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PHYSICAL ACTIVITY AND SUBJECTIVE WELL-BEING IN THE ELDERLY

Adriana Silva (a), Bruna Teixeira (b), Cristina Guimarães (c), Paula Pereira (d), Rosina Fernandes (e)*, Francisco Mendes (f)
*Corresponding author

(a) ISuperior Technique of Social Education, Viseu, Portugal, adrianacorreia1995@hotmail.com
(b) Superior Technique of Social Education, Viseu, Portugal, bfrt1995@gmail.com
(c) Superior Technique of Social Education, Viseu, Portugal, cris.guima13@gmail.com
(d) Superior Technique of Social Education, Viseu, Portugal, paulapereira3101@gmail.com
(e) Instituto Politécnico de Viseu e CI&DETS, Viseu, Portugal, rosina@esev.ipv.pt
(f) Instituto Politécnico de Viseu e CI&DETS, Viseu, Portugal, fmendes@esev.ipv.pt,

Abstract

Physical activity, although recognized as fundamental in the prevention of non-communicable diseases and in the improvement of subjective well-being, show low levels among the Portuguese elderly. This *ex-post-facto* study was developed to characterize the levels of physical activity and subjective well-being among the elderly, as well as the possible relations between both and the socio-demographic and health variables consequences in this sense. Of the convenience sample of 100 participants, aged between 65-89, 66 were women. 69 lived inland (mostly away from cities) while 31 lived in coastal areas. 56 lived in rural areas and 44 lived in cities. 54 were married while 69 did not live alone. The instruments used in data collection were the Modified Baecke Questionnaire (Physical Activity) (2014), Satisfaction with Life Scale and Positive and Negative Affect Schedule (Subjective Well-Being) (1991, 1992). Descriptive and inferential analysis were performed using SPSS-24 with $p<.05$ as the cut off point for significance. The elderly with higher median scores in Baecke had better results ($p<.05$) in subjective well-being. There was no significant difference among those who lived alone and those who were married as well as those living in the coastal region but a negative affect was found in women and the urban population. Our findings showed that the perception of health was positively correlated with physical activity and subjective well-being among the sample. The practice of physical activity is a key element of subjective well-being, because it mitigates negative affectivity and has a more positive impact than any socio-demographic or health variable.

Keywords: Physical activity, subjective well-being, elderly.

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1. Introduction

The practice of physical activity has positive effects on physical and mental health, with strong evidence that points to a positive relationship with life satisfaction (Maher, Pincus, Ram, & Conroyd, 2015), that is the cognitive dimension of subjective well-being. These benefits are found in any age group, but are especially important in the aging process, taking into account the inherent limitations characteristic of this life stage. Research on aging has been growing in recent decades in order to produce knowledge that can be used to improve the living conditions of elderly and to contribute to successful aging (Illario, Vollenbroek-Hutten, Molloy, Menditto, Iaccarino, & Eklund, 2016). In this sense, the adoption of healthy life habits, which includes the regular practice of physical activity in this age group, has been a determining factor, mainly in the prevention of problems often associated with the aging process (Souto, 2012; WHO, 2018a), with consequent repercussions on well-being.

The process of active aging, with high well-being and quality of life, is a concern that society is facing due to the increase in longevity (WHO, 2018b). This process is differentiated according to the characteristics of the individuals and their life course (Fenton & Draper, 2014). It is multidimensional and multidirectional, with modifications of physiological, psychological and social nature (Charles & Carstensen, 2014) that benefit from a regular practice of physical activity that promotes active and healthy aging (Mount, Lara, Schols, & Mathers, 2016), characterized by autonomy in the accomplishment of everyday tasks (Andrade, 2013). The practice of physical activity, conducive to successful aging, includes individual and group activities (Souto, 2012), involving any movement of the body produced by the muscles resulting in energy expenditure (Azevedo, 2009; WHO, 2018c), including sports, leisure activities, domestic work, among others.

