

Moderate Physical Activity as a Predictor of Emotional Well-being and Motivation Towards Physical Activity in Older Spanish Adults

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139 older adults completed the POMS, BREQ-2, and IPAQ. To understand the relationship between the variables we used Pearson's correlation coefficient and stepwise linear regression analyses to construct a model to identify independent contributors to major emotional wellbeing and motivation towards PA.

Vigorous PA was associated with anger ($r = .302, p < .01$), tension ($r = .170, p < .05$) and amotivation ($r = .203, p < .05$), while moderate PA was associated with vigor ($r = .196, p < .05$) and with more self-determined forms of regulation (intrinsic regulation, $r = .242, p < .01$). Furthermore, moderate PA was a significant and independent predictor ($AdjR^2 = .065$) for intrinsic regulation.

We conclude that interventions should focus on recommending moderate PA in this population.

KEY WORDS: Behavioral regulation Healthy aging; Physical activity, Motivation, emotional wellbeing.

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Introduction

Older people constitute a substantial proportion of the total population, and their numbers are projected to increase. The world population over 60 years of age will almost double, increasing its proportion from 12% in 2015 to 22% in 2050 (WHO, 2022a). In the European Union, 20.8% of the population was aged over 65 years in 2021, some 3.1 percentage points more than in the previous decade (Eurostat, 2022). Specifically in Spain, according to data from National Institute of Statistics, 20.1% of the total population was aged over 65 years old in 2021 (INE, 2022).

'Healthy ageing' is defined as the process of promoting and maintaining the functional capacity that permits wellbeing in old age, with functional capacity being understood as the attributes related to health that allow people to do what is important to them (Beard et al., 2016; WHO, 2016). Although healthy ageing has traditionally focused on indicators such as physical impairments, cognitive disabilities, and social restrictions (Rowe & Kahn, 1997), psychological indicators have more recently been highlighted as useful tools for its assessment (Cesari et al., 2018; Fox et al., 2007; Jeste & Harris, 2010). The literature suggests that high levels of emotional wellbeing are related to better physical health and greater longevity (Boccardi & Boccardi, 2019; Chida & Steptoe, 2008; Diener & Chan, 2011; Koopmans et al., 2010; Ryff, 2014) and can counterbalance the negative consequences of chronic disease and disability (Bassi et al., 2014).

The scientific community has tried to identify factors that can allow individuals to age in a mentally healthy way (Daskalopoulou et al., 2017). The literature suggests that there are several modifiable factors, including engagement in physical activity (PA), which could improve wellbeing and quality of life, and consequently contribute to an increased likelihood of healthy ageing (Fiorilli et al., 2022; Lai, Ou & Jin, 2022; Peel et al., 2005; WHO, 2012). Several studies have concluded that PA among the elderly has many benefits not only for their physical health but also in improving their mental health, psychological wellbeing, self-efficacy, and self-esteem, and in decreasing the prevalence of depression and anxiety in this population (Andrade-Gómez et al., 2018; Aparicio et al., 2010; Awick, Ehlers, Aguiñaga, Daugherty, Kramer & Macauley, 2017; Netz et al., 2005; Penninx et al., 2002) and moderate intensity activity was the most beneficial activity level ($dC. = 0.34$). The Rotterdam study found a dose-response association between total PA and better health-related quality of life (Koolhaas et al., 2017); higher total PA was associated with lower odds of having problems with self-care, mobility, daily activities and mood (i.e. being anxious or depressed), and with lower odds of having pain.

