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My father, myself, and my muscles: Associations between muscle dysmorphia, narcissism and relationship with father among exercising males

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ABSTRACT

Research has yet to examine the associations between muscle dysmorphia (MD), narcissism and relationship with father in a male population. This study aimed to address this. We hypothesized that a negatively experienced relationship with the father for males will lead to an increase in MD symptoms due to undermined self-esteem that stems from a lack of the father as a positive masculine role model. A total of 503 exercising males ($M_{age} = 28.5$, $SD = 9.6$ years) completed self-report measures of MD, narcissism, and relationship with father. Our hypothesized indirect effect model found a negative indirect effect of relationship with father on MD symptoms via vulnerable narcissism, but not via grandiose narcissism. Analysis of individual path coefficients also revealed that a poor relationship with father impacts the development of vulnerable narcissism, but not grandiose narcissism. These findings alert practitioners to the fact that some individuals' MD symptoms may be an attempt to protect the fragile self-esteem central to vulnerable narcissism. Practitioners should consider exploring individuals' feelings and perceptions about their fathers in the treatment of MD. Moreover, future research should build on these findings and explore the observed associations in a longitudinal design to assess the causal model.

1. Introduction

1.1. Muscle dysmorphia and muscularity

Muscle dysmorphia (MD) is a mental health disorder characterized by a pathological preoccupation with muscularity (Pope et al., 1997, 2005). With the publication of the fifth revision of the Diagnostic and Statistical Manual for Mental Disorders (DSM-5) in 2013, MD was classified as a specifier for body dysmorphic disorder under diagnostic criteria 300.7 (F45.22; American Psychiatric Association, 2013). Pre-occupation with muscularity is the main feature of MD, and may lead to appearance intolerance (e.g., developing a negative body image), the use of anabolic steroids, restrictive dieting, excessive exercise, and various body checking behaviors (e.g., excessive mirror checking). These symptoms are likely to cause significant impairment to the persons daily functioning and may result in serious health consequences (American Psychiatric Association, 2013). Many men and women are drawn to bodybuilding activities to develop a muscular physique, and

this drive for muscularity is evidenced to be a major risk factor for the development of MD symptoms (e.g., Harris et al., 2019). Recent empirical research also suggests that MD symptoms are increasingly common in adolescent boys (Fabris et al., 2018; Mitchison et al., 2021). Identifying potential risk factors for the early development of MD symptoms in males is therefore an important task of current research.

A muscular body offers certain benefits, both psychologically and socially, for males in Western cultures. Many men feel dissatisfied with their physical appearance and desire a more muscular physique, in accordance with the ideal male body promoted by mass media in Western cultures (Leit et al., 2001; Pope et al., 1999; Tan et al., 2013). This ideal muscular body is commonly associated with masculinity (Steinfeldt et al., 2011) and evidence suggests a link between men's conformity to masculine norms and their drive for muscularity, despite similarities and differences within Western cultures (Gattario et al., 2015). In addition, this ideal is seen as promoting sexual desirability and as evidence of virility (Fabris et al., 2018).

Moreover, there is additional evidence that certain marginalized

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groups, such as African American men, gay and transgender men, may be more vulnerable to this masculine aesthetic ideal. In addition to increasing the likelihood of sexual encounters, it may also allow gay men to defend against the stigma of homosexuality through a more masculine presentation. The pursuit of muscularity by some gay men has been linked to an internalized sense of homonegativity (Badenes-Ribera et al., 2018; Brennan et al., 2012). Gay men may seek a muscular body to defend against victimization and discrimination (Badenes-Ribera et al., 2018). Experiences of racial discrimination are significantly correlated with the drive for muscularity in African American men (Osa & Kelly, 2021), and victimization and bullying are common in the histories of those with MD (Neziroglu et al., 2006; Tod et al., 2016; Weingarden et al., 2017; Wolke & Sapouna, 2008). Such victimization may contribute to the development of an internal model of the world as dangerous and the self as vulnerable, fostering paranoid ideation associated with perceptions and thoughts about body image, including muscles (Fabris et al., 2020). The pursuit of this ideal by some transgender men has also been tied to an effort to consolidate a sense of masculinity (Farber, 2017).

