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## APPLIED PSYCHOLOGY | RESEARCH ARTICLE

# Motives for exercise participation: The role of individual and psychological characteristics

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**Abstract:** The purpose of this study was to investigate the effect of sex, body mass index (BMI), psychological characteristics (*self-esteem, trait anxiety, social physique anxiety*) on motives for exercise participation in the context of recreation and leisure. The sample consisted of 306 exercise participants. The results showed significant sex and BMI differences. More specifically, exercise motives were based on competition/ego for males, whereas females preferred psychological condition and appearance motives. Also, individuals low in BMI were motivated by physical appearance to participate in exercise programs. Psychological factors were also studied indicating that self-esteem was a significant predictor of competition/ego, affiliation, and physical condition motives, trait anxiety predicted motives of psychological condition, and to meet others' expectations, whereas social physique anxiety predicted the appearance motive. Individuals with increased levels of the above psychological characteristics were not motivated to participate in exercise programs by intrinsic motives.

### ABOUT THE AUTHORS

Foteini Zervou is a Primary School Education graduate, with a master's degree in Sport Psychology. Her research interests lay mostly around the investigation of motives behind exercise participation.

Nektarios A.M. Stavrou is an assistant professor of Sport Psychology and is involved in the psychological and psychomotor evaluation of young and adult exercise participants.

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Maria Psychountaki is an associate professor of Sport Psychology and has investigated Athletes' psychological preparation topics. In this study, the relationship between psychology, health, and exercise was investigated. Psychological factors are able to affect the motivation for exercise participation and in that way affect the health of individuals, as exercise is a prerequisite for the sustainability of a healthy lifestyle.

### PUBLIC INTEREST STATEMENT

Motivation is the key factor behind the elucidation of exercise behavior, therefore its investigation is imperative. This article described some of the factors affecting motives behind exercise participation, including sex, BMI, self-esteem, stress, and social anxiety. Men seem to participate in exercise regimes lead by competitiveness, while women are interested in alleviating stress and improving their physical appearance. Moreover, individuals with low BMI and increased social anxiety tend to exercise in order to retain a body image that conforms to the social standards. Exercising individuals with high self-esteem seem to exercise because they feel capable of fulfilling the exercise regimes, thus satisfying their competitive instincts. In addition, they are interested in creating social bonds through exercise as well as improving their physical fitness. Understanding which factors affect exercise participation will enable specialists to create exercise regimes tailored to individual needs, which will increase exercise engagement.

**Subjects: Sport and Exercise Science; Sport and Leisure Studies; Gender Studies - Soc Sci; Health & Society; Public Health Policy and Practice**

**Keywords: exercise motives; sex; BMI; self-esteem; trait anxiety; social physique anxiety**

## 1. Introduction

Examining the motivation and exercise motives is an important aspect to gain insight into exercise participation. According to the World Health Organization (WHO), the levels of obesity have been doubled since 1980, with 11% of the population currently being considered overweight. In Greece, corresponding levels reached 18.8% in men and 16.1% in women (WHO, 2014a). More importantly, leading causes of mortality include lifestyle-associated disorders, such as cardiovascular diseases, cancer, type I and II diabetes, and chronic obstructive pulmonary disease (Sjøgaard et al., 2016; WHO, 2008, 2014b). Although it has been shown that exercise can improve health and decrease mortality (Haskell et al., 2007), large parts of the population in Western countries abstain from exercising. For instance, the majority of US American adults are considered non-active (Haskell et al., 2007), 47.2% of young Cypriots do not perform any type of exercise at all (Kyriacou & Pavlakis, 2011), and 25% of the Greek population do not participate in physical activities beyond the necessary daily tasks (Valanou, Bamia, Chloptsios, Koliva, & Trichopoulou, 2006).

Because of the importance of exercise in terms of health improvement, it is essential to identify the causes of the observed low levels of exercise participation in Greek population and the difficulty of adhering to an exercise regime. It has been shown that motives serve as an important indicator of exercise behavior (Asztalos et al., 2012; Brunet & Sabiston, 2009), so it is imperative to detect motives behind exercise participation and exercise maintenance.

