

Level of Physical Activity and Quality of Life: A Study with Elderly from Coredes Alto Jacuí and Alto Botucaraí, Rio Grande Do Sul

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Abstract— Brazil is currently undergoing an important change in its demographic pyramid, with progressive and accelerated aging of the population. Guaranteeing quality of life and functional longevity for this population has been pointed as a solution to the problem of the autonomy of the elderly in society. Thus, this study aims to analyze the relationship between quality of life (QL) and level of physical activity (LFA) in elderly individuals assisted by the Family Health Strategies (FHS) of the municipalities of Coredes Alto Jacuí and Alto Botucaraí - RS. This research was characterized as a descriptive cross-sectional study and the sample consisted of 1378 elderly (over 60 years old) representing 10% of the population assisted by the FHS of these municipalities. For evaluation of QL, the WHOQOLOLD questionnaire was used, and to determine the LFA, the International Physical Activity Questionnaire (IPAQ) was used. Data were analyzed with the support of descriptive statistics, absolute frequency distributions and measures of central and inferential tendency, Mann Whitney U test and Spearman correlation, considering significant values $p < 0.05$. The present research could infer that the quality of life levels were better for those elderly classified as active. It is concluded that there is a relationship between the two variables and the observed pattern is that the more active the higher the quality of life.

Keywords— Aging. Health. Quality of life.

I. INTRODUCTION

Human aging deserves attention, especially considering the National Household Sample Survey - NHSS 2015 (IBGE, 2016). The participation of people aged 60 and over increased from 9.8% in 2005 to 14.3% in 2015. Pointing to the demographic aging trend, which corresponds to the increase in the percentage participation of the elderly in the population. This number leaves Brazil among the countries with the largest number of elderly in the world, occupying the sixteenth position in the number of elderly. By 2025, Brazil is expected to move to sixth place. This change will lead to a reduction in the percentage of young people from 42.6% to 20.6% and an increase from 2.7% to 14.6% in the elderly population. (CRUZ; ALHO, 2000).

According to Mazo *et al.* (2005), the rapid growth of the elderly population, has had a major impact on the country's economy and aggravation of problems in the

socioeconomic and health sectors. In addition, the aging process is most often accompanied by an inactive lifestyle that favors disabilities and dependencies by showing how much professionals in various fields should be concerned with providing older people with the means by which to associate longevity. to a good quality of life, thus rescuing their autonomy.

The term quality of life can be considered as the condition resulting from a set of individual, socio-cultural and environmental parameters that determine how human beings live (NAHAS, 2001; SILVA; REZENDE, 2006; PIMENTA *et al.*, 2008). For the World Health Organization quality of life is “[...] an individual's perception of their position in life, in the context of the culture and value system in which they live, taking into account their goals, expectations, standards and your concerns ” (WHOQOL, 2008, p. 23). There is no unanimity of opinion related to good quality of life, but the

most commonly found elements are: health, safety, happiness, leisure, stable financial condition, family, love, aesthetics and work (MINAYO, HARTZ, BUSS, 2000; GONÇALVES; VILARTA 2004; SANTOS; SOUZA, 2015; ENTRINGER *et al.*, 2018).

Although a large body of knowledge, among them, Bauman (2004), Moraes *et al.* (2007), Castro *et al.* (2007) and Azevedo Filho *et al.* (2019) evidence the role of physical activity as one of the decisive elements in the promotion of health and quality of life, these levels remain low. According to United States Department of Health & Center for Disease Control and Prevention, 40% of adults did not perform physical activity in their free time, and only 15% performed moderately for 30 minutes or more, with weekly frequency of five to seven days a week (DHHS, 2001). To be physically active you need to do at least 150 minutes a week of moderate physical activity. (MONTEIROL, 1996-1997; HALLAL, 2005) or 60 minutes a week of vigorous physical activity (HALLAL, 2005).