1.2. Role of the father

Recent work has focused on the relationship between attachment to others and MD in adults and adolescents. Attachment is associated with body image and body dissatisfaction (Hui & Brown, 2013). Anxious attachment is linked with greater investment in body image as well as negative feelings about the body (Cash et al., 2004). In romantic relationships, anxious attachment has been associated with negative body image (Brennan & Shaver, 1995; Evans & Wertheim, 1998). A recent study suggests that the risk of developing MD is associated with insecure adult attachment, especially avoidant attachment (Fabris et al., 2018). Emerging evidence suggests an association between parental criticism and MD symptoms, highlighting the mediating role of attachment to parents (Badenes-Ribera et al., 2021). Parental criticism, in this view, may affect the quality of the relationship with parents, contributing to a negative representation of self and/or other characteristics of insecure attachment.

In addition to parental attachment, the peer group affects areas of psychological functioning central in adolescence, such as body image (O'Koon, 1997). One study suggests that higher levels of peer alienation could lead to higher levels of MD symptomatology (Fabris et al., 2021). In their view, peer alienation may further increase a sense of inadequacy, devaluation, and vulnerability, thereby intensifying concerns about body image and musculature. Taken together, these findings suggest that insecure parental attachment and peer alienation may promote the development of a negative representation of self and other, which may contribute to difficulties with body image, including muscles. The pursuit of a lean, hypertrophic physique may, then, serve as a defense against a sense of inadequacy, rejection, and vulnerability stemming from this underlying difficulty (Fabris et al., 2018).

Both males and females can develop symptoms of MD, however, MD is still largely considered a male dominated disorder (e.g., Fabris et al., 2021). The onset of MD has been suggested to be in late adolescence (Olivardia, 2001), and one risk factor for the development of MD symptoms in males may be the role of parents, particularly the father. For many developing boys, fathers provide an important role model of masculinity. Research suggests messages about increasing muscles from fathers are more associated with sons engaging in the pursuit of muscularity than similar messages from mothers (Stanford & McCabe, 2005). Other researchers have also identified the father to be a central person involved in this pursuit (Tod et al., 2016; Wooldridge, 2022). A paternal relationship marked by criticism, emotional distancing, and evaluation, for example, may contribute to a representation of self as unworthy and intensify concerns about bodily appearance. Such a relationship would constitute an Adverse Childhood Experience (ACE), which have been shown to be significantly associated with MD

symptomatology (Longobardi et al., 2022). Many have argued that muscularity is commonly associated with masculinity (Steinfeldt et al., 2011) and that there is a relationship between men's conformity to masculine norms and their drive for muscularity (Gattario et al., 2015). Taken together, MD is closely linked to masculinity and men's relationship with their father, but it is also important to consider the mechanisms that mediate the relationship with the father and MD.

1.3. Narcissism as a mechanism

We propose that trait narcissism may be one such mediating link. Narcissism consists of two dimensions: grandiose and vulnerable (Miller et al., 2011). Grandiose narcissism reflects grandiosity, aggression, and dominance, whereas vulnerable narcissism reflects undermined self-confidence, felt inadequacy, and negative affect. The development of both dimensions of narcissism in adolescence has been linked to differing parenting styles. For example, grandiose narcissism is often associated with parental overvaluation (Brummelman et al., 2015), whilst vulnerable narcissism is associated with parents who do not provide sufficient discipline and attention to their children (Mechanic & Barry, 2015). To this end, we believe that fathers who are perceived to have a poor relationship (i.e., lack of paternal involvement or physical relationship) in males' childhood and adolescence will contribute to males' undermined self-view which may manifest as vulnerable narcissism. This development of vulnerable narcissism often means that individuals seek validation from others via unhealthy means (e.g., preoccupation with building muscles). However, research on the association between narcissism and MD can be difficult to navigate. For example, competitive bodybuilders display an association between grandiose narcissism and MD symptoms (Dèttore et al., 2020), yet other researchers find limited associations between MD and grandiose narcissism (Boulter & Sandgren, 2022; Collis et al., 2016). Regarding vulnerable narcissism, there is some evidence that narcissistic vulnerability (a facet of vulnerable narcissism) is higher in those with a higher level of MD symptoms than those with fewer symptoms (Rodrigue et al., 2018). Furthermore, it was recently reported that there is an association between vulnerable narcissism and MD symptoms in men (Boulter & Sandgren, 2022). Whilst there are still some associations that may be tentative around grandiose narcissism, there is some promising avenues around the links between vulnerable narcissism and MD. Given that grandiose and vulnerable narcissism are orthogonal constructs whereby individuals can have varying levels of each trait, we will measure both dimensions to accurately assess the impact of narcissism on MD and how it is implicated with the presence of the father.