Regardless of the activity type, its impact on health is recognized considering biological attributes - strength and muscular endurance, flexibility, aerobic capacity and weight control - that allow the prevention of organic disorders, caused by a sedentary lifestyle (Maciel, 2010). According to Azevedo (2009), thirty minutes of moderate daily physical activity contribute to improve well-being and satisfaction with life, decreased stress, anxiety and depression. In the over 65 age group, according to the Office of Disease Prevention and Health Promotion (2015), the practice of physical activity should correspond to, at least, 150 minutes of moderate aerobic intensity or 75 minutes of vigorous aerobic intensity weekly, in order to improve cardiorespiratory and muscle fitness, bone and functional health, as well as to reduce the risk of depression and cognitive decline. The elderly should still practice stretching activities on, at least, two days a week. When it is not possible to perform the amount of recommended physical activity, one should at least be physically active as far as their capabilities and conditions allow.

This is because the regular practice of physical activity improves the quality of life (Campos, Cordeiro, Rezende, Vargas, & Ferreira, 2014), allowing greater independence of the elderly, with physical, psychological and social effects (Monteiro, 2013). The author adds that at a physical level there is a decrease in blood pressure, an improvement in the quality and quantity of sleep, an increase in circulatory and respiratory cardiopulmonary capacity, and a reduction in the risk of various pathologies (such as obesity, osteoporosis, diabetes and strokes), increased balance, coordination, muscle strength, flexibility and aerobic endurance. Monteiro (2013) stresses that, at the psychological level, the practice of

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physical activity increases self-esteem and general well-being, reduces the risk of depression and favours intellectual activity and affective balance. Finally, with regard to social benefits, involvement in organized initiatives of physical activity promotes an increase in social relations and communication, making new friends, integrating the individual in the community and creating the possibility of new extra-family and intergenerational relationships (Chang, Wray, & Lin, 2014).

As can be seen in the previous paragraph, there are several benefits inherent to the practice of physical activity in the elderly. This work highlights its relevance to the level of well-being. The subjective well-being construct, also understood as happiness, from Diener's perspective (2018), refers to the person's evaluation of his or her life in general, as regards satisfaction with it (cognitive dimension), as well as the balance between positive and negative emotions that the individual reports (affective dimension). In this sense, people with high levels of subjective well-being make a positive cognitive evaluation of personal life as a whole, experiencing more positive than negative affection.

According to several authors, the practice of physical activity is positively related to the way older people approach life (Felix, 2015), as well as satisfaction with life and positive affectivity, presenting better results in functional autonomy in daily life activities (Ramos, 2015). In addition, subjective well-being is associated with a healthier aging (Martins, Fernandes, & Mendes, 2017; Steptoe, Deaton, & Stone, 2015). This construct is also associated with sociodemographic variables, which in turn also distinguish the elderly with regard to the practice of physical activity (for example, according to Martins et al., in 2017, there are better results in women in domestic and leisure activities). Studies on gender, age, and marital status, household composition or area of residence have shown contradictory results with respect to subjective well-being, although women generally show higher levels of negative affectivity and there are no declines in subjective well-being with increasing age (Thomsen, Mehlsen, Viidik, Sommerlund, & Zachariae, 2005). In conclusion, subjective well-being is a very comprehensive and multidimensional construct often considered to be associated with health, and more specifically in the elderly, it is related to a healthy and active aging (Douima, Steverink, Hutter, & Meijering, 2017).

2. Problem Statement

Given that the Portuguese population is one of the oldest in the European Union (20% over 65 years), according to 2011[1] Census data from PORDATA (2014), it is essential to characterize the levels of physical activity and well-being in this age group. It is also important to understand the relationship between these two dimensions and to attend to sociodemographic and health variables in this context, in order to improve life conditions of the elderly, promoting a healthy ageing. This knowledge will allow the development of intervention strategies differentiated and adjusted to the reality of the country, even if based on an exploratory study that will be presented next.

