Self-perception of children participating in different organized physical activity programs

Andreas - Angelos Kantzas & Fotini Venetsanou

School of Physical Education and Sport Science, National and Kapodistrian University of Athens
drewkantzas@gmail.com

Abstract

The aim of this study was to investigate potential self-perception differences in children who participate in different organized PA programs. For that purpose, the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PSPCSA) was administered to 191 children (87 boys; 104 girls), aged 5 – 9 years (M= 7.1, SD= 0.7). Moreover, participants' anthropometric and demographic data were also gathered. For data analysis, children were classified into three PA groups, according to the PA program they were participating in: (a) team sports, (b) individual sports, and (c) dance. (M)ANCOVA procedures were computed on participants' scores to examine potential differences among PA groups and genders, using age and BMI as covariates. The results revealed that the participants presented high PSPCSA scores, irrespectively of their gender and PA program they participated in. Children's participation in PA seems to associate with high positive self-perception scores. Organized PA clubs and children's coaches should be informed about the important relationship between PA and self- perception in order for this "window of opportunity" of young children's high positive self-perception level to be optimally exploit for their health's benefit.

Keywords: perceived physical competence, social acceptance, sports, dance, PSPCSA

Introduction

Self-perception is a multidimensional construct (Fox & Corbin, 1989; Harter 1983, 1985; Kalogiannis, 2006; Makri – Mpotsari, 2001a; Sonstroem, 1988) that consists of domains, such as cognitive, social, emotional and physical self-perception (Harter, 1983, 1985; Sonstroem, 1988), and is thought to be important for mental health, motivation, anxiety inhibition, and happiness (Inchley, Kirby & Currie, 2011; Weiss & Ferrer-Caja, 2002). Self-perception is formed through an individual's personal experiences as well as his/her interaction with the environment (Shavelson, Hubner & Stanton, 1976). Regarding children's self-perception, it associates with both individual and environmental factors. Starting with individual ones, age, gender, and weight are among the most investigated. To begin with, self-perception appears to be differentiated as children grow up (Harter, 1999), with younger children (4-7 years of age) being less accurate than the older ones (Harter, 1988, 1990, 1999). As far as gender is concerned, several studies have shown that, in middle childhood, boys present higher self-perception than girls (Carroll & Loumidis, 2001; Inchley et al., 2011; Lubans & Morgan 2009; Morano, Colella,

Robazza, Bortoli & Capranica, 2011); whereas, in earlier years of age it seems that there are no significant differences between genders (Planinšec & Fošnarič, 2005). Finally, excess weight has

been found to negatively influence children's self-perception (Kalogiannis, 2006; Kalogiannis & Papaioannou, 2003; Kalogiannis, Papaioannou, Douda, & Tokmakidis, 2002) and especially their perceived physical competence (Morano et al., 2011; Poulsen et al., 2011; Spessato, Gabbard & Valentini, 2013).

Children's self-perception interacts also with their participation in physical activity (PA). Thus, a child with high self-perception is physically active (Brustad, 1988); whereas that with low tends to have poor PA (Craven & Marsh, 2008; Kalogiannis, 2006; Marsh, Papaioannou & Theodorakis, 2006). On the other hand, participation in PA appears to positively affect children's self-perception (Marsh et al., 2006; Pangrazi & Corbin, 1995) and social wellness (Weiss, Bhalla, & Price, 2007) that, in turn, are connected to positive cognitive, emotional and behavioral outcomes, like internal motivation, internal focus, enjoyment and greater tendency to participate in PA (Babic et al., 2014; Craven & Marsh, 2008; Crocker, Kowalski & Hadd, 2008; Inchley et al., 2011; Kipp & Weiss, 2013; Marsh et al., 2006). Moreover, organized PA, and especially sports, appears to have different influence on self-perception according to its specific features. Therefore, the type of sport (namely, team or individual sports; Morano et al., 2011; Slutzky & Simpkins, 2009), the level of participation (recreational or competitive; Findlay & Bowker, 2009), as well as the frequency (Balaguer, Atienza & Duda, 2012) and duration (Ulrich, 1987) of participation can pose as important correlates for children's self-perception.

Since self-perception appears to be significant for a person's participation in PA as well as mental health and happiness, promoting its development during childhood seems important. In that direction, organized PA appears to be an ideal context. However, research evidence regarding the association between participating in different PA programmes and young children's self-perception is limited. Therefore, the aim of this study was to investigate potential self-perception differences among 5-9-year-old children who participate in different PA programs.