1.4. Present study

This study aims to address a gap in the MD literature by investigating the associations and mechanisms of males' relationship with their father and symptoms of MD. We hypothesize that a poor relationship with one's father (i.e., lack of physical relationship and negative feelings towards the father) will lead to an increase in MD symptoms via vulnerable narcissism. We believe grandiose narcissism will not mediate the link between the relationship with the father and MD as grandiose narcissism often develops from overvaluation rather than a poor relationship with the father. Therefore, we expect a negative indirect effect of relationship with father on MD via vulnerable narcissism, but not via grandiose narcissism. Fig. 1 provides an overview of the conceptual model of all study variables.

2. Method

2.1. Participants and procedure

In total, 503 men took part in the study ($M_{\text{age}} = 28.5$, $SD = 9.6$, range: 18–78 years; $M_{\text{BMI}} = 26.4$, $SD = 4.5$, range: 15.9–48.9).

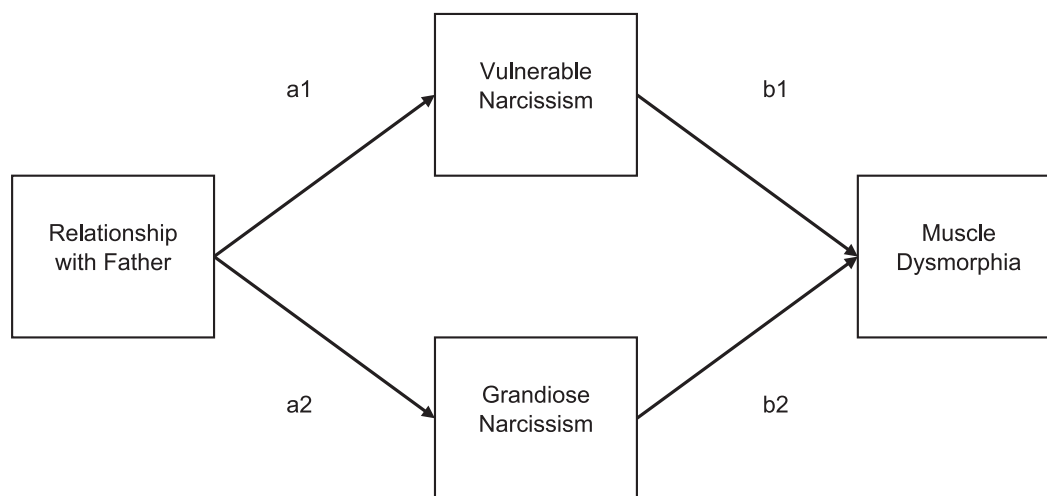


Fig. 1. Conceptual indirect effect model and path labels of father presence on muscle dysmorphia via narcissism.

Participants were either employed (64 %), studying (30.9 %) or unemployed (5.1 %), and almost all (96 %) were currently engaged in strength and cardio training, and had done so for a minimum of one year. Among these exercising individuals, most reported their motive for training to be appearance driven (40 %; e.g., “to look good”), to improve/maintain health (30 %) or to improve/maintain performance (25 %), whilst 5 % did not give an answer.

IRB approval was obtained from Golden Gate University and all participants in this study gave their consent prior to taking part. English-speaking males 18+ years were invited to complete an online survey comprising some demographic questions and three pre-validated measures (the GDPR compliant Jisc Online Surveys software was used). Participants were recruited using non-probability sampling via different social media platforms based in the United States and United Kingdom, such as Facebook, Twitter and Reddit over a nine-month period. To protect potentially vulnerable individuals, participants who reported a history of a clinical mental health disorder diagnosis were excluded and unable to take part in the study.

2.2. Measures

2.2.1. Muscle dysmorphia

The 13-item pre-validated Muscle Dysmorphic Disorder Inventory (MDDI; Hildebrandt et al., 2004) is comprised of three subscales: Drive for Size (DFS, e.g., “I wish I could get bigger”), Appearance Intolerance (AI, e.g., “I hate my body”) and Functional Impairment (FI, “I feel anxious when I miss one or more workout days”). Participants respond to each item on a 1–5 Likert scale from 1 (strongly disagree) to 5 (strongly agree).

