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Attachment Style and Risk of Muscle Dysmorphia in a Sample of Male Bodybuilders

Abstract

In Western countries, body image has become an essential feature of male representations in recent decades. This is especially true of prominent muscularity, which has been traditionally linked with the concept of masculinity. This tendency has also emerged in the Italian context where it was easily assimilated into the traditional Italian stereotype of men being strong and virile. In this context, the practice of bodybuilding has progressively gained popularity as a means of achieving an ideal body image. Among bodybuilders, pathological preoccupations with muscle can sometimes develop. This condition has been defined as muscle dysmorphia (MD). Although a few studies discuss this disorder and its psychological correlates, no studies have examined the link between the risk of developing MD and attachment style in men. Given that attachment affects body image satisfaction and related disorders, the aim of this paper was to study the relationship between MD and adult attachment style in male bodybuilders. In the present study, 170 Italian male bodybuilders completed an anonymous online survey. Data were obtained about their demographic features, attachment styles, and risk of developing MD. Using the dimensions of adult attachment, bodybuilders who were at risk of developing MD were compared to those who were not at risk of developing MD. The findings indicated that a link exists between the risk of developing MD and having an insecure avoidant attachment style. This finding suggests that non-optimal relationships with caregivers early in life can be a risk factor for developing MD later in life. Further studies need to examine the connection between individuals' relational history and their development of MD.

Keywords: adult attachment, bodybuilding, body image, muscle dysmorphia; men; masculinity

Attachment Style and Risk of Muscle Dysmorphia in a Sample of Male Bodybuilders

Muscularity is believed to be associated with masculinity (Steinfeldt, Gilchrist, Halterman, Gomory, & Steinfeldt, 2011). In the Italian context, studies of masculinity have only just begun and require additional development. The first attempt to describe Italian masculinity through empirical, quantitative research dates back to Tager and Good (2005). These researchers found that Italian university students followed masculine gender norms less than their American counterparts. They also found that Italians from southern Italy reflected traditional models of masculinity more than Italians from central or northern Italy did. Italy is a gender-traditional country where individuals who do not conform to gender norms risk being victimized and often experience negative psychosocial adjustment; this is especially the case for Italian men (Salvati, Ioverno, Giacomantonio, & Baiocco, 2016). According to the Italian stereotype, a man is someone who is strong, virile (Ruspini, 2011), scorns homosexuality, and attaches great importance to honor (Nerini, Matera, Barone, & Stefanile, 2016; Tager & Good, 2005). From a historical point of view, the definition of Italian masculinity has been influenced by the Catholic Church and fascism in particular (Tager & Good, 2005). Currently, Italian male representations are in crisis because women have acquired more power in their families and places of work (Taurino, 2003).

As evidenced by international literature, researchers around the globe contend that a link exists between men's conformity to masculine norms and the male body image, despite the similarities and differences with Western cultures (Gattario et al., 2015). However, this has not yet been examined in an Italian context. Italian men are exposed to the sociocultural model of male aesthetic perfection that is prevalent in Western societies (Leit, Pope, & Grey, 2001; Pope, Olivardia, Gruber, & Borowiecki, 1999; Tan, Shaw, Cheng, & Kim, 2013). It offers a form of

masculinity that is based on an increasingly lean, muscular, and hypertrophic male physique.

Masculinity and Muscularity in Bodybuilding

Masculinity and muscularity are salient athletic features in the world of sport (Steinfeldt & Steinfeldt, 2012; Steinfeldt et al., 2011). The sport of bodybuilding most clearly embodies the ideals of extreme masculinity. Engaging in bodybuilding has often been viewed as an attempt by men to compensate for their low self-esteem or their feelings of insecurity about their masculinity (Fussel, 1991). However, in reality, men have numerous different motivations for engaging in bodybuilding (Parish, Baghurst, & Turner, 2010). No specific studies have been conducted on the psychological and psychosocial characteristics of bodybuilders in an Italian context. However, it is clear that body image has become a point of fascination among Italian men who have been striving to achieve the muscular bodies of Western male models. More and more Italians are primarily choosing to play sports as a means of improving their physical appearance (Nerini et al., 2016). Additionally, Italy has some of the highest numbers of fitness centers in Europe (Gervasio, 2012).