### 1.1. Individual characteristics and exercise motivation

It has been reported that exercise participation and physical activity occupation declines with the increase of age and it depends on the sex (Biddle, Braithwaite, & Pearson, 2014; Brunet & Sabiston, 2011; Hassandra, Goudas, & Chroni, 2003). Women tend to be less active than men, almost in every stage of their life (Chalabaev, Sarrazin, Fontayne, Boiché, & Clément-Guillotin, 2013; Rangul et al., 2011; Slater & Tiggemann, 2010; Vilhjalmsson & Kristjansdottir, 2003). Men derive physical activity motivation from a sense of fulfillment and their ability to cope with exercise demands (Brunet & Sabiston, 2009; Lindner & Kerr, 2000), as well as the alleviation of daily stress (Asztalos et al., 2012). Furthermore, men are more likely to participate in activities that they find challenging (Papaioannou, Kourtesopoulou, & Konstantakidou, 2005). On the contrary, findings in Greek population showed that men exercise for social and psychological reasons (Papadopoulos et al., 2010). Women are motivated to participate in exercise driven by their need to relieve stress of their everyday life (Asztalos et al., 2012), making improvements in mental health a key factor in their exercising behavior (Papaioannou et al., 2005). Another important factor for women to participate in exercise programs is to improve their physical appearance (Asztalos et al., 2012).

Research has shown that the motivation for exercise participation also depends on physical characteristics such as weight and obesity levels (Trilk et al., 2011). Weight adjustment and body shaping have been identified as major motives for exercising. Men tend to exercise in order to increase their size in terms of muscle volume, while women often try to limit it and lose weight (Markland & Ingledew, 2007). For overweight and obese people, body weight appears to function as an inhibitory factor for exercise participation (Barnett, O'Loughlin, & Paradis, 2002; Vartanian & Shaprow, 2008). Consequently, individuals with increased BMIs, often remain non-active or abandon the physical activity they engage in (Rangul et al., 2011). This trend is also evident in the Greek population, where participation levels in exercise routines seem to decrease for individuals with increased BMI values (Dimoshakis & Kouthouris, 2013). However, the motives for obese Greek adults to exercise are not known.

### **1.2. Psychological characteristics and exercise motivation**

Previous studies have shown that psychological characteristics are related to exercise motives, but there is a lack of studies investigating the relation between self-esteem, trait anxiety, and social physique anxiety with exercise motivation in Greek exercise participants. Specifically, factors that have described and affect the relationship between self-esteem and exercise participation include age, BMI, and the degree of self-determined exercise motivation (Lutz, Karoly, & Okun, 2008). Low levels of self-esteem affects women's exercise participation and adherence, as they tend to gain less satisfaction from exercise engagement, while at the same time they worry about their weight (Davison, Werder, Trost, Baker, & Birch, 2007). Moreover, people with high self-determined motivation are more likely to improve their self-esteem, whereas less self-determined exercise motivation is associated with a lower sense of self-esteem, and thus exercise motives become less important (Biddle & Wang, 2003; Longbottom, Grove, & Dimmock, 2012).

It has been demonstrated that regular exercise improves mood and mental functioning (Cotman, Berchtold, & Christie, 2007). In a survey conducted by Hoffman and Hoffman (2008), it was found that exercise increases energy and reduces fatigue in a regularly moderate volume. In Greece, there are no studies to explore the relation between trait anxiety and exercise motives, especially in the period of the economical crisis.