2.2.2. Narcissism

The Five Factor Narcissism Inventory – Short Form (FFNI-SF; Sherman et al., 2015) assesses both vulnerable (distrust, need for admiration, anger, and shame) and grandiose (acclaim seeking, arrogance, authority, entitlement, exhibitionism, exploitativeness, grandiose fantasies, indifference, lack of empathy, manipulativeness, and thrill-seeking) dimensions of narcissism. The 60 items are assessed on a 1 (disagree strongly) to 5 (agree strongly) Likert-scale.

2.2.3. Relationship with father

A global score was created using three facets from the Father Presence Questionnaire (FPQ; Krampe & Newton, 2006) to assess participants relationship with their father. These facets are feelings about the father (e.g., “My father is very important to me”), perceptions of father's involvement (e.g., “My father helped me learn new things”), and

physical relationship with father (e.g., “I sat on my father's lap”). All items were assessed on a scale from 1 (never) to 5 (almost always).

2.3. Statistical analysis

Analyses were run in R (R Core Team, 2017) and the indirect effect model used the lavaan package (Rosseel, 2012). All variables were treated as latent indicators in the mediation model. We analyzed the conceptual model in Fig. 1 and ran 10,000 iterations for the bootstraps. We deemed coefficients which did not encompass zero as statistically significant.

3. Results

Means, standard deviations, composite reliability estimates, and bivariate correlations are presented in Table 1. Bivariate correlations displayed that MDDI was positively associated with vulnerable narcissism ($r = 0.47, p < .01$) but had no association with grandiose narcissism ($r = 0.07, p > .05$). The FPQ showed a negative relationship with MDDI ($r = -0.10, p < .05$). Results from our hypothesized indirect effect model (see Table 2) found a negative indirect effect of relationship with father on MD symptoms via vulnerable narcissism (standardized estimate $[\beta] = -0.11, 95\% \text{ CI } [-0.16, -0.05]$) but not via grandiose narcissism ($\beta = -0.01, 95\% \text{ CI } [-0.01, 0.03]$). A closer examination of the constituent paths reveals there is a negative relationship from the FPQ to vulnerable narcissism ($\beta = -0.26, 95\% \text{ CI } [-0.30, -0.11]$) and positive relationship from vulnerable narcissism to MDDI ($\beta = 0.51, 95\% \text{ CI } [0.36, 0.67]$). Via grandiose narcissism there was a null association between the FPQ and grandiose narcissism ($\beta = 0.04, 95\% \text{ CI } [-0.07, 0.15]$) and a positive association between grandiose narcissism and MDDI ($\beta = 0.19, 95\% \text{ CI } [0.05, 0.33]$).

4. Discussion

The aim of this study was to investigate the associations between MD, narcissism and relationship with father in a male population. We hypothesized that a negatively experienced relationship with one's father (i.e., lack of physical relationship and negative feelings towards the father) is associated with an increase in MD symptoms via vulnerable narcissism. Our results supported our hypothesis that a negatively experienced relationship with father for males during childhood and adolescence is linked to an increase in MD symptoms in later years. Our results indicate that this relationship is explained through vulnerable narcissism and not grandiose narcissism. That is, a perceived poor relationship with their father (e.g., lack of a physical relationship,

Table 1

Means, standard deviations, bivariate correlations, and composite reliability estimates for the measured variables.

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1. MDDI	38.07	8.51	0.74										
2. FFNI	2.72	0.39	0.21**	0.83									
3. FPQ	3.38	1.00	-0.10*	-0.04	0.98								
4. MDDI FI	10.69	4.14	0.67**	0.27**	-0.03	0.81							
5. MDDI AI	10.95	4.03	0.53**	-0.00	-0.24**	0.11*	0.78						
6. MDDI DFS	16.46	4.60	0.77**	0.17**	0.05	0.30**	0.07	0.81					
7. FFNI vulnerable	2.99	0.71	0.47**	0.31**	-0.20**	0.31**	0.41**	0.26**	0.85				
8. FFNI grandiose	2.57	0.52	0.07	0.93**	0.03	0.18**	-0.13**	0.09*	-0.01	0.89			
9. FPQ feelings	3.40	1.17	-0.10*	-0.05	0.93**	-0.04	-0.22**	0.02	-0.20**	0.02	0.96		
10. FPQ involvement	3.42	1.04	-0.08	-0.02	0.96**	-0.00	-0.22**	0.04	-0.19**	0.04	0.89**	0.94	
11. FPQ physical	3.29	1.03	-0.08	-0.03	0.88**	-0.02	-0.24**	0.07	-0.16**	0.01	0.67**	0.77**	0.93

Note. N = 503. **Bold** estimates represent composite reliability estimates (p_c).

