

MALTREATMENT (PSYCHOLOGICAL, PHYSICAL), SOCIAL PHYSIQUE ANXIETY, BODY DISSATISFACTION AND DRIVE FOR THINNESS IN GREEK FEMALE ATHLETES (RHYTHMIC GYMNASTICS AND OTHER SPORTS) AFTER DROPOUT

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Abstract

Maltreatment by coaches is a significant issue for all athletes, and particularly female athletes. The purpose of the present study was to examine whether psychological and physical maltreatment by coaches could affect social physique anxiety, body dissatisfaction and drive for thinness in former Greek female athletes. Two hundred and fifty former athletes participated in the study, former athletes in rhythmic gymnastics (RG) and other sports (OS). They completed self-reported questionnaires assessing maltreatment (psychological, physical) by coaches, social physique anxiety, body dissatisfaction and drive for thinness. Results revealed that RG reported both higher psychological and physical maltreatment than others, but there were no differences in body dissatisfaction, drive for thinness and social physique anxiety. Although there were significant relations between maltreatment and body dissatisfaction, and drive for thinness, it was predictive for other sports athletes and not RG athletes. These findings can potentially help all types of sports become a context that promotes female athletes' health rather than undermines it.

Keywords: *coaches, social physique anxiety, body dissatisfaction, drive for thinness.*

INTRODUCTION

The number of children and adolescents participating in organised athletic activities worldwide is increasing (Carter & Micheli, 2011). The issue of safety of young athletes in sport is as old as modern sports themselves (Kerr, Kidd, & Donnelly, 2020). Child maltreatment is the abuse and neglect that occur to children aged under 18 years and includes all types of physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation, which

result in actual or potential harm to the child's health, survival, development, and dignity, in the context of a relationship weighed by responsibility, trust and power (WHO, 2020). Child maltreatment in sports is also an issue under research and is a major and growing concern around the world (Fortier, Parent, & Lessard, 2020). Sport psychology researchers and practitioners need to play more prominent roles in safeguarding athletes from harm (Kerr & Stirling, 2019). There is a confusion about terminology and a lack of consensus on the definition of maltreatment in sport studies (Fortier et al., 2020; Stirling, 2009). As

Brackenridge, Bringer and Bishopp (2005) mentioned, many different types of abuse, beyond just sexual, had been known for years, but for a variety of reasons had not be labelled as abuse or not been dealt with as misdemeanour. In many other countries terminology is still confused. Fortier et al. (2020) proposed a manifestation that has been developed in reference to the related literature, the identified limitations and some well-recognized relevant work, identifying four different forms of maltreatment: physical, sexual, psychological and neglect. Distinguishing harassment from abuse is, according to Stirling (2009), the critical nature of the relationship in which the behavior occurs. However, in practice it is very difficult to distinguish harassment from abuse on the basis of severity (Kerr, Kidd, & Donnely (2020). Harassment and abuse have been conceptualized by many researchers as existing on a continuum of harmful behaviors (Brackenridge, 2001). Though it is suggested that harassment refers to what may be considered less severe behaviors and abuse as more severe behaviors in practice the distinction is difficult to make (Kerr, et al., 2020). Abuse is defined as a pattern of physical, sexual, emotional or negligent ill-treatment by a person in a caregiver capacity that results in actual or potential harm to the athlete (Stirling, 2009). On the other hand, harassment is defined as a single or multiple acts of unwanted or coerced behaviors by a person within a prescribed position of authority over the athlete that have the potential to be harmful; it occurs outside the context of a caregiving relationship and refers to behaviors that are in violation of individual's human rights (Stirling, Bridges, Cruz, & Mountjoy, 2011).

A growing area of interest is women in sport, as researchers examine a wider range of aspects to ensure that sport is a healthy environment for girls and women of all ages. It is well documented that sport can be, in fact, a healthy context; however, for some participants, especially young athletes

in elite high performance sports it can be unhealthy (UNICEF et al., 2010). More specifically, sport participation, especially for women, includes risks and protective elements. For example, participation provides physical and psychological benefits (Smolak, Murnen, & Ruble, 2000) but can also include potential risks for developing eating disorders (Garner & Rosen, 1991; Smolak et al., 2000). Female athletes experience not only general societal pressure regarding thinness, but sport-specific too (Thompson & Sherman, 1999).