Muscle Dysmorphia (MD)

Men who are concerned about their muscularity may be attracted to bodybuilding because it seemingly offers them the chance to achieve a lean, hypertrophic, muscular physique (Mitchell et al., 2016). This drive for muscularity is actually a risk factor for the development of MD (Robert, Munroe-Chandler, & Gammage, 2009). With the publication of the Diagnostic and statistical manual of mental disorders (DSM-5), MD entered the current nosography (American Psychiatric Association, 2013). In fact, MD is a subtype of body dysmorphic disorder (BDD); it is characterized by an obsessive concern for one's physical appearance, particularly one's muscles. Body dissatisfaction is the main feature of MD (Olivardia, Pope, & Hudson, 2000). It

leads individuals to use anabolic steroids, consume supplements, strictly control their diets, engage in excessive physical exercise, and engage in avoidance and mirror checking behaviors.

Unlike individuals who have BDD, no link has been established between having MD and having a history of maltreatment or sexual abuse. The onset of this disorder seems to be sparked by experiences of bullying, humiliation, and body image criticism in childhood by peers or family members (Lopez, Pollack, Gonzales, Pona, & Lundgren, 2015; Menees, Grieve, Mienaltowski, & Pope, 2013; Wolke & Sapouna, 2008).

Compared to individuals who are not affected by MD, individuals with MD have lower quality of life scores (Pope et al., 2005), lower perceptions of social support (Goodale, Watkins, & Cardinal, 2013), greater interpersonal sensitivity (McFarland & Kaminski, 2009), higher levels of social physique anxiety (Thomas, Tod, Edwards, & McGuigan, 2014), greater anxiety in social relationships (Compte, Sepulveda, & Torrente, 2015), and a greater sense of loneliness (Chaney, 2008).

Individuals with MD experience feelings of shame and embarrassment about their bodies. Sixty percent of affected individuals adopt avoidance behaviors that reach clinical levels (Cafri, Olivardia, & Thompson, 2008; Olivardia et al., 2000) and impact their relational and affective lives (Olivardia, 2001).

Most of these studies were conducted in Western cultures, and very few investigations were carried out in Italian contexts. Consequently, relatively few studies have examined the risk factors and clinical characteristics associated with MD in Italian men. Three of the existing studies are described below. Researchers have determined that 3.4% of Italian male bodybuilders are at risk of developing MD (Cella, Iannaccone, & Cotrufo, 2012). Additionally, Italian university students who are studying Sports Science are more at risk of developing MD than

students who are studying other topics (Bo et al., 2014). Finally, Italian men who over exercised to gain weight were compared to men who over exercised to lose weight and women with eating disorders. The men in this group presented with more MD symptoms and spent more time in the gym than the individuals in the other two groups did (Segura-Garcia et al., 2010).

Attachment, Body Image, and Interpersonal Relationships

Attachment is closely associated with body image and especially body dissatisfaction (Hui & Brown, 2013). Body image is a central component of self-representation. It develops through interactions with significant figures (Kearney-Cooke, 2002) and considerably impacts quality of life and psychosocial functioning (Cash, Theriault, & Annis, 2004).

Bowlby (1973; 1982) defined attachment as a biologically based interpersonal motivational system that pushes children to demand the presence of caregivers when they are in need or in danger. Children create internal operative models based on caregivers' affective responses to their requests for support and protection. These models relate to representations of the self, the other, and the relationships between the two (Bartholomew, 1990; Mikulincer & Shaver, 2012). When a caregiver is adequately responsive to a child's emotional needs, the child will develop a positive self-image. They perceive themselves as worthy of love and perceive others as trustworthy, benevolent, and emotionally accessible in responding to their needs. In contrast, when a caregiver is not supportive and approachable, the child forms negative models of the self and others. These negative models are further shaped by the child's developmental experiences (Mikulincer & Shaver, 2012). Childhood attachment experiences can be carried into adulthood, affecting adult attachment styles (Bartholomew, 1990; Bartholomew & Shaver, 1998; Weiss, 1982). These styles are based on two orthogonal aspects: anxiety and avoidance (Mikulincer, Shaver, & Pereg, 2003). Anxious attachment is marked by a negative representation

of the self and by the pervasive fear of being abandoned by one's partner, while avoidant attachment is characterized by a negative representation of others and fear of intimacy (Cheng & Mallinckrodt, 2009).