To achieve these benefits, people aged over 65 should perform at least 150 minutes of moderate intensity activity per week in sessions of 10 minutes or more, 75 minutes of vigorous intensity activity distributed throughout the week, or a combination of the two (Sparling et al., 2015; WHO, 2016). However, the majority of older adults perform less PA with advancing age (Bauman, Merom, Bull, Buchner & Fiatarone Singh, 2016; Meseguer et al., 2009; Varrasse et al., 2015) Spain adhere to leisure-time physical activity (LTPA and they find it hard to achieve this level of activity (Cheval et al., 2018; Sparling et al., 2015). In fact, some studies have shown that only 16% of older adults complied with institutional recommendations for PA by Centers for Disease Control and Prevention (2020), and global physical activity levels haven't improved since 2001 (WHO, 2022b). Therefore, it is important to evaluate variables that have been shown to be associated with participation and adherence to PA, while also considering the specific characteristics of each population (Dacey et al., 2008; Hardy & Grogan, 2009).

Self-determination theory (SDT) (Ryan & Deci, 2017) provides an excellent framework for examining the motivation to engage in PA in older adults (Frederick-Recascino, 2002). SDT suggests that PA regulation is supported by different levels of motivation, ranging from 'intrinsic motivation' to 'extrinsic motivation' and amotivation. Intrinsic regulation represents the most self-determined type of motivation and refers to engaging in PA for its own sake. Extrinsic regulation implies that a person engages in a behavior in order to achieve outcomes that are separable from the behavior itself. Thus, there is a continuum of behavioral regulations according to the degree of autonomy: (a) *integrated regulation* occurring when regulations are fully assimilated with self; (b) *identified regulation* entails the behavior being performed more willingly, even though the activity is not enjoyable; (c) *introjected regulation* represents motivation towards PA in order to avoid negative feelings and (d) *external regulation* involves being physically active to satisfy an external requirement (e.g., rewards or sanctions). Finally, *amotivation* is a state characterized by a lack of intention to engage in the activity. A recent systematic review and meta-analysis in elderly concluded that autonomous motivation (i.e., *intrinsic regulation*) is positively associated with positive indicators of well-being (positive affect, life satisfaction, meaning in life, self-esteem) and negatively associated with negative indicators of well-being (depression, negative affect) (Tang, Wang & Guerrien, 2020).

Research suggests that autonomous types of behavioral regulation in PA are related to PA engagement across an individual's lifespan (Dacey et al., 2008; Teixeira, Carraça, Markland, Silva & Ryan, 2012). There is scientific evidence that self-determined motivation towards PA is related to greater ad-

herence to it, in such a way that the engaging in PA itself feeds the motivation to continue doing it (Buckworth et al., 2007; Rodrigues et al., 2018). However, very few studies in older adults have analyzed the relationship between the different types of PA, mood, and motivation towards PA, or possible differences between the sexes.

Therefore, the first objective of this study was to assess emotional wellbeing (mood states) and motivation towards PA in the population of Spanish older adults and to analyze which variables are associated with the type of PA they engage in (vigorous, moderate, or walking). Our second objective was to analyze whether performing a specific type of PA (vigorous, moderate, or walking) predicted mood and motivation towards engaging in PA. Finally, we explored if there were differences according to sex in the different variables we evaluated.

Method

STUDY DESIGN

The design, protocol, and informed-consent procedure of this cross-sectional analysis were approved by the Bioethics and Clinical Research Committee of UCH-CEU University. All participants provided a signed written informed consent statement regarding their participation in the study.

PARTICIPANTS

The sample for this analysis consisted of healthy older adults without any short-term-medical conditions, living in the urban areas of Valencia (Spain), who attended different municipal activity centers. A total of 163 participants were voluntarily recruited through advertisements placed on the bulletin boards of different municipal activity centers in Valencia. The inclusion criteria were individuals aged 60 years or more, and having the ability to speak and write in Spanish and to complete the questionnaires independently. All the individuals who had an explicit medical recommendation not to engage in PA were excluded from this study.

MEASURES

Sociodemographic data. An ad-hoc questionnaire was designed to collect information related to participant age, sex, and education level.

