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# Men's Body Image: The Effects of an Unhealthy Body Image on Psychological, Behavioral, and Cognitive Health

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## Abstract

In the past two decades, growing empirical efforts have illuminated the need to understand body image disturbances and preoccupations associated with the male experience. Scholars, practitioners, and more recently, public policy are increasingly interested in the nature, causes, and consequences of men's body image apprehensions and weight concerns. This accession is largely due to the fact that men are progressively becoming more visible in popular culture (especially through exceedingly lean and muscular depictions) and concurrently, severe body image-related disorders such as anorexia nervosa among men are on the rise. This chapter aims to provide a review of the consequences associated with men's unhealthy body image including the psychological (e.g., weight distortions and emotional valence), behavioral (e.g., dieting/fasting, substance use, and cosmetic surgery), and cognitive health outcomes particular to the male experience (e.g., appearance schemas, cognitive performance, and cognitive load/malnutrition on cognitive functioning).

**Keywords:** men's body image, weight, psychological consequences, health-compromising behaviors, cognition

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## 1. Introduction

Until recently, empirical and theoretical research pertaining to the realm of body image was largely restricted to the female experience [1, 2]. However, contemporary efforts have illuminated the need to understand body image disturbances and preoccupations associated with the male experience [3, 4]. Indeed, academics, health practitioners, and public policy authorities

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are increasingly interested in the nature, causes, and consequences of men's body image apprehension because ample empirical research indicates the irrefutable rise in weight concerns and eating disorders among men [5–10]. According to researchers, [11] this accession is largely due to the fact that men are progressively becoming more visible in popular culture (especially through exceedingly lean and muscular depictions).

Scholarly and mainstream research reveals that one third of those suffering from anorexia nervosa and one fourth from bulimia nervosa are men and nearly equivalent numbers of men and women suffer from binge eating disorders [12]. Ultimately, the notion that body image is a predominantly female-oriented domain has lifted given that current evidence suggests that males are approaching parity in terms of the pervasiveness of body dissatisfaction and body dysmorphia [13, 14].

Furthermore, while cultural differences exist in body ideals (e.g., sub-Saharan African cultures desire larger body ideals for both men and women), a lean, muscular, V-shaped figure with broad shoulders and a narrow waist (i.e., the “muscular ideal”) is the current ideal for men in Western cultures [15]. According to Owen and Laurel-Seller, [16] Western gender-specific body ideals are associated with wealth, virtue, control, and attractiveness. Yet, the adverse effects of societal norms around ideal body sizes on psychological, behavioral, and cognitive well-being powerfully overshadow these perceived and sometimes observed advantages (see [17] for a review). Men's body image disturbance is therefore recognized as a complex matter, though means to understand and reduce the negative repercussions associated with such body ideals are under investigation [11, 18].

The purpose of this chapter is to contribute to this emerging body of research by providing a comprehensive review of the common consequences associated with men's unhealthy body image. A number of electronic databases including PsychINFO, MEDLINE, and PubMed were searched for relevant studies published between 2000 and 2017. For literature on male cognitive experiences and the effects related to malnutrition, the search was extended to include the 1990s given the relative size of the domain.

The chapter begins by defining the concept of body image and is subsequently divided into three sections to elaborate on the psychological (e.g., weight distortions and emotional valence), behavioral (e.g., dieting/fasting, substance use, and cosmetic surgery), and cognitive health outcomes particular to the male experience (e.g., appearance schemas, cognitive performance, and cognitive load/malnutrition on cognitive functioning).

## 2. Body image defined

Today, body image is a refinement of previous delineations and defined loosely as the multifaceted and “profound human experience of embodiment”. [19] Specifically, body image is the complex mental image of one's own body including the perceptions an individual has of their body such as attitudes and feelings about their shape and weight, beliefs about their own appearance (e.g., from past experiences and assumptions), and the sensations experienced such as how one feels in their body and not merely the feelings about their body [20]. Body

image may be assessed in a variety of ways including measures of body satisfaction and dissatisfaction, body esteem, body-related shame, body image avoidance, appearance schemas, body distortions, weight misrepresentations, and eating disorder inventories (see [21] for a review). The development of scales explicitly for the evaluation of the male experience have surfaced especially in the last decade including, but not limited to, the Muscle Appearance Satisfaction Scale [22] and the Revised Male Body Attitudes Scale [23]. The fact that body image may be assessed in a variety of ways highlights the complexity of the construct.

