

FACTORS ASSOCIATED WITH PHYSICAL ACTIVITY IN LEISURE TIME AMONG ELDERLY



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ABSTRACT

Introduction: The structural and functional alterations seen in aging, associated with a sedentary lifestyle, accelerate the decline of functional ability. **Objective:** The purpose of this study was to analyze the factors associated with insufficient physical activity during leisure time among older adults. **Method:** Cross sectional sample consisting of 562 individuals living in the city of Feira de Santana, 69.6% female and 30.4% male with a mean age of 68.93 ± 7.05 years. We used a questionnaire containing sociodemographic information, such diseases and participation in physical activity during leisure time. Participation in leisure physical activity was assessed by self-perception of the type and intensity of activity (mild moderate or heavy). For statistical analysis we used logistic regression, calculating the prevalence ratios, confidence intervals (95%) and significance level $p \leq 0.05$. **Results:** Among the subjects studied, only 18.3% were classified as active during leisure time. The investigated population has a high frequency of individuals inactive during leisure time, especially among low-income people and those with older ages. **Conclusion:** These findings encourage discussion of the need to implement public health policies and the creation of spaces for the practice of leisure activities for the elderly in the NHS.

Keywords: motor activity physical activity, cross-sectional studies, aging, elderly.

INTRODUCTION

Aging is a complex process which involves a series of factors which interact among each other and influence the way which we reach a certain age¹. In Brazil, the growth of the older population is a current and consolidated event which demands immediate facing and prevention strategies providing hence active, healthy and independent aging².

The structural and functional alterations observed in aging, associated with sedentarism, accelerate the decline of functional capacity, facilitating both development of chronic-degenerative diseases, physical incapacity, colon, lung and prostate cancer, as well as cardiovascular diseases³. Therefore, the need to understand which factors contribute to the process and in the adoption of healthier behavior is evident⁴. When studying these factors in the elderly population, it is necessary to determine the amplitude and mechanisms in which physical activity may improve health, functional capacity, quality of life and independence in this population.

Sedentarism or insufficient leisure physical activity is associated with blood hypertension and diabetes^{5,6}, with increase in the number of hospitalizations⁷. It is more prevalent in women⁸, elderly¹ and individuals with low educational level⁵. Increase in the level of physical activity may cause positive effects among individuals at advanced ages, among which, improvement in muscular strength and resistance; increase of the aerobic capacity; greater articular flexibility; better balance and coordination; greater psychological wellness; weight loss and better administration of chronic diseases or deficiencies⁹. These potential benefits may result in

better functional capacity, kept or increased, favoring hence the reversion of the fragility condition¹⁰, as well as decrease the risk of early mortality in those individuals with good physical fitness and with high energy expenditure. Despite all the mentioned benefits, studies about physical activity among the elderly residents in the northeastern part of Brazil are still scarce. The knowledge about the active leisure behavior and its determinants will possible ground the managing of activities which promote leisure physical activities practice among the elderly, producing hence useful information for the design of physical activity programs aimed at this population. Based on this scenario, the aim of this investigation was to analyze the frequency and the factors associated with insufficient leisure physical activity among the elderly residents in urban areas of a county in the northeast of Brazil.

METHODS

The data of this study were obtained from the home inquiry of Characterization of Mental Health of the Feira de Santana county, Bahia, conducted by the Epidemiology Center from the State University of Feira de Santana, in 2007. It is a transversal study involving a representative sample of the population with 15 or more years of residency in urban areas, according to definition from IBGE (urban area means the internal area to the urban perimeter of a city or village, defined by municipal law) of the Feira de Santana county. The sample was randomly selected. In this questionnaire, 3,597 individuals were interviewed.

Feira de Santana is situated 116 km from Salvador, the capital of Bahia state. It is the second biggest city in the state, being the

31st Brazilian county, the 13th non-capital county most populated in the country. In 2007, its total population was 571,997 inhabitants, being 41.466 60 years old or older than that.

Sample size was calculated using the prevalence of common mental disorders estimation of 24%¹¹, sample error of 3%, with 95% of confidence. After the parameters were considered, a sample of 800 individuals was established. Considering the effect of the study outlining (by conglomerate sampling) and the refusals and losses around 20%, the sample size was defined at 1,920 individuals.

This study used a population cohort analyzing only the data of the population aged 60 years or older (elderly). This study included 562 individuals of both sexes (15.6% of the participants of the applied questionnaire) age \geq 60 years, age limit recommended by the WHO for countries in development for the definition of elderly. The data were collected through a form. The instrument had sociodemographic information (sex, age, marital status, education and income), information on self-referred diseases (diabetes, hypertension, high cholesterol, obesity, cancer, cardiopathy) and participation and time dedicated to leisure activities and leisure physical activity practice.

In order to evaluate sufficient leisure physical activity practice, the individuals were asked if they regularly participated in leisure physical activities, being these classified by the intensities according to the metabolic equivalents (MET): light (< 3 METs), moderate (3-6 METs) and heavy (> 6 METs)¹². Those who practiced physical activity during leisure with moderate or heavy intensity for more than 150 minutes/week were considered active during leisure and those who did not meet the classification were inactive. The procedure adopted was similar to the one in other studies found in the literature¹³⁻¹⁵.