Method

Participants

A total of 191 children (87 boys and 104 girls) aged 5 – 9 years (M= 7.1, SD= 0.7 years) from Athens and Nafplio, Greece, voluntarily participated in the study. Children's parents/legal guardians provided beforehand a written informed consent for participation. The study was approved by the Ethics Committee of the School of Physical Education and Sport Science, National and Kapodistrian University of Athens (number of approval: 1036/14/02/2018).

Measures

Anthropometric and demographic data

Children's body mass and standing height were measured using a Beam Balance (Beam Balance 710, Seca) and a Stadiometer (Stadiometer 208, Seca) respectively, and their body mass index (BMI) was computed via the formula BMI = weight/height^2. Moreover, children's parents

provided information about their offspring's (a) date of birth, and (b) participation in PA programmes. According to the information gathered, participants were classified into three categories regarding the PA programme they participated in: (a) team sports (volleyball, basketball, soccer), (b) individual sports (track & field, swimming, martial arts, gymnastics), and (c) dance (Greek traditional dance, modern dance, ballet).

Self-perception

Participants' self-perception was measured with the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PSPCSA; Harter & Pike, 1983) adapted for Greek population (Makri – Mpotsari, 2001b). The PSPCSA measures self-perceptions of children aged 4-7 years in four aspects of their lives. Those aspects constitute the four subscales of the questionnaire: (1) cognitive competence (performance at Math and other school subjects), (2) peer acceptance (how much the child is being befriended and liked by their peers), (3) physical competence (competence in physical skills like running, climbing and hanging), and (4) maternal acceptance (maternal behaviors that are commonly thought to express motherly love).

The PSPCSA consists of 20 sex-specific drawings, illustrating opposite situations of either high competence/acceptance or poor competence/acceptance (e.g. "This boy/girl can run very fast" and "This boy/girl cannot run very fast"). The child is asked, firstly, to which of the two pictures they relate the most, and upon answering, to rate their competence/acceptance as "really good" or "pretty good", for the high competence/acceptance responses, or "sort of good" or "not that good", for poor competence/acceptance responses. Each response is rated on a 4-point Likert scale ranging from one (low self-perception) to four (high self-perception). Each subscale score is the mean of the four item-scores included in this subscale (score range: 1 – 4); whereas, the total PSPCSA score results from adding the four subscales scores (score range: 4-16).

The technical adequacy of the original PSPCSA is reported by its authors (Harter & Pike, 1984). Also, the Greek version of the questionnaire has been proved to be valid and reliable (Makri – Mpotsari, 2001b); whereas, it has been used in several studies in Greece (Afthentopoulou, Venetsanou, Zounhia & Petrogiannis, 2018; Bournelli, Makri, & Mylonas, 2009; Gounari, 2014; Katifori, 2003; Kiafa, 2012; Platsidou & Okalidou, 2009; Savvala, 2002; Zavos, 2009).

Procedure

The PSPCSA was administered individually to each examinee by the first author in a quiet room, according to the guidelines provided in the manual (Makri – Mpotsari, 2001b). Then, anthropometric data were measured with the participants being barefoot and lightly dressed. The total duration of the assessment was approximately 10 – 15 minutes.

Statistical analyses

First, a 2-way univariate analysis of covariance (ANCOVA) was computed on children's total PSPCSA score. Age and BMI were used as covariates, since they have both been found to associate to children self-perception (Harter, 1988, 1990, 1999; Kalogiannis, 2006; Kalogiannis & Papaioannou, 2003; Kalogiannis et al., 2002). Furthermore, a 2-way multivariate analysis of variance (MANOVA) was conducted on the four subscales scores (either of the covariates of the ANCOVA was not used in the MANOVA, since they were both found to insignificantly associate with children's self-perception). The model of both analyses was 3 (PA programme: team sport vs individual sport vs dance) X 2 (gender: boys vs girls). All statistical analyses were computed with the SPSS v25.0 software (IBM SPSS, Inc., Chicago, IL, USA).

Results

Participants' age, weight, height, and BMI are presented in Table 1; whereas, their scores in PSPCSA are shown in Table 2.