The level of PA of these individuals was assessed through the self-report *International Physical Activity Questionnaire* (IPAQ-SF; Booth, 2000) which uses seven items to collect data on the PA performed in the 7 days prior (Craig et al., 2003; Lee et al., 2011) but diverse physical activity measures in use prevent international comparisons. The International Physical Activity Questionnaire (IPAQ). The total number of days and minutes of PA were calculated by

summing all PA category scores from PA performed in the seven days prior. These IPAQ-SF data were then converted to Metabolic Equivalent minutes per week (MET-min/week) as an indicator of PA, using the formula published by Ainsworth et al., (2011). Specifically, the IPAQ-SF questionnaire records data regarding three types of PA activity: (1) vigorous activity; (2) moderate activity; and (3) walking. This questionnaire has been validated in 12 countries (Craig et al., 2003) but diverse physical activity measures in use prevent international comparisons. The International Physical Activity Questionnaire (IPAQ) and shows adequate psychometric properties. Furthermore, the short version (IPAQ-SF) has shown acceptable validity in the adult Spanish population (Román Viñas et al., 2013).

Emotional wellbeing was assessed through the *Short Form of the Profile of Mood States* (POMS; McNair, Lorr, & Droppleman, 1992; Fuentes, Balaguer, Meliá, & García-Merita, 1995). This questionnaire requires individuals to describe how they feel 'right now' via responses to 29 single-word mood descriptor items scored using a 5-point Likert-type scale ranging from 0 ('Not at all') to 4 ('Extremely') to evaluate five subscales. One these subscales is positive: vigor (5 items evaluating a mood of vigorousness, euphoria, and high energy), while four of them were negative: depression (6 items evaluating feelings of worthlessness, sadness, guilt, and emotional isolation from others), anger (7 items about the existence of feelings of anger and hostility), tension (6 items measuring musculoskeletal and somatic tension), and fatigue (5 items to measure states of abatement, inertia, and low energy levels). Each of the subscales has a maximum score, with a maximum of 24 for depression and tension, 20 for vigor and fatigue, and 28 for anger. In this reduced version, Cronbach's alpha values ranged from 0.70 to 0.83 (Jiménez et al., 2008).

Motivation towards PA was assessed through the *Behavioural Regulation in Exercise Questionnaire* (BREQ-2; Markland & Tobin, 2004). This questionnaire consists of 19 items measuring stages on the continuum of self-determination. It measures external regulation (4 items), introjected regulation (3 items), identified regulation (4 items), intrinsic regulation (4 items), and amotivation (4 items) on a scale from 1 ('Not at all true for me') to 5 ('Absolutely true for me'). Each of the subscales has a maximum score, with a maximum of 20 for external regulation, identified regulation, intrinsic regulation, and amotivation, and 15 for introjected regulation. The BREQ-2 showed an acceptable internal consistency, with Cronbach's alpha values ranging from .81 to .89 (Murcia, Gimeno, & Camacho, 2007).

PROCEDURE

The participants completed the paper and pencil questionnaires related to PA types (IPAQ-SF), mood states (POMS), and motivation towards PA (BREQ-2) over the course of 30 minutes in a classroom setting staffed by research assistants who were available to answer questions the participants had.

DATA ANALYSES

First, we analyzed the descriptive statistics to explore the characteristics of the sample in relation to PA types, emotional wellbeing (mood states), and motivation towards PA. Second, to understand the relationship between the variables, we carried out a correlational analysis by calculating the Pearson coefficient for these data. Next, stepwise linear regression analyses were conducted for the whole sample in order to construct a model to identify independent contributors to major emotional wellbeing and motivation towards PA. Finally, and after assessing the normality

of the data distribution (using the Shapiro–Wilk test), *t*-tests for independent samples were carried out to analyze differences between the sexes. All the statistical analyses were conducted using SPSS for Windows (version 22), setting the level of statistical significance at $p < 0.05$ for all the analyses.