In sports, a lot of attention has been paid to winning and very little to the methods involved in achieving winning results (Gervis & Dunn, 2004). Athletes are vulnerable to the general risk factors of eating disorders, as well as genetics, socio-cultural ideals, interactions with family members, trauma and personality characteristics (Striegel-Moore & Cachelin, 2001) but also to the sport specific influences (Arthur-Cameselle & Baltzell, 2012). A fact is that coaches do not want to harm or injure their athletes, since the athlete's performance reflects the efficacy of the coaching process (Gervis & Brierely, 1999). Athletes and coaches are close, so close that their relationship is often significant and influential for athletes (Gervis & Dunn, 2004). An exclusive and exceptional group, based on their young age and athletic ability, are elite child athletes (Brackenridge & Kirby, 1997). During athletes' childhood, this relationship is particularly significant (Chow, Murray, & Feltz, 2009; Guivernau & Duda, 2002). It seems that this relationship in competitive sports is a decisive factor as the athlete and the coach are mutually dependent (Philippe & Seiler, 2006). Athletes need the knowledge, competence and experience of the coaches, and coaches, on the other hand, need to transfer their competences and skills into athlete's performance and success (Philippe & Seiler, 2006). Coaches and athletes spend a great deal of time every day together (Jowett, 2003) and as the athlete competes on higher level, the time he or she

spends with his/her coach increases (Donnelly, 1997; 1993). Coaches represent a significant interpersonal relationship to female athletes (Beckner & Record, 2016); have a great deal of influence on athletes' self-perception (Turman, 2008; Weinstein, Smith, & Wiesental, 1995), and have the power to positively or negatively influence their athletes' perceptions of body image (Biesecker & Martz, 1999; Coppola, Ward, & Freysinger, 2014; Weinstein et al., 1995). Based on the Communication Theory of Identity, Beckner and Record (2016) concluded that coaches could influence the internalized body image and health choices made by their female athletes. Indeed, the coaching style can create an increased vulnerability to poor body image and eating problems in athletes (Biesecker & Martz, 1999). Brackenridge, Bringer and Bishopp (2005) mentioned that the physical demands of training, emotional toughness and a culture of resilience acted as masks to the suffering that some athletes faced as part of their sports experience. After dropping out, is athletes' body image still influenced by this experience? There is evidence that former female athletes' feelings and thoughts about their bodies are based on their former competitive athletic bodies (Greenleaf, 2002). Some athletes perceive their body changes after retirement as negative, but there are also athletes (although a minority) that become more satisfied with their bodies post-retirement (Papathomas, Petrie, & Plateau, 2017).

Body dissatisfaction is a symptom of a disorder or target of interventions, but also plays a role as a risk factor for developing eating disorder and depression (Smolak & Thompson, 2020). In other words, body dissatisfaction is not only a diagnostic criterion but also an important maintenance factor of ED (Fortes & Ferreira, 2011). Also, it is associated with depressive symptoms and dysphoria (Lautenbacher, Thomas, Roscher, Strian, Pirke, & Krieg, 1992). Athletes report lower levels of body dissatisfaction than non-athletes (DiBartolo & Shaffer, 2002; Hausenblas & Symons

Downs, 2001; Robinson & Ferraro, 2004; Soulliard, Kauffman, Fitterman-Harris, Perry, & Ross, 2019). On the other hand, there is evidence that after retirement from competitive sport, there are body composition changes that lead to adaptive or maladaptive behaviors (Buckley, Hall, Lassemill, Ackerman, & Belski, 2019; Fortes & Ferreira, 2011). On the other hand, rhythmic gymnasts report a higher dissatisfaction between their perceived body and the body considered ideal from early on (Zaccari, Rinaldo, & Gualdi-Russo, 2019). In the study by the aforementioned authors, all participants wanted to be thinner.