Referencing the attachment model proposed by Bartholomew and Horowitz (1991), Cash et al. (2004) found that in both men and women, anxious attachment is associated with a greater investment in body image, greater dissatisfaction, and more negative feelings. In adult romantic attachments, anxious attachment (not avoidant attachment) is associated with negative body images (Brennan & Shaver, 1995; Evans & Wertheim, 1998).

A recent cross-cultural, cross-gender research study (Hui & Brown, 2013) confirmed that a link exists between body dissatisfaction and anxious adult attachment among women. The researchers also found that men's body dissatisfaction was as high as that of women. However, Hui and Brown (2013) suggested that men are less inclined to indicate their dissatisfaction with their bodies and more inclined to find strategies to modify their body image, such as by resorting to doping, strict dieting, and excessive physical training. Other studies have found that men are less inclined to share their dissatisfaction about their bodies than women and that body image among men significantly impacts their sexual and romantic lives (Ambwani & Strauss, 2007; Traeen, Markovic, & Kvalem, 2016).

Approaching this issue from an interpersonal perspective, the contributions of appearance-based rejection sensitivity (AbRS) are worth noting here. This construct specifically reflects an individual's sensitivity to rejection in interpersonal contexts based on their physical appearance (Park, 2007; Park & Pinkus, 2009). It is associated with body dissatisfaction, avoidance of social situations, symptoms of BDD, and the desire for plastic surgery (Calogero, Park, Rahemtulla, & Williams, 2010; Lavell, Zimmer-Gembeck, Farrell, & Webb, 2014; Park,

2007). This personality processing system has its roots in childhood attachment: forms of insecure attachment can lead an individual to become fragile in a specific area of their life, such as being fragile about one's physical appearance. This fragility can become a significant element of their self-esteem and self-assessment. The affected individual may develop a fear of rejection that may persist and continue to affect them later in life (Park, 2007; Park, Crocker, & Mickelson, 2004). Finally, attachment is closely linked to ideas about body image and masculinity. Insecure attachment styles (Schwartz, Waldo, & Higgins, 2004) and issues related to separation/individuation (Blazina, 1997; Blazina & Watkins, 2000) also interact with masculine gender norms. In turn, the "rigid, sexist, or restrictive gender roles, learned during socialization, [can] result in personal restriction, devaluation, or violation of others or self" (O'Neil, 1990, p. 25). Blazina (1997; Blazina & Watkins, 2000) argues that the stereotype of masculinity found in Western cultures favors early separation/individuation from caregivers. This involves not recognizing one's need for others and repressing one's expressions of emotional need. Together, these elements can lead to a fragile determination of the masculine self, and it may lead the individual to adopt hypermasculine defenses.

Aims of the Study

Given the importance of early attachment in relationships for body image development, the aim of the present work is to investigate the relationship between adult attachment and the risk of developing MD. Previous research studies have already shown that a high rate of MD exists among male bodybuilders. This study aims to investigate the dimensions underlying adult attachment styles among Italian male bodybuilders. In particular, the research goal is to evaluate the differences in attachment styles between the general adult population and bodybuilders, and between bodybuilders at risk of developing MD and bodybuilders who are not at risk of

developing MD. The secondary aim of this study is to explore the risk of developing MD among competitive and non-competitive bodybuilders and among those who use and do not use anabolic steroids.

Method

Participants

Participants were recruited online from bodybuilding-related Facebook groups. To be eligible, individuals had to be engaged in bodybuilding, which was defined as working out with weights to reshape, rather than tone, one's body (Weider & Weider, 1981). Data were collected using SurveyMonkey.

Approximately 1,000 individuals were contacted and each received an explanation of the aims and objectives of the research study. They were asked to participate as volunteers by completing an anonymous online survey. They received a link to the survey that could be accessed by clicking on the link.

