# SELF-PERCEPTIONS AND SELF-ESTEEM IN ADOLESCENT RHYTHMIC GYMNASTS: IS TRAINING LEVEL A DETERMINANT?

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_Original article_

## Abstract

_The purpose of this study was to examine Self-Perceptions and Self-Esteem in adolescent rhythmic gymnasts of different training levels. One hundred female rhythmic gymnasts (32 competitive and 68 recreational level gymnasts), aged 13-15 years, participated in this study. Participants' Self-Perception and Self-esteem were evaluated through the Greek version of Harter's Self-Perception Profile for Adolescents (Harter, 1986;2012; Makri-Mpotsari, 2001) which measures nine specific domains of self-perception (Scholastic Competence, Relations with Peers, Relations with Parents, Mathematics Competence, Athletic Competence, Physical Appearance, Language Competence, Behavioral Conduct, Close Friends) consisting of 5-items each. The inventory also includes a ten-item Global Self-Worth scale that measures Self-Esteem. In addition, gymnasts provided information on their training. Competitive level gymnasts scored higher than recreational in the domain of Relations with Parents (p=0.027, d=0.50) and in Global Self-Worth (p=0.046, d=0.45). No differences were found between groups in other self-perception domains (p=0.068 to 0.611, d=0.41 to 0.10). Engaging in competitive sport may enhance adolescent athletes' Self-Esteem and it is likely that this engagement strengthens the relations of the gymnasts with their parents. Further research is required on the association between training level and Self-Perception domains, and in particular in the case of adolescent female athletes._

_Keywords: self-concept, adolescence, personality traits, assessment, rhythmic gymnastics, relations with parents._

## INTRODUCTION

A large number of studies, over the last two decades have examined the self, across many fields of psychology (e.g. personality psychology, developmental psychology, etc.) and many disciplines (Harter, 2012). The complexity of the self-system has been increasingly evident, with self-perceptions (evaluative distinctions that people make about their competence in various domains of their lives) beginning in childhood (Harter, 1999; 2012). Children have domain-specific perceptions of their adequacy in different fields (e.g. school, family, friends, etc.) and an overall sense of their worth as individuals, labeled _Self-Worth_ or _Self-Esteem_ (Harter, 2012). Self-Perceptions are specific in context (Fox, 1992) and are formed through interaction

with other people and attributions of one's own behavior (Marsh & Shavelson, 1985).

Self-Esteem refers to the personal judgment of an individual's value (Coopersmith, 1967) and is defined as a positive or a negative attitude towards a particular object, the unique self (Rosenberg, 1965). In other words, self-esteem can be defined as the degree to which individuals feel positive about themselves and reflects the emotional dimension of self-perception (Sonstroem & Morgan, 1989). Self-esteem is formatted during middle childhood, when children have developed the ability to compare themselves to their peers (Ruble, Boggiano, Feldman, & Loebl, 1980).

The potential benefit of participating in physical activities and sports for children's self-perceptions and self-esteem has been supported by many studies (Balaguer, Atienza, & Duda, 2012; Fox, 1992; Inchley, Kirby, & Currie, 2011). Sports and physical activity participation contribute not only to the formation of children's personality, their proper perception and self-esteem, but also to their physical and psychological well-being (Biddle, Ciaccioni, Thomas, & Vergeer, 2019; Poitras et al., 2016; Whitehead & Corbin, 1997). According to previous research, children and adolescents with low levels of motor competence demonstrate low levels of perceived physical appearance, athletic competence and global self-worth (Piek, Baynam, & Barrett, 2006). In another study, Kimiecik, Horn and Shurin (1996) found a strong association between the domains of perceived motor competence (i.e. evaluation of physical fitness, perceived physical fitness and goal setting) and participation in physical activity in adolescents, aged 11-15 years. In general, research evidence suggests a positive correlation between participation in sports with components of mental health, and emotional well-being (Nelson & Gordon-Larsen, 2006). Moreover, physical activity and sports are considered effective tools to increase self-esteem (Ekeland, Heian, &

Hagen, 2005), apparently because compared to their peers, young athletes show higher levels of self-esteem (Bissinger, Laure, & Ambart, 2006) even if the mechanisms underpinning this fact remain unclear (Duda, 1993). Nevertheless, in some cases, factors uniquely found in competitive sports, and in particular aesthetic sports, like excessive training, heightened competitive demands, extreme dieting and restriction of food intake (Theodorakou & Donti, 2013) in combination with significant others' (e.g. parents, coaches, judges etc.) expectations and judgements might affect young athletes' self-perceptions and lower their self-esteem (Donti et al., 2012). For example, Amac and colleagues (2002) reported that, the self-esteem of young gymnasts (6-13 years old) competing at school level was significantly lower than that of their peers participating at recreational level.