Drive for thinness

Social physique anxiety is a feeling or an emotion people experience in response to other's evaluations of their physique (SPA; Hart, Leary & Rejeski, 1989) and emerged from body image and body esteem literature. SPA is based on theories of self-presentation and impression management (Mülazımoğlu, Erturan-İlker & Arslan, 2014). An individual may choose to either engage in or avoid physical activity in order to improve her/his chances of making positive impressions; or maybe to avoid circumstances in which the physique could potentially be evaluated negatively by others (Crawford & Eklund, 1994; Hart et al., 1989). Females report higher SPA than males, and athletes and sport practitioners have lower SPA than non-practitioners (Mülazımoğlu-Balli, Koca, & Aşçi, 2010). Predictors of SPA are personal characteristics, type of physical activity, environmental triggers, and social triggers. SPA, on the other hand, can predict physical self-perceptions, competitive anxiety, disordered eating stress, depression, enjoyment and adherence to physical activity (for review Sabiston, Pila, Pinsonnault-Bilodeau, & Cox, 2014). Maltreatment by coaches could be a social trigger. Using the Coaching Behavior Scale for Sports, no significant correlation between previous coaching behaviors and SPA was found in adolescent female

athletes, but there was a significant correlation between SPA and competition strategies (Fishback, 2018). The instrument used to assess coaching behavior is probably an issue that needs further consideration.

Although the relation between body dissatisfaction, drive for thinness and social physique anxiety is well examined, maltreatment by coaches has recently been in focus. The purpose of the present study was, first of all, to examine the differences in maltreatment by coaches between female athletes participating in rhythmic gymnastics and in other sports; secondly, to examine whether there was a relation or, indeed, a predictive relation between maltreatment (psychological and/or physical) by coaches and eating disorders, and especially body dissatisfaction and drive for thinness, and social physique anxiety. The study included former female athletes, in rhythmic gymnastics and other sports. Primarily and for ethical reasons, all participants had to be adults.

METHODS

The present study included only female adult former athletes (N=250) with mean age 26.10 years (SD=6.35) and mean training age 10.07 years (SD=3.40). 160 participants (64%) were former rhythmic gymnastics athletes (RG), while 90 participants (36%) were former athletes in other sports (OS). Regarding their sport carrier level, 31.2% had no significant winning, but 12.8% had won the 1st to 8th place in either an Olympic, World or European championship. 52.8% of the participants were a Greek National Champion. The participants were asked to declare when they dropped out from organized sport: 14.1% dropped out before 2000, 27% between 2001-2010 and 58.4% between 2011 and 2019. Also, 45.1% (N=111) had coaching experience of less than 10 years and 54.9% (N=135) had 10 years or more.

Self-reported questionnaires were used assessing demographic and personal characteristics (age, training age, year of sport disengagement, body height and weight for calculating Body Mass Index [kg/m²]), maltreatment (psychological and physical), body dissatisfaction (BD), drive for thinness (DfT), and social physique anxiety scale.

Body mass index (BMI) was defined as the body mass divided by the square of the body height (weight/height²). Commonly accepted BMI ranges are as follows: underweight under 18.5, normal weight 18.5 to 25, overweight 25 to 30, and obese over 30.

Maltreatment by coaches was assessed by the questionnaire used in a previous study (Michailidou, 2005) and was based on "Questionnaire sur le harcèlement" (Hirigoyen, 2002). The questionnaire assessed psychological and physical maltreatment using 12 items. Participants responded to a five-point Likert type scale, from 1 (never) to 5 (very often).

Social physique anxiety was assessed by social physique anxiety (SPA) measures that evaluate the degree of anxiety that an individual experiences when he she or perceives that others are or may be negatively evaluating her or his physique (Hart et al., 1989; Psychountaki, Stavrou, & Zervas, 2004). The SPA scale has 12 items. Participants responded to a five-point Likert type scale from 1 (not at all) to 5 (extremely). Higher scores indicate greater SPA.

Body dissatisfaction was assessed by the 8-item body dissatisfaction subscale of the Eating Disorder Inventory. Each item was rated from 0 (never) to 5 (always). Higher scores indicated greater body dissatisfaction. Drive for thinness was assessed by the 6-item subscale of Eating Disorder Inventory. Each item was rated from 0 (never) to 5 (always). Higher scores indicated greater drive for thinness.

The study took place during 2019. This was a cross-sectional study. Researchers were part of the gymnastics family since

1984, so they were aware of all the athletes who competed at the highest national and international level in Greece. Each participant was informed of the purpose of the study and asked to participate via e-mail or personal contact. After consent, the link was given. In this way, all the former rhythmic gymnasts who competed on the medium or high level, participated. Former athletes from other sports were approached at the Department of Physical Education. They were, again, informed about the purpose of the study and asked to participate voluntarily via personal contact. This was a convenience sample. There was no missing data from former rhythmic gymnastics. From other sports, 4 questionnaires had missing data and were not included.