Furthermore, social physique anxiety has been a major motivational factor for the attendance in exercise programs, which subsequently influences individuals' exercise behavior. Evidently, body image is associated with social comparison anxiety (Anton, Perri, & Riley, 2000; Davison et al., 2007; Longbottom et al., 2012; Markland & Ingledew, 2007). It has been shown that a distorted perception of the ideal body weight and size can negatively affect one's exercise and diet behavior (Anton et al., 2000). Slater and Tiggemann (2011) supported the notion that the feeling of body satisfaction and self-esteem of teenage girls was negatively influenced by the aggressive environment of the gym they were training in. Furthermore, items such as mirrors on the walls and posters with ideal body types in the exercising environments as well as teasing by people of the social environment may increase one's body image concerns and facilitate withdrawal from an exercise regime. Meanwhile, social pressure and others' expectations within the exercise community may create exercise behaviors that enhance participation with appearance motive which intensify as extremely toned and thin body types are promoted in film, advertising, music videos, and magazines (Blond, 2008).

### **1.3. Current study and hypotheses**

Little is known about reasons for exercise participation and the factors influence exercise motives in Greek population. Because of the lack of researches to explore relations between individual and psychological characteristics with exercise motives in Greek population, this examination might provide more comprehensive information about the reasons for exercise participation. Also, this study was conducted with PALMS questionnaire (Molanorouzi, Khoo, & Morris, 2014) which has not been used in previous studies in Greece. The purposes of this study were (1) to examine differences in sex and body mass index (BMI) affect exercise motives in adult Greek exercise participants and (2) to determine if psychological characteristics (self-esteem, trait anxiety, social physique anxiety) predict exercise motives.

The first hypothesis of the study was that motives for exercise participation differ between men and women, with men expected to experience the motives of competition/ego and mastery, whereas women focus on motives such as appearance and socialization. The second hypothesis is related to BMI and exercise motives, it is expected that there will be a difference in exercise motives based on individuals' BMI. For instance, appearance and meeting others' expectation motives would resonate more with exercisers and a higher body weight. The third hypothesis tests self-esteem, trait anxiety, and social physique anxiety can as predictors of participation motives. Specifically, it is expected that self-esteem is associated with mastery and enjoyment motives, trait anxiety with psychological condition, and social physique anxiety with appearance.

### 3. Method

#### 3.1. Participants

A total of 306 exercise participants (112 males, 36.6%; 194 females, 63.4%) volunteered to participate in the study. Participants' age ranged from 18 to 70 years ( $M = 33.19$ ,  $SD = 12.55$ ). The average participants' exercise duration was approximately 1 h and 10 min per week ( $M = 69.61$ ,  $SD = 25.40$ ), while the mean frequency of exercise participation was two times per week ( $M = 2.16$ ,  $SD = .78$ ). The participants were taking place in several types of physical activities.

#### 3.2. Measures

##### 3.2.1. Demographic information

Participants were asked to provide their demographic characteristics including age, weight, height, exercise intensity, frequency, type of exercise. BMI was calculated as weight in kilograms divided by the square of height in meters ( $\text{kg}/\text{m}^2$ ).

##### 3.2.2. State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushere, Vagg, & Jacobs, 1983)

The Trait Anxiety Inventory (TAI) constitutes of 20 questions about how participants usually feel in their everyday life. High scores on the A-trait scale indicate that people are prone to perceive and interpret social situations as more threatening. The response format is a four-point Likert scale and requires responses about the frequency of behavior. The total score ranges from 20 to 80. In this study TAI's Cronbach  $\alpha$  ranges from .84 to .86.

##### 3.2.3. Self-esteem Scale (SES; Rosenberg, 1965)

Rosenberg's self-esteem questionnaire consists of 10 questions comprising one factor, including self evaluations. The response format is a five-point Likert type scale with scores ranging between 10 indicating low self-esteem and 30 referred to high self-esteem. SES internal consistency (Cronbach  $\alpha$ ) is .82.

##### 3.2.4. Social Physique Anxiety Scale (SPAS; Hart, Leary, & Rejeski, 1989)

SPAS is a self-report instrument used to evaluate the anxiety levels derived from physical appearance. SPAS consisted of 12 items measuring a single factor. Participants' responses were provided on a five-point Likert scale ranging from 1 (*Not at all*) to 5 (*Too much*). The total score of the scale is represented as a sum of items' responses, varying between 12 and 60, in which a higher score indicates higher anxiety levels. SPAS internal consistency (Cronbach  $\alpha$ ) is .85.