Given the importance of the self in the development of social relationships and adjustments, it is essential for researchers to examine the varying effect of different contexts on adolescents' self-perception (Kokkinos & Hatzinikolaou, 2011). Adolescence is a developmental period where a more complex picture of oneself emerges (Kokkinos & Hatzinikolaou, 2011). Past research has shown that during this period, self-perceptions and self-esteem are related to mental health, depressive mood and anxiety (Bolognini et al., 1996). Lower levels of self-esteem in adolescence are also associated with neuroticism and decreased self-efficacy (Judge, Erez, & Bono, 2002).

Both, competitive and recreational sports contribute to the formation of children's self-perceptions and self-esteem (Whitehead & Corbin, 1997), although they place different demands on adolescents' physical, cognitive and emotional skills, as their practice aims at a whole different purpose (Amac et al., 2002). However, the association between different training and performance levels with adolescents' self-

perceptions and self-esteem has not been explicitly studied. Thus, the aim of this study was to examine self-perceptions and self-esteem in adolescent rhythmic gymnasts of different training levels.

**METHODS**

One hundred adolescent rhythmic gymnasts, aged 13-15 years, were assigned according to their training level as follows: (a) Thirty-two competitive level gymnasts that participated at international and national level competitions, and (b) sixty-eight gymnasts participating at recreational level (i.e. in festivals and contests). All gymnasts completed a questionnaire which included age, weight and height information, as well as training and competition details, such as training experience, number of training sessions/hours per week and number of competitions per year. Participants' Body Mass Index (BMI) was calculated as the ratio of body weight to the squared standing height ($kg/m^2$).

Competitive level gymnasts were training daily (5 to 6 days per week) for 3-4 hours in each training session and were randomly recruited from 8 different gymnastics clubs. In addition, competitive level gymnasts competed 3-4 times/per year to official qualification, national and international competitions according to the calendar of the Hellenic Gymnastics Federation. Recreational level gymnasts were training 2-3 times a week, for 60-90 minutes in each session, and were recruited from 4 different gymnastics clubs.

Prior to the study, the athletes and their parents were fully informed about the purpose and the procedures of this study. Written parental consent was obtained for each participant and every athlete completed a consent form. The participants filled in the inventory before their training sessions. Procedures were approved by the Institutional Ethics Review Committee and complied with the Code of Ethics of the World Medical Association (Helsinki declaration of 1964, as revised in 2013).

Gymnasts' self-perceptions and self-esteem were measured via the Greek version of Harter's Self-perception Profile for Children (Harter, 1986; 2012; Makri-Botsari, 2001), which is addressed to high school-aged adolescents (aged 13-15 years). The questionnaire was created from Harter (1986), in order to assess nine domain specific Self-Perceptions, consisting of 5-items each, namely: *Scholastic Competence, Relations with Peers, Relations with Parents, Mathematics Competence, Language Competence, Athletic Competence, Physical Appearance, Behavioral Conduct,* and *Close Friends.* The instrument also includes a ten-item *Global Self-Worth* scale which measures Self-Esteem. Each item contains one positive and one negative description of a specific skill in a binary form in order to minimize socially undesirable responses. Respondents are asked to choose which one of the two descriptions (positive or negative) best depicts them. After choosing the description, responders select to what extent the chosen description depicts them by choosing "Really true for me" or "Sort of true for me". Instructions to the participants included a reminder to respond to all items and a statement that there were no right or wrong answers. Participants were well instructed as mentioned above and asked clarifying questions if needed, in order to understand the tool items and to respond properly to the questionnaire. In order to analyse these data, according to Harter (1986; 2012), each item/description is scored on a four-point scale from 1 to 4, where a score of 1 indicates the lowest perceived competence or adequacy, and a score of 4 reflects the highest level of competence or adequacy. Scale scores are calculated as the sum of the scores of items divided by five or ten, accordingly.