All participants in the sample met the following inclusion criteria: a) male, b) Italian, c) between the ages of 18 and 50, d) involved in bodybuilding training (at a competitive or amateur level), and e) engaged in bodybuilding as a predominant or exclusive sport of choice. Athletes who identified other "muscular-related sports" as their prevalent physical activity (e.g., CrossFit, powerlifting, weightlifting, and calisthenics) were excluded from the sample.

A total of 221 Italian male bodybuilders agreed to take part in the research. Only 170 participants completed the survey and submitted their responses. Participants voluntarily decided to participate in the research, and no compensation was provided in exchange for their participation. Of those 170 participants, 40% lived in Northern Italy, 43% southern Italy, and 17% central Italy. The following data were self-reported by the participants. The mean

participant age was 29.53 years ($SD = 8.79$; range 18–62). In terms of education, 25% ($n = 42$) completed middle school, 58% ($n = 99$) completed high school, 11% ($n = 18$) completed college, and 6% ($n = 11$) completed a higher level of education. Occupationally, 71% ($n = 121$) were currently employed in a full-time job, 11% ($n = 19$) were unemployed, and the remaining 18% ($n = 30$) were university students. Regarding sexual orientation, 162 participants were heterosexual, 2 were bisexual, and 6 were gay. Additionally, 58 participants ($n = 98$) were in stable relationships. Concerning bodybuilding activities, nearly all participants worked out in a gym, while two (1%) reportedly practiced in bodybuilding at home. Seventy-nine percent ($n = 135$) had been bodybuilding for more than 3 years, and 21% ($n = 35$) had been bodybuilding for less than 3 years. Regarding their levels of competitiveness, 55% ($n = 94$) did not take part in bodybuilding competitions, while 45% ($n = 76$) were competitive. Only 14% ($n = 24$) of the participants used anabolic steroids. The participants' socio-demographic characteristics were similar to population samples recruited for other bodybuilding studies (Baghurst & Lirgg, 2009; Parish et al., 2010). The present sample was significantly younger than the general Italian male population (Istituto Nazionale di Statistica, 2015).

Instruments

Socio-demographic questionnaire. All participants completed a questionnaire that asked questions about their age, level of education, affective relationship, workout location (i.e., gym or home), number of years of bodybuilding experience, level of competitiveness, and use of anabolic steroids.

Muscle dysmorphic disorder inventory (MDDI) (Santarnecci & Dèttore, 2012). The MDDI is a 13-item tool that assesses the risk of developing MD. It contains questions on cognition, emotion, and behaviors related to body image (Hildebrandt, Langenbucher, &

Schlundt, 2004). The response categories were presented in a 5-point Likert scale that ranged from “never” to “always”. The overall test score was the sum of the scores for each item. A threshold value (> 39 points) proposed by Varangis, Folberth, Hildebrandt, and Langenbucher (2012) was selected. It revealed 75.0% specificity and 73.7% sensitivity, with a Cronbach alpha coefficient of 0.85 in an Italian validation study (Santarnecchi & Dèttore, 2012). This threshold value allowed high-risk participants (scores >39) to be distinguished from low-risk participants.

Attachment style questionnaire (ASQ) (Fossati et al., 2007). The ASQ is a 40-item self-reporting questionnaire that uses a Likert scale. It was designed to measure the five dimensions of adult attachment: *confidence in self and others* (eight items), *discomfort with closeness* (ten items), *relationships as secondary* (seven items), *need for approval* (seven items), and *preoccupation with relationships* (eight items). *Discomfort with closeness* is a central theme in Hazan and Shaver’s (1987) conceptualization of avoidant attachment, whereas *relationships as secondary* is consistent with Bartholomew’s (1990) concept of dismissing attachment. *Need for approval* reflects participants’ need for acceptance and confirmation from others, and it characterizes Bartholomew’s (1990) fearful and preoccupied groups. *Preoccupation with relationships* means taking an anxious, dependent approach to relationships, and it is a core feature of Hazan and Shaver’s (1987) original conceptualization of anxious/ambivalent attachment. Finally, *confidence in self and others* reflects a secure attachment orientation. Reliability and validity data were provided for both English and Italian versions of the ASQ (Fossati et al., 2007). The ASQ exhibited adequate internal consistency with Cronbach’s alpha coefficients ranging from .76 to .84 (Feeney et al., 1994).