##### 3.2.5. Physical Activity and Leisure Motivation Scale (PALMS; Molanorouzi et al., 2014)

The PALMS is used to identify participation motives for various exercise contexts. It consists of 40 items, which refer to eight factors, namely mastery, enjoyment, psychological condition, physical condition, appearance, others' expectation, affiliation, and competition/ego. The motives of mastery and enjoyment are intrinsic, while those of competition/ego, appearance, others' expectation, affiliation, physical, and psychological condition were consider as extrinsic motivators. Each factor consists of five items. Items' responses were provided based on a five-point Likert-type scale with anchors of 1 (*strongly disagree*) to 5 (*strongly agree*). The Cronbach  $\alpha$  reliability coefficient value was .82 for the Greek population. Specifically, the Cronbach  $\alpha$  value was .88 for competition/ego, .83 for appearance, .61 for others' expectation, .91 for affiliation, .81 for physical condition, .87 for psychological condition, .87 for mastery and .85 for enjoyment.

#### 3.3. Procedure

Having obtained the approval of the Faculty Ethics Committee, data were collected from gym members and exercising adults at sporting spots in Athens, Greece. Prior to the questionnaire completion, participants were verbally informed about the content and the purpose of the study. Finally,

participants were asked to sign the consent form, according to which their participation in the research process was voluntary and gave them the right to stop at any time they wished.

### 3.4. Statistical analysis

Multivariate and univariate statistical analyses were conducted to examine the main purposes of the present study. In order to test Hypotheses 1 and 2, multivariate analysis of variance (MANOVA) was used to detect sex and BMIs differences in relation to exercise participation motives and show the main effects of the independent variables. Follow-up univariate ANOVAs were performed on the subscales where there were significant MANOVA effects (Tukey test). In addition, Bonferroni adjustment was applied to control for the inflation of Type I error (Tabachnick & Fidell, 2006). The level of statistical significance selected was  $p < .05$ .

To test Hypothesis 3, standard multiple regression was applied to predict motives for exercise participation in connection to self-esteem, trait anxiety, and social physique anxiety. Regression analysis determined the significant and strength of the relationships between predictor (self-esteem, trait anxiety, social physique anxiety) and criterion variables (mastery, enjoyment, psychological condition, physical condition, appearance, others' expectation, affiliation, competition/ego).

## 4. Results

### 4.1. Descriptive statistics

Tables 1 and 2 outlined the means (*M*) and standard deviations (*SD*) for the relevant variables used in the testing hypotheses 1 and 2.

#### 4.1.1. Testing hypothesis 1: Sex differences

The results of the MANOVA analysis showed statistically significant differences between sexes in exercise participation motives (Wilks' Lambda = .75,  $F_{1,293} = 11.98, p < .001, \eta_p^2 = .25$ ). Post hoc analysis on the factors of PALMS, applying Bonferonni correction, showed statistically significant differences between men and women in competition/ego ( $F = 12.60, p < .001, \eta_p^2 = .04$ ), appearance ( $F = 21.60, p < .001, \eta_p^2 = .07$ ), and psychological condition ( $F = 32.34, p < .001, \eta_p^2 = .09$ ).

#### 4.1.2. Testing hypothesis 2: BMI differences

The MANOVA analysis showed statistically significant differences among individuals of different BMI values (underweight, normal, overweight/obese) and exercise motives (Wilks' Lambda = .93,  $F_{2,289} = 1.288, p < .05, \eta_p^2 = .04$ ). Further analysis on PALMS factors with Tukey's test showed a statistically significant difference between the underweight and overweight/obese groups in regard to the appearance motive ( $F = 2.932, p < .05, \eta_p^2 = .02$ ).