The Self-perception Profile for Adolescents is validated for adolescents aged 13–15 years showing strong psychometric properties (Cronbach's α

coefficients: 0.70 to 0.90) (Harter, 1986; 2012) and the same was found for Greek population (Cronbach's α coefficients: 0.68 to 0.83) (Makri-Mpotsari, 2001). Cronbach's α coefficients in this study were: 0.83 for *Scholastic Competence*, 0.73 for *Relations with Peers*, 0.79 for *Relations with Parents*, 0.80 for *Mathematics Competence*, 0.90 for *Language Competence*, 0.87 for *Athletic Competence*, 0.78 for *Physical Appearance*, 0.71 for *Behavioral Conduct*, 0.70 for *Close Friends* and 0.85 for *Global Self-Worth*.

Data are presented as means and standard deviations for all variables. Pearson's correlation coefficient ($r$) was used to detect linear associations among the selected variables. Differences in anthropometric characteristics and in all the examined variables between competitive and recreational level gymnasts were determined using independent samples $t$-tests. For pairwise comparisons, Cohen ($d$) effect sizes were calculated and their magnitude was categorized as follows: trivial, <0.2; small, 0.2 to 0.5; small to moderate, 0.5 to 0.8, and large, >0.8 (Cohen, 1988). Statistical significance was accepted at $p<0.05$. All analyses were performed using SPSS (version 20.0, SPSS Inc., Chicago, IL, USA).

**RESULTS**

The anthropometric characteristics of the participants (mean±standard deviation) are shown in Table 1. No differences were observed between groups in age, training experience and height, however, competitive level gymnasts were lighter and had lower body mass index (Table 1).

Competitive gymnasts scored higher than recreational in the Self-Perception's domains of *Relations with Parents* ($p=0.027$, $d=0.50$) and *Global Self-Worth* ($p=0.046$, $d=0.45$) (Table 2). No differences were observed between the two groups in the rest of the subscales.

Significant correlations were found between Self-Perception's domains and Self-Esteem (Table 3).

Table 1
*Anthropometric characteristics of the participants (mean ± standard deviations) (n = 100).*

| Variable | Recreational level gymnasts (n=68) | Competitive level gymnasts (n=32) | p |
|---|---|---|---|
| Age (years) | 13.78±0.83 | 13.88±0.75 | 0.580 |
| Training Experience (years) | 5.12±2.45 | 5.71±2.05 | 0.234 |
| Height (cm) | 157.22±7.33 | 156.47±6.21 | 0.617 |
| Body Mass (kg) | 47.97±7.83 | 42.90±6.80 | 0.002 |
| Body Mass Index (kg/m$^2$) | 19.41±3.00 | 17.45±2.04 | 0.001 |

Table 2

*Answers of the adolescent rhythmic gymnasts in the Greek version of Self-Perception Profile for Children Questionnaire (means ± standard deviations) (n=100).*

| Domains of Self-Perception | Recreational level gymnasts (n=68) | Competitive level gymnasts (n=32) | $p$ | Cohen's $d$ |
|---|---|---|---|---|
| *Scholastic Competence* | 3.06±0.73 | 3.33±0.49 | 0.068 | 0.41 |
| *Relations with Peers* | 3.06±0.65 | 2.96±0.70 | 0.500 | 0.15 |
| *Relations with Parents* | 3.10±0.64 | 3.40±0.52 | 0.027 | 0.50 |
| *Mathematics Competence* | 2.92±0.99 | 3.04±0.72 | 0.531 | 0.13 |
| *Athletic Competence* | 2.89±0.68 | 3.09±0.50 | 0.140 | 0.32 |
| *Physical Appearance* | 2.65±0.70 | 2.83±0.66 | 0.222 | 0.26 |
| *Language Competence* | 2.80±0.86 | 2.88±0.73 | 0.611 | 0.10 |
| *Behavioral Conduct* | 3.08±0.60 | 3.22±0.50 | 0.255 | 0.25 |
| *Close Friends* | 3.38±0.60 | 3.54±0.53 | 0.207 | 0.28 |
| *Global Self-Worth* | 3.03±0.55 | 3.26±0.44 | 0.046 | 0.45 |

Table 3

*Correlations between the Self-Perception domains in adolescent female gymnasts (n=100).*

