

Muscle dysmorphia in men: challenges in classification and recognition

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Abstract

Muscle dysmorphia (MD) is a condition marked by increased preoccupation with increasing muscle size and sculpting the body to achieve a very defined muscular look akin to a bodybuilder's physique. First described in the 1990s, MD is still a condition about which little is known and there exists an ongoing debate regarding its classification, manifestations and best ways to treat it. It is undeniably closely linked with conditions on the eating disorder spectrum and this proximity has invited many opinions to challenge its classification under the umbrella of body dysmorphic disorders. Further exacerbating the efforts to understand MD is the fact that, so far, little work has been done to understand the depth at which it is affecting our society and extent of its presence among individuals. More work is needed to understand the intricacies of this condition and to clarify its position among other body image-centric conditions; only then will we be able to address it fully and take tangible steps to alleviate its symptoms.

Introduction

In 1993, Pope, Katz and Hudson (1) carried out a study in which 8.3% of 108 male bodybuilders were described as exhibiting signs of a body image disorder characterised by the belief that they were "weaker and smaller" despite being "large and muscular". The term "reverse anorexia" was used to mark this condition due to its characteristic preoccupation with "bigness" as opposed to "thinness". This was one of the earliest descriptions of the condition we now know as muscle dysmorphia (MD). In the study, Pope et al. suggested a link between anorexia and reverse anorexia and a potential increased risk of developing reverse anorexia in male bodybuilders. They also reported an increased use of steroids in patients with reverse anorexia. The term "muscle dysmorphia" was coined in a 1997 study by Pope et al. (2) as a subtype of body dysmorphic disorder (BDD) that affected both men and women. In this study, the rising prevalence of the disorder was linked to an increased interest in weightlifting and body sculpting in society, and it was suggested that reversing the prevalent and fashionable bodybuilding trends could lead to a drop in the numbers of MD cases (2). Comorbidities such as steroid use and elevated stress levels were also highlighted. The diagnostic criteria developed in that study are still used to this day (Box 1). Box 2 shows, by comparison, the DSM-5 diagnostic criteria for MD under the umbrella of the obsessive-compulsive disorder branch of BDDs.

Box 1. Muscle dysmorphia diagnostic criteria as suggested by Pope et al. (2); individuals need to satisfy all the criteria in order to be diagnosed

1. The preoccupation with the idea that one's body is not as lean or as muscular as desired, coupled with prolonged weightlifting and strict dieting.
2. The preoccupation negatively impacting the individual's life in two out of the following four areas.
 - A. Forgoing social, recreational and occupational activities to maintain their diet and workout regimen.
 - B. The avoidance of situations that would call upon exposing their body and only indulging with marked signs of distress and discomfort.
 - C. The presence of clinically significant levels of distress in social, recreational and occupational functioning due to the preoccupation with body size.
 - D. The continual partaking in dieting, exercising and substance abuse despite knowing their adverse physical and psychological effects.
3. The preoccupation is primarily linked with the idea of being too small and not being muscular enough.

Precipitating factors

In 2000, the first controlled MD study was conducted by Olivardia, Pope and Hudson (4), in which they canvassed and screened individuals from several gymnasiums. Participants were separated into a MD group consisting of 24 men and a second group consisting of 30 men with "normal" weightlifting habits. They found that the men in the MD group exhibited higher degrees of body dissatisfaction, disordered eating habits, prevalence of anabolic steroid use and lifetime prevalence of DSM-IV mood, anxiety and eating disorders. The media, along with peer pressure, has been suggested as one of the main reasons behind the increased risk of developing MD (5). In their work, Thornborrow et al. established that samples from both Western, educated, industrialised, rich and democratic (WEIRD) and non-WEIRD societies exhibited pressure to seek muscularity and suggested that media dissemination between cultures helps in delivering westernised body ideals to cultures that might not have been as inclined to seek a muscular body ideal (5). A study of 593 "celebrity worshippers" in China examined the role that parasocial attachments to celebrities has on

