The Influence of Gender, Age, Sport Participation and Family Wealth on Adolescents' Self-Worth and Out-of-School Physical Activity

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Article Info	Abstract
	The purpose of the present study was to examine the extent to which social factors such as gender, age, organized sport participation and family wealth, influence adolescents' global self-worth and out-of-school physical activity (PA). Seven hundred twenty-one Greek students (346 boys and 375 girls), aged 14 to 16 years old (Mage = 14.97 ± .82 years), voluntarily participated in the present study. Participants completed online questionnaires measuring demographics (gender, age), organized participation in sport clubs, family wealth, global self-worth and out-of-school PA. Results revealed significant differences in adolescents' self-worth due to age and family wealth, but not due to gender and organized sport participation. Similarly, there were significant differences in out-of-school PA due to gender, age, organized sport participation and family wealth. Age and family wealth were significant predictors of global self-worth, while age and gender were significant predictors of the out-of-school PA. No significant differences emerged in global self-worth between adolescents who reported being more active and those who were less active. These findings are partially in line with previous studies in the area of sport and exercise.

Introduction

Self-perception, self-concept, self-image, self-esteem and self-worth are words people use to describe "*the way people evaluate their involvement in different settings or domains relates to their overall self-perceptions or evaluation of themselves*" (Hagger, Ashford, & Stambulova, 1998; p. 138). Adolescence is a critical period in human's life during which body, self-esteem, life attitudes and beliefs, social interactions and health behaviors are formed (e.g., Jones, Polman, & Peters, 2009). It is also well established that high self-perception is associated with human's health, psychological well-being, adoption of healthy behaviours and accomplishments (e.g., Clay, Vignoles, & Dittmar, 2005; Jones et al., 2009). Furthermore, self-concept and self-esteem are related to students' academic achievement (e.g., Peixoto & Almeida, 2010; Vasalampi, Pakarinen, Torppa, Viljaranta, Lerkkanen, & Poikkeus, 2020). On the contrary, low self-esteem in early adolescence is a significant predictor of depressive symptoms in late adolescence and early adulthood (e.g., Masselink, Van Roekel, & Oldehinkel, 2018). Undoubtedly, curriculum designers and policy makers should take into consideration children and adolescents' self-perception when planning physical activities or health education programs for them.

Findings from previous studies have shown that adolescents' increased levels of PA and sport participation are positively related to physical self-concept dimensions and global self-worth (e.g., Bedard, Hanna, & Cairney, 2020; Crocker, Eklund, & Kowalski, 2000; Dolenc, 2015; Haugen, Ommundsen, & Seiler, 2013; Haugen, Säfvenbom, & Ommundsen, 2011; Reddon, Meyre, & Cairney, 2017). Similarly, physical fitness components, such as strength or endurance, are positively related to adolescents' physical self-concept (e.g., Balsalobre, Sánchez, & Suárez, 2014; Reddon et al., 2017).

However, it is not clear yet if the levels of PA predict children and/or adolescents' physical self-perceptions or the opposite. For example, Raudsepp, Liblik and Hannus (2002) revealed that children and adolescents' physical self-perceptions are significant predictors of physical fitness and participation in moderate to vigorous PA. In their meta-analysis which included 64 studies, Babic, Morgan, Plotnikoff, Lonsdale, White and Lubans (2014) concluded that "*general physical self-concept, perceived competence and perceived fitness may act as both determinants and outcomes of physical activity behaviour in youth*" (p. 1590). On contrary, findings of studies (e.g., Aşçi, Koşar, & Işler, 2001; Balaguer, Atienza, & Duda, 2012; Gilson, Cooke, & Mahoney, 2005) revealed that there is no significant effect of adolescents' PA engagement or sport participation on their global self-worth or self-perception.

On the other hand, research has shown that an array of social factors might influence adolescents' self-perception. More specifically, boys and older age students are reporting higher scores on physical self-concept dimensions compared to girls and younger age students (e.g., Çağlar, 2009; Dolenc, 2015; Raudsepp et al., 2002; Viira, 2011). However, the findings of similar studies (e.g., Aşçi et al., 2001) did not reveal significant differences in global self-concept and perceived athletic competence between male and female adolescents.