In addition, there are healthy body images and unhealthy body images, each a unique paradigm. A negative or unhealthy body image is characterized by a distorted perception of the body and adverse feelings toward the entire body or body parts such as shame, appearance anxiety, body dissatisfaction, or self-consciousness. On the other hand, a positive or healthy body image is characterized by an accurate perception of the body's natural shape and size, and feelings of satisfaction and confidence with one's appearance without concerns or over-investment in weight and physical appearance [24].

Negative body image is associated with a number of adverse effects such as low self-esteem, depression, and eating disorders, to name a few. [14] Neumark-Sztainer et al. [25] uniquely explored the potential benefits of a negative body image to expand the literature in the domain. Their five-year longitudinal study of male and female adolescents investigated the associations between body satisfaction at Time 1 and health outcomes at Time 2. They explored whether some degree of body dissatisfaction would benefit individuals by enhancing their motivation to engage in healthier eating, weight maintenance, and physical activity. The findings revealed that low levels of body satisfaction did not serve as a motivator for engaging in healthier behaviors but actually predicted poorer weight management, which in turn increased the risk of weight gain and poorer overall well-being. Specifically, they found that less body satisfaction predicted increased levels of dieting and binge eating, and decreased levels of physical activity among boys and girls. Overall, their efforts further support the notion that body/weight satisfaction and body image in general play a role in shaping health outcomes.

It is well-established that Western societal norms influence men's unhealthy body image. Two recent meta-analyses based on correlational and experimental designs have documented that muscular ideal images, as portrayed in mass media, can have a significant impact on many boy's and men's unhealthy body image [26, 27]. Although relatively small effect sizes, Barlett et al. [26] found that across 15 correlational studies, pressure from the media was significantly related to negative self-images, Cohen's  $d = .19$ , and across 10 experimental studies, exposure to muscular ideal images had a significant negative effect on men's body image through negative body esteem,  $d = .40$ , and body dissatisfaction,  $d = .25$ . Blond [27] also explored the relative impact of exposure to the muscular ideal on men's body and weight dissatisfaction. Across 15 studies of various designs, the findings yielded an average effect size of  $d = .42$ , thereby indicating that exposure to male ideal images has a small but statistically significant effect on men's body and weight dissatisfaction.

In addition, review articles have examined the impact of the ideal images on boy's and men's body image resulting in a number of health-compromising behaviors [5, 28]. These reviews have recognized that exposure to media portrayals of the muscular ideal often lead to detrimental behaviors including harsh dieting regimes and compulsive exercise. Due to

the concerning number of consequences associated with such mass messages, scholars have emphasized the need to further understand the effects of societal norms on boys and men to extend theory and provide optimal therapeutic aid.

### 3. Psychological consequences

In general, while the prevalence for body dissatisfaction rises among men in Western cultures, consequently so does the frequency of various adverse psychological outcomes. For example, findings reveal that body dissatisfaction among men is associated with lower self-confidence, depressive symptomatology, [14] greater appearance anxiety, [29] social anxiety, muscle dysmorphia, [2] increased loneliness, [30] over-investment in self-appearance (e.g., clothing/apparel), [31] increased motivation or drive for muscularity, [9] and greater distorted body perceptions [32]. Overall, common body image experiences include weight distortions/misperceptions and negative affect.

#### 3.1. Weight distortions

A recent study [33] assessed the association between body distortion and depressive symptoms among adolescent boys over time, into early adulthood. Extracted from the United States National Longitudinal Study of Adolescent Health, the data included 2139 adolescent boys (on average 16 years of age) who were followed from 1996 to 2009. The results showed that boys who classified as average weight (using BMI) and viewed themselves as very underweight or overweight (i.e., having a distorted view of the self), reported significantly higher levels of depressive symptoms compared to boys who accurately viewed their weight as average. Moreover, this distorted self-view was maintained over the 13-year study period. Therefore, the findings indicate that male distorted weight perceptions, particularly extreme distortions, are risk factors for increased depressive symptomatology among adolescent boys, which persist even into adulthood.