Box 2. DSM-5 diagnostic criteria for body dysmorphic disorders (3)

Disorder class: obsessive-compulsive and related disorders

- A. Preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others.
- B. At some point during the course of the disorder, the individual has performed repetitive behaviours (e.g., mirror checking, excessive grooming, skin picking, reassurance seeking) or mental acts (e.g., comparing his or her appearance with that of others) in response to the appearance concerns.
- C. The preoccupation causes clinically significant distress or impairment in social, occupational or other areas of functioning.
- D. The appearance preoccupation is not better explained by concerns with body fat or weight in an individual whose symptoms meet diagnostic criteria for an eating disorder.

Specify if:

- With muscle dysmorphia, the individual is preoccupied with the idea that his or her body build is too small or insufficiently muscular. This specifier is used even if the individual is preoccupied with other body areas, which is often the case.

Specify if:

Indicate degree of insight regarding body dysmorphic disorder beliefs (e.g., "I look ugly" or "I look deformed").

- With good or fair insight: the individual recognises that the body dysmorphic disorder beliefs are definitely or probably not true or that the may or may not be true.
- With poor insight: the individual thinks that the body dysmorphic beliefs are probably true.
- With absent insight/delusional beliefs: the individual is completely convinced that the body dysmorphic beliefs are true.

the degree of body dissatisfaction and found a significant association between muscularity-oriented body dissatisfaction and celebrity worship in men (6). Even action figures traditionally marketed towards young boys have become leaner and more masculine. In their 1999 study, Pope et al. (7) collected an assortment of popular action figures and carried out waist and chest measurements; they found that the more recently produced toys were markedly more muscular. They suggested that their findings provided the male analogue to research on toys such as Barbie and their effect on female body image, and how the normalisation of a certain body type through these toys sets a standard to be achieved from a young age (7). Perhaps no other male toy embodies this focus on "outlandish physique" as much as G.I. Joe, an action figure that was first introduced in 1964, according to a New York times article entitled "Drugs, Sports, Body Image and G.I Joe" (8). Furthermore, the advent of online dating has played a part in creating pressure to conform to a certain ideal in order to be viewed as desirable. A study examining the relationship between dating apps and body dissatisfaction among sexual minority men (bisexual, gay and men who sleep with men) using the Male Body Attitude Scale (MBAS) (9) found that dating app users reported significantly higher degrees of body dissatisfaction compared to the participants who were not on those apps (10).

Manifestations and links to eating disorders

MD is a condition that manifests itself in extreme dieting and exercise regimes, social and professional dysfunction, anxiety, supplement abuse leading to possible physical harm, depression and suicidality (11). MD has been linked to eating disorders since it was first described as "reverse anorexia nervosa" by Pope et al. in their seminal paper in 1993 (1). Of note, however, is the fact that in their study, Pope et al. concluded that two out of the three individuals with anorexia nervosa (AN) also suffered from "reverse anorexia nervosa". This degree of overlap was noted by the authors as worth investigating, commenting that the similar nature of the two conditions.

It justified the name "reverse anorexia nervosa" since the disorder seemed to present much like AN but in reverse (1). In fact, there exists a significant degree of similarity between the diagnostic criteria for MD, AN and bulimia nervosa (BN) (12). According to the DSM-5, AN and BN are characterised by a degree of self-evaluation based on body shape and weight (3). This self-evaluation is also present in MD patients (2). People suffering from these conditions are in pursuit of different versions of the "ideal body" to which they attach their own self-worth. Similarly, in a 2004 study by Olivardia et al. (13) that examined the link between male body dissatisfaction and various other associated factors, including eating pathologies, the authors found a positive relationship between male body dissatisfaction and measures of eating pathologies.