In addition, Niven, Fawkner, Knowles and Stephenson (2007), did not find any relationship between age and physical self-perceptions between early adolescent girls. Similarly, Cai, Wu, Luo and Yang (2014) found that adolescents' self-esteem declines with age (as they grow older). On the contrary, Navarro-Patón, Pazos-Couto, Rodríguez-Fernández and Arufe- Giraldez (2020) found that younger age students reported lower scores in physical self-concept dimensions compared to older age students.

Another social factor that might influence adolescents' self-worth is family wealth. Research has shown that higher global self-esteem is positively related to higher family affluence (Twenge & Campbell, 2002; Veselska, Geckova, Gajdosova, Orosova, van Dijk, & Reijneveld, 2010). On the contrary, Orr (2013) revealed that children with lower socio-economic status had higher self-concept compared to children with higher family wealth. However, only a small number of studies have examined the relationship between adolescents' self-worth and family wealth. Most of the existing studies have focused mainly on global self-esteem and not on other dimensions of physical self-perception. Based on the aforementioned findings of previous studies concerning the social factors that might influence adolescents' self-perception are equivocal. Moreover, to our knowledge, there is no study yet in Greece that has used Harter's Self-Perception Profile for Adolescents questionnaire (Harter, 2012) in order to assess adolescents' self-concept. Therefore, in the present study, a sub-scale of Harter's Self-Perception Profile for Adolescents (Harter, 2012) was used to measure middle school

students' global self-worth.

A significant number of studies (e.g., Guthold, Stevens, Riley, & Bull, 2020; Van Hecke et al., 2016) revealed that the vast majority of children and adolescents worldwide are physically inactive. Particularly, in Greece, large epidemiological studies have shown that adolescents are less physically active compared to other European countries and the vast majority of them do not meet the World Health Organization's (2010) recommendations of at least 60 minutes of moderate to vigorous physical activity (MVPA) daily (e.g., Van Hecke et al., 2016; Verloigne et al., 2016). According to Kiritsis (2018) this may happened because Greek adolescents "*follow a strict over-organized schedule on a daily basis, most of which is occupied by the attendance of couching-tutorial classes and the implementation of their homework*" (p. 281).

Moreover, research has shown that boys, younger age students and those who participate in an organized sport are more physically active compared to girls, older age students and non-athletes (e.g., Bélanger et al., 2009; Brodersen, Steptoe, Boniface, & Wardle, 2007; Duncan, Duncan, Strycker, & Chaumeton, 2007; Silva et al., 2010; Van Hecke et al., 2016). Family wealth is another social factor that might influence adolescents' PA levels (e.g., Hanson & Chen, 2007; Stalsberg & Pedersen, 2010). Research has shown that children and adolescents with higher socioeconomic status are more physically active compared to their peers with lower socioeconomic status (e.g., Elgar, Pförtner, Moor, De Clercq, Stevens, & Currie, 2015; Hanson & Chen, 2007; Stalsberg & Pedersen, 2010). However, the findings from another study (Kelly et al., 2006) found no significant differences between children with low or high family wealth and the time they spent in PA. Arguably it can be concluded that findings regarding the role of family wealth on adolescents' PA levels appear to be ambiguous.

The Youth Activity Profile (YAP) is an instrument developed relatively recently by Saint-Maurice & Welk (2014, 2015) to capture youths' PA levels. It consists of 15 items measuring youths' in-school PA, out-of-school PA and time spent in sedentary behaviors. Previous studies have shown that YAP is an accurate, reliable and valid instrument for measuring children's and adolescents' PA levels (e.g., Fairclough et al. 2019; Saint-Maurice, Kim, Hibbing, Oh, Perna, & Welk, 2017; Saint-Maurice & Welk, 2015). To our knowledge, there are still a small number of studies that have use YAP to assess students' out-of-school PA (e.g., Fairclough et al. 2019; Saint-Maurice et al., 2017; Sarrazin et al., 2019). Hence, in the present study, a sub-scale of the YAP (Saint-Maurice & Welk, 2014, 2015) will be used to record adolescents' out-of-school PA levels.

Based on the above, the purpose of the present study was to examine the social factors (i.e., gender, age, organized sport participation and family wealth) that might influence adolescents' self-worth and out-of-school PA. It was hypothesized that there will be significant differences on adolescents' global self-worth and out-of-school PA due to the effect of gender (boys and girls), age (13, 14 and 15 years old), out-of-school organized sport participation (yes, no) and family wealth (low, middle and high). Moreover, there will be significant differences between those who reported being physically active and those who reported being inactive on participants' global self-worth. Finally, it was hypothesized that gender, age, sport participation and family wealth will be significant predictors of adolescents' global self-worth and out-of-school PA.