Data Analysis

The Statistical Package for Social Sciences (SPSS) (version 22) was used to conduct

statistical analysis of the data. First, the attachment style dimensions of the sample population were measured using the ASQ, and then the results were compared to normative data reported by Fossati et al. (2007).

The percentages of participants in the first and last quartiles and in the twenty-fifth to seventy-fifth percentile range were recorded. Using the cut-off value proposed by Varangis et al. (2012), the MDDI was used to assess the risk of developing MD for those in the study sample.

Frequency analysis was conducted, and independent sample t-tests were employed to analyze differences in the ASQ dimensions that were linked to the risk of developing MD. Additionally, χ^2 tests were conducted to identify any significant associations between the risk of developing MD among competitive and non-competitive bodybuilders and among those who use and do not use anabolic steroids.

Compliance with Ethical Standards

All the study procedures involving human participants complied with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from each participant included in the study.

Results

In the MDDI, a score above 39 indicated that subjects were at a high risk of developing MD. Of the 170 bodybuilders examined, 25.9% ($n = 44$) were at a high risk of developing MD.

Table 1 shows **the average ASQ scores reported by bodybuilders (Bbs). The scores were similar to Italian general male population (Gmp) norms** (Fossati et al., 2007). The scores differed in the ASQ for the categories *need for approval* ((Bbs: $M = 17.25$, $SD = 6.55$; Gmp: $M = 20.41$, $SD = 5.52$), $t(169) = 6.26$, $p < .001$) and *preoccupation with relationships* ((Bbs: $M = 25.24$, SD

= 7.37; Gmp: $M = 28.77$, $SD = 6.06$), $t(169) = 6.24$, $p < .001$). Bodybuilders from the sample were less dependent on their relationships with others than Italian men from the general population were.

Table 2 shows the differences between the average ASQ scores of bodybuilders with a high risk of developing MD or no evident risk of developing MD. The differences were significant in all the dimensions ($p < .001$). Bodybuilders with a high risk of developing MD had higher levels of insecure attachment than others did. They also had significantly lower scores ($M = 29.37$, $SD = 5.00$) than bodybuilders with a low risk of developing MD ($M = 33.70$, $SD = 6.18$) on the *confidence* subscale ($t(169) = 4.14$, $p < .001$) and higher scores on all dimensions of insecure attachment. In particular, bodybuilders with a high risk of developing MD had significantly higher scores than bodybuilders with a low risk of developing MD for the following subscales: *discomfort with intimacy* (high MD: $M = 42.81$, $SD = 7.07$; low MD: $M = 37.05$, $SD = 7.45$), *relations as secondary* (high MD: $M = 21.98$, $SD = 5.01$, low MD: $M = 17.75$, $SD = 6.59$), *need for approval* (high MD: $M = 20.61$, $SD = 7.52$, low MD: $M = 16.07$, $SD = 5.76$), and *preoccupation with relationships* (high MD: $M = 28.88$, $SD = 7.73$, low MD: $M = 23.96$, $SD = 6.83$).

In comparing the averages of the high risk bodybuilder group against the averages of the general population (Fossati et al., 2007), the high risk bodybuilders ranked in the twenty-fifth percentile in their *confidence* subscale and ranked below the seventy-fifth percentile in their *discomfort with intimacy* and *relations as secondary* subscales.

For bodybuilders without a risk of developing MD, they scored below the twenty-fifth percentile in the *need for approval* and *preoccupation with relationships* subscales; these are lower than the scores obtained by the average Italian male. Table 3 separately illustrates the

distribution of the sample in percentages for the two groups using three percentile bands (<25;25<>75;>75).

No significant differences were found between participants with high and low risks of developing MD and involvement in competitive bodybuilding (competitive vs amateur/non-competitive, $\chi^2(1) = 0.35$, $p = .56$) or the use of anabolic substances (users vs non-users: $\chi^2(1) = 0.01$, $p = .92$).