Results

A total of 163 participants who attended different municipal activity centers for older people in Valencia (Spain) were recruited for this study. Twenty-four were excluded because they declined to participate (6) or did not meet the inclusion criteria because they were not able to fill out the self-reports (4), did not understand Spanish adequately (2), or had a medical contraindication for physical exercise (12). Figure 1 shows the **flow chart for participant selection**.

SAMPLE DESCRIPTION

Thus, the final sample comprised 139 individuals (73.4% female) with ages ranging from 60 to 92 years ($M = 69.7$; $SD = 6.2$). With respect to the level of education, 63% had completed a primary education, 24.4% had completed a secondary education, and the remaining 12.6% had completed a higher or university level of education. The descriptive data of the variables are summarized in Table I.

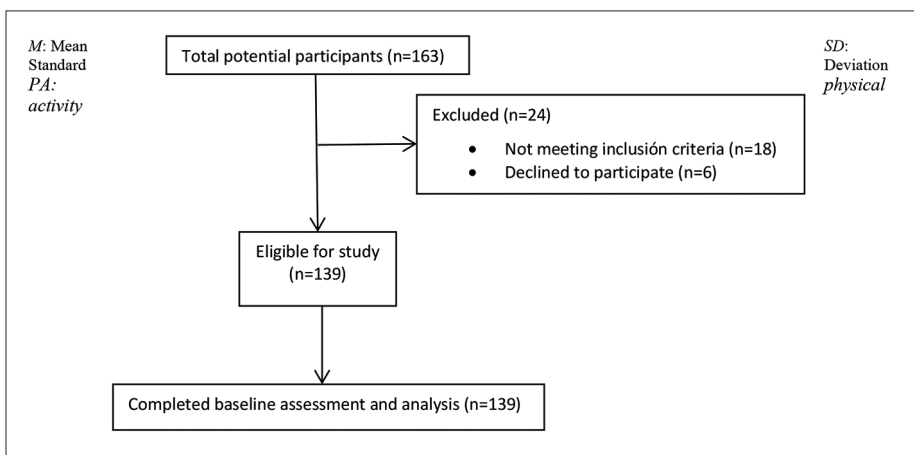


Fig. 1. - Participant selection flow chart.

TABLE I.
Means and standard deviations of physical activity, emotional wellbeing, and motivation.

International Physical Activity Questionnaire (IPAQ)			
Physical Activity (MET-min/ week)	Vigorous PA	422 (944)	
	Moderate PA	719 (1159)	
	Walking PA	1066 (1173)	
<i>Profile of Mood states (POMS)</i>			
<i>Emotional Wellbeing</i>	Depression	1.5 (2.5)	
	Vigor	10.6 (5.1)	
	Anger	3.6 (2.6)	
	Tension	4.9 (3.9)	
<i>Motivation</i>	Fatigue	2.4 (3.3)	
	<i>Behavioural Regulation in Exercise Questionnaire (BREQ-2)</i>		
	Intrinsic regulation	4.4 (.80)	
	Identified regulation	4.2 (.50)	
	Introjected regulation	3.1 (1.2)	
External regulation	1.5 (.80)		
Amotivation	1.2 (.40)		

PA: physical activity.

ASSOCIATIONS BETWEEN EXERCISE TYPE, EMOTIONAL WELLBEING, AND MOTIVATION TO ENGAGE IN PHYSICAL ACTIVITY

Regarding the relationships found between emotional wellbeing and the type of PA (vigorous, moderate, or walking), significant positive relationships were found between vigorous PA and anger, tension, and vigor. In addition, significant positive relationships were found between moderate PA and vigor and between walking and vigor (see Table II). As to the relationships found between the type of PA and motivation to engage in PA, significant positive relationships were found between vigorous PA and amotivation, moderate PA and intrinsic regulation, and moderate PA and identified regulation. A significant negative relationship was found between moderate PA and external regulation. Finally, significant positive relationships were found between amotivation and depression, anger, and fatigue, as well as between intrinsic regulation and vigor.