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1 |  |  |  |  |  |  |  |  |  |
| 2 | .292** |  |  |  |  |  |  |  |  |
| 3 | .439** | .145 |  |  |  |  |  |  |  |
| 4 | .425** | .038 | .329** |  |  |  |  |  |  |
| 5 | .669** | .163 | .219* | .388** |  |  |  |  |  |
| 6 | .465** | .068 | .111 | .289** | .542** |  |  |  |  |
| 7 | .086 | -.005 | .196 | .031 | .018 | -.179 |  |  |  |
| 8 | .406** | .082 | .387** | .287** | .276** | .079 | .134 |  |  |
| 9 | .367** | .088 | .487** | .537** | .310** | .136 | .484** | .330** |  |
| 10 | .430** | .612** | 1 | .202* | .380** | .279** | -.085 | .084 | .180 |

*$p<0.05$, ** $p<0.01$

Note: 1. Global Self-Worth 2. Close Friends 3. Behavioral conduct 4. Language Competence 5. Physical Appearance 6. Athletic Competence 7. Mathematics Competence 8. Relations with Parents 9. Scholastic Competence 10. Relations with Peers.

**DISCUSSION**

The aim of this study was to examine self-perceptions and self-esteem in adolescent rhythmic gymnasts of different training levels. The main finding of the study was that competitive rhythmic gymnasts scored higher than recreational in the self-perception's domains of *Relations with Parents,* and *Global Self-Worth* with no difference between groups in the rest of the self-perception subscales.

It is well-established that children self-perceptions on their adequacy in different fields are formed through interaction with 'significant others' and attributions of one's own behavior (Burns, Green, & Chase, 1986). The positive association between participation in physical activities or sports and children's self-perceptions and self-esteem has been supported by many studies

(Balaguer, Atienza, & Duda, 2012; Fox, 1992; Inchley, Kirby, & Currie, 2011). However, it is often reported that competitive sports demands, may place excessive physical and psychological load on youth athletes (Theodorakou & Donti, 2013) and this fact, in combination with significant others' expectations and judgements might affect young athletes' self-perceptions (Donti et al., 2012).

This study highlights an interesting finding: competitive adolescent rhythmic gymnasts scored higher than recreational in *Global Self-Worth* or self-esteem. This finding is in line with recent findings also suggesting that both, female and male adolescents who were involved in competitive sports (irrespective of whether they participated in individual or team sports) demonstrated high levels of self-esteem (D'Anna, Rio, & Gomez-Paloma, 2015). Contrary, a previous study found that the self-esteem of young gymnasts (aged 6-13 years) practicing competitive gymnastics was significantly lower than that of girls practicing recreational gymnastics (Amac et al., 2002). However, that study used a sample of child and adolescent gymnasts (6-13 years) and the heterogeneity of the age-range may have affected the findings of the study. A more recent study did not detect any differences in *Global Self-Worth*, in 10-12 years old, competitive and recreational gymnasts (Donti et al., 2012). Another study reported low levels of self-esteem among rhythmic gymnasts due to the pressure to keep low body weight, aesthetics overestimation, and the association with high incidence of eating disorders and body dissatisfaction (Amorim, 2019; Denoma et al., 2009; Krentz & Warchsburguer, 2011). Nevertheless, all previous studies examined child or preadolescent athletes. It is plausible that, as athletes grow and mature, participating in competitive sport along with gymnast's achievements, as well as to whom they compare themselves to, may have a positive impact on the way they value themselves. Along this line, because

self-esteem is formed relatively early in the course of development, and remains fairly constant over time, it may be that, a global sense of self-worth may precede, rather than follow domain specific self-representations (Marsh, Craevn, & Debus, 1991). Nevertheless, further research is required on the formation of self-perceptions and self-esteem in different contexts and levels of performance over time in order to understand the psychological parameters underlying elite performance (Gibbons, Lynn, & Stilles, 1997).

The Self-Perception's domain *"Relations with Parents"* refers to the familiarity that gymnasts feel towards their parents. Experts believe that children's emotional, cognitive and behavioral development is affected by parental bonding and relationships (Harter, 1985; Rosenberg, 1986). In general, parental support and understanding have been associated with successful career development among elite young athletes (Wuerth, Lee, & Alferman, 2004) and higher levels of perceived parental support were related to higher levels of adolescent well-being (Kocayöruk, Altıntas, & İçbay, 2015). The results of this study, showed that competitive rhythmic gymnasts scored higher than recreational in the domain of *Relations with Parents* ($d$=0.50) and the same was found in another study in preadolescent rhythmic gymnasts (aged 11-15 years), which reported that parents were supporting their children-athletes in both, training and competitions (Giannitsopoulou, 2016). Rhythmic gymnastics training and performance on a national level, demands daily training practices of 6 days per week, adherence to strict nutritional demands and a very well organized daily-schedule (Donti, Tsolakis, Bogdanis, 2014; Michopoulou et al., 2011). It seems that, the adolescent competitive gymnasts of this study, felt that their parents supported them and contributed significantly to their participation in daily trainings and competitions. In addition, asking from parents' support is particularly

important for adolescents because they have more limited coping strategies than adults (Van Yperen, 1995).