MDDI – Muscle Dysmorphic Disorder Inventory global score; FFNI – Five Factor Narcissism Inventory global score; FPQ - Father Presence Questionnaire; FI – Functional Impairment; AI – Appearance Intolerance; DFS – Drive for Size; Vulnerable – vulnerable narcissism; Grandiose – grandiose narcissism; Feelings – feelings for father; Involvement – involvement of father; Physical – physical relationship with father.

* $p < .05$.

** $p < .01$.

Table 2

Latent variable path coefficients, indirect effect model estimates and standard errors.

Path	β	SE	95 % CI
FPQ → Vulnerable (a1)	-0.26 ^a	0.05	-0.30, -0.11
FPQ → Grandiose (a2)	0.04	0.06	-0.07, 0.15
Vulnerable → MDDI (b1)	0.51 ^a	0.08	0.36, 0.67
Grandiose → MDDI (b2)	0.19 ^a	0.07	0.05, 0.33
Indirect effects			
Via vulnerable (a1 × b1)	-0.11 ^a	0.03	-0.16, -0.05
Via grandiose (a2 × b2)	-0.01	0.01	-0.01, 0.03

Note. N = 452. Bootstrap set at 10,000 iterations. β = standardized estimate.

FPQ - Father Presence Questionnaire; Vulnerable – vulnerable narcissism; Grandiose – grandiose narcissism; MDDI – Muscle Dysmorphic Disorder global score.

^a Indicates bootstrap estimates do not contain zero.

minimal involvement) may lead to males developing unhealthy views of themselves, characterized by low self-esteem and self-centeredness. Attempts to seek validation and build self-esteem may then be manifested by the pre-occupation with muscularity.

The current study confirms previous findings by Boulter and Sandgren (2022), where MD was associated with vulnerable, but not grandiose narcissism. The current study offers novel insights into potential risk factors for the development of MD symptoms in exercising males by establishing an antecedent of narcissism and MD symptoms. Previous research has suggested a link between MD and insecure attachment (Fabris et al., 2018). Similarly, relationships with parents marked by criticism and emotional distancing may contribute to a representation of self as unworthy and intensify concerns about bodily appearance. Insofar as such relationships constitute ACEs, they may be significantly associated with MD symptoms (Longobardi et al., 2022). Finally, peer alienation may further increase a sense of inadequacy and vulnerability, intensifying concerns about body image and muscles (Fabris et al., 2021). The pursuit of a muscular physique may serve as a defense against a sense of this vulnerability stemming from these underlying attachment difficulties and developmental experiences. This is particularly evident in light of the lack of association via grandiose narcissism in the present study, which suggests that adolescent males may not develop grandiose fantasies and the need to dominate others as a consequence of their relationship with their father. Taken together, the findings from the current study and those of previous research suggest that MD treatment must address more than MD symptoms; it must target the repair of the attachment system and the development of earned attachment security in the psychotherapy relationship (Mallinckrodt,

2022).

4.1. Applied implications

The findings of the current study point to some important implications for the treatment of MD. Our findings suggests that a negatively experienced relationship with father for males during childhood and adolescence is associated with an increase in MD symptoms in later development. This is explained through the construct of vulnerable narcissism, characterized by undermined self-confidence, felt inadequacy, and negative affect. In a similar way, these findings suggest that the treatment of MD must target, through various means, the underlying deficits in self-esteem that the MD symptoms serve as a defense against. This may mean, for example, helping these clients to traverse a developmental process of building more resilient self-esteem and leveraging aspects of the psychotherapy relationship, such as emotional affirmation and encouragement. In addition, to address this undermined self-view, exploration of patients' feelings about their fathers may be an important aspect of MD treatment. Addressing self-esteem and the father-son relationship may be important intervention targets in future programs aimed at reducing MD symptoms, and researchers and intervention developers may want to explore this in more depth in their needs assessment prior to developing an intervention (an assessment of existing evidence and collecting new evidence where this is lacking to inform an intervention). Importantly, intervention development for people with MD symptoms was recently reported to be a crucial area for future researchers and practitioners to address (Sandgren & Lavallee, 2022).