Questionnaires were completed in a Google form and data were analysed by SPSS 23. Exploratory factor analyses were conducted separately for maltreatment by coaches, social physique anxiety and EDI. For each factor, internal consistency was examined using Cronbach's alpha. After examining the assumptions independent t-tests, paired t-tests and linear regression analyses (outliers, Cook's distance, collinearity, normality) were conducted.

Our exploratory factor analysis for maltreatment by coaches revealed 2 factors explaining 67.49 % of the variance ($KMO = .93$, $Bartlett's Test chi-square = 2068.45$, $p < .001$). The first factor (psychological maltreatment) included 8 items explaining 59.10% of the variance, while the second factor (physical maltreatment) included 4 items explaining 9.55 % of the variance. Internal consistency for psychological maltreatment was $\alpha = .92$ and for physical maltreatment $\alpha = .86$. For social physique anxiety, our exploratory factor analysis revealed one factor explaining 48.95 % of the variance ($KMO = .90$, $Bartlett's Test chi-square = 817.25$, $p < .001$). Internal consistency was assessed by Cronbach's alpha coefficient, $\alpha = .89$. Finally, for EDI (Body Dissatisfaction, Drive for Thinness), our exploratory factor analysis revealed two

factors, explaining 32.48 % of the variance ($KMO = .92$, $Bartlett's Test chi-square = 1279.43$, $p < .001$). The first factor was body dissatisfaction, explained 52.16 % of the variance and had internal consistency by Cronbach's alpha, $\alpha = .84$. The second factor was drive for thinness that explained 10.31 % of the variance and had internal consistency $\alpha = .84$.

RESULTS

Differences between former athletes in rhythmic gymnastics and in other sports

The assumptions for independent t-tests and paired t-tests were examined (outliers, normality, homogeneity of variances). Then, independent t-tests were conducted to examine possible differences in maltreatment (psychological and physical) between RG and OS. There were significant differences both in psychological maltreatment, $t(248) = 6.07$, $p < .001$, $d = .80$ and physical maltreatment, $t(248) = 5.39$, $p < .001$, $d = .71$. RG reported higher means in both forms (Table 1). For body dissatisfaction, drive for thinness and social physique anxiety, the differences were not significant: $t(248) = -1.53$, $p = .13$; $t_{248} = .11$, $p = .91$; $t_{248} = -1.79$, $p = .07$ respectively). For BMI, the differences were significant, $t(247) = -5.78$, $p < .001$, $d = .47$, and RG had lower mean than the other group (Table 1).

Paired t-tests were used to examine each group's (RG, OS) differences between psychological and physical maltreatment. For both groups, the differences were significant, and psychological maltreatment was higher than physical (RG: $t(105) = 15.8928$, $p < .001$, $d = 1.21$, OS: $t(89) = 9.01$, $p < .001$, $d = .95$).

Correlations between maltreatment and eating disorders (body dissatisfaction and drive for thinness)

The relation between maltreatment by coaches (psychological and physical) and eating disorders (body dissatisfaction, drive for thinness) were examined by using

Pearson correlation analysis. It revealed that for all participants there was a significant correlation between the two forms of maltreatment ($r = .71, p < .01$); between body dissatisfaction and physical maltreatment ($r = .19, p < .01$), and between body dissatisfaction and psychological maltreatment ($r = .15, p < .05$). Separately for RG, the same relations were found as above, whereas for OS, no significant correlation between physical maltreatment and body dissatisfaction was found, only a significant correlation between maltreatment and drive for thinness (psychological maltreatment-drive for thinness: $r = -.30, p < .005$; physical maltreatment-drive for thinness: $r = -.22, p < .05$).

Prediction of body dissatisfaction and drive for thinness

After checking assumptions (outliers, Cook's distance, collinearity, normality) (Ntoumanis, 2001; Tabachnick and Fidell, 1996), a regression analysis was conducted to predict body dissatisfaction and drive for thinness by training age, BMI, social physique anxiety, and psychological maltreatment and physical maltreatment by coaches. The enter method was used. Correlations between independent variables were not high ($.02 < r < .61$). For all participants, the linear combination of measures significantly predicted body dissatisfaction (Table 2) and drive for thinness (Table 3). Analyses were calculated for all participants and for each sport separately (rhythmic gymnastics vs. other sports). Also, regression analyses were calculated for athletes who dropped out before 2010 and after 2011.