**Table 1. Means (*M*) and standard deviations (*SD*) of the PALMS motives for exercise participation in men and women**

Exercise motives	Men <i>M</i> / <i>SD</i>	Women <i>M</i> / <i>SD</i>
Competition/ego	12.21/4.57	10.49/3.66
Appearance	17.59/3.95	19.55/3.20
Others' expectation	10.82/3.29	11.56/3.11
Affiliation	13.35/4.79	12.99/4.18
Physical condition	20.65/3.15	21.14/2.72
Psychological condition	16.60/4.25	19.23/3.58
Mastery	16.87/4.46	17.00/3.88
Enjoyment	19.07/3.57	19.58/3.42

**Table 2. Means (M) and Standard Deviations (SD) of the PALMS motives for exercise participation in participants with low and high BMI values**

Exercise motives	Underweight M/SD	Normal M/SD	Overweight/obese M/SD
Competition/ego	11.06/4.20	11.23/4.07	11.01/4.19
Appearance	19.70/3.76	18.88/3.64	18.11/3.32
Others' expectation	10.74/2.79	11.50/3.32	11.15/3.18
Affiliation	12.77/4.27	13.16/4.33	13.24/4.65
Physical condition	21.34/2.64	20.71/3.10	21.23/2.46
Psychological condition	18.66/4.74	18.42/3.70	17.67/4.35
Mastery	17.15/4.62	17.02/3.71	16.71/4.50
Enjoyment	19.94/3.22	19.46/3.49	18.90/3.52

#### 4.1.3. Testing hypothesis 3: Regression analysis

Eight different standard multiple regression analyses were conducted for every PALMS exercise motive (competition/ego, appearance, others' expectation, affiliation, physical condition, psychological condition, mastery, enjoyment) serving as the criterion variable and the individual (sex, age, BMI, exercise intensity, and frequency) and psychological characteristics as predictor variables (self-esteem, trait anxiety, social physique anxiety). These analyses were performed to examine the contribution of each of individual and psychological characteristics in the prediction of exercise motives. There was no proof of multicollinearity between independent variables. Unstandardized regression coefficients ( $B$ ), standard error ( $SE B$ ), standardized regression coefficients ( $\beta$ ), coefficient of determination ( $R^2$ ),  $t$  values, and the level of significance ( $p$ ) (Tabachnick & Fidell, 2006) are illustrated in Table 3.

In the first regression analysis, regarding the dependent variable of competition/ego, the  $R$  for regression was .31 ( $F_{8,282} = 3.780, p < .001$ ), the value of  $R^2$  was .09 and adjusted  $R^2$  was .07. The significant predictors were sex ( $\beta = -.21$ ), exercise intensity ( $\beta = -.13$ ), and self-esteem ( $\beta = .15$ ). In the second regression analysis, with appearance as criterion variable,  $R$  was also significant ( $F_{8,285} = 7.337, p < .001$ ). The value of  $R^2$  was .17 and adjusted  $R^2$  was .15. The significant predictors were sex ( $\beta = .21$ ), age ( $\beta = -.13$ ), intensity ( $\beta = -.17$ ), and social physique anxiety ( $\beta = .21$ ). Furthermore, the third regression analysis was found to be statistically significant and included others' expectation as predictive variable ( $F_{8,284} = 5.342, p < .001$ ), and the values of  $R^2$  and adjusted  $R^2$  were .13 and .11, respectively. The significant predictors were age ( $\beta = .21$ ) and trait anxiety ( $\beta = .17$ ). The following analysis, with the affiliation as criterion variable, was found not to be significant ( $F_{8,283} = 1.015$ ). The value of  $R^2$  was .03 and the value of adjusted  $R^2$  was .00. However, the analysis revealed self-esteem as a significant predictor ( $\beta = .15$ ). In the fifth regression analysis, using the physical condition as predictive factor, the  $R$  for the regression was significantly different from zero ( $F_{8,283} = 2.304, p < .05$ ). The value of  $R^2$  was .06, and the total explained variance for the dependent variable of physical condition was 4%. The significant indicators were age ( $\beta = .13$ ), exercise frequency ( $\beta = .16$ ), and self-esteem ( $\beta = -.14$ ). In the sixth regression analysis, with psychological condition as criterion variable,  $R$  was also significant ( $F_{8,284} = 5.723, p < .001$ ), and the values of  $R^2$  and adjusted  $R^2$  were .14 and .12, respectively. The significant predictors of the psychological condition were sex ( $\beta = .32$ ) and trait anxiety ( $\beta = .23$ ). The  $R$  for the seventh regression analysis was significantly different from zero ( $F_{8,285} = 4.712, p < .001$ ), with mastery as the predictive factor. The value of  $R^2$  was .12 and the explained variance for the dependent variable of mastery was 9%. Age ( $\beta = -.14$ ), frequency ( $\beta = .11$ ), and intensity ( $\beta = -.24$ ) of exercise were the significant indicators. Finally, the eighth regression analysis was significant ( $F_{8,282} = 4.661, p < .001$ ). The dependent variable was enjoyment, the  $R^2$  was .12 and adjusted  $R^2$  was .09. The significant predictors were sex ( $\beta = .19$ ), age ( $\beta = -.17$ ), intensity ( $\beta = -.14$ ), and social physique anxiety ( $\beta = -.18$ ).