Studious say that physical activity improves the performance of older people in activities of daily living and reduces the risks of various chronic diseases such as heart disease, hypertension, obesity, diabetes mellitus, osteoporosis and some cancers (NAHAS, 2001; ALLSEN; HARRISON; VANCE, 2001; ALMEIDA *et al.*, 2018; SCIANNI *et al.*, 2019). Physical activity is also associated with well-being and quality of life, especially in middle age and old age, which is in this phase as a consequence of consolidating inactivity (NAHAS, 2001). However, there are still few studies that include a representative sample of a given population comparing the practice of physical activity in the elderly and the relationship with physical inactivity, the functionality in daily tasks, quality of life and other variables (LOPES 2015).

Thus, considering that epidemiological studies involving the elderly are important so that their results may direct health promotion programs, especially regarding the more active behavior of this population, which may result in positive impacts on the quality of life related to health. This study aims to analyze the relationship between the quality of life and the level of physical activity in elderly individuals assisted by the Family Health Strategies (FHS) of the municipalities of Coredes Alto Jacuí and Alto Botucaraí - RS.

II. MATERIAL AND METHODS

This research was characterized as a descriptive cross-sectional study and the sample consisted of 1378 elderly (over 60 years) living in the municipalities of Coredes Alto

Jacuí and Alto Botucaraí - RS, which represented 10% of the population served by the FHS of these municipalities. Were excluded from the study and replaced by another subject the elderly who did not have mental and / or physical conditions to respond to the instrument; those who did not sign or stamp the Informed Consent Form; and those who were not registered with the municipality's FHS.

As a research instrument, we used a form, which was applied as an interview, consisting of three questionnaires:

a) Personal information questionnaire, containing information such as: gender, age, marital status, education and monthly income, with the purpose of characterizing the socioeconomic and demographic situation of the sample;

b) WHOQOL-OLD Quality of Life Questionnaire, Brazilian version, standardized by Fleck *et al.* (2003). This instrument assesses the quality of life in the elderly. It started in 1999, as a scientific cooperation of several centers. The aim of the project was to develop and test a generic measure of quality of life in older adults for international / cross-cultural.

Taking as a starting point the quality of life measure for younger adults (WHOQOL-100), its original version was published in 1998 (WHOQOL GROUP, 1998) and the Brazilian version in 2003 (FLECK *et al.*, 2003). The WHOQOL-OLD consists of 24 Likert scale items assigned to six facets: "Sensory Functioning" assesses sensory functioning and the impact of loss of sensory skills on activities of daily living and the ability to interact with others on quality of life. of the elderly.

"Autonomy" refers to independence in old age, describing the extent to which one is able to live autonomously and make one's own decisions. "Past, Present, and Future Activities" refers to past, present, and future activities, describing satisfaction with life achievements and projects, future yearnings.

"Social Participation" refers to social participation, which delineates participation in everyday activities, especially in the community in which it operates. "Death and Dying", which relates to concerns, concerns and fears about death and the dying. And "Intimacy," which evaluates the perception of feeling loved and supported as well as loving. Each of the facets has four items; therefore, for all facets the score of possible values can range from 4 to 20, provided that all items in one facet are filled.

The scores of these six facets or the 24-item WHOQOL-OLD module values can be combined to produce an overall ("global") score for quality of life in older adults, denoted as the "Total score" WHOQOL-OLD (FLECK) score. *et al.*, 2003).

c) International Physical Activity Questionnaire (IPAC), short version (PARDINI et al., 2001) to assess the level of physical activity. This questionnaire was prepared by researchers from various countries, supported by the World Health Organization, as part of a multicenter study involving 12 countries, to know the population's classification in relation to physical activity. Each participating country adapted and validated its questionnaire, taking into account the characteristics of the population. In Brazil, it was validated by the São Caetano do Sul Physical Fitness Laboratory Study Center (CELAFISCS, 2008). It consists of eight questions regarding walking, moderate / vigorous / moderate + vigorous physical activity, whose product is the level of physical activity, in which the individual is classified as sedentary, insufficiently active, active and very active.

The collections took place in the homes of the elderly who were randomly selected in proportion to the number of elderly in each micro area of Coredes Alto Jacuí and Alto Botucaraí - RS.

Data were analyzed with the support of descriptive statistics, absolute frequency distributions and measures of central and inferential tendency, Mann Whitney U test and Spearman correlation, considering significant values $p < 0.05$.

