

Original Article

Physical Activity and Inactivity Predictors of Life Satisfaction and Expectancy in Greek Older Adults: An Analysis from the SHARE Project (Wave 7)

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Abstract - Studies have indicated that participation in physical activity (PA) enhances health, life satisfaction and expectancy. In contrast, physical inactivity (PI) has been identified as the fourth risk factor for global mortality. The current study investigated PA and PI levels in Greek older adults. It examined various demographic, PA, PI and other health-related predictors of life satisfaction and expectancy, analyzing data from the Survey on Health, Ageing and Retirement in Europe (SHARE). The SHARE is a cross-national database including individual data of non-institutionalized populations aged 50+ from 28 European countries. The current study analyzed the Greek sample participating in the SHARE “wave 7” research. In particular, the participants were 1.910 individuals, 816 men and 1.094 women ($M=62.29$, $S=9.62$ years). Hierarchical regression analyses were conducted to explore life satisfaction and expectancy predictors while controlling demographic variables. The 23.2%, 13.9%, 31.2% and 31.7% of the individuals participated in vigorous PA once a week, > once a week, 1-3 times/month and never, respectively. In addition, 27.1%, 55.5%, 10% and 7.4% of the adults participated in moderate PA once a week, > once a week, 1-3 times/month and never, respectively. The predictors accounted for 31% and 37% of the variance in life satisfaction and expectancy, respectively. Age, health, depression, PI and vigorous PA significantly predicted life satisfaction, while age, health, depression and PI significantly predicted life expectancy. The findings demonstrated the relevance of reducing PI and depression and promoting health and PA to enhance life satisfaction and expectancy.

Keywords - Physical activity, Sedentary, SHARE project, Life expectancy, Satisfaction with life.

1. Introduction

During the last years, there has been increasing research interest in promoting healthy ageing due to the rapid increase of the elderly population globally (1,2). In particular, World Health Organization has defined healthy aging as “the process of developing and maintaining the functional ability that enables well-being in older age” (3,4). Healthy aging is a multidimensional concept incorporating factors such as health status, life satisfaction and expectancy (4-7). Specifically, health has been defined as “a state of complete physical, social and mental well-being and not merely the absence of disease or infirmity” life satisfaction highlights a cognitive judgment of satisfaction with one’s life. In contrast, life expectancy refers to the number of years an individual expects to live (4-7).

The importance of healthy aging has led to an increased scientific interest in investigating factors promoting health, life satisfaction and expectancy (4, 7-10). Particularly, physical activity (PA) is an effective strategy for enhancing health and life satisfaction, reducing mortality rates and, therefore, improving life expectancy (4, 7-10). Despite the benefits mentioned earlier of PA, the Eurobarometer survey in European Union countries has indicated an increase from

42% to 46% of adults that never engaged in exercise, sports or PA since the previous survey in 2014 (11). The increasing rate of physical inactivity (PI) is important because PI has been identified as the fourth leading risk factor for diseases and global mortality (8,9).

Therefore, the current study was to investigate PA and PI levels in Greek older adults and examine PA and PI predictors, as well as various demographic and health-related predictors of life satisfaction and expectancy. This study analysed data from the Survey on Health, Ageing and Retirement in Europe (SHARE). No such study has been carried out until now.

2. Materials and Methods

2.1. Study Design and Participants

In the study, data have been analyzed from the SHARE, which was performed in 28 countries of the European Union and Israel (12,13). Specifically, SHARE is a multidisciplinary and cross-national panel database on ageing, health, socio-economic status and social and family networks of more than 140.000 non-institutionalized individuals aged 50 years old and over (12,13). The SHARE was conducted via computer-assisted personal interviews in eight waves from 2004 to 2020.



The current study analyzed data from the database of the Greek sample that participated in the 2017 SHARE study - wave 7 (14). In particular, 1.910 individuals, 816 men and 1.094 women ($M = 62.29$, $S = 9.62$ years) filled in the PA questions and, therefore, were used for the statistical analyses. Table 1 presents the descriptive statistics of the Greek sample.

Table 1. Descriptive Statistics of the Greek Sample

Characteristics	Participants' groups	N	%
Gender	Men	816	42.7
	Women	1094	57.3
Educational level	Pre-primary education	305	16
	Primary education	413	21.6
	Lower Secondary education	197	10.3
	Upper secondary education	536	28.1
	Post-secondary non tertiary education	65	3.4
	The first stage of tertiary education	387	20.3
	Second stage of tertiary education	7	0.3
Marital status	Married living with a spouse	1391	72.9
	Registered partnership	23	1.2
	Married not living with a spouse	33	1.7
	Never married	102	5.3
	Divorced	82	4.3
	Widowed	279	14.6
Number of children	Missing data	389	20.37
	None	234	12.25
	1-2	952	49.84
	3-4	335	17.54
Current job status	Retired	971	50.8
	Employed /self-employed	388	20.3
	Unemployed	38	2
	Permanently sick	38	2
	Homemaker	432	22.6
	Other	43	2.3

2.2. Independent Demographic Variables

Age, gender, educational level, marital status, number of children, current job status and retirement age were recorded using the SHARE questionnaire (12-14). The questions and the response categories are presented in Table 2.

