms Scale) composed of 17 questions divided in three groups of symptoms: psychological (five questions), somatic (seven questions) and sexual (five questions)

was used. The general sum of the questions, whose results may range from one to five points, was considered as the general score of the symptoms[1].

The general score of the symptoms was dichotomized so that those who presented score ≥ 37 were classified as presenting aging symptoms, while those with values lower were classified as symptomless [10].

The psychological, somatic and sexual symptoms were dichotomized as the general score of symptoms and were classified as having psychological symptoms the subjects who presented score ≥ 12 points; with somatic symptoms, the subjects who presented score ≥ 13 points; and with sexual symptoms those who presented score ≥ 8 points.

The general score of the aging male symptoms was also categorized so that those with scores between 27 and 36 points were considered as presenting "mild/light symptoms"; those with scores between 37 and 49 points were considered as presenting "moderate symptoms"; and those with score equal or 50 or higher, as presenting "severe symptoms"[1].

In order to quantify the level of physical activity (active/sedentary), the leisure and commuting sections of the International Physical Activity Questionnaire (IPAQ), long version were used. The subjects who reached 150 minutes of physical activities per week (min/week) were considered active, according to the ACSM recommendations[12].

A standardized questionnaire was used to investigate the subjects' characteristics. The variables were: age (complete years), skin color (white or non-white, according to the interviewer's perception), marital status (with a partner, without a partner), economical level (A, B, C, D/E)[13], schooling (years of schooling), smoking (current smoker, ex-smoker, never smoked), BMI (normal, overweight, obesity – calculated from the self-reported weight and height)[14] and health self-perception (excellent, very good, good, average, poor). The questionnaire was pre-tested in a pilot study carried out in a census sector not included in the final sample.

Both instruments were applied face-to-face, except for the section of sexual symptoms which was applied to ensure the confidentiality of information, did not expose the interviewees and minimized the studies resusals (men who answered the questionnaire received an envelope with the questions and immediately after concluding had this envelope sealed). Those men who could not read or understand the questions could ask the interviewers for some help.

The questionnaires were applied by interviewers from both genders, with a minimum complete high school educational level and who received 40-hour training for application of the instrument, but who did not receive information on the study's aims or hypotheses. The interviewers individually performed the interviews. The advisors of the field work reapplied the interviews in 10% of the sample, randomly selected, with a reduced questionnaire containing key-questions selected from the instrument for quality control of the study.

Sample size was calculated using a prevalence of 20% of aging male symptoms for men aged 40 years or older[1], an acceptable error of four percentage points and significance level of 95%. The sample size was initially calculated in 384 men. Ten percent was added to this value for losses and resusals, being the final necessary sample hence of 422 subjects aged 40 years or older.

Database was built in the Epi Info 6.0 program and each questionnaire was entered twice. Data were analysed with the STATA 9 program. A descriptive analysis of the subjects of the sample was performed in relation to their aging male symptoms, the level of physical activity in leisure and commuting time and the socioeconomical, demographic, behavior and health variables. The crude analysis between the outcome and level of physical activity was tested through the chi-square test for proportion difference and chi-square test for linear tendency. The significance level adopted was $p < 0.05$.

This study was approved by the Ethics Committee in Research of the Physical Education College of the Federal University of Pelotas (protocol 005/2008) and the data were collected after written informed consent from the subjects.

RESULTS

421 men aged 40 years or older were studied in 876 households and the total of losses and resusals was 8.3%. The sample effect found (0.7) was sufficient to keep the reliability power and level predicted by the study.

Table 1 presents the sample description according to sociodemographic, economical and behavior variables. Age mean of the interviewees was 54.5 ± 10.5 years and approximately 72% of these subjects were aged between 40 and 59 years. Out of these men, 66.5% still had a job outside their homes. Approximately 85% of the interviewees was white; out of which about 80% were from the economical levels B and C and mean of 7.2 ± 3.9 years of schooling. Of the subjects, 77,2% were married or lived with a partner; approximately 70% of the men were smokers or ex-smokers; and about 67% presented BMI corresponding to overweight or obesity.

Around 82% of the interviewed men ($IC_{95\%}$ 78.9-86.4) were classified as sedentary in leisure and commuting time. When this variable was categorized, it was observed that 25.2% were classified as physically inactive (zero min/week of physical activity); 57.7% as insufficiently active (between 10-149 min/week of physical activity) and 17.1% as sufficiently active (150 min/week or more of physical activity).