4.2. Limitations and future recommendations

The present study has some limitations that should be considered when interpreting the results. From a methodological perspective, it is worth noting that the current study is cross-sectional and, therefore, it is important to exercise caution on the causality of the findings. To establish causality, future research could incorporate the present study variables into a longitudinal study design that captures both adolescence and adult developmental periods. This also circumvents the limitations of assessing the presence of the father retrospectively, as inaccurate recollections or false memories may be present. Another limitation of the present study relates to our measure of the presence of father, the FPQ, as it does not account for a substitute father (e.g., stepfather or other relative), which means that for some participants they may have had, for example, a present stepfather but an absent biological father during childhood and adolescence. We note that the sample in the present study – men who have not had a previous mental health disorder

diagnosis – limits the clinical application of the findings. Future research would benefit from investigating the model in the present study in those who have clinically significant levels of MD to determine whether the current findings are exhibited in clinical samples. Nevertheless, the current findings offer insight into childhood experiences and personality traits associated with men at risk of having, or developing, MD.

4.3. Conclusion

In conclusion, this study makes a notable contribution to the literature by providing evidence of nuanced risk factors for MD, mainly that men's poor relationship with their father can increase MD symptoms indirectly through vulnerable narcissism. These findings suggest that practitioners should consider how men's vulnerability and self-esteem manifests as MD within the context of their relationship with their father. Moreover, we call on future research to investigate these findings in a longitudinal study with data collection points from adolescence through to adulthood to track how the presence of father in situ impacts personality and MD symptom development.

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CRedit authorship contribution statement

Matt W. Boulter: Conceptualization, Methodology, Formal analysis, Writing – original draft, Project administration. **Tom Wooldridge:** Conceptualization, Methodology, Writing – review & editing, Project administration. **Vegard E. Bjelland:** Investigation, Writing – review & editing. **Sebastian S. Sandgren:** Conceptualization, Methodology, Writing – review & editing, Project administration, Supervision.

Declaration of competing interest

The Authors declare that there is no conflict of interest.