Initially, descriptive analysis was performed considering sociodemographic variables and presence of chronic diseases, with the aim to present the profile of the studied population.

The frequency of the sufficient leisure physical activity was estimated and stratified according to the sociodemographic variables (sex, age, income, educational status and marital status) and presence of chronic diseases (diabetes, hypertension, high cholesterol, obesity and cardiopathy).

Prevalence ratios and their respective confidence intervals at 95% were calculated. Statistical significance was measured through the Pearson chi-square test, adopting $\alpha=5\%$. Multivariate logistic regression analysis (MLRA), with exploratory aim was applied for simultaneous evaluation of the factors included in the study.

The MLRA was carried out according the procedures recommended by Hosmer & Lemeshow¹⁴ including the following steps: 1) verification of the assumptions; 2) pre-selection of basic variables; 3) pre-selection of interaction terms; 4) evaluation of confusion. The magnitude of the estimated variation coefficients and of the respective ORs of the main exposure variable (leisure physical activity) was verified for analysis of the potentially confusing variables. The variable was considered confusing when the coefficient of main exposure presented

variation above 10%; 5) Analysis of logistic regression itself. The logistic regression adopted backward procedure for the selection of the best model. The variables which were associated with the response, that is to say, the ones which presented ($p \leq 0.25$), remained in the model. The effect alteration was assessed by similarity ratio test, adopting significance level of 20%. The complete model included the sociodemographic variables age and income.

Since the MLRA has been developed for use in case-control studies, producing OR measurements and not PR, the OR estimates use obtained in the MLRA has not been recommended for study of high-frequency effects, since in these cases the OR overestimates the considered effect. As the estimated leisure physical activity frequency was higher than 25%, it was necessary to calculate the PR estimates. Based on the parameters of the final model, the prevalence ratios and respective confidence intervals were estimated using the Delta Method, a program specifically developed for this purpose¹⁵.

Databank was designed with the software Epidata, version 3.1b. Analysis used the statistical packages SPSS (version 9.0) and R, version 2.7.2.

This research followed the ethical principles present in the Declaration of Helsinki and the Resolution 196/96 from the National Health Board. The research protocols were evaluated and approved by the Human Research Ethics Committee of the State University of Feira de Santana (legal opinion # 042/06).

RESULTS

The characteristics of the sample are found in table 1. Higher percentage of women is observed (69.6%). There was prevalence of individuals in the age group between 60 and 79 years (91.3%) and the group of individuals who have a partner (50.2%). Concerning income and education, 81.7% made up to one minimum wage and 85.4% had finished elementary school.

Prevalence of chronic diseases was of 59.8% (table 2). Among the self-reported clinical conditions, the highest prevalence was observed for hypertension (59.8%) and high cholesterol (30.7%). The lowest prevalence was for obesity (9.3%).

The frequency of leisure physical activity participation was low: only 18.3% were classified as active during leisure. Therefore, 81.7% of the studied population was classified as insufficiently active during leisure activities.

The data of table 3 describe the association between leisure physical activities and sociodemographic characteristics. The frequency of leisure physical activity practice was higher among male individuals, from younger age groups, with income above one minimum wage, with higher educational levels, among those who do not have a partner, and who have reported chronic disease.

In the multivariate analysis for all factors assessed in the study, the following variables were retained in the final model obtained: age and income. Thus, these variables were associated with insufficient leisure physical activity practice at significant statistical levels (table 4).

Table 1. Distribution of the residents in urban areas according to sociodemographic characteristics.

Variable	Frequency	
	n	%
Sex		
Female	391	69.6
Male	171	30.4
Age		
60-79	513	91.3
80 years	49	8.7
Marital status		
With partner	280	49.8
With no partner	282	50.2
Education		
Never went to school/can read and write	157	28.0
Elementary school	322	57.4
High school/College	82	14.6
Income		
1 or less than 1 MW	459	81.7
More than 1MW	103	18.3
Presence of chronic disease		
No	226	40.2
Yes	336	59.8

Feira de Santana, BA, 2007.

Table 2. Distribution of the residents in urban areas according to clinical conditions.

Variable	Frequency	
	n	%
Hypertension		
No	226	40.2
Yes	336	59.8
High cholesterol		
No	389	69.3
Yes	172	30.7
Obesity		
No	510	90.7
Yes	52	9.3
Diabetes		
No	462	82.2
Yes	100	17.8
Cardiopathy		
No	491	87.4
Yes	71	12.6

Feira de Santana, BA, 2007.

Table 3. Frequency of the physical activity practice in leisure according to sociodemographic characteristics and clinical conditions.