Prediction of body dissatisfaction

For all participants, a significant regression equation was found with an R^2 of .44, $R = .66, F(5,239) = 37.28, p < .001$. Social physique anxiety, BMI and physical maltreatment contributed to the prediction (Table 2). For both groups, the prediction was significant but for RG, the above variables were relevant (Table 2), while for OS only BMI and social physique anxiety

contributed significantly (Table 2). Separate regression analyses were conducted for athletes who dropped out before 2011 and athletes who dropped out after 2011. For dropouts before 2011, a significant regression equation was found: $R = .61, R^2 = .37, F(4,96) = 14.05, p < .001$. A predictive variable was only social physique anxiety, $B = .80, t = 6.85, p < .001$. For dropouts in 2011 and later, a significant regression equation was also found ($R = .66, R^2 = .44, F(4,140) = 27.24, p < .001$). Predictive variables were physical maltreatment, $B = .46, t = 3.01, p < .005$, and social physique anxiety, $B = .97, t = 9.47, p < .001$.

Prediction of drive for thinness

For all participants a significant regression equation was found with an R^2 of .37 ($R = .61, F(5,239) = 28.74, p < .001$). Only social physique anxiety contributed significantly (Table 3). For both groups, the prediction was significant and also only social physique anxiety contributed significantly (Table 3). Separate regression analyses were also conducted for athletes who dropped out before 2011 and athletes who dropped out after 2011. The prediction of drive for thinness was also significant for both groups and there were, also, differences in the predictive variables. For dropouts before 2011 ($R = .60, R^2 = .36, F(3,98) = 18.56, p < .001$), predictive variables were psychological maltreatment ($B = .34, t = 2.08, p < .05$) and social physique anxiety ($B = -.97, t = -7.19, p < .001$). For dropouts after 2011 ($R = .64, R^2 = .40, F(3,98) = 32.08, p < .001$), a predictive variable was only social physique anxiety ($B = -.92, t = -9.50, p < .001$).

Prediction of social physique anxiety

For all participants, it was examined whether social physique anxiety could be predicted by maltreatment (psychological and physical) by using the linear regression analysis: it was not significant. For RG the prediction was not significant, $F(2,157) = .74, p > .05$, but for OS the prediction was significant, $R = .31, R^2 = .10, F(2,87) =$

4.75, $p < .01$, although no variable contributed separately to the significant prediction (psychological maltreatment: $B = .24$, $t = 1.93$, $p = .06$, physical maltreatment: $B = .19$, $t = 1.05$, $p = .30$). The prediction of social physique anxiety separately for athletes who dropped out before 2010 and athletes who dropped out after 2011 was not significant for either group.

DISCUSSION AND CONCLUSIONS

The present study examined whether maltreatment by coaches, psychological and physical, had an effect on body dissatisfaction, drive for thinness and social physique anxiety.

The present study examined whether maltreatment by coaches, psychological and physical, had an effect on body dissatisfaction, drive for thinness and social physique anxiety. Only former female athletes participated (rhythmic gymnastics

athletes and other athletes), primarily for ethical reasons. The results revealed that RG reported both higher psychological and physical maltreatment than others, but there were no differences in body dissatisfaction, drive for thinness and social physique anxiety. Although there were significant relations between maltreatment and body dissatisfaction, drive for thinness, it was predictive only for OS athletes and not RG athletes.

The present study is one of the few attempts to look at maltreatment by coaches in Greece. Most attention has been given to sexual harassment, but it is well documented worldwide that other types of maltreatment are harmful for athletes too. Abuses of many kinds have been known for years but had not been labelled as abuse or not been dealt with as misdemeanor, so abuse in sports is a relatively recent topic in the relevant research (Brackenridge, et al., 2005).

Table 1

Means (Standard deviations) for training age, BMI maltreatment (psychological and physical, Social Physique Anxiety, body dissatisfaction and drive for thinness for all participants, and separately for RG and OS.