Methodology

Participants

Seven hundred twenty-one middle school students (346 boys and 375 girls), aged 14 to 16 years old ($M = 14.97$ ± .82 years) voluntarily participated in the present study. Participants recruited from three schools that were randomly selected from a list of schools in the district of Athens, Greece. Each of these three schools represented an area in Athens inhabited by families of different socioeconomic status (low, medium, and high). This procedure was followed to ensure the objectivity of the sample in terms of family wealth. The study conducted with the approval of the University Institutional Bioethics Committee (Ref: 1246 - 07/06/2017) and the Greek Institute of Educational Policy (Ref: 165206/Δ2 - 04/10/2017). Informed consent was secured from parents/guardians and students before the beginning of the study.

Instruments

Social and demographic characteristics. Adolescents' demographics were recorded (gender and age). Their family's wealth was measured with one item ("*How well off do you think your family is?*") from the Family Affluence Scale-II (FAS II; Schnohr, Kreiner, Due, Currie, Boyce, & Diderichsen, 2008). Participants' responses were given in a 5-point Likert scale ranged from one (*Very well off*) to five (*Not at all well off*). The same item of the FAS II has already been translated and addressed to Greek adolescents (e.g., Kokkevi, Stavrou, Kanavou, & Fotiou, 2014).

Out-of-school Organized Sport Participation. Adolescents' participation in an organized out-of-school sport was measured with one dichotomous question ("*Are you an athlete in a sport club?*") and the possible answers were *YES* or *NO*. Similar item has been used in previous studies in the area of physical education and exercise (e.g., Papaioannou, Karastogiannidou, & Theodorakis, 2004; Silva et al., 2010). In the present study, we defined as "*organized sport participants*" only those students who were members of a sport club and were regularly trained, with a team or individually, under the supervision of a certified coach or trainer. Previous studies in the field of sport (e.g., Eime, Young, Harvey, Charity, & Payne, 2013) have also proposed similar definition.

Self-Worth. Adolescents' global-self-worth was assessed with five items of the Self-Perception Profile for Adolescents (Harter, 2012). According to Harter (2012), *global self-worth* refers to the general notion of the self (e.g., "*Some teenagers are happy with themselves most of the time BUT Other teenagers are often not happy with themselves*"). Participants' answers were given in a 5-point Likert scale ranged from one (*Sort of True for Me*) to four (*Really True for Me*). There were no wrong or right answers, but adolescents expressed freely what they believe. The instructions proposed by Beaton, Bombardier, Guillemin and Ferraz (2000) were followed to translate and adapt the global self-worth sub-scale. The Greek version of the questionnaire included five items.

Out-of-school PA. A sub-scale of the YAP (Saint-Maurice & Welk, 2014, 2015) was used to capture adolescents' out-of-school PA. This sub-scale consists of five items of which three of them are measuring out-of-school PA during weekdays (e.g., "*How many days after school (between 3:00 - 6:00 pm) did you do some*

form of physical activity for at least 10 minutes? This can include playing with your friends/ family, team practices or classes involving physical activity but NOT walking or biking home from school"). Participants' answered using a 5-point Likert scale ranged from one (*0 days*) to five (*4 to 5 days*). The other two items are capturing out-of-school PA during weekend days (e.g., "*How much physical activity did you do last Saturday? This could be for exercise, work/chores, family outings, sports, dance, or play. If you don't remember, try to estimate*"). Participants' answers were also given in a 5-point Likert scale ranged from one (*No activity - 0 minutes*) to five (*Large amount of activity - more than 2 hours*). This specific questionnaire has already been translated and used in previous studies with children and adolescents in Greece (e.g., Sarrazin et al., 2019). YAP composite raw score (which is the mean score of the YAP's five items measuring out-of-school PA), percentage (%) of moderate to vigorous PA per day (MVPA/day), and minutes in MVPA per day were calculated based on the recommendations and the algorithms proposed by Saint-Maurice et al. (2017). More specifically, to calculate out-of-school PA, a weekday started at 14:30 p.m. and ended at 22:00 p.m., while a weekend day lasted from 7:00 a.m. to 20:00 p.m. It is important to be mentioned that the regular schedule of the three middle schools started at 8:00 a.m. and ended at 14:00 p.m. To calculate % MVPA/day, we use the algorithms for the three items measuring out-of-school PA during weekdays and those for the two items capturing weekend activity. Then, we calculated the minutes in MVPA/day separately for the weekdays and the weekends. Finally, to take a daily estimation of students' out-of-school PA, we calculate the mean score of both weekdays and weekends for the percentage (%) of MVPA and the minutes in MVPA, respectively.