Variable	Prevalence %	PR	CI (95%)	P value
Sex				
*Male	22.8	-	-	0.076
Female	16.4	0.71	0.50-1.02	
Age				
60-79	19.7	-	-	0.006
80 and older	4.1	4.82	1.22-18.9	
Income				
> 1 minimum wage per month	31.1	-	-	0.001
≤ 1 minimum wage per month	15.5	0.49	0.34-0.71	
Education				
Elementary school I/ Elementary school II	18.6	-	-	0.067
High school/College	28.0	0.66	0.43-1.00	
Never went to school/ Can read and write	12.1	1.54	0.95-2.48	
Marital status				
*with partner	20.7	-	-	0.157
With no partner	16.0	1.29	0.91-1.84	
Presence of chronic disease				
No	19.9	-	-	0.438
Yes	17.3	1.15	0.81-1.63	
No	17,3	1.15	0.81-1.63	

Feira de Santana, BA, 2007.

Table 4. Prevalence ratios adjusted with their respective confidence intervals (95%) between studied characteristics and leisure physical activity obtained in the analysis of multiple logistic regression.

Variable	PR	CI (95%)
Age		
60-79*	1.00	-
80 or older	4.88	1.14 - 20.86
Income		
≤ 1 minimum wage per month	1.00	-
More than 1 minimum wage per month*	0.38	0.23 - 0.63

PR: prevalence ratio; CI = confidence interval.

DISCUSSION

Urban growth had decrease of spaces available for physical and leisure activities practice as a consequence. Such fact, joined with social problems such as urban violence, long work hours and technological easier access, favor the adoption of sedentary habits.

Taking into consideration this reality, the present study had the aim to analyze the frequency and factors associated with insufficient leisure physical activity among elderly subjects resident in urban areas of one county in the northeast of Brazil.

It was observed in the studied population that the participation of elderly residents of urban areas in leisure physical activities was low: only 18.3%, that is, more than 80% of the elderly presented insufficient levels of leisure physical activity.

The findings in this research evidence data of high concern, since regular practice of physical activity is a protective behavior for the development of obesity, cardiovascular diseases, type II diabetes, colon cancer¹⁶ and hypertension¹⁷, besides contributing to the improvement of wellness sensation¹⁸.

The practice of physical activities favors social interaction, improves self-assuredness (belief of the individual in his/her capacity to perform specific tasks) and provides higher sensation of control over the events and demands of the environment. Moreover, increase in the physical activity level is related to improvement in the depression and anxiety symptoms, better tolerance to stress and increase in self-esteem^{19,20}, reducing isolation and favoring socialization of new groups²¹.

In a study with elderly from Florianópolis²², SC, findings different from the ones found in the present study were observed, since most part of the elderly was considered non-sedentary (59.3%), being the domain leisure the one which contributed the most to the active condition of the male sex and the domain domestic activities to the female sex; another study carried out in the city of Pelotas²⁰ with male individuals from 40 years old corroborates the data of this research, with 82.9% of the individuals being classified as insufficiently active in leisure.

The regional characteristics concerning the access to physical activity practice and leisure activities may be important elements to explain the differences.

After the multivariate analysis, the age group and income variables kept statistically significant association with insufficient physical activity.

Evidence in the literature highlight that younger subjects, single, with lower number of children, with more years of education, higher income and white, presented higher physical activity level²³⁻²⁵.

Insufficient spaces and available leisure activities in public spaces, joined with barriers such as: available time, need to compensate for low income of retirement, institutionalization and functional losses consequent of the aging process are aspects which may influence on the decrease of physical activity practice in the free time along the years.

In a study conducted in the city of Salvador, BA²⁶, prevalence of sedentarism in leisure of 72% was identified; being it

more frequent in women aged between 40-59 years and men older than 60 years, in individuals with low educational level and among the married and separated, corroborating hence the findings of the present study. The life conditions and life style are crucial to determine existence conditions which characterize one population²⁷.

Possible contributions to the increase of the physical activity level of the population are the construction of leisure equipment (courts, walking tracks, soccer fields, swimming pools) and the designing of education and health programs aimed at changes in behavior and encouragement of adoption of public active life styles, such as inclusion of physical activities among the activities developed in the primary health care, through the Family Health Strategy.

Based on our findings here, prevention actions can be grounded on interventions which are able to lead to higher social integration with performance of active leisure activities and on public policies of better income distribution.

The results obtained represent useful information for health management, being raw material for public policies of health intervention.

Among the limitations of the study, we can mention the outlining of the research itself. The fact of being a transversal study hampers the evaluation of direct cause relations among the studied variables. The sample plan was not designed for specific study of the elderly population (includes one population sample aged 15 years or older); therefore, some important aspects for this specific population group may have not been considered since it was not a sample selected to represent the elderly population of the county.

Moreover, life expectancy bias may have occurred, since it is a relevant aspect in studies with older individuals. Despite these limitations, the study assessed an expressive number of individuals (N= 562), including elderly residents of all the subdistricts of the studied county, which made is possible to estimate the frequency of leisure physical activities participation in this county and its relation with other variables.

CONCLUSION

Thus, the study was able to provide useful and valid information which may contribute to the policies on health attention and guarantee of quality of life in different phases of life and to guide intervention measures aimed at this population group which is experiencing continuous growth in the Brazilian population.

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