Diagnostic tools

There are several diagnostic tools for MD based on the current diagnostic criteria. The Muscle Dysmorphia Inventory (MDI) (14) is a self-reporting tool which includes 40 items and six sub-scales: body size-symmetry, physique protection, exercise dependence, supplement use, dietary behaviour and pharmacological use (14, 15).

The Muscle Dysmorphia Disorder Inventory (MDDI) (16) was derived from the MDI to incorporate better the functional impairment associated with MD (15). The original MDDI consisted of 21 self-report items scored on a five-point Likert scale across three subscales: drive for size, appearance intolerance and functional impairment (16). A more recent version of the MDDI consists of 13 items across the same three subscales (17). Other assessment tools include the

Adonis Complex Questionnaire (18), the Muscle Dysmorphia Symptoms Questionnaire (4) and the Muscle Appearance Satisfaction Scale (19).

Classification

MD is categorised as a BDD within the somatoform disorders (3). However, there is ongoing debate about how MD is conceptualised and classified, with detractors of the current classification highlighting the similarities between MD, AN and other eating disorders, as mentioned earlier. One major area of contention centres around the argument that, unlike other BDDs, MD exhibits an obsessive-compulsive preoccupation with exercise and diet which is similar to AN (20). Contrary to previously held beliefs, meticulous and strict dieting is not a secondary feature, but a primary and fixed feature in developing and maintaining MD (21); individuals with MD report a heightened sense of anxiety with regard to diet disturbances (2). This strict adherence to dieting further links MD to the eating disorder spectrum in a way that is not matched by any other BDD. Similarly, the role of exercise has been shown to be central to the development of AN, especially amongst males (22), thus indicating that both excessive exercise and strict diets are integral in the development of both MD and AN. Moreover, it is argued that, unlike most BDDs, MD shows a skewed gender ratio, with males more likely to be affected than females, and AN also has a skewed – if reversed – gender distribution (23, 24). It has been argued that eating disorder assessment tools are often directed towards traditional feminine body concerns, such as hip and buttock measurements, while neglecting body concerns that could pertain more closely to the male population, rendering the entire diagnostic process skewed (25). These factors seem to drive the conclusion that MD needs to be reconceptualised as an eating disorder rather than a BDD. Alternatively, Chung et al. (20) argue that both MD and AN are marked by the presence of certain obsessive-compulsive tendencies with regard to body shape, weight, exercise and dietary practices, and therefore it would potentially be beneficial to include MD as an obsessive-compulsive disorder better to address these aspects of disordered behaviour, rather than focusing on the body dissatisfaction elements. However, if both AN and MD exhibit obsessive-compulsive tendencies, the question then is, should they be both classified as obsessive-compulsive disorders, or should they be conceptualised as eating disorders with obsessive-compulsive tendencies?

It is evident that the classification of MD remains open to debate. Two separate systematic reviews, conducted in 2012 (26) and 2020 (27), concluded that research in MD still needs to cover multiple areas to achieve a better understanding of the true nature of the illness. Recommendations have ranged from keeping MD on the BDD spectrum, reclassifying MD as an ED, reclassifying MD as an obsessive-compulsive disorder or categorising MD as a distinct disorder under the "Feeding and Eating Disorders" category (26, 27). A study by Foster et al. (28) suggested reclassifying MD as an "addiction to body image", based on the notions that individuals maintain long-lasting harmful practices due to their addictive tendencies towards attaining and sustaining a "perfect body type". The lack of detailed research is a limitation to progress in the classification debate. It is important for more studies to look at the true nature of MD among people who are suffering from the condition in order to provide an accurate depiction of the lived experiences of these individuals. It is possible that many critical nuances of this disorder are yet to be identified. This detailed, accurate understanding of the manifestations of the disorder on an intimate level should help to inform those designing comprehensive large-scale studies to define the parameters of MD more clearly and place it where it belongs categorically.