III. RESULTS AND DISCUSSIONS

The 1378 elderly who participated in the study were characterized by gender, age, education, marital status (Table 1) and level of physical activity (Table 2).

Table 1 - Sample distribution in relation to sociodemographic characteristics. Rio Grande do Sul, Brazil.

Variables	Indicator	n	%
Gender	Male	542	39,3
	Female	836	60,7
Age Extract	60 to 69 years	674	48,9
	70 to 79 years	490	35,6
	80 or more	214	15,5
Civil status	Married	807	58,6
	Single or Other	120	8,7
	Widower	392	28,4
	Separate	59	4,3
Schooling	Illiterate	253	18,4
	Incomp. Elementary School	931	67,6
	Complete primary education	118	8,6
	Complete high school	61	4,4
	Higher Education Complete	15	1,1

According to the data presented in table 1, it is observed that the sample consisted of 60.7% of female

elderly and that 48.9% are between 60 and 69 years old. It is also observed that 58.6% are married and that the education level of more than half of the population is low, 67.6% have incomplete elementary school.

Among the factors that explain the higher number of female elderly we can show that life expectancy among women is higher than men. Still, we point to Souza and Siviero (2015) who specify that male mortality is higher than female mortality in all age groups, as well as life expectancy at birth and at other ages are also higher among women, and that the number Deaths due to violent causes, which affect the male population more intensely, have increased in recent years, leading to a reduction in male life expectancy.

Table 2 - Level of physical activity according to gender and age. Rio Grande do Sul, Brazil.

	Sedentary		Active		P
	N	%	N	%	
Gender					
Male	311	22,6	231	16,8	0,054
Female	516	37,4	320	23,2	
Age range					
60-69 years	380	27,6	294	21,3	0,001
70-79 years	296	21,5	194	14,1	
80 + years	151	11	63	4,6	

The results presented in table 2 corroborate what some studies have already proven, that the practice of physical activity in search of health promotion declines over the years of life (ANDREOTTI; OKUMA, 2003; CARVALHO et al., 2010; LOPES et al., 2016). Another study that interviewed 1891 elderly people in the South Region in 2009 showed that 58% of the elderly were sedentary, and that the elderly aged 80 years or older were the least likely to receive counseling on physical activity in primary care units. (LOPES et al., 2015).

The statistical test called Pearson's chi-square test was used to measure the association between the categorical variables gender and IPAQ. The chi-square statistic value was 2.584. The value of $p = 0.054$, thus indicating that there is no relationship of dependence between the variables gender and level of physical activity. Different result was found by another study that associated the factors age and sex, with or without physical exercise. The pattern found was that older male elderly are more sedentary when compared to other groups (FLORINDO, 2001).

The statistical test called Pearson's chi-square test was used to measure the association between the categorical variables Age and physical activity level. The

chi-square statistic value was 13.661. The $p = 0.001$ (bilateral) value found is highly significant at the significance level $\alpha = 0.05$, thus indicating that there is some dependence relationship between age and physical activity variables. We found that the higher the age group analyzed, the lower the percentage of elderly people who are active. This tendency has already been observed in similar studies that concluded that as chronological age increases there is a tendency for people to be less active and consequently less functional (MATSUDO, 2002; VECCHIA, 2005).

Table 3 presents the results found by the WHOQOL-OLD quality of life questionnaire regarding the physical activity level of the sample.

Table 3: presents the results found by the WHOQOL-OLD quality of life questionnaire regarding the physical activity level of the sample.

Facets	Active		Sedentary		p
	Average	SD	Average	SD	
Intimacy	74,45	17,23	70,77	17,46	0,000
Present, past and future activities	66,48	15,47	65,86	14,91	0,260
Autonomy	72,91	15,96	66,13	17,37	0,000
Social Participation	70,64	12,94	64,05	16,17	0,000
Sensory Functioning	54,46	30,16	48,50	26,72	0,000
Death and dying	51,60	38,31	45,99	34,59	0,006
Overall Quality of Life	65,09	12,30	60,22	12,14	0,000