Data availability

The data that has been used is confidential.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5)*. Washington, DC: Author.
- Badenes-Ribera, L., Fabris, M. A., & Longobardi, C. (2018). The relationship between internalized homonegativity and body image concerns in sexual minority men: A meta-analysis. *Psychology & Sexuality, 9*(3), 251–268.
- Badenes-Ribera, L., Longobardi, C., Gastaldi, F. G. M., & Fabris, M. A. (2021). The roles of attachment to parents and gender in the relationship between parental criticism and muscle dysmorphia symptomatology in adolescence. *International Journal of Adolescence and Youth, 26*(1), 513–528.
- Boulter, M. W., & Sandgren, S. S. (2022). Me, myself, and my muscles: Associations between narcissism and muscle dysmorphia. *Eating Disorders, 30*(1), 110–116.
- Brennan, D. J., Craig, S. L., & Thompson, D. E. (2012). Factors associated with a drive for muscularity among gay and bisexual men. *Culture, Health & Sexuality, 14*(1), 1–15.
- Brennan, K. A., & Shaver, P. R. (1995). Dimensions of adult attachment, affect regulation, and romantic relationship functioning. *Personality and Social Psychology Bulletin, 21*, 267–283. <https://doi.org/10.1177/0146167295213008>
- Brummelman, E., Thomaes, S., Nelemans, S. A., De Castro, B. O., Overbeek, G., & Bushman, B. J. (2015). Origins of narcissism in children. *Proceedings of the National Academy of Sciences of the United States of America, 112*(12), 3659–3662.
- Cash, T. F., Theriault, J., & Annis, N. M. (2004). Body image in an interpersonal context: Adult attachment, fear of intimacy and social anxiety. *Journal of Social and Clinical Psychology, 23*(1), 89–103.
- Collis, N., Lewis, V., & Crisp, D. (2016). When is buff enough? The effect of body attitudes and narcissistic traits on muscle dysmorphia. *Journal of Men's Studies, 24*(2), 213–225.
- Dèttore, D., Fabris, M. A., & Santarnecchi, E. (2020). Differential prevalence of depressive and narcissistic traits in competing and non-competing bodybuilders in relation to muscle dysmorphia levels. *Psichiatria i Psicologia Clinica, 20*(2), 102–111. <https://doi.org/10.15557/PIPK.2020.0014>
- Evans, L., & Wertheim, E. H. (1998). Intimacy patterns and relationship satisfaction of women with eating problems and the mediating effects of depression, trait anxiety and social anxiety. *Journal of Psychosomatic Research, 44*, 355–365. [https://doi.org/10.1016/S0022-3999\(97\)00260-2](https://doi.org/10.1016/S0022-3999(97)00260-2)
- Fabris, M. A., Badenes-Ribera, L., & Longobardi, C. (2021). Bullying victimization and muscle dysmorphic disorder in Italian adolescents: The mediating role of attachment to peers. *Children and Youth Services Review, 120*, Article 105720. <https://doi.org/10.1016/j.childyouth.2020.105720>
- Fabris, M. A., Badenes-Ribera, L., Longobardi, C., Demuru, A., Dawid Konrad, Š., & Settanni, M. (2020). Homophobic bullying victimization and muscle dysmorphic concerns in men having sex with men: The mediating role of paranoid ideation. *Current Psychology, 35*77–3584. <https://doi.org/10.1007/s12144-020-00857-3>
- Fabris, M. A., Longobardi, C., Prino, L. E., & Settanni, M. (2018). Attachment style and risk of muscle dysmorphia in a sample of male bodybuilders. *Psychology of Men & Masculinity, 19*(2), 273.
- Farber, R. (2017). ‘Transing’ fitness and remapping transgender male masculinity in online message boards. *Journal of Gender Studies, 26*(3), 254–268.
- Gattario, K. H., Frisén, A., Fuller-Tyszkiewicz, M., Ricciardelli, L. A., Diedrichs, P. C., Yager, Z., Smolak, L., ... (2015). How is men's conformity to masculine norms related to their body image? Masculinity and muscularity across Western countries. *Psychology of Men & Masculinity, 16*(3), 337.
- Harris, M. A., Alwyn, T., & Dunn, M. (2019). Symptoms of muscle dysmorphia between users of anabolic androgenic steroids with varying usage and bodybuilding experience. *European Journal of Health Psychology, 26*(1), 21–24.
- Hildebrandt, T., Langenbucher, J., & Schlundt, D. G. (2004). Muscularity concerns among men: Development of attitudinal and perceptual measures. *Body Image, 1*(2), 169–181.
- Hui, M., & Brown, J. (2013). Factors that influence body dissatisfaction: Comparisons across culture and gender. *Journal of Human Behavior in the Social Environment, 23*(3), 312–329.
- Krampe, E., & Newton, R. (2006). The Father Presence Questionnaire: A new measure of the subjective experience of being fathered. *Fathering: A Journal of Theory, Research, and Practice about Men as Fathers, 4*(2), 159–190.
- Leit, R. A., Pope, H. G., Jr., & Gray, J. J. (2001). Cultural expectations of muscularity in men: The evolution of playgirl centerfolds. *International Journal of Eating Disorders, 29*(1), 90–93.
- Longobardi, C., Badenes-Ribera, L., & Fabris, M. A. (2022). Adverse childhood experiences and body dysmorphic symptoms: A meta-analysis. *Body Image, 40*, 267–284.
- Mallinckrodt, B. (2022). Clients' experiences of attachment in the psychotherapy relationship. In J. N. Fuentès (Ed.), *The other side of psychotherapy: Understanding clients' experiences and contributions in treatment* (pp. 125–158). American Psychological Association. <https://doi.org/10.1037/0000303-006>.
- Mechanic, K. L., & Barry, C. T. (2015). Adolescent grandiose and vulnerable narcissism: Associations with perceived parenting practices. *Journal of Child and Family Studies, 24*(5), 1510–1518.
- Miller, J. D., Hoffman, B. J., Gaughan, E. T., Gentile, B., Maples, J., & Keith Campbell, W. (2011). Grandiose and vulnerable narcissism: A nomological network analysis. *Journal of Personality, 79*(5), 1013–1042.
- Mitchison, D., Mond, J., Griffiths, S., Hay, P., Nagata, J. M., Bussey, K., Trompeter, N., Lonergan, A., & Murray, S. B. (2021). Prevalence of muscle dysmorphia in adolescents: Findings from the EveryBODY study. *Psychological Medicine, 1*–8. <https://doi.org/10.1017/S0033291720005206>
- Neziroglu, F., Khemlani-Patel, S., & Yaryura-Tobias, J. A. (2006). Rates of abuse in body dysmorphic disorder and obsessive-compulsive disorder. *Body Image, 3*(2), 189–193. <https://doi.org/10.1016/j.bodyim.2006.03.001>
- O'Koon, J. (1997). Attachment to parents and peers in late adolescence and their relationship with self-image. *Adolescence, 32*(126), 471.
- Olivardia, R. (2001). Mirror, mirror on the wall, who's the largest of them all? The features and phenomenology of muscle dysmorphia. *Harvard Review of Psychiatry, 9*(5), 254–259.
- Osa, M. L., & Kelly, N. R. (2021). Experiences of discrimination are associated with drive for muscularity among African American men. *Psychology of Men & Masculinities, 22*(2), 365–374.
- Pope, C. G., Pope, H. G., Menard, W., Fay, C., Olivardia, R., & Phillips, K. A. (2005). Clinical features of muscle dysmorphia among males with body dysmorphic disorder. *Body Image, 2*(4), 395–400.
- Pope, H. G., Jr., Gruber, A. J., Choi, P., Olivardia, R., & Phillips, K. A. (1997). Muscle dysmorphia: An underrecognized form of body dysmorphic disorder. *Psychosomatics, 38*(6), 548–557.
- Pope, H. G., Jr., Olivardia, R., Gruber, A., & Borowiecki, J. (1999). Evolving ideals of male body image as seen through action toys. *International Journal of Eating Disorders, 26*(1), 65–72.
- R Core Team. (2017). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing.
- Rodrigue, C., Isabelle, L., Olivier, T., & Catherine, B. (2018). Muscle dysmorphia and eating disorders: Comparison on self-esteem and personality traits. *International Journal of Psychology and Psychoanalysis, 4*(2), 1–8.
- Rosseel, Y. (2012). An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1–36.
- Sandgren, S. S., & Lavallee, D. (2022). Intervention development for people with muscle dysmorphia symptoms: Best practice and future recommendations. *Journal of Loss and Trauma, 1*–12. <https://doi.org/10.1080/15325024.2022.2119718>