Discussion

Overall, the sample of bodybuilders and the general Italian male population (Fossati et al., 2007) had similar scores for most dimensions of adult attachment, as recorded in the ASQ. Two subscales were the exception: in the *need for approval* and *preoccupation with relationships* subscales, the participants scored considerably lower. Of the 170 bodybuilders who completed the questionnaire, 25.9% had a high risk of developing MD. At present, no epidemiological studies exist that may be used to compare these results. Looking at other Italian studies, the percentage of participants at risk of developing MD (25.9%) was considerably higher in this study as compared to the figures recorded by Bo et al. (2014) for competitive bodybuilders (3.4%) and recorded by Cella et al. (2012) for male university students in the Sport Science degree course (11%).

In an Indian research project by Sandu, Kishore, Shenoy, and Randhawa (2013), a broad sample of male bodybuilders was analyzed and high levels of MD symptomatology were found in 47.1% of cases. In a South African research project by Hitzeroth, Wellels, Zungu-Dirwayi, Oosthuizen, and Stein (2001), competitive bodybuilders of both sexes were analyzed, and 53.6% presented with MD. The percentage found in the present study is in line with the figures recorded in two other studies: an American study by Maida and Armstrong (2005) examining a sample of

non-competitive weightlifters and a large Australian study by Nieuwoudt, Zhou, Coutts, and Booker (2015) examining a large sample of weightlifters that had been recruited online.

The main aim of our research was to compare bodybuilders at risk of developing MD and those not at risk of developing MD using adult attachment dimensions, as measured through the ASQ. The study findings indicated that significant differences existed in all these dimensions.

The data showed that the group of bodybuilders at risk of developing MD had significantly higher scores in all dimensions of adult attachment except the *confidence* dimension, which was significantly higher in bodybuilders who were not at risk of developing MD. The *confidence* dimension refers to a secure attachment style and is a protective factor for mental health according to the existing literature (Mikulincer & Shaver, 2012). It is therefore unsurprising that this dimension occurred more frequently in participants with low MDDI scores rather than in those with high MDDI scores. In the sample, bodybuilders at risk of developing MD scored higher in the dimensions of adult attachment that were associated with forms of insecure attachment as compared to bodybuilders who were not at risk. Comparing these levels to the normative data from the Italian male population (Fossati et al., 2007), participants at risk of developing MD had higher scores on the *relations as secondary* and *discomfort with intimacy* dimensions, which are generally related to avoidance-based strategies. In fact, *relations as secondary* is connected to Bartholomew's (1990) concept of dismissing attachment; it characterizes individuals who exhibit compulsive reliance on themselves, avoid intimacy to deny the importance of relationships, and protect an invulnerable, self-sufficient sense of self. Similarly, *discomfort with intimacy* is related to the concept of avoidant attachment proposed by Hazan and Shaver (1987). It identifies individuals who fear intimacy, distance themselves in romantic relationships, avoid social contact to maintain a sense of self-security, often prefer

sexual relations without emotional commitment, and have a negative view of their relationships, which often fail in the short term (Hazan & Shaver, 1994).

On the *need for approval* and *preoccupation with relationships* subscales, participants who had a high risk of developing MD scored significantly higher than those who had a low risk of developing MD; however, the scores of the high-risk group overlapped with those of the general male population. Interestingly, the bodybuilders with a low risk of developing MD scored considerably lower than the general population. *Need for approval* is related to the need to obtain acceptance and confirmation from others, while the *preoccupation with relationships* dimension reflects a tendency towards anxiety and dependence in relationships (Fossati et al., 2007). These two dimensions are related to forms of anxious attachment; they occurred at normative levels in the bodybuilders at risk of developing MD and at lower levels in bodybuilders who were not at risk of developing MD. Bodybuilders who were not at risk of developing MD exhibited normative levels of confidence and low levels of anxious adult attachment; therefore, it can be hypothesized that bodybuilding is not in itself pathological. Alternatively, it can be hypothesized that bodybuilding is a compensatory strategy for overcoming anxiety and relational difficulties. Both hypotheses still require empirical verification.