In this study, no difference was found between competitive and recreational rhythmic gymnasts in the self-perception's domains of *Physical Appearance* and the effect size for between group comparisons was small ($d$=0.26). Despite their slim figure and trained bodies (i.e. competitive gymnasts' BMI was 17.45±2.04 kg/m$^2$ vs. 19.41±3.00 kg/m$^2$ in recreational) competitive rhythmic gymnasts did not score higher than recreational in the domain of *Physical Appearance*. In addition, competitive gymnasts' BMI in this study was near 17 kg/m$^2$ a value defining thinness in adolescence (Cole et al., 2007) and indicating gymnasts' attitude towards food. It is known that, competitive rhythmic gymnastics has strict demands on body weight and shape, reinforced by coaches, judges and peers' comments (Theodorakou & Donti, 2013). Along this line, no differences were observed between groups in *Athletic Competence* ($d$=0.32). This result is interesting because some competitive gymnasts were Greek champions of their age category. However, in rhythmic gymnastics performance, every little step, or mistake can make the difference between winning and losing, while at the same time constant improvement of the gymnast's skills is required (Donti, et al., 2016). It seems that the heightened demands of the environment in which gymnasts are exposed and interact, shapes their perceptions.

Collectively, although competitive rhythmic gymnasts would be expected to have higher *Physical Appearance* and *Athletic Competence* compared to recreational gymnasts, this was not found in the present study possibly due to the strict demands on body appearance, and performance of the competitive environment. It is constantly reported that in rhythmic gymnastics, the desire to be leaner to improve performance reinforced by coaches, parents and team-mates

pressures for thinness are often confronted by athletes with food restriction (Krentz & Warschburger, 2011). Negative comments from coaches and parents about body weight may increase gymnasts' fear of fatness and body image anxiety (Tan et al., 2016). On the other hand, body appearance in recreational level gymnasts is not judged as they participate in the sport to learn new skills and to spend time with their peers.

A limitation of the study that should be acknowledged is the use of the Greek version of Harter's Self-perception Profile for Children (Harter, 1986; 2012; Makri-Botsari, 2001) which captures general self-perceptions and global self-worth in adolescence and is not specific for youth athletes. However, in this study also participated a large sample of recreational level gymnasts (n=68), and it was thought that an instrument capturing perception of the self for general population would be more appropriate. Another limitation of this instrument is that the *Global Self-Worth* scale contains two possible answers (positive or negative) and does not evaluate any responses in between.

## CONCLUSIONS

In conclusion, this study found that rhythmic gymnasts engaging in competitive sports showed higher levels than recreational in *General Self-Worth* (which is the emotional dimension of self-perceptions) and in *Relations with Parents*. It is possible that as athletes grow and mature, the context of competitive sport, along with their achievements, may influence the way they value themselves. However, evidence is limited on if winning at sports leads directly to increases in Self-Esteem (Gibbons, Lynn, & Stilles, 1997). On the other hand, in certain self-perception subscales, some competitive sports' characteristics (the environment athletes participate in or to whom they compare themselves to), may influence the way these gymnasts perceive their *Athletic Competence* and *Physical Appearance*.

Notably, although the perceptions of competitive level gymnasts about their competence in *Physical Appearance* and *Athletic Competence* did not differ from recreational gymnasts, their personal judgement on their overall value (*Global Self-Worth*) was higher (*d*=0.45). This research provides useful information for coaches, parents, judges and sport specialists on the psychological parameters underlying performance and how 'significant others' (parents, coaches, judges, peers etc.) and sport demands may shape gymnasts' perceptions. Therefore, further long-term research is required on the association between performance level and self-perception domains, and in particular in the case of adolescent female athletes, in order to promote understanding of the psychological parameters underlying gymnastics performance.

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