	Total participants	Rhythmic gymnasts (RG)	Athletes in other sports (OS)
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Training age	10.07 (3.40)	10.14 (3.13)	9.94 (3.87)
BMI	20.49 (2.13)	19.94 (1.75)	21.46 (2.38)
Psychological maltreatment	2.53 (1.05)	2.82 (1.03)	2.03 (.89)
Physical maltreatment	1.70 (.92)	2.08 (.95)	1.99 (.95)
Social Physique Anxiety	2.55 (.84)	2.48 (.79)	2.67 (.92)
Body dissatisfaction	2.17 (1.30)	2.05 (1.33)	2.31 (1.22)
Drive for thinness	3.02 (1.30)	3.03 (1.30)	3.01 (1.33)

Table 2

Summary of hierarchical regression analysis for variables predicting BD.

Participants	Variable	β	<i>t</i>	Sig
All	$R = .66, R^2 = .44, F(5,239) = 37.28, p < .001$			
	Training age	.19	.99	.32
	BMI	.14	4.43	.000*
	Social Physique Anxiety	.80	9.98	.000**
	Psychological maltreatment	-.01	-.01	.99
	Physical maltreatment	.26	2.66	.01*
RG	$R = .64, R^2 = .41, F(5,151) = 21.22, p < .001$			
	Training age	.02	.64	.52
	BMI	.18	3.40	.001**
	Social Physique Anxiety	.80	7.05	.000**
	Psychological maltreatment	-.02	-.18	.85
	Physical maltreatment	.33	2.64	.009*
Other	$R = .671, R^2 = .50, F(5,82) = 16.41, p < .001$			
	Training age	.02	.84	.40
	BMI	.10	2.38	.02*
	Social Physique Anxiety	.81	7.09	.000**
	Psychological maltreatment	.07	.53	.60
	Physical maltreatment	.08	.09	.93

**: $p < .001$, *: $p < .05$

Table 3

Summary of hierarchical regression analysis for variables predicting DfT.

Participants	Variable	β	<i>t</i>	Sig
All	$R = .61, R^2 = .37, F(5,239) = 28.74, p < .001$			
	Training age	.00	-.01	.98
	BMI	-.05	-1.51	.13
	Social Physique Anxiety	-.88	-10.49	.000***
	Psychological maltreatment	.04	.42	.67
	Physical maltreatment	-.10	-1.01	.31
RG	$R = .57, R^2 = .32, F(5,151) = 14.02, p < .001$			
	Training age	.01	.48	.63
	BMI	-.06	-1.06	.29
	Social Physique Anxiety	-.84	-7.18	.000**
	Psychological maltreatment	.20	1.61	.11
	Physical maltreatment	-.17	-1.32	.19
Other	$R = .73, R^2 = .53, F(5,82) = 18.36, p < .001$			
	Training age	-.02	-.56	.58
	BMI	-.07	-1.56	.12
	Social Physique Anxiety	-.93	-7.76	.000**
	Psychological maltreatment	-.12	-.87	.39
	Physical maltreatment	-.05	-.25	.81

**: $p < .001$, *: $p < .05$

World Health Organization (1999) claimed that the highest potential for maltreatment occurs at the hands of individuals who are closest to the child. The coach-athlete relationship is one of the most common relations in which maltreatment can occur (Gervis & Dunn, 2014; Kerr & Stirling, 2012). Coaches are individuals that are present in child's day-to-day life (Kerr & Stirling, 2019) and in some sports they are closer than parents, as training takes many hours per day and athletes often live in training centers. For rhythmic gymnasts, childhood and adolescence is a period of intensive training, since the selection of elite gymnasts for the national team takes place at that age (Cupisti, D' Alessandro, Castrogiovanni, Barale, & Morelli, 2000). The few selected young gymnasts train for many days per week and for many hours every day (Bobo-Arce & Méndez-Rial, 2013). Perhaps that is the reason why RG athletes reported higher levels of maltreatment than other athletes, both psychological and physical.