TABLE II
Pearson correlations between age, physical activity, emotional wellbeing and motivation toward physical activity.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Age	1	-.082	.058	-.087	.038	-.021	-.047	-.103	.018	-.273**	-.060	.099	.037	-.023
2 Vigorous PA		1	.139	.068	.114	.218*	.302**	.170*	.074	.124	.095	-.036	.031	.203*
3 Moderate PA			1	.294**	.039	.196*	.057	.007	.013	.242**	.194*	-.001	-.259**	-.154
4 Walking				1	.108	.205*	.096	.117	.051	.131	.143	-.032	-.050	-.013
5 Depression					1	-.137	.312**	.531**	.357**	-.094	.076	.131	.167	.355**
6 Vigor						1	.353**	.150	-.043	.262**	.151	-.066	-.157	-.027
7 Anger							1	.557**	.347**	.063	.079	.095	.163	.278**
8 Tension								1	.337**	.155	.122	.223*	.144	.163
9 Fatigue									1	-.117	.122	.191*	.254**	.245**
10 Intrinsic regulation										1	.402**	.043	-.331**	-.271**
11 Identified regulation											1	.386**	-.144	-.158
12 Introjected regulation												1	-.004	.027
13 External regulation													1	.345**
14 Amotivation														1

* $p \leq 0.05$; ** $p \leq 0.01$; PA: physical activity.

PREDICTOR VARIABLES OF EMOTIONAL WELLBEING AND MOTIVATION TO ENGAGE IN PHYSICAL ACTIVITY

Multiple stepwise regression analyses were performed to evaluate whether the different types of PA were predictive variables of emotional well-being and self-determined forms of regulation (see Table III). In addition to the PA variables, sex and age were also considered as independent variables in all our ana-

TABLE III
Multiple Stepwise Regression Analyses With Emotional Wellbeing And Motivation As Dependent Variables.

Independent variables	R ²	Adjusted R ²	R ² change	Standardized β coefficient
Vigor				
Model 1	.034	.026	.034	
Vigorous PA				.186*
Anger				
Model 1	.079	.071	.079	
Vigorous PA				.281**
Intrinsic Regulation				
Model 1	.073	.065	.073	
Age				-.270**
Model 2	.140	.127	.069	
Age				.288**
Moderate PA				.264**
Identified Regulation				
Model 1	.044	.035	.044	
Moderate PA				.209*
External Regulation				
Model 1	.069	.061	.069	
Moderate PA				-.264**
Amotivation				
Model 1	.039	.030	.039	
Vigorous PA				.197*
Model 2	.073	.056	.034	
Vigorous PA				.223*
Moderate PA				-.187*

* $p \leq 0.05$; ** $p \leq 0.01$; PA: physical activity

lyzes. In terms of emotional well-being, both vigor and anger were predicted by engaging in vigorous PA which specifically explained 7.1% of the variance in the anger variable and 2.6% of the variance in vigor. Regarding motivation to engage in PA, age predicted 6.5% of the intrinsic regulation, and reached up to 12.7% of the variance when added to the performance of moderate PA. Again, the identified regulation was predicted by moderate PA, explaining 3.5% of the variance. The moderate PA variable also predicted external regulation, but in this case, the relationship between these variables was negative; this model was statistically significant and explained 6.1% of the variance. Finally, vigorous PA, together with less moderate PA, predicted amotivation, and this model explained 5.6% of the variance. For all the variables, multicollinearity analysis showed variance inflation factors of less than 1.2, and we therefore concluded that multicollinearity did not pose a problem (Mansfield & Helms, 1982).

DIFFERENCES IN EMOTIONAL WELLBEING AND MOTIVATION TOWARDS PHYSICAL ACTIVITY ACCORDING TO SEX

Descriptive statistics for emotional wellbeing and motivation to engage in PA according to sex are shown in Table IV; no significant differences were found between men and women for any variables in the independent samples *t*-tests.