1 The Census is held every 10 years in Portugal. The latest data available are from 2011and the next in 2021.

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3. Research Questions

The following research questions were formulated given the problem statement presented previously:

3.1 How is the practice of physical activity related to the subjective well-being?

3.2 What is the impact of sociodemographic and health variables in the Portuguese elderly?

4. Purpose of the Study

This *ex-post-facto* study was developed to characterize the levels of physical activity and subjective well-being of the elderly, as well as the possible relations between both (at a global level and subscale). Concomitantly, the impact of socio-demographic and health variables on physical activity and subjective well-being was analysed.

5. Research Methods

This is a non-experimental exploratory study, based on a quantitative methodology.

5.1. Participants

A total of 100 participants participated in our study (Table 01). They were aged over 65 (M = 71.95, SD = 6.39), mostly women (66%), from various regions of the country: inland (75.8%) and coastal (24.2%). We also asked, in a separated question, if they lived in rural areas (64.4%) or in cities (31.5%). The majority didn´t live alone (69%) and more than half (54.5%) had a spouse. When questioned about the existence of diseases, 63.3% reported that they had some disease, and on average (on a scale of 1 to 5; 1 = poor and 5 = very good) considered themselves to be of reasonable health (M = 3.06, SD = .79).

Table 01. Participants' characterization by variables

Variables		**Min.**	**Max.**	**M**	**SD**
Age		65	89	71.95	6.39
Health Perception		1	5	3.06	.79
		N		**%**	
Gender	Male	34		34	
	Female	66		66	
Region of the country	Coastal	22		24.2	
	Inland	69		75.8	
Urbanity	Rural	56		64.4	
	Urban	31		35.6	
Diseases	Yes	62		63.3	
	No	36		36.7	
Living alone	Yes	31		31	
	No	69		69	
Marital Status	With spouse	54		54.5	
	Without spouse	45		45.5	

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5.2. Variables

In the between groups comparisons, the independent variables under study were: gender, age, area of residence (coastal vs. inland; rural vs. urban), marital status vs. living alone and presence of diseases. The dependent variables under study were: global physical activity (GPA) and the scores in domestic (SDA), leisure (SLA) and sports (SSA) activities. With regard to subjective well-being, we explored life satisfaction (SWL) and positive (PA) and negative (NA) Affects. Correlations analyses were also explored between age and health perceptions.

5.3. Instruments

Participants completed a sociodemographic questionnaire, that also included questions about their health. To evaluate the practice of physical activity, we used the Portuguese version of the Modified Baecke Questionnaire (Azevedo, 2009), which allowed us to obtain an overall score of physical activity in the elderly, as well as partial scores regarding the performance of domestic, leisure and sports activities. Results lower than 2.30 correspond to a very low value of physical activity practice, between 2.30 and 7.94 are low results, 9.13 to 14.91 moderate and between 15.77 and 35.65 elevated. The Portuguese version (Simões, 1992) of the Satisfaction with Life Scale is a short 5-item instrument to measure cognitive dimension of subjective well-being. Participants are asked to indicate their degree of agreement with each statement using a five-point Likert scale (1 - strongly disagree to 5 - strongly agree) with a higher score indicating a greater satisfaction with life. This instrument also revealed good fidelity indexes (Cronbach's alpha coefficient of .77) and convergent and predictive validity. To assess the affective dimension of this construct, we used the Portuguese version (Simões, 1993) of the Positive Affect and Negative Affect Schedule, consisting of 22 items (11 for the positive dimension and 11 for the negative), answered on a five-point Likert scale (1 - very little or nothing to 5 - very high), with higher values corresponding to greater positive or negative affectivity. This instrument also had good psychometric characteristics (Cronbach's alpha of .82 for positive affect and .85 for the negative).

5.4. Data collection and analysis procedures

In the process of data collection (conducted in December 2016) all the ethical procedures were guaranteed, including the anonymity and confidentiality. Statistical parametrical analyses (t-test and Pearson correlations) were performed in the SPSS - version 24, in compliance with the assumptions of normality and homoscedasticity. A 95% confidence level, which is the value of reference in the social and human sciences was established.

6. Findings

Descriptive results pointed to low levels of global physical activity in the participants (M=5.69, SD=6.12), with domestic (M=2.53, SD=3.75) and leisure (M=2.54, SD=4.24) activities more present than sports (M=.68, SD=2.00) that showed very low mean values.