Procedure

Researchers after received all the necessary approvals of the authorities, agencies and stakeholders involved in the present study informed adolescents and their parents about the process and the purpose of this research. Then, students completed the online questionnaire via Google Forms during a Physical Education lesson. Each class answered the online questionnaires in a computer lab at their school. The environment in the computer labs was quiet and comfortable; each participant used a computer device. One of the researchers provided oral instructions to participants and he was available to provide further explanation whenever it was needed. Each participant spent as much time as necessary. All measurements were conducted on October 2017.

Statistical Analysis

Confirmatory Factor Analysis (CFA) was conducted using AMOS software version 20.0 (Arbuckle, 2011) to examine global self-worth scale's factorial validity. The method of Maximum Likelihood (ML), the chi-square index (χ^2), the Comparative Fit Index (CFI; values more than .95), the Tucker-Lewis Index (TLI; values more than .95) and the Root Mean Square Error of Approximation (RMSEA; values close to .06) were used to estimate the parameters of each model in CFA (e.g., Cheung & Rensvold, 2002; Hu & Bentler, 1999). Then, descriptive statistics (mean and standard deviation), Cronbach's α reliability test (Cronbach, 1951) and correlation analysis were conducted. In addition, differences in adolescents' global self-worth and out-of-school PA (YAP composite raw score; % MVPA/day; Minutes/day in MVPA) due to their gender (boys or girls), age group (14, 15 or 16 years old), participation in organized sport clubs (yes or no) and their family wealth (low,

moderate or high) were examined by performing separate one-way MANOVAs and post hoc tests. Differences in adolescents' global self-worth between those who reported being more physically active and those who reported being less active were examined by performing independent samples t-test. It is important to mention that participants were split into two groups based on the median score of the YAP composite raw score (*Median* = 3.20). The low PA level group consisted of 336 participants, while the high PA level group consisted of 385 participants. Finally, separate standard regression analyses were conducted to examine the extent to which the independent variables of the present study (gender, age, and family wealth) predict significantly adolescents' global self-worth and out-of-school PA (YAP composite raw score; Minutes/day in MVPA) (Field, 2009). All the above statistical tests were conducted using the PASW software (version 18 for Windows). The level of significance (p-value) was set at .05.

Results

Confirmatory Factor Analysis (CFA) of the Global Self-worth Sub-Scale

The findings of CFA demonstrated that the global self-worth sub-scale (Harter, 2012) with the five items did not fit the data well (χ^2_5 = 136.58, TLI = .669, CFI = .835, RMSEA = .191, RMSEA 90% CI = .164 - .219). Another CFA analysis was conducted after removing one item due to high covariation with other variables, CFA showed the following goodness-of-fit indices: $\chi^2_{(2)}$ = 18.26, TLI = .918, CFI = .973, RMSEA = .106, RMSEA 90% CI = .065 - .153. The factor loadings (4 items) ranged from .40 to 80.

Descriptive Statistics, Reliability Analysis and Correlations

Descriptive statistics (means, standard deviations), normal distribution (skewness, kurtosis), Cronbach's α and correlation analysis of the examined variables (global self-worth and out-of-school PA) are presented in Table 1. Results from reliability analysis indicated acceptable internal consistency (α = .63 - .71).

Table 1. Descriptive Statistics, Normal Distribution, Cronbach's α and Correlation Analysis of Adolescents' Global Self-worth and Out-of-school PA

Variables	M±SD	Skewness	Kurtosis	α	1	2	3	4
1. Global self-worth	2.83 ± .74	-.31	-.52	.71	-			
2. YAP composite raw score	3.12 ± .83	-.14	-.23	.63	.05	-		
3. % in out-of-school MVPA/day	11.39 ± 1.40	-.55	.15	-	.11**	.88**	-	
4. Minutes in out-of-school MVPA/day	51.25 ± 6.30	-.55	.15	-	.11**	.88**	1.00	-

Note. PA = Physical Activity, YAP = Youth Activity Profile; YAP composite raw score = Mean score of the YAP's five items measuring out-of-school PA; MVPA = Moderate to Vigorous Physical Activity; Out-of-School MVPA (Minutes/day) = Mean score of the minutes/day in out-of-school MVPA of both weekdays and weekends; ** p < .01

Regarding organized sport participation, descriptive statistics showed that boys and younger age adolescents participated more in organized sports compared with girls and older age adolescents (see Table 2).