**Table 3. Standard multiple regression analyses on exercise motives**

Depended variables	Independent variables	R <sup>2</sup>	B	SE B	β	t
<i>Regression 1</i>						
Competition/ego		.9				
	Sex		-1.8	.61	-.29	-2.94**
	Intensity		-.97	.45	-.13	-2.17*
	Self-esteem		.10	.04	.15	2.26*
<i>Regression 2</i>						
Appearance		.15				
	Sex		.16	.52	.21	3.06**
	Age		-.04	.18	-.14	-2.14*
	Intensity		-1.14	.37	-.17	-3.06**
	Social physique anxiety		.09	.03	.21	3.1**
<i>Regression 3</i>						
Others' expectation		.17				
	Age		.05	.02	.21	3.19**
	Trait anxiety		.06	.03	.17	2.44*
<i>Regression 4</i>						
Affiliation		.13				
	Self-esteem		.10	.05	.15	2.13*
<i>Regression 5</i>						
Physical condition		.03				
	Age		.03	.02	1.3	1.98*
	Frequency		.34	.13	.16	2.70**
	Self-esteem		-.07	.03	-.14	-2.11*
<i>Regression 6</i>						
Psychological condition		.06				
	Sex		2.67	.58	.32	4.6***
	Trait anxiety		.11	.03	.23	3.4**
<i>Regression 7</i>						
Mastery		.012				
	Age		-.05	.02	-.14	-2.2*
	Frequency		.34	.17	.11	2.01*
	Intensity		-1.8	.43	-.24	-4.15***
<i>Regression 8</i>						
Enjoyment		.012				
	Sex		1.32	.51	.19	2.6*
	Age		-.05	.02	-.17	-2.6*
	Intensity		-.88	.37	-.14	-2.39*
	Social physique anxiety		-.07	.03	-.18	-2.62**

\**p* < .05.  
 \*\**p* < .01.  
 \*\*\**p* < .001.

## 5. Discussion

At a time that exercise participation needs to increase, because of the problems caused by sedentary life and obesity (Haskell et al., 2007; WHO, 2014a) it will be necessary to understand the reasons for participation so to encourage exercise and minimize possible dropouts. The present study aimed to identify the motives for exercise participation and how these related with individual and psychological characteristics in a Greek population. These findings enable the identification of the type of motivation in people with different characteristics and might provide information that promotes more effective interventions aimed at increasing exercise participation and adherence.

The first hypothesis was partly supported in the current study, as there was a statistically significant difference between male and female exercisers and some exercise participation motives. Specifically, it was pointed out that men were motivated by the competition/ego factor. This finding is in accordance with previous studies estimating that boys are mainly attracted in sports due to the competitive and challenging nature of the exercise (Newson & Kemps, 2007; Papaioannou et al., 2005; Sirard, Pfeiffer, & Pate, 2006), but it is in contrast with finding showed that men might be motivated for social reasons (Papadopoulos et al., 2010). Although the factor of mastery has been associated with the exercise participation of men (Molanorouzi, Khoo, & Morris, 2015), the association could not be supported in the present study.