2.3. Independent, Health-Related Behaviours

Body mass index (BMI), smoking years, self-perceived health, limitations of daily activities, number of chronic diseases, depression, PI, vigorous PA and moderate PA were recorded. The questions and the response categories are presented in Table 2.

The variable “limitations of daily activities” consists of the following tasks: dressing, bathing or showering, eating, cutting up food, walking across a room and getting into or out of bed (14). As higher, the score limitations with these activities are more. The variable is dichotomized. All participants with an index scored zero were graded as “without limitations” and with an index scored one to five as “with limitations”. BMI was based on self-reported values of weight and height (Table 2) and was calculated as $BMI = \text{weight in kilogram (kg)} / \text{height in meter}^2$ (15). The number of chronic diseases was based on a question with 15 multiple responses (14). Participants recorded the number of diseases that they had. Depression was examined with the EURO-D symptom, a scale consisting of twelve questions: depressed mood, pessimism, suicidality, guilt, sleep, interest, irritability, appetite, fatigue, concentration, enjoyment and tearfulness (14). The scale ranges from zero, “not depressed”, to twelve “, very depressed”. Finally, as Table 2 presents, three questions were used to assess PA and PI. Specifically, a question for vigorous PA, a question for moderate PA and a question for PI were used (14).

2.4. Dependent, Life Satisfaction and Expectancy Variables

As Table 2 presents, two questions were used to assess life satisfaction and expectancy.

Table 2. Research Questions and Response Categories

Independent demographic variables
In which month and year were you born?
Please, record your gender: “man” or “woman.”
What is the highest school leaving certificate or school degree that you have obtained? “pre-primary education”, “primary education”, “lower secondary education”, “upper secondary education”, “post-secondary non-tertiary education”, “first stage of tertiary education”, “second stage of tertiary education” (International Standard Classification of Education - ISCED).
What is your marital status? “married and living together with spouse”, “married and living separated from spouse”, “registered partnership”, “never married”, “divorced”, and “widowed”.
How many children do you have?

In general, how would you describe your current situation? “retired”, “employed or self-employed”, “unemployed”, “permanently sick or disabled”, “homemaker”, “other”.
What is your age of retirement (start receiving a pension)?
About how much do you weigh? Weight in kilograms.
About how tall are you? Height in centimeters.
Independent, health-related behaviours
Do you smoke at present?: “yes”, “no”.
How many years do /did you smoke altogether?
Would you say your health is: “excellent”, “very good”, “good”, “fair”, “poor”.
Has a doctor ever told you that you had any diseases on this card? Please tell me the number of the diseases.
Please look at card 10. Here are a few everyday activities. Please tell me if you have any difficulty with these because of a physical, mental, emotional or memory problem. Please tell me the number of the activities.
Do you often participate in physical activities such as sports and exercise or a job that involves physical labour? “yes”, “no”.
We would like to know about the type and amount of physical activity you do daily. How often do you engage in vigorous physical activity, such as sports, heavy housework, or a job that involves physical labour? “more than once a week”, “once a week”, “one to three times a month”, “hardly ever, or never”.
How often do you engage in activities requiring low or moderate energy, such as gardening, cleaning the car, or walking? “more than once a week”, “once a week”, “one to three times a month”, “hardly ever, or never”.
Dependent variables
I am satisfied with my life: “strongly agree”, “agree”, “disagree”, “strongly disagree”.
What are the chances that you will live to the age [75/80/85/90/95/100/105/110/120] or more? _____(age in years)

2.5. Statistical Analyses

Initial analysis indicated non-normal distributions for the values of the examined variables (16). Therefore, the values were transformed with logarithmic functions to solve the problem of non-normal distributions. Listwise deletion of missing values and univariate and multivariate outliers was performed (16). Means, medians, standard deviations, frequencies, sums and % rates were used.

A preliminary examination of associations among various demographic and health-related variables with life satisfaction and expectation was conducted using the Spearman r coefficient. Variables significantly associated with life satisfaction and expectation were used as predictors in the hierarchical regression analyses. In particular, two separate hierarchical regression analyses were conducted to predict life satisfaction and expectation. This analysis was used to group predictors into separate steps while controlling demographic variables’ effects (16). In the first step, age, gender, educational level, marital status, number of children, current job status and retirement age were entered as predictors. In the second step, BMI, smoking years, self-perceived health, number of chronic diseases, depression, limitations with daily activities, PI, vigorous PA and moderate PA were entered as predictors. Life satisfaction and life expectation were the dependent variables. The R square change coefficient, which is the improvement in R square when a second predictor is added, was used to assess the steps’ fit. To identify predictors of the PA indices, β and t coefficients were used. A p -value of < 0.05 was considered statistically significant. The SPSS 25.0 statistical software (SPSS Inc., Chicago, IL, USA) was used.