Table 2. Organized Sport Participation between Gender and Age Groups

Variables		Sport Participation	
		Yes	No
Gender	Boys	260	89
	Girls	234	143
	Total	494	232
Age	14 years	187	70
	15 years	156	81
	16 years	151	80
	Total	494	231

Differences in Adolescents' Global Self-worth and Out-of-school PA due to Gender, Age, Sport Participation and Family Wealth

One-way MANOVAs revealed significant main effect of gender (Wilks' λ = .983, $F_{3,717}$ = 4.280, $p < .01$, η_p^2 = .02), age (Wilks' λ = .094, $F_{6,1430}$ = 539.482, $p < .001$, η_p^2 = .69), organized sport participation (Wilks' λ = .802, $F_{3,717}$ = 59.016, $p < .001$, η_p^2 = .20) and family wealth (Wilks' λ = .923, $F_{6,1432}$ = 9.783, $p < .001$, η_p^2 = .04) on adolescents' self-worth and out-of-school PA (YAP composite raw score; % MVPA/ day; Minutes/day in MVPA). Univariate analyses of variance showed significant differences on self-worth due to age ($F_{2,717}$ = 7.162, $p \leq .001$, η_p^2 = .02) and family wealth ($F_{2,718}$ = 12.606, $p < .001$, η_p^2 = .03). More specifically, younger age adolescents (14 years old) and those with higher family wealth had higher scores in global self-worth compared to older age adolescents (15 and 16 years old) and those with lower family wealth (see Table 3).

Similarly, univariate analyses of variance showed significant differences on out-of-school PA due to gender (YAP composite raw score: $F_{1,719}$ = 10.278, $p \leq .001$, η_p^2 = .01; % MVPA/ day & Minutes/day in MVPA: $F_{2,719}$ = 4.783, $p < .05$, η_p^2 = .01), age (YAP composite raw score: $F_{2,717}$ = 5.902, $p < .01$, η_p^2 = .02; % MVPA/ day & Minutes/day in MVPA: $F_{2,717}$ = 165.592, $p < .001$, η_p^2 = .32), participation in organized sports (YAP composite raw score: $F_{1,719}$ = 177.477, $p < .001$, η_p^2 = .20; % MVPA/day & Minutes/day in MVPA: $F_{1,719}$ = 131.704, $p < .001$, η_p^2 = .16) and family wealth (% MVPA/day & Minutes/day in MVPA: $F_{2,718}$ = 9.539, $p < .001$, η_p^2 = .03). More specifically, boys, younger age adolescents (14 years old), sport participants and students with higher family wealth reported higher scores in out-of-school PA compared to girls, older age adolescents (15 and 16 years old), non-sport participants and those with lower family wealth, respectively (see Table 3).

Table 3. Descriptive Statistics and Significant Differences on Adolescents' Global Self-worth and Out-of-school PA due to Gender, Age, Sport Participation and Family Wealth

			Variables			
			Global self-worth	YAP composite raw score	% in out-of-school MVPA/ day	Minutes in out-of-school MVPA/ day
Gender	Boys	(N = 346)	2.85±.71	3.22±.84[c]	11.51±1.41[f]	51.78±6.34[j]
	Girls	(N = 375)	2.80±.77	3.02 ±.81[c]	11.28±1.38[f]	50.76±6.23[j]
Age	14	(N = 257)	2.96±.73[a]	3.24±.82[d]	12.30±.90[g]	55.34±4.03[k]
	15	(N = 237)	2.79±.71	3.12±.79[d]	11.38±1.10[g]	51.20±4.95[k]
	16	(N = 226)	2.71±.77[a]	2.98±.87[d]	10.37±1.45[g]	46.67±6.53[k]
Organized Sport Participation	Yes	(N = 491)	2.84±.73	3.37±.72[e]	11.77±1.22[h]	52.95±5.50[l]
	No	(N = 230)	2.80±.76	2.58±.80[e]	10.58±1.42[h]	47.63±6.39[l]
Family Wealth	Low	(N = 57)	2.38±.69[b]	3.04±.86	11.10±1.40[i]	49.93±6.28[m]
	Middle	(N = 228)	2.81±.72[b]	3.05±.84	11.11±1.47[i]	50.01±6.62[m]
	High	(N = 436)	2.90±.74[b]	3.16±.83	11.57±1.33[i]	52.07±6.00[m]