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On the subjective well-being the results were more favourable. Good results were observed in life satisfaction (M=16.91, SD= 5.03) and in positive affectivity (M=33.63, SD=7.79), presenting mean values above the midpoint of the scale, with negative affect at a low level (M=21.51, SD=6.97), as desirable.

Inferential analysis (Table 02) pointed that the elderly with higher median scores in Baecke had better results in the subjective well-being, showing better scores in the cognitive dimension (p=.040) and in affect (p=.036 in PA e p=.006 in NA). Living alone and in the coastal region, as well as marital status and age didn't distinguish the participants (p>.05), but the negative affect was higher in women (p=.019) and urban (p=.020) population and domestic activities showed higher results in the healthy elderly (p=.024).

Table 02. Inferential results

Dependent Variables	Independent Variables	N	M	SD	*t*	Df	*p*
Satisfaction with life	Low Physical Activity	50	15.88	5.80	-2.08	98	.040
	High Physical Activity	50	17.94	3.91			
Positive affect	Low Physical Activity	50	32.00	8.35	-2.12	98	.036
	High Physical Activity	50	35.26	6.88			
Negative affect	Low Physical Activity	50	23.40	7.81	2.80	98	.006
	High Physical Activity	50	19.62	5.47			
	Masculine	34	19.23	5.73	-2.39	98	.019
	Feminine	66	22.68	7.30			
	Rural	56	33.23	7.61	2.37	85	.020
	Urban	31	24.22	8.53			
Domestic activities	Without diseases	36	3.68	5.82	2.29	96	.024
	With diseases	62	1.89	1.50			

Statistically significant correlations were found between perception of health and variables of physical activity and subjective well-being. These correlations were positive and moderate in the case of life satisfaction (r = .32, p = .001) and positive affectivity (r = .30, p = .002), also moderate but negative with negative affectivity (r = -35, p = .000). In physical activity, only the score in domestic activities had a positive and statistically significant correlation, although weak, with perception of health (r = .22, p = .028).

7. Conclusion

Sedentary behavior is the origin of several pathologies, namely those that are linked to the aging process. In fact, physical inactivity leads to a decrease in physical valences, causing a deficit in functional skills and in the ability to perform activities of daily living (Civinski, Montibeller, & Braz, 2011). Involvement in domestic and leisure activities has allowed the elderly to maintain some practice of physical activity with significant effects on their well-being, as we can see in this work. In this sense, attention to specific groups of the population, such as women living in urban areas, whose well-being results were unfavourable in our sample, shows to be fundamental. The involvement in structured sports

activities was reduced in this sample, so the implementation of programs promoting physical activity in the elderly is essential for improving physical abilities and health (Andrade, 2013). In this context, it is essential to motivate older people to participate. In addition, the same author contends that there are several reasons why the elderly do not practice regular physical activity, such as chronic health problems, lack of time and of information about community programs and resources. The psychological dimensions, specifically health perceptions, rather than effective health (existence or not of diseases), were quite pertinent, in this work, both to the level of involvement in domestic activities, as well as to the well-being, with better results in elderly who felt better in terms of health, regardless of the pathologies they presented.

Despite the limitations inherent to this work, related to the sample size and selection process, it was possible to conclude that physical activity is one of the key elements in promoting a satisfactory aging. The use of a larger and random sample in the exploration of these variables, complemented by a qualitative study, will allow consolidating these results that emerged from an exploratory study.

In a world in which people are expected to live longer and with better quality of life, the promotion of subjective well-being, through initiatives that promote physical activity, is a desirable practice of individual initiative, for example, by promoting involvement of the elderly in household tasks in their homes, but also by the common responsibility of society, through projects and responses of a community nature appropriate to the specificities of the target population.

This work is expected to have contributed to the understanding of the positive dimensions of human functioning in the aging process of one of the oldest populations in Europe, concluding that physical activity, along with positive perception of health, may promote well-being and have a positive impact in this sense, greater than any socio-demographic or objective health variable.

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