Regarding the aging male symptoms, 42.2% ($IC_{95\%}$ 37.3-47.4) presented psychological symptoms; 35.9% ($IC_{95\%}$ 31.1-40.9) presented somatic symptoms; 64.4 % ($IC_{95\%}$ 59.4-69.1) presented sexual symptoms and 20% ($IC_{95\%}$ 16.1-24.3) of the subjects presented general symptoms according to figure 1.

Figure 2 presents the association between the psychological, somatic and sexual and the general symptoms scores of the aging male with physical activity levels of the subjects. In the group with psychological symptoms, 44.5% were sedentary, while 31.0% were active ($p < 0.05$); concerning the presence of somatic symptoms, 39.5% of the ones who presented these symptoms were sedentary, while only 18.3% were active ($p = 0.001$); amongst the men with sexual symptoms, 66.1% were sedentary and 56.1% active ($p = 0.1$); and finally regarding the general score of symptoms, 22.2% of the ones who presented scores higher than or equal to 37 points were sedentary and 9.1% of the ones who presented this symptomatology were active in the physical activity domains considered ($p = 0.02$).

According to figure 3, the severity of symptoms of aging male was associated with physical inactivity ($p = 0.01$), with 90% of the sedentary men having presented severe symptoms.

Table 1. Characteristics of the men sample aged 40 years or older from the city of Pelotas, RS, 2007 (n = 421).

Variables	N	%
Age (years)		
40-49	164	39.0
50-59	137	32.6
60-69	77	18.3
70 or older	43	10.1
Skin color		
White	357	85.2
Non-white	62	14.8
Schooling (complete years)		
0	14	3.3
1 to 4	112	26.6
5 to 8	146	34.7
9 to 11	76	18.1
12 or more	73	17.3
Economical level (ABEP)		
A	33	8.0
B	140	33.9
C	191	46.2
D/E	49	11.9
Marital status		
Married with a partner	325	77.2
With no partner	96	22.8
Body Mass Index (Kg/m2)		
Normal	133	32.9
Overweight	183	45.3
Obesity	88	21.8
Smoking		
Never smoked	128	30.4
Ex-smoker	175	41.6
Current smoker	118	28.0
Physical activity level		
Active	262	62.8
Sedentary	155	37.2
Health self-perception		
Excellent	41	9.8
Very good	58	13.8
Good	216	51.4
Average	85	20.2
Poor	20	4.8

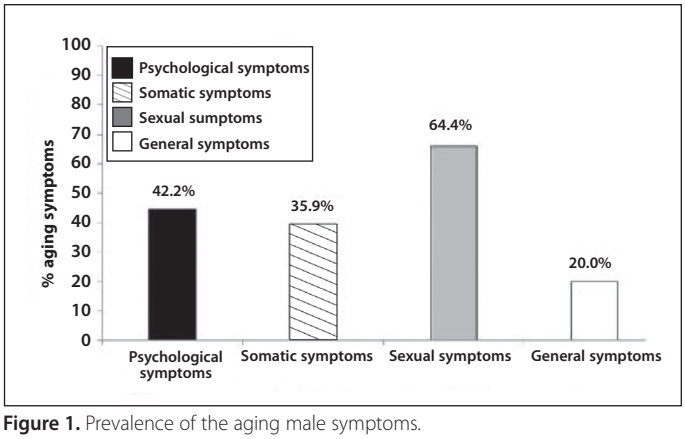

Figure 1. Prevalence of the aging male symptoms.

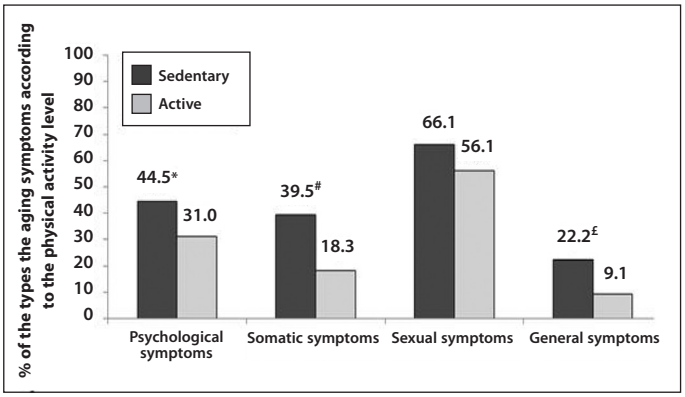

Figure 2. Association between aging symptoms and physical activity level in leisure and commuting time. *p < 0.05; #p = 0.01; £p = 0.02 – chi-square test.