Notes. N = number of participants; PA = Physical Activity; MVPA = Moderate to Vigorous Physical Activity; YAP = Youth Activity Profile; YAP composite raw score = Mean score of the YAP's five items measuring out-of-school PA; % in out-of-school MVPA/day & Minutes in out-of-school MVPA/day: Mean score of the % and minutes in out-of-school MVPA/day of both weekdays and weekends; [a, b] Significant differences in global self-worth due to age and family wealth; [c, d, e] Significant differences in out-of-school PA (composite raw score) due to gender, age and sport participation; [f, g, h, i] Significant differences in the % of out-of-school MVPA/day due to gender, age, organized sport participation and family wealth; [j, k, l, m] Significant differences in the Minutes/day in out-of-school MVPA due to gender, age, organized sport participation and family wealth.

Differences in Global Self-worth between Adolescents' with Low or High Levels of PA

Independent samples t-test revealed no significant differences in global self-worth (t_{719} = -.942, p = .347) between adolescents who reported being more physically active (M = 2.85 ± .75) and those who reported being less active (M = 2.80 ± .73).

Standard Regression Analyses

A standard regression analysis was employed to examine the extent to which gender, age, and family wealth could predict significantly global self-worth. As shown in Table 4, a small but statistically significant amount of variance ($F_{3,716}$ = 9.937, p < .001) was explained by age and family wealth (see Table 4).

Table 4. Standard Regression Analysis for the Global Self-worth

	R	R^2_{change}	b	$SE\ b$	β	t
Global Self-worth	.20***	.04				
Constant			2.70	.16		16.50***
Gender			-.06	.05	-.04	-1.18
Age			-.10	.03	-.11	-2.93**
Family wealth			.17	.04	.14	3.81***

*** p < .01, *** p < .001

Finally, separate standard regression analyses for the YAP composite raw score ($F_{3,716} = 8.070$, $p < .001$) and for the Minutes/day in MVPA ($F_{3,716} = 115.759$, $p < .001$) showed that a small but statistically significant amount of variance was explained by gender and age (see Table 5).

Table 5. Standard Regression Analyses for the YAP Composite Raw Score and for the Minutes/day in MVPA

	R	R^2_{change}	b	$SE\ b$	β	t
YAP composite raw score	.18***	.03				
Constant			3.54	.18		19.22***
Gender			-.21	.06	-.12	-3.35***
Age			-.12	.04	-.12	-3.26***
Family wealth			.05	.05	.04	1.11
Minutes/day in MVPA	.57***	.33				
Constant			60.62	1.16		52.09***
Gender			-1.25	.39	-.10	-3.22***
Age			-4.29	.24	-.56	-17.77***
Family wealth			.37	.31	.04	1.18

Notes. Minutes/day in MVPA: Mean score of the minutes/day in out-of-school Moderate to Vigorous Physical Activity of both weekdays and weekends; ** p < .01, *** p < .001

Discussion

The present study focused on examining the influence of social factors such as gender, age, organized sport participation and family wealth on adolescents' global self-worth and out-of-school PA. Findings revealed that younger age adolescents had higher scores in global self-worth compared to older age adolescents. Age was also a significant predictor of global self-worth.

The results are in line with the vast majority of previous studies suggesting that age affect significantly youths' self-perceptions (e.g., Çağlar, 2009; Dolenc, 2015; Raudsepp et al., 2002; Viira, 2011).The biological maturation of adolescents can be a rational explanation for their reduced self-worth compared to younger children. For example, tremendous changes in their brain function and their hormonal system, which secretes a

huge amount of metabolic and sex steroid hormones, are taking place during adolescence and this might also influence their brain development and their psychological mood state (e.g., Blakemore & Mills, 2014; Bouret, 2013; Naninck, Lucassen, & Bakker, 2011). Another possible explanation for the low self-worth of adolescents might be their extended social interactions with other peers during this period. According to Blackmore and Mills (2014), peer acceptance and avoidance of social rejection play a crucial role during adolescence and influence significantly their behaviors and thoughts.