Another interesting finding of the present study was that psychological maltreatment was higher than physical in both groups, rhythmic gymnastics and other sports. Emotional maltreatment is often normalized by many cultural sport insiders, as coaches see it as necessary to produce successful athletic performance (McMahon, Penny, & Dinan-Thompson, 2012; Stirling & Kerr, 2014). Given the normalization of emotional maltreatment in sport, Stirling and Kerr (2014) observed that coaches and athletes both seem to view the use of these harmful behaviors as a part of the coaching process required to produce high-performance sporting success. Taylor, Piper and Garratt (2016) argue that the prevailing discourse has redefined coaching and individuals involved in such a way that

it is now considered as potentially dangerous. As a consequence, whoever has a duty of care towards children should adopt consistently protective strategies and behaviours (Taylor, Piper, & Garratt, 2016). On the other hand, physical maltreatment is low for many reasons. Currently, coaches are former athletes who experienced physical maltreatment as athletes and do not support such behaviors, therefore they do not include them in their coaching behavior. Also, coaches are more educated than they used to be in the past. Many have a bachelor's degree or a coaching diploma obtained through coaching education by the relevant Federations, both national or international. Although there are studies indicating that the phenomenon of 'fast-tracking' former elite athletes into coaching roles is related to harassment (McMahon, Zehntner, McGannon, & Lang, 2020), it would be interesting to find out whether the coaches in the present study were educated or not. In the aforementioned study, the fast-tracking of an athlete into the swimming coach role meant that she contributed to the perpetuation of physical and psychological abuse in sport (McMahon et al., 2020).

Kerr and her colleagues (Kerr, Willson, & Stirling, 2019) illustrated that most of the forms of harm (psychological, physical, neglect and sexual) were correlated significantly with health outcomes. Our findings partly support this, as body dissatisfaction was related to physical maltreatment and drive for thinness was related to psychological maltreatment. These findings were more intense for RG athletes. Drive for thinness includes perceptual, behavioural and attitudinal parts, and as Sands (2000) mentioned, it is probably triggered when there is a discrepancy between the actual

and the ideal body weight that exceeds idealized preference for cultural thinness and involves body image dissatisfaction. Former Greek RG athletes reported higher pressure to be thin by coaches, parents and friends than current RG athletes (Kosmidou, Giannitsopoulou, & Proios, 2018). This pressure could be recognized as psychological maltreatment. Indeed, Pinheiro and her colleagues (2014) considered issues of weight control as abuse in female artistic gymnastics. Such issues exist also in rhythmic gymnastics. It is interesting that one of the greatest rhythmic gymnastics coaches, the Bulgarian Neska Robeva, in her book "Champions' school", included a chapter titled "The terrible war against weight" (Robeva & Rangelova, 1989). In it, some coaches' behaviors to control athletes' weight are described and most of them could be defined as maltreatment. Rhythmic gymnastics is a modern sport, as it was included in the Olympic Games for the first time in 1984. The effect and the results of such coaching behaviors are not well documented. So, as Donnelly (1997) observed, many coaches may believe they are working in the best interests of the athletes and tend to place great emphasis on the athletes' body and its performance.

Rhythmic gymnasts have been identified as being more at risk for eating disorder as they scored higher on drive for thinness than other athletes in other subtypes of gymnastics, artistic and acrobatics (Nordin, Harris, & Cumming, 2003). In our study there were no differences in body dissatisfaction and drive for thinness between rhythmic gymnastics and other sports. This can be due to the sports in which the participants participated. Another possible explanation could be that after their disengagement from sports, former RG athletes are no longer at risk, as disengagement could minimize the possible effects of sport participation. A third possible explanation could lie in the pressure by media on women. Perhaps media creates so much pressure on women

that this neutralizes the differences between athletes from different sports. It would be important to design and implement similar studies that would include current athletes.

It is interesting whether and how maltreatment by coaches could predict body dissatisfaction and drive for thinness. There is no other study so far, and the present study found some evidence but this issue needs to be further examined. Only for former RG athletes, physical maltreatment could predict body dissatisfaction.

Social physique anxiety was not predicted by maltreatment by coaches. This probably shows that variables other than coaching behaviour, after disengagement, play a role, such as pressure arising from cultural variables, perhaps from media and/or significant others. These issues should be examined.

The present study is an attempt to examine maltreatment by coaches and eating disorders. As mentioned above, for ethical reasons, only former athletes participated. Although they give us insights, all these issues should also be examined in current athletes. Also, participants from all kinds of sports should participate, and male athletes should also be included. Maltreatment is not a phenomenon in female sports only but in male sports also. It would be interesting to examine whether there is correlation to coaches' sex. According to similar studies, directions for Federations should be issued in order to design intervention programs of safeguarding both athletes and coaches, and intervention programs of sport disengagement for all athletes.

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