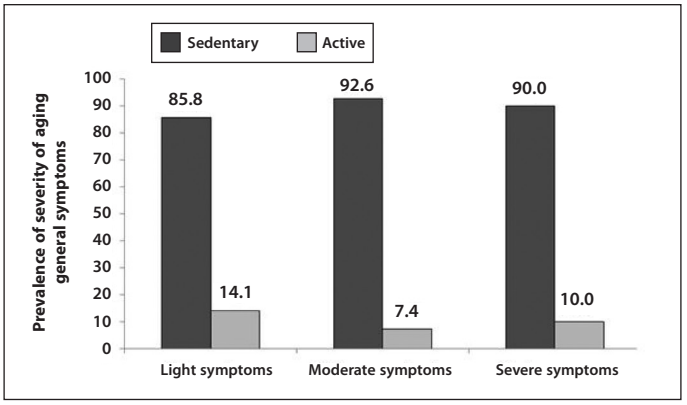

Figure 3. Severity of the general symptoms of aging male symptoms according to physical activity level in leisure and commuting time (p = 0.01).

DISCUSSION

The aim of this study was to verify the association between the aging symptoms in a representative sample of men aged 40 years or older from a southern Brazilian city, considering that the existing studies were carried out in other countries and developed to determine only the prevalence of these symptoms[1,10,11], which pointed to the lack of evidence concerning its association with the physical activity level in these populations.

The results showed that the psychological and somatic symptoms, besides the ageing general score, were significantly more prevalent in those men who were classified as sedentary in the leisure and commuting time compared with those who were physically active in these physical activity domains (p < 0.05; p = 0.001; p = 0.02, respectively).

Concerning the psychological symptoms, studies have shown that habitual physical activities reduce the chance of anxiety and depression onset[15], besides reducing sleep disorders[16] and improving quality of life[17,18].

Regarding somatic symptoms, physical activities are able to prevent loss of muscular mass and strength and minimize the risk of fractures and the compromising of quality of life of subjects in the age group[19,20]. Moreover, they contribute to the increase of cardiorespiratory fitness[19,21] as well as bone mineral density[22], besides improving the lipid profile[23] and reducing the percentage of fat and its markers[24], which are somatic characteristics of aging.

Since physical activity is effective in controlling the psychological and somatic symptoms which are part of the general

symptomatology of aging male, the benefits of this behavior are also effective for the aging general score having presented lower prevalence among those men who were active when compared with the physically inactive, since the general score is partly a consequence of these two symptoms.

Although association between sexual symptoms and the level of physical activity has not been found in the studied domains, it is important to highlight the high prevalence of this kind of symptom in the studied population (64.4%), since this is a kind of problem which can affect quality of life of men in the age group studied[1,25].

Differences between the types of psychological and somatic symptoms according to physical fitness were found[15-24]; likewise, concerning the general score, regardless of the severity of symptoms, it was observed that these were less prevalent amongst the physically active subjects in comparison with the inactive ones. Such lower prevalence in the active subjects is also attributed to the collection of protective effects of physical activity, both acute and chronic.

This Brazilian study of population grounding was a pioneer in verifying the association of the aging male symptoms with the physical activity level in the leisure and commuting domains, with a few number of losses and resusals

One of the challenges of this study was the collection of intimate information. However, in order to avoid interviewees' embarrassment, this part of the instrument was confidentially applied since we knew that the subjects could underestimate this information and consequently influence on the result of the general score. Nevertheless, it seems this fact did not occur, due to the high prevalence of the sexual symptoms.

One of the limitations of the present study was the used design, which did not allow identifying whether the physically inactive men before the age of 40 years presented higher prevalence of symptoms compared with the ones who were not.

The present study provides information that practice of physical activities in in leisure and commuting time is able to decrease the onset of the psychological and somatic symptoms and consequently the general score of aging male. Further studies in other regions of the country and which preferably use longitudinal design, are necessary to verify the association mentioned in this study.

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

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