Table 1. Participants' age and anthropometric characteristics by PA programme and gender

	Team sports		**Individual sports**		**Dance**	
	boys	**girls**	**boys**	**girls**	**boys**	**girls**
Age (years)	7.350 ± .54	6.96 ± 0.64	7.41± 0.48	7.38 ± 0.58	6.77 ± 0.57	6.71 ± 0.97
Weight (kg)	29.65 ± 5.86	26.80 ± 5.40	26.49 ± 3.22	26.98 ± 4.91	25.69 ± 3.82	24.14 ± 4.12
Height (m)	1.28 ± 0.06	1.26 ± 0.09	1.27 ± 0.04	1.25 ± 0.07	1.25 ± 0.08	1.23 ± 0.08
BMI	18.08 ± 2.89	16.77 ± 1.15	16.32 ± 1.24	17.28 ± 2.21	16.40 ± 1.33	15.88 ± 1.75

Table 2. Participants' scores in PSPCSA, by physical activity programme and gender

	Team sports		**Individual sports**		**Dance**	
	boys	**girls**	**boys**	**girls**	**boys**	**girls**
Total PSPCSA	13.17 ± 1.45	13.71 ± 1.39	13.04 ± 1.45	13.27 ± 1.56	13.62 ± 1.28	13.29 ± 1.81
Physical competence	3.41 ± 0.44	3.47 ± 0.40	3.46 ± 0.33	3.49 ± 0.47	3.50 ± 0.39	3.47 ± 0.51
Cognitive competence	3.49 ± 0.38	3.64 ± 0.41	3.50 ± 0.44	3.58 ± 0.45	3.67 ± 0.30	3.63 ± 0.38
Peer acceptance	3.33 ± 0.53	3.30 ± 0.55	3.18 ± 0.53	3.31 ± 0.57	3.23 ± 0.64	3.22 ± 0.71
Maternal acceptance	2.84 ± 0.60	3 ± 0.62	2.94 ± 0.62	3.02 ± 0.58	3.05 ± 0.69	2.87 ± 0.73

As it can be derived from Table 2, all participants presented high total PSPCSA scores as well as high subscales scores, irrespectively of their gender or the PA programme they participated in. The results of the ANCOVA revealed that neither gender ($F_{1,185}$= .25, p= .62), PA programme ($F_{2,185}$= .89, p= .41) nor their interaction ($F_{2,185}$= .67, p= .51) associated statistically significantly with children's total PSPCSA scores; whereas, both covariates appeared to be insignificant ($F_{1,185}$= .34, p= .56 and $F_{1,185}$= 2.2, p= .14 for BMI and age, respectively). Similarly, from the MANOVA computed on PSPCSA subscales it was shown either gender (Pillai's trace= .006, F= .21, p= .93),

PA programme (Pillai's trace= .027, F= .47, p= .88) or their interaction (Pillai's trace= .022, F= .28, p= .93) did not associate statistically significantly with children's subscales scores.

Discussion

Since self – perception is important for well-being (Inchley et al., 2011; Weiss & Ferrer-Caja, 2002), it would be useful to be optimally developed during childhood. PA contexts seem ideal in that direction (Marsh et al., 2006; Pangrazi & Corbin, 1995); however, research investigating how young children's self-perception is connected to their participation in different PA programmes is quite limited. This study aimed at investigating potential differences in self-perception of boys and girls aged 5 – 9 years, who participate in different PA programmes (individual sports, team sports, and dance).

Our main finding was that both genders presented similarly high levels of self-perception, irrespectively of the PA programme they took part in. Regarding the absence of gender differences both in the total PSPCSA and subscales scores in this study, it is in agreement with the findings of Planinšec and Fošnarič (2005), who investigated the relation between PA and perceived physical competence in 364 1st grade students. However, in several studies, higher scores of males compared to females are reported. For example, Caroll and Loumidis (2001), having examined children aged 10-11 years old, state that boys tend to have higher perceived competence in physical education, in comparison to girls. Similarly, Inchley et al. (2011), examining the change of perceived physical competence in 619 children from Scotland, from the age of 11 years to the age of 15, found that boys had higher levels of perceived physical competence, self-respect, self-worth, and self-efficacy comparing to girls, throughout the period included in the study. Comparable were the findings of studies focusing on adolescents (Brettscheider & Heim, 1997; Lubans & Morgan, 2009; Whitehead, 1995), and adults (Fox, 1990; Fox & Corbin, 1989; Sonstroem, Speliotis & Fava, 1992).