Additionally, in line with previous literature, it was indicated that the potential psychological benefits (Asztalos et al., 2012; Papaioannou et al., 2005) and appearance improvement (Davis, Fox, Brewer, & Ratusny, 1995; Markland & Ingledew, 2007) for Greek women were the main factors for participation in exercise programs or regimes. An additional factor that has been widely implicated in the motivation of women is the social aspect of exercise engagement (Gillison, Osborn, Standage, & Skevington, 2009; Sirard et al., 2006). This correlation, in respect to regression, could not be confirmed by the present study. Consequently, the findings of this study verify the assumption that the motive of competition/ego is important for male participation in exercise, while women are more influenced and motivated by the factors of appearance and psychology condition.

Other findings were shown that individuals with varying BMIs did not exhibit significant differences regarding their motives for exercise except for the factor of appearance and weight adjustment. More specifically, underweight participants indicated that physique and body improvement constitute an important motive for exercise participation, whereas for overweight individuals the factor of appearance doesn't seem to be related to exercise motivation, mainly due to the notion that their body image is considered significantly different to the prevailing social norms. This finding indicates that the need for social acceptance might influence the participation to exercise programs and is vastly dependent on the ideal body image the individuals' attainment (Aaltonen, Rottensteiner, Kaprio, & Kujala, 2014). Women use to take part in exercise programs in order to lose weight, while men participate for gain muscular weight. This interest in shaping body appearance is related to the ideal body image of strong and men and thin women (Markland & Ingledew, 2007). Moreover, the above-mentioned findings indicate that obesity can function as a limiting factor for exercise participation (Barnett et al., 2002; Trilk et al., 2011; Vartanian & Shaprow, 2008).

The hypotheses tested the psychological characteristics as predictors of exercise motives were partly confirmed. Specifically, self-esteem was not found to be related to motives of mastery and enjoyment, but self-esteem significantly predicted competition/ego, affiliation, and physical condition motives. According to previous studies, people with high self-esteem levels are task oriented and have self-determined motivation (Biddle & Wang, 2003; Longbottom et al., 2012). In this research, it was found that exercisers with high levels of self-esteem are more likely to choose exercise programs which will enable them to compete and excel among others (Newson & Kemps, 2007; Papaioannou et al., 2005; Sirard et al., 2006). This behavior, probably, stems from a sense of confidence and worth that allows them to feel that they can fulfill and complete the exercise routines (Levy & Ebbeck, 2005). Moreover, due to their high self-esteem these individuals tend to participate in exercise programs in order to broaden their social relations because they feel confident in

establishing new connections. In addition, the negative association between self-esteem and physical condition indicated that exercising individuals with high self-esteem are not interested to improve their physical condition or body image, because they seem satisfied with their self.

Regarding trait anxiety, it seems that individuals participate in exercise programs in order to relieve stress, recreate, and improve their psychological condition (Karacabey, 2005; Peluso & Andrade, 2005). As it has been shown, exercise may improve the mood as well as positively affect the physical and psychological health of exercising individuals (Lowenstein, Wright, Taylor, & Moberly, 2015; Song et al., 2014). Moreover, in this study it was found that an increased level of anxiety was significantly associated with meeting others' expectations, which might indicate the reason as to why they engage in exercise. Anxiety that is related to social and physical demands may be relieved through the engagement in successful exercise programs.

Social physique anxiety was shown to be an important indicator of exercise participation in relation to appearance improvement. This relation between social physique anxiety and the appearance improvement motive has been attributed to the pressure of conforming to social standards and ideal body shapes (Swami, Steadman, & Tov  e, 2009). More specifically, the study of Longbottom et al. (2012) showed that individuals with high levels of social physique anxiety tend to participate in exercise in order to conform to social norms and to experience acceptance by their social network. This finding is also supported by Halliwell, Dittmar, and Orsborn (2007), which revealed that the exposure to ideal body shape images with extensive muscular volume, might lead men to intensify their exercise regime in order to increase their muscle size due to a sense of dissatisfaction about their body. Therefore, social pressures and others' expectations in the field of exercise constitute determining factors of increased levels of exercise in order to create an ideal body (Longbottom et al., 2012).