TABLE IV
Differences In Physical Activity, Emotional Wellbeing, And Motivation To Engage In Physical Activity Depending On Sex.

		Men M (SD)	Women M (SD)	t	p	d
Physical Activity	Vigorous PA	419 (972)	423 (939)	-.020	.984	-.005
	Moderate PA	667 (1098)	736 (1183)	-.300	.764	-.060
	Walking	1160 (1188)	1033 (1172)	.542	.589	.107
Emotional Wellbeing	Depression	1.3 (1.9)	1.6 (2.7)	-.581	.562	-.122
	Vigor	11 (5.4)	10.5 (5)	.470	.639	.092
	Anger	3.9 (2.9)	3.5 (2.4)	.734	.464	.137
	Tension	4.3 (3.8)	5.1 (4)	-.969	.334	-.186
	Fatigue	1.7 (2.9)	2.6 (3.4)	-1.392	.166	-.282
	Intrinsic regulation	4.2 (.99)	4.4 (.80)	-.930	.354	-.177
	Identified regulation	4.2 (.43)	4.1 (.54)	.803	.423	.184
Self- determined forms of Motivation	Introjected regulation	3 (1.3)	3.1 (1.2)	-.543	.588	-.103
	External regulation	1.3 (.65)	1.5 (.85)	-1.104	.272	-.039
	Amotivation	1.2 (.39)	1.2 (.42)	.806	.422	.230

Discussion

The objectives of this study were first to assess emotional wellbeing (mood states) and motivation towards PA in the Spanish older adult population and to analyze which variables were associated with the different types of PA (vigorous, moderate, or walking). Second, we analyzed what type of physical activity predicts better mood and higher motivation (understood as presenting self-determined forms of self-regulation), and finally, we explored if there were differences according to sex in the different variables we evaluated.

In relation to the first objective, our results showed that the three types of PA were positively associated with vigor. These results concur with the literature which concludes that one of the benefits of engaging in PA is increased energy. Specifically, several studies have shown that engaging in PA increases feelings of energy and decreases fatigue (Boolani et al., 2021; Larun et al., 2019; Payne et al., 2012; Puetz et al., 2008). However, vigorous PA was also associated with two negative POMS subscales: anger and tension. It is possible that in this sample, vigorous PA was being used as an emotional regulator of anger and tension. Indeed, this would be in line with the idea that physical exercise is used as a coping strategy to improve mood (Berger & Motl, 2000; Solanki & Lane, 2010). However, considering our regression analysis results, which showed that anger was predicted by engaging in vigorous PA, another possible explanation is that these participants were engaging in excessive PA, which could provoke negative effects such as anger. Furthermore, although not an expected result, some studies support the idea that PA practice could have negative psychological consequences when it turns into an excessive, compulsive, or obligatory activity (Kerr et al., 2007).

Regarding the relationship between types of PA and motivation, the results showed that vigorous PA was positively associated (and was the best predictor of) amotivation, while moderate PA was positively associated with more self-determined forms of regulation (especially intrinsic and identified regulation) and was negatively correlated with less self-determined forms such as external regulation. These results agree with previous studies that concluded that motivation and competence in using self-regulatory skills influenced older adults' decision to be regularly physically active (Carcelén, Navarro, Juesas, Baños, Colado & Lisón, 2022; Dacey et al., 2008; King & King, 2010; Salmon et al., 2003).

These results were similar to those from other age groups but added the novelty that the type of PA (moderate vs. vigorous) conditions this relationship in the older adult population. Along the same lines, our multiple linear

regression analyses also identified moderate PA as the best predictor of the most self-determined forms of regulation (intrinsic and identified). It should be noted that autonomous types of motivation are positively associated with positive indicators of well-being (positive affect, life satisfaction, meaning in life, self-esteem) and negative associated with negative indicators of well-being (depression, negative affect) (Tang et al., 2020). Of note, age was also shown to be a negative predictive variable for intrinsic regulation. This might be because, as adults advance in age, one of the main reasons they engage in PA is to maintain their health, and so this represents a self-regulated behavior corresponding to extrinsic motivation. In contrast, the results showed a positive association between negative affective states (depression, anger, and fatigue) and amotivation, while vigor was positively associated with intrinsic regulation, the most self-determined form of motivation. This result is congruent with other studies that have found similar associations (Ntoumanis, 2002; Ng et al., 2012; Vlachopoulos & Karageorghis, 2005).