- Sherman, E. D., Miller, J. D., Few, L. R., Campbell, W. K., Widiger, T. A., Crego, C., & Lynam, D. R. (2015). Development of a short form of the Five-Factor Narcissism Inventory: The FFNI-SF. *Psychological Assessment, 27*(3), 1110–1116.
- Stanford, J. N., & McCabe, M. P. (2005). Sociocultural influences on adolescent boys' body image and body change strategies. *Body Image, 2*(2), 105–113.
- Steinfeldt, J. A., Gilchrist, G. A., Halterman, A. W., Gomory, A., & Steinfeldt, M. C. (2011). Drive for muscularity and conformity to masculine norms among college football players. *Psychology of Men & Masculinity, 12*(4), 324–338.
- Tan, Y., Shaw, P., Cheng, H., & Kim, K. K. (2013). The construction of masculinity: A crosscultural analysis of men's lifestyle magazine advertisements. *Sex Roles, 69*, 237–249. <https://doi.org/10.1007/s11199-013-0300-5>
- Tod, D., Edwards, C., & Cranswick, I. (2016). Muscle dysmorphia: Current insights. *Psychology Research and Behavior Management, 9*, 179–188.
- Weingarden, H., Curley, E. E., Renshaw, K. D., & Wilhelm, S. (2017). Patient-identified events implicated in the development of body dysmorphic disorder. *Body Image, 21*, 19–25. <https://doi.org/10.1016/j.bodyim.2017.02.003>
- Wolke, D., & Sapouna, M. (2008). Big men feeling small: Childhood bullying experience, muscle dysmorphia and other mental health problems in bodybuilders. *Psychology of Sport and Exercise, 9*(5), 595–604. <https://doi.org/10.1016/j.psychsport.2007.10.002>
- Wooldridge, T. (2022). Boys and their muscles: The paternal object in muscle dysmorphia. *The Psychoanalytic Study of the Child, 1*–17.