The findings of the present study support that adolescents with higher family wealth had higher scores in global self-worth compared to those with lower family wealth. Family wealth was also a significant predictor of global self-worth. These findings are similar to previous studies suggesting that higher levels of self-perception are positively related to higher family wealth (Twenge & Campbell, 2002; Veselska et al., 2010). However, only a limited number of studies have measured the relationship or the differences between adolescents' self-perceptions and family wealth. Thus, additional in-depth research is needed to be conducted in this field, using for instance mixed-methods, in order to detect the mechanism that socio-economic status affects adolescents' self-perceptions.

Interestingly, there were no significant differences in adolescents' self-worth due to gender. This result is inconsistent with findings of previous studies suggesting that boys report higher scores in the dimensions of self-perception than girls (e.g., Çağlar, 2009; Dolenc, 2015; Raudsepp et al., 2002; Viira, 2011). Similarly, no significant differences emerged in global self-worth due to organized sport participation or between adolescents with a high and low level of PA.

The results are in line with several studies that found no significant effect of adolescents' PA engagement or sport participation on their global self-worth or self-perception (e.g., Aşçi et al., 2001; Balaguer et al., 2012; Gilson et al., 2005). However, the findings of the vast majority of the previous studies suggested that increased levels of PA and sport participation are positively related to physical self-concept dimensions and global self-worth (e.g., Bedard et al., 2020; Crocker et al., 2000; Dolenc, 2015; Haugen et al., 2013; Haugen et al., 2011; Reddon et al., 2017). A rational explanation for these equivocal findings of the previous studies might be participants' diversity (e.g., different age, culture or country) and/or the different methodologies that were adopted in these studies (e.g., different self-report questionnaires).

Regarding PA levels, boys, younger age adolescents and participants in organized sports were more physically active compared to girls, older age adolescents and non-sport participants. Age and gender were also significant predictors of the out-of-school PA. These findings are consistent with the existing literature (e.g., Bélanger et al., 2009; Brodersen et al., 2007; Duncan et al., 2007; Silva et al., 2010; Van Hecke et al., 2016). A rational explanation for the aforementioned findings could be that boys and the majority of the younger age adolescents of the present study reported participating in organized sports during their free time compared to girls and the older age adolescents, which did not participate in organized sports. The aforementioned assumption is based on the findings of previous studies suggested that youths' participation in sport clubs increases significantly their daily PA levels (e.g., Bélanger et al., 2009; Silva et al., 2010).

Finally, there were significant differences in out-of-school PA (% in MVPA/ day, MVPA minutes/day) due to family wealth. This finding are in line with the vast majority of the existing literature suggesting that children and adolescents with higher family wealth are more physically active compared with their peers with lower family wealth (e.g., Elgar et al., 2015; Hanson & Chen, 2007; Stalsberg & Pedersen, 2010).

Conclusion

Adolescence is a very sensitive period of peoples' life during which youths feel the need to express their emotions and notions (e.g., Blakemore & Mills, 2014). As children become adolescents, their brain function and critical thinking is developed. Therefore, it is useful to detect youths' thoughts about themselves and their motives to participate in out-of-school PA in order to help them build healthy personalities that may ensure a prosperous future.

A limitation of the present study might be the representativeness of the participants of the present study. The fact they came only from three diverse districts of Athens city in Greece causing difficulty for generalizing the present findings. Another limitation might be the self-reported instruments, where children and adolescents are prone to recall bias (e.g. Fan et al., 2006). Alternatively, future studies can use motion sensors, such as accelerometers, to accurately capture youths' PA levels.

Similarly, it can be argued that the estimation of the family wealth by the middle school students might not accurately capture the socio-economic status of their family. A future study may directly ask participants' parents about their family income or their educational level. Additionally, different or improved research tools or mixed-methods could be used to collect essential data and make the most suitable interpretations. Certainly, more research needs to be conducted regarding the influence of sport participation and socio-demographic factors on adolescents' self-worth and PA levels.

A final limitation of the present study is that researchers focused only on the social factors that may affect adolescents' out-of-school PA. However, findings from a recent study have shown that students' autonomous motivation for Physical Education predicts significantly their out-of-school PA though autonomous motivation towards PA (Wang & Chen, 2020). Therefore, future researchers should also include autonomous motivation in their hypothesis when trying to explain adolescents' out-of-school PA. Based on the above, well-structured out-of-school PA programs should be designed by policy makers or sports clubs trying to isolate the socio-economic inequalities, to cultivate adolescents' social competence and constructive interaction with other peers and to help them gain positive thoughts and experiences through sport participation.

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