Moreover, the absence of self-perception differences among children taking part in different PA programmes that was revealed in the present study is in contrast to the findings of previous studies, according to which, participating in team sports leads to greater enhancement of children's self-perception than participating in individual sports (Morano et al., 2011; Slutzky & Simpkins, 2009). Similarly, in studies focusing on adolescents (Balaguer et al., 2012; Malete, 2004) and adults (Elbe, Strahler, Krustrup, Wikman & Stelter, 2010; McCarthy, Jones & Clark-Carter, 2008; Nielsen et al., 2014), it was revealed that team sports are associated with lifelong PA more than individual sports. However, this study results reveal that every PA programme either focusing on individual sport, team sports or dance is connected with high self – perception of children.

Furthermore, the high scores of this study's participants are in alignment to previous studies having used the same assessment tool. More specifically, in the study of Bournelli et al. (2009), a high

total PSPCSA score (M=13.18) was also noted in 414 children aged 6-7 years; likewise, in that of Afthentopoulou (2017) the mean score of the 142 participants, aged 6-9 years, was 13.07. Furthermore, in the present study, children's average subscales scores (ranging from 1 to 4) can be characterized as high since they exceeded three points, except for the subscale "maternal acceptance" in which children showed the lowest scores (2.94). Apart from their participation in PA, children's high PSPCSA scores can be attributed to their age, since young children perceive that nothing is beyond their capabilities (Ulrich, 1987). According to Harter (1999), at the age of four to seven years, children seem to be able to make assessments concerning their cognitive competence, physical competence, social acceptance and behavior, without being able, however, to clearly discern the above fields or to precisely assess them. Furthermore, concerning perceived physical competence, in particular, young children appear to be less accurate and generally show increased levels compared to their actual competence (Goodway & Rudisill, 1997; Harter, 1999; Harter & Pike, 1984). It seems that young children do not have the necessary cognitive capacity to accurately distinguish among actual motor competence, ability, and effort (Harter, 1999; Harter & Pike, 1984). Thus, children under seven years of age often confuse higher physical efforts with higher levels of physical competence (Harter & Pike, 1984; Nicholls & Miller, 1983).

These high self-perception levels of children may be a "window of opportunity" for their lives, taking into account that self-perception and PA are inter-correlated (Crocker, Eklund & Kowalski, 2000; Fox, 1992; Gruber 1986; Inchley et al., 2011; Kimiecik, Horn & Shurin, 1996; Marsh et al., 2006; Pangrazi & Corbin, 1995; Planinšec & Fošnarič, 2005; Weiss, 1987). Moreover, the high perceived physical competence can affect the actual motor competence of a child, since if a child perceives itself to be competent in an activity, he/she will continue practicing (Stodden et al., 2008).

The relatively low average score observed in the subscale of maternal acceptance in the present study should also be noticed. This finding is in alignment with that of Afthentopoulou (2017) with a similar score (2.86±0.55) and Bournelli et al. (2009) (2.93±.64); although the last did not report this finding as noticeable. It is probable that this relatively low score in "maternal acceptance" scale reflects children's feeling that they do not receive as much attention by their mothers or they do not spend as much time with them as they would like to. A possible explanation for the above finding can be provided by the fact that the vast majority of our sample came from Athens, in which daily-life rhythm is intense and stressful, so perhaps participants' mothers did not have enough time for them. Moreover, the financial crisis that our country has been experiencing in the last decade and its effects on Greek family should be taken into account, when interpreting the relatively low perceived maternal acceptance that our participants expressed. Although this finding should be further investigated if sound conclusions are to be drawn, we should keep it in mind, taking into account that children of the present study were participating in PA programs and that PA can lead to an enhanced "social well-being" of children and adolescents, including aspects like essential relationships with peers, parents and teachers (Weiss, Bhalla, & Price, 2007). Based on

the above, the question that arises is what the "maternal acceptance" score would be if children were not already participating in PA.

The results of this study should be interpreted under the prism of its limitations. To begin with, its cross-sectional design does not allow for implying causal relationships between the variables examined. Moreover, the small sized, convenience sample does not permit the generalization of our findings. However, this study was the first attempt to examine the association of two important aspects of children's health, PA and self-perception, which has not been sufficiently investigated so far. Organized PA clubs and children's coaches should be informed about the important relationship between PA and self- perception in order for this "window of opportunity" of young children's high positive self-perception level to be optimally exploit for their benefit.

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