The second aim of the research was to expand existing knowledge about the association between the risk of developing MD among competitive and non-competitive bodybuilders and among those who use and do not use anabolic substances. The data did not reveal an association between the risk of developing MD and competitive bodybuilding activities or the use of anabolic steroids. In the present sample, no significant differences were found in the MD levels of bodybuilders who participated competitively and non-competitively. While some studies

confirm the relationship between MD and competitive bodybuilding (Cella et al., 2012; Hale, Diehl, Weaver, & Briggs, 2013; Santarnecchi & Dèttore, 2012), others do not support this link (Baghurst & Lirgg, 2009; Skemp, Mikat, Schenck, & Kramer, 2013). It seems logical that bodybuilders with MD would be more inclined to engage in forms of bodybuilding outside of competitions to avoid exposing their bodies in public. However, our data did not support this idea. It is significant to note that the present sample was recruited from online bodybuilding forums where individuals often post photos of themselves to receive praise, criticism, or suggestions. Avoiding exposing one's body publically, which is one of the symptoms of MD, was less evident in our sample. Interestingly, Baghurst et al. (2014) recently stressed the need to reconsider the centrality of physique protection dimension as a feature of MD. The researchers expressed an ongoing need for additional research to clarify the diagnostic criteria of MD.

The aim of training is an important element for those with MD. Instead of training to improve performance, individuals with MD largely engage in training to improve their physical appearance (Skemp et al., 2013). In the present study, the aims behind bodybuilding were not investigated. Finally, no link was identified between levels of MD and anabolic steroid use or avoidance. This finding is discordant with the literature (Rohaman, 2009), which tends to confirm an association between the use of anabolic steroids and the risk of developing MD. This finding should be interpreted with great care. No direct or indirect measures (e.g., BMI or Fat Free Mass Index) were used to verify the validity of the statements offered by the study participants. Additionally, participants likely had incentives to conceal their use of anabolic steroids, particularly those who were engaged in competitive activities. During recruitment, various bodybuilders wanted to know whether there were any questions related to the use of anabolic steroids. Many of the individuals refused to participate once they learned that these

kinds of questions would be included.

Conclusion

Our data suggests that the risk of developing MD is associated with insecure adult attachment, especially avoidant attachment. Based on the existing literature, this appears to be the first study that was designed to identify the dimensions of adult attachment in a sample of bodybuilders, specifically bodybuilders at risk of developing MD. Consequently, no other studies are available to compare the results or the interpretations of the data. The literature indicates that prior to developing MD, individuals are often subject to humiliation or critical comments about their bodies from peers, partners, and family members (Lopez et al., 2015; Menees et al., 2013); they also often experience victimization and bullying (Boyda & Shevlin, 2011; Wolke & Sapouna, 2008).

The hypothesis outlined here can be summarized as follows: feelings of inadequacy, discomfort with intimacy, and concerns about one's appearance—particularly one's muscles—may stem from past humiliation and victimization that focused on physical appearance and impacted one's sense of security, all of which ultimately shapes one's self-representation.

Adult attachment, considered in the context of previous relational experiences, can be structured around the described experiences. It can assume the form of avoidant attachment and can significantly impact relationships for individuals at a high risk of developing MD.

Building a powerful, muscular body that is beyond imperfection can be an individual's attempt to defend themselves from feelings of inadequacy, rejection, and vulnerability. In their body, the individual can construct something that is the epitome of all that is strong and desirable. Men can develop perfect, impenetrable barriers that are shaped through bodybuilding and muscular hypertrophy (Wolke & Sapouna, 2008). These practices serve as a way of