3. Results

3.1. PA and PI Descriptive Statistics

53.6% of the participants were physically inactive, whereas 46.4% of the individuals were not. The 23.2%, 13.9%, 31.2% and 31.7% of the individuals participated in vigorous PA once a week, > once a week, 1-3 times per month and never, respectively. In addition, 27.1%, 55.5%, 10% and 7.4% of the adults participated in moderate PA once a week, > once a week, 1-3 times per month and never, respectively.

3.2. Hierarchical Regression Analyses’ Results

The predictors accounted for 31% and 37% of the variance in life satisfaction and expectancy, respectively. In particular, life satisfaction was significantly predicted from the demographic variables ($F_{(7, 1712)} = 8.04, R_2\text{change} = 0.14, p < 0.01$) and the second step of variables ($F_{(16, 1712)} = 8.25, R_2\text{change} = 0.17, p < 0.01$). In addition, demographic variables ($F_{(7, 1712)} = 16.67, R_2\text{change} = 0.25, p < 0.01$) and the second step of variables ($F_{(16, 1712)} = 10.55, R_2\text{change} = 0.12, p < 0.01$) significantly predicted life expectancy. As Table 3 presents, age, depression and PI negatively predicted life satisfaction, whereas health and vigorous PA positively predicted life satisfaction. Finally, age, depression and PI negatively predicted life expectancy, while health positively predicted life expectancy (Table 3).

Table 3. Significant predictors of life satisfaction and expectancy

Dependent Variables	Independent Variables	Coefficients		
		β	t	p
Life Satisfaction	Step 1: Age	-0.17	-2.25	<0.05
	Step 2: Health	0.34	4.65	<0.01
	Step 2: Depression	-0.38	-4.83	<0.01
	Step 2: Physical Inactivity	-0.32	-4.04	<0.01
	Step 2: Vigorous physical activity	0.14	2.69	<0.05
Life Expectancy	Step 1: Age	-0.44	-7.05	<0.01
	Step 2: Health	0.32	4.42	<0.01
	Step 2: Depression	-0.16	-3.09	<0.05
	Step 2: Physical Inactivity	-0.23	-3.78	<0.01

4. Discussion

The current study investigated PA and PI levels in Greek older adults and examined demographic and health-related life satisfaction and expectancy predictors. Data were analyzed from the multidisciplinary database of the SHARE, strengthening the research purpose for identifying PA and PI levels, as well as predictors of life satisfaction and expectancy. In particular, the findings are inconsistent with previous studies (11,17), indicating high PI levels negatively affect health status and life expectancy (18). Therefore, researchers should focus on strategies for reducing PI and promoting healthy aging.

In addition, the current study demonstrated that older individuals who felt healthy and participated in vigorous PA provided better life satisfaction and expectancy. In contrast, adults who were old-aged, depressed and physically inactive represented worse life satisfaction and expectancy. The findings above indicated that to improve life satisfaction and expectancy, specialists should focus on enhancing health status and physically active lifestyle. However, the predictors accounted for a medium amount of variance in life satisfaction. A possible explanation is that satisfaction with one’s life is related to various concepts, such as self-efficacy and social support (10,19), not included in the present study.

Regarding the medium amount of variance in life expectancy accounted for by the predictors, the PA assessment with two questions may be a possible reason. In other words, the two questions may not completely measure PA. For this reason, the current study did not confirm the positive correlation between PA and life expectancy, as other research findings indicated (18).

Finally, this study had several limitations that should be considered. First, the PA measurement by two questions and the PI assessment by one question are important limitations

(20,21). Although objective measures of PA such as accelerometers and calorimetry are more valid and reliable, self-reports measures are more appropriate for large-scale epidemiological studies (20,21). Second, information about the moderate and vigorous PA duration is unavailable. Third, measures were self-reported, and problems associated with common method variance should be considered. Despite the apparent limitations, this study had some advantages that should be considered. In particular, a key feature of this study was that SHARE provides a European database of high quality and representativeness due to the high degree of standardization in data collection (12-14). In addition, the SHARE is conducted with a highly standardized study protocol involving various measures. Further, the sample size is sufficient to detect smaller effects and has high participation rates (12-14). Finally, no such study has been carried out on Greek older adults.

5. Conclusion

The current study indicated high PI levels in Greek older adults negatively correlated with life satisfaction and expectancy. This finding was confirmed for age and depression. In contrast, self-perceived health positively predicted life satisfaction and expectancy, whereas vigorous PA was positively correlated only with life satisfaction. Future studies should be carried out to investigate the examined variables further using objective measures of PA, such as calorimetry and accelerometers.

Availability of the SHARE data and Funding

This study analysed data from the SHARE “Wave 7” research (14). These data are available on the SHARE website (12-14). The European Commission has funded SHARE, the German Ministry of Education and Research, the U.S. National Institute on Aging and various national funding sources (12).

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