Social physique anxiety was also found to significantly predict enjoyment. This means that exercising individuals that prioritize the adjustment to social standards, such as individuals with high BMIs, will not participate in exercise programs for the enjoyment and satisfaction aspect of the activity. Consequently, it is indicated that high levels of social physique anxiety can lead to less autonomous motivation for exercise (Swami et al., 2009), since the potential exercise engagement is considered to be a result of external factors such as the pressure to adapt to social standards. This highlights that social physique anxiety can function as a limiting factor in choosing an exercise program aimed at personal satisfaction of the individual.

Overall, it appeared that the psychological characteristics were not associated with intrinsic motives, such as mastery and enjoyment. This finding supports that Greek people are possible to withdrawn from exercise (Valanou et al., 2006). On the contrary, it was found that exercise motives were partly based on age, sex, frequency, and intensity of exercise. Confirming the findings of Brunet and Sabiston (2011), who reported that middle-aged participants mentioned lower intrinsic motives relative to younger adults, this study showed that with increasing age intrinsic motives of mastery and enjoyment were reduced. Perhaps, males are encouraged to engage in exercise when they are able to cope with the exercise demands, which, as found by Brunet and Sabiston (2009) provides a source of satisfaction. Furthermore, increased exercise intensity acts as a deterrent to participate in exercise for fun and achievement reasons (mastery) (Ekkekakis, Parfitt, & Petruzzello, 2011).

### **5.1. Implications**

Exercise programs should be designed according to the target group depending on the demographic and psychological characteristics (Asztalos et al., 2012). It may be necessary to locate the pre-existing motives of exercise participants in order to enhance the participation and extent the maintenance in exercise. As intrinsic motives related to long-term adherence in exercise programs (Molanorouzi et al., 2015), it would be beneficial for exercise experts to convert external motivation to self-determined motivation. For example, where psychological condition motive exists this can be used as a way to insert exercise in Greek population daily life instead of feeling sad and stressful due to the problems from the economical crisis. Once the behavior has been adopted then intrinsic

motives can be introduced. As people experience the enjoyable side of exercise and feel healthier might be moved closest to the highest levels of autonomy.

### 5.2. Limitations and future research

Although the present study has found some support for the various hypotheses there were some limitations. The population sample consisted of healthy adults, of 18 years old and older, who participated in organized exercise programs or other types of physical activity. The study did not include individuals with diagnosed pathology or chronic diseases. In terms of ecological validity, the findings can only be extended to healthy, adult populations. One of the main limitations of this study was that the gyms and sports grounds, which served as main bases for recruitment, were all located within Athens. There might be some limitations when comparing these findings to other populations, although the results indicated some similarities to the results of previous studies.

There are various opportunities for further research on the topic of exercise motives. More specifically, subsequent studies can attempt to clarify whether other individual characteristics (e.g. age and occupation) or the various options of exercise, (e.g., intensity, duration and frequency), are associated with the motives of exercise participation. Moreover, it would be important to investigate the difference in exercise motives between exercising and non-active individuals. This could involve the use of mixed-method research designs allowing a more detailed analysis of particularly high or low participants using interview techniques. Finally, it would be beneficial to investigate the motives that are associated with adherence to exercise regimes and those that may lead to withdrawal from physical activity. Identifying exercise motives that contribute to sustained exercise behavior would be relevant to maintain physical and psychological health and well-being.

### 6. Conclusion

At a time when the Greek population faces serious health problems due to the lack of exercise and financial problems because of the economic crisis, it is important to highlight the multiple benefits from physical activity. Researchers, trainers, gym owners, doctors, sport psychologists, government officials, and other experts dealing with health issues, can benefit from understanding the motives behind exercise participation and adherence. More specifically, the focus should be on converting the external motivation to internal, as the latter is related to adherence to exercise regimes.

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