underlining ideas of masculinity (Pope et al., 2000). In the end, because muscles are emblems of masculinity and heterosexuality, bodybuilders are made to feel that they appear more manly (Chaney, 2008). Conflicted views about masculine gender roles may be crucial in MD symptomatology. Having insecure attachment and experiencing traumatic events during separation/individuation can lead to strict adherence to masculine gender roles. This has various intrapsychic and interpersonal consequences, including fear of intimacy (Blazina & Watkins, 2000; Schwartz et al., 2004). Parallels can be drawn between the outcomes of avoidant attachment and the outcomes associated with masculine gender role conflict, especially in individuals with a lower capacity for intimacy and compulsive self-sufficiency. Forms of attachment that involve early independence and suppressing requests for care, closeness, and protection can lead to difficulty in establishing close relationships later in life. Additionally, the concept of masculinity may be associated with a state of detachment in relationships. This is particularly common when parental models confirm the stereotypical idea that expressing emotions and having emotional closeness is “feminine” and has no place in the lives of “real men” (DeFranc & Mahalik, 2002). The present study did not directly consider the espousal of gender norms or experiences of bullying and humiliation that occurred during development. In the present hypotheses, a theoretical rationale is offered to explain the connection between the risk of developing MD and an insecure attachment style, especially avoidant attachment. The hypotheses that have already emerged require additional support from empirical research and could be a fruitful subject for future research.

Limitations and Future Directions

The present research has both strengths and weaknesses. Starting with strengths, this research has filled a gap in MD research by highlighting the role of adult attachment in the

etiology of MD. Moreover, in forming the sample, there was an exclusive focus on bodybuilders. All other sports related to weightlifting were excluded, as they would have different technical and psychological features. The present research also had some weaknesses. First, only self-reporting through a single questionnaire was used to investigate the constructs. Second, a non-clinical sample was utilized. Third, the high MDDI levels indicated a strong risk of the disorder, rather than provided an actual diagnosis. Finally, the cross-sectional nature of the study cannot support the existence of cause-and-effect relationships between the constructs.

Future research can replicate the results, identify any peculiarities, and expand on the present findings by conducting new studies in other cultural contexts and by using samples differentiated according to sex and type of sport. Future studies can also examine the present hypothesis about the relationship between adult attachment and adverse developmental experiences in individuals with MD. Ideally, these studies would increase their use of clinical samples and integrate quantitative studies with qualitative research, which is rare in the field of MD.

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Table 1

Sample description and percentile bands of ASQ dimensions.

ASQ (dimensions)	Min	Max	M	SD
ASQ Confidence	16.0	49.0	32.58	6.18
ASQ Dis. Int.	9.0	60.0	38.55	7.76
ASQ Rel. Sec.	7.0	50.0	18.85	6.48
ASQ Need Appr.	7.0	37.0	17.26	6.56
ASQ Preoc.Rel.	8.0	55.0	25.24	7.38

Table 2

Means, standard deviations, t-test for difference between MD risk and no-MD risk .

	Risk of MD (MDDI > 39)		t	df	p	η^2
	Low	High				
	M (SD)	M (SD)				
ASQ Confidence	33.70 (6.18)	29.37 (5.00)	4.14	169	<.001	.095
ASQ Dis.Int.	37.05 (7.45)	42.81 (7.07)	-4.42	169	<.001	.107
ASQ Rel.Sec.	17.75 (6.59)	21.98 (5.01)	-3.84	169	<.001	.083
ASQ Need Appr.	16.07 (5.76)	20.61 (7.52)	-4.08	169	<.001	.093
ASQ Preocc.Rel.	23.96 (6.83)	28.88 (7.73)	-3.93	169	<.001	.086

Note. MD (Muscular Dysmorphia); No (bodybuilders not at risk of MD); Yes (bodybuilders at risk of MD)

Table 3

Percentile bands of ASQ dimensions and distribution in bbs sample percentages.

ASQ Dimensions	Risk of MD (MDDI > 39)					
	Low			High		
	< 25	25-75	> 75	< 25	25-75	> 75
Confidence percentile bands	20.3%	47.2%	32.5%	41.9%	53.5%	4.7%
Dis intim percentile bands	28.7%	54.9%	16.4%	11.6%	46.5%	41.9%
Rel.Sec. percentile bands	35.2%	42.6%	22.1%	7.0%	48.8%	44.2%
Need appr. percentile bands	63.1%	25.4%	11.5%	39.5%	23.3%	37.2%
Preocc. Rel. percentile bands	57.4%	36.1%	6.6%	30.2%	48.8%	20.9%

Note. MD (Muscular Dysmorphia); No (bodybuilders not at risk of MD); Yes (bodybuilders at risk of MD)