Recognition and challenges

Following this early work, MD and the preoccupation with muscle size has become a hot topic of research, especially in the last 10 years (29), leading to the addition of MD to the DSM-5 (3), where it is characterised as a subset of BDD. Similarly, MD is mentioned in the ICD-11 under the umbrella of BDD (30). Despite the uptake in research, there is an ongoing uncertainty about how to classify the disorder. In 2016, dos Santos Filho et al. (31) conducted a systematic search of the literature dedicated to the study of MD and concluded that not enough work had been done to ensure the "validity, clinical utility, nosological classification and inclusion of MD as a new disorder in classificatory systems of mental disorders". Another issue is that while clinicians are encountering more patients with this disorder, little work has been done with individuals who have been clinically diagnosed with MD in order to glean from them their experiences (32). To date, only one study we could find had been conducted to examine the diagnostic criteria established by Pope et al. in 1997 (2) (shown in Box 1). Hitzeroth et al. (33) used structured diagnostic interviews and examined a sample of 28 amateur body builders in Western Cape in South Africa to determine whether they satisfied the proposed diagnostic criteria. They found a prevalence of 53.6% for MD and a 33% prevalence of comorbid BDD. More work is needed to establish the extent to which MD is affecting society. Prevalence rates have been shown to vary from 1% to 54%, depending on the study. This discrepancy is often attributed to the lack of a standardised method of diagnosing MD. However, it has been suggested that up to 1 in 10 gym-going men in the UK could be suffering from MD (34). It is unclear what percentage of gym memberships are held by men; however, it is estimated that the split is 46% and 54% for males and females, respectively (35). Coupled with the fact that more than 16% of the UK's population (10.7 million) held an active gym membership in 2024 (36), this implies that 490,000 men in the UK (1.48% of the male population) could be suffering from MD and all of its potentially life-threatening consequences. This number is close to the estimated 427,000 males suffering from MD in the UK that was posited by Tod et al. in their 2016 review

(29). In comparison, it is estimated that 266,300 and 443,800 people suffer from AN and BN, respectively (37). This suggests that MD could be as pervasive as these conditions. However, it remains misunderstood and misdiagnosed, and treatment options remain vague and unfocused. More attention needs to be paid to this condition.

Conclusion and future questions

MD is a condition marked by excessive preoccupation with muscular size and features. It can appear in both sexes but seems predominately to affect men. The rationale to explain this gender polarity relates to societal expectations of muscularity among men. MD manifests in a variety of behaviours, with the main three being an unhealthy association with exercising in order to gain muscle, very rigid and strict dieting and use of steroids/other androgenic substances. MD classification as a subtype of the BDD spectrum has long been a topic of debate, with sceptics arguing that MD has much more in common with other eating disorders such as AN, with both conditions being characterised by unhealthy dieting and exercise. However, much of the research has focused on a categorical approach to define MD and not much has been undertaken to look into MD as an independent condition with features transcending the different categories. The issue of classification remains unresolved. Should MD be classified within the category of one of the other disorders or should it be viewed as a separate condition comprising features of eating disorders, body dysmorphia and obsessive-compulsive disorder? However, the more important questions are how MD, an apparently widely prevalent condition, should be recognised, and how it should be managed satisfactorily to minimise the potentially serious comorbidities. These questions will be best addressed by conducting more studies to look at the lived experiences of the individuals who have suffered from MD. It is only through the deep understanding of such stories that future research could be shaped to best address the unique manifestations of MD across different individuals. Furthermore, future studies need to examine the sociocultural differences amongst people suffering from MD and how these affect the ways the condition manifests. Different sexualities and ethnicities infer different life experiences and therefore potentially different areas of concentration when it comes to one's relation to one's body. An example of this was manifested in a study on MD among transgender men (38). This study found that, despite similar scores in the drive for size category, transgender men were more likely to show anxieties and body avoidance behaviour compared to cisgender men. These differences are potentially fuelled by different life experiences that warrant further investigation in order to gain additional understanding of MD that reaches beyond the two dimensional "muscular versus skinny" approach.

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