Analyzing the results of quality of life as a function of physical activity level, it can be seen (Table 3) that in all six facets analyzed the active group had better quality of life when compared to the sedentary group, highlighting that the death and dying was the only one without statistically significant difference. Other studies, (LOPES *et al.*; 2015), proved that increasing the level of physical activity is an important non-pharmacological treatment regimen for the treatment and prevention of various diseases. Highlighting that the systematic practice of physical exercises improves the general health of the individual at any stage of life (SILVA, 2006). Borges (2009) found that individuals aged 76 to 88 years old who had practiced physical activity at some point in their lives had slightly lower levels of dependence when compared to those who had never practiced, suggesting that physical activity may have influenced this result. It is noteworthy that there are still other scientific studies that associate the practice of physical activities with the general improvement of health, increased muscle strength, aerobic capacity, flexibility, balance, among other abilities, of the individual at any stage of life (SILVA, 2006; ROCHA, 2012; ROWE, 1997; KELL, 2001; CAVANI, 2002; TORAMAN, 2004).

The quality of life assessed by the WHOQOL-OLD showed a higher score for men and women in the intimacy facet (73.53 and 71.41, respectively) table 4. The lowest score for men and women was related to the Death and Dying facet (49.50 and 47.40, respectively). It was found that males had higher Intimacy facet score (71.41; $p = 0.025$) when compared to females, the only variable that showed significant differences in quality of life as a function of gender.

Table 4 – Quality of life according to gender. Rio Grande do Sul, Brazil, 2016

Facets	Female		Male		p
	Average	SD	Average	SD	
Intimacy	71,41	18,00	73,53	16,52	0,025
Present, past and future activity	65,83	14,93	66,54	15,42	0,700
Autonomy	68,27	17,65	69,72	16,30	0,760
Social Participation	66,55	15,32	66,89	15,28	0,078
Sensory Functioning	50,40	28,42	51,61	28,10	0,734
Death and dying	47,40	35,28	49,50	37,61	0,623
Overall Quality of Life	61,65	12,39	62,97	12,47	0,551

It can be inferred that the quality of life of this sample was relatively good, as it is above average, considering the maximum value that could be observed, the average quality of life score was 61.65 and 62.97 for women and men respectively, to a maximum of 100. The worst score for quality of life was related to death and dying. This result can be considered as expected, because people in general, and especially older people, are aware of the finitude of life, and it is not related to certain attitudes or practices they may have (LOPES *et al.*, 2015).

Table 5 clearly shows the decline in quality of life as a result of increasing chronological age, except for the Sensory Functioning and Death and Dying facets, probably because they relate less to physical abilities and more to emotional and psychological aspects. the last to decrease at the end of the elderly's life.

Table 5 - Quality of life according to age. Rio Grande do Sul, Brazil, 2016.

Facets	Female		Male		p
	Average	SD	Average	SD	
Intimacy	71,41	18,00	73,53	16,52	0,025
Present, past and future activity	65,83	14,93	66,54	15,42	0,700
Autonomy	68,27	17,65	69,72	16,30	0,760
Social Participation	66,55	15,32	66,89	15,28	0,078
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Overall Quality of Life	61,65	12,39	62,97	12,47	0,551

Knowing the linear relationship between the level of physical activity and the delayed decline in body functions (CARVALHO *et al.*, 2010), we highlight the importance of practicing moderate or vigorous physical activity for 150 minutes or more per week for improvement in physical conditions, health maintenance and, above all, quality of life, and a possible and probable attenuation in the reduction of the values presented in table 5. Physical exercises of moderate / vigorous intensity were significantly associated with higher WHOQOL-OLD scores, in almost every domain.

IV. CONCLUSION

The present research could infer that the quality of life levels were better for those elderly classified as active. It is concluded that there is a relationship between the two variables and the observed pattern is that the more active the higher the quality of life (CUPERTINO, ROSA e RIBEIRO, 2007).

Thus, considering the effectiveness of physical activity as a prevention of various diseases, and with the increase and prolongation of the working capacity of the elderly, optimizing the performance of activities of daily living and preventing disability and dependence in the last years of life, as well as the positive relationship with quality of life, we point out that being active, performing physical exercises, is today one of the largest, if not the greatest, health promotion and quality of life tool available, easily accessible, low cost, and almost no contraindications.

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