Finally, with regard to the third objective, we must consider variables such as sex in this type of study, as they are important moderators of PA behavior and motivation (Campbell et al., 2001; Frederick-Recascino, 2002; Goggin & Morrow, 2001; Kaplan et al., 2001). Contrary to our expectations, no significant differences were found between men and women for any of the variables in this work. It could possibly be explained by the higher percentage of women in the study (73.4%), which is common in this type of initiative (van der Deijl et al., 2014). These results do not agree with the available scientific literature, which suggests that women are more likely to suffer emotional disorders (Alonso & Lépine, 2007; Awan, Mughal, Kingstone Chew-Graham & Corp, 2022). Therefore, we expected women would present higher levels of depression, tension, and fatigue. However, the fact that no differences in motivation were found indicates that the reasons participants in this study engaged in AP did not differ among these older people.

In contrast, most of the literature we consulted reported that men and women have different motivations for engaging in PA, with women's motivations being more socially and team-oriented (Isogai et al., 2003; Weinberg et al., 2000) and tending to center around weight control and improving physical appearance (Rosich, 2005), while men had more ego-oriented goals (Longhurst & Spink, 1987) and seemed to attach greater importance to goal achievement (Gould et al., 1985), competition (Rosich, 2005; Weinberg et al., 2000), and gender as independent variables. Participants were 1,472 boys (n=822, and energy release. However, all of these studies comprised samples of young people (Gould, Feltz, & Weiss, 1985; Isogai et al., 2003; Rosich, 2005; Weinberg et al., 2000), and so it is possible that, as age advances, wom-

en place less importance on physical appearance and men value competitiveness less, meaning that both sexes become more interested in exercise for its benefits in terms of fun, pleasure, and health (Rosich, 2005).

Finally, we would like to note the limitations of this study. First, it is important to highlight that our results were obtained in a sample of older Spanish adults who were members of municipal centers for older people. Moreover, they were healthy and active, and the sample mostly comprised women, all of which makes it difficult to generalize the results to populations of older adults with other characteristics. Second, although the short version of the IPAQ (IPAQ-SF) has shown acceptable validity in the adult Spanish population (Román Viñas et al., 2013), the long form of this questionnaire (IPAQ-LF) has shown to under-report both moderate-to-vigorous physical activity and sedentary behaviour in older adults (Cleland et al., 2018). Furthermore, limitations of subjective measurement of PA and sedentary behaviour have been well-documented, and include desirability bias (Adams, Matthews, Ebbeling et al. 2005; Ferrari, Friedenreich & Matthews, 2007; Sallis & Saelens, 2000).

Therefore, we suggest that future intervention studies, such as randomized controlled trial studies using a larger sample size, including less-active individuals, and measuring levels of physical activity by means of objective tools (i.e., accelerometers), will be required to provide a more definitive interpretation of the findings we present here.

In conclusion, this study shows that vigorous PA is associated with negative emotional states and amotivation, while engaging in moderate PA is associated with better emotional well-being, especially with feelings of energy, and could predict more self-determined forms of self-regulation and motivation towards PA. In addition, the reasons favoring engagement in PA among Spanish older adults did not differ according to sex, and the main motivation identified was intrinsic, meaning that these individuals were engaging in PA for pleasure and enjoyment, as well as for the benefits it can have on their health. Thus, given these results, in terms of emotional well-being and motivation towards PA, the best way to promote active aging seems to be by focusing on increasing engagement in moderate PA.

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