Current evidence also suggests that men who are underweight or who are in the normal weight range are more accurate in categorizing themselves compared to overweight and obese men who, evidently, report underestimations of their size [34]. For example, a recent study examined weight misperceptions among a large sample ( $n = 655$ ) of Spanish adolescents [35]. Consistent with previous studies, the authors found that males were more likely than females to perceive themselves as having a normal weight when in reality, they were overweight. Conversely, females were more likely to perceive themselves as overweight despite having a normal weight. They also found that for men who have a normal weight, only 22% considered themselves as overweight. Collectively, the results indicate that body and weight misperceptions can cause some men to believe that they practice healthy behaviors when, in fact, they should be practicing more self care.

Conversely, Gardner [36] found that obese and normal-weight men detect changes in their body size relatively reliably and hold more accurate views of the self. Although research is largely inconsistent, and requires attention using new approaches, prospective analyses that consider the mediating factors will help shed light on the psychological processes that trigger weight and body size distortions. For instance, body-esteem, the degree of self-consciousness, and neuroticism may moderate weight perceptions.

### 3.2. Emotional valence

Self-discrepancy theory identifies and explains how diverse forms of incongruities between self-state representations are related to different kinds of affective vulnerabilities [37]. Essentially, a facet of the self (actual, ideal, or ought) combined with an outlook on the self (own versus other) form different kinds of self representations. The theory also proposes that experiencing self-discrepancies uncover emotions that are associated with various degrees of discomfort. For example, incongruities between the actual/own self (i.e., the self-concept) and ideal self tend to yield melancholic emotions such as disappointment or sadness. On the other hand, incongruities between the actual/own self and ought self emit undesirable tension-related emotions such as feeling restless. Essentially, experiencing self-discrepancies are expected to instigate different kinds of negative emotional responses.

Self-discrepancy theory is particularly exhaustive in body image-related research. For example, the theory was applied to further understand body dysmorphic disorder patients compared to non-patient participants in their beliefs about their own appearance [38]. The results revealed that body dysmorphic disorder patients displayed significant discrepancies between their actual and both their ideal and ought self. In addition, patients did not experience discrepancies between their actual/own and actual/other perspectives. At large, the findings demonstrate that body dysmorphic disorder patients have an unrealistic appearance ideal. The authors proceeded to compare the findings with the general literature in the sphere of disorders and advocate that patient participants showed analogous self-discrepancy patterns as depressed patients (rather than social phobic patients or bulimic patients) as they were more concerned with the failure to achieve their own esthetic standard than with the perceived ideals of others.

In 2003, the circumplex model of affect was developed to explain the vast number of empirical observations from studies in affective neuroscience to emotive psychopathologies. [39] The model is visually represented with a horizontal axis representing the valence dimension and a vertical axis representing the arousal dimension. Emotions fall into one of four quadrants; pleasant valence/high arousal (e.g., happy, excited), pleasant valence/low arousal (e.g., relaxed, satisfied), unpleasant valence/low arousal (e.g., sad, depressed), and unpleasant valence/high arousal (e.g., stressed, anxious) [40].

The circumplex model of affect is considered to be more consistent with many recent findings from behavioral, cognitive neuroscience, neuroimaging, and developmental studies of affect. Hence, future research may integrate concepts from the circumplex model of affect to investigate the multifaceted emotional responses associated with men's weight and body image experiences.

### 4. Behavioral consequences

In terms of the behavioral outcomes, negative body image is associated with increased disordered eating, [41] greater dietary supplement use, [42] increased use of dieting regimes, [28] compulsive exercise, [43, 44] and the use of performance-enhancing drugs [45].

Research demonstrates that while young adults frequently feel dissatisfied with their body weight and size, in many situations body image disturbances are reported by those with a healthy weight [46]. More specifically, in adolescent and college samples, between 28 and 68% of

normal-weight men perceive themselves as underweight and report the desire to increase their muscle mass through dieting and strength training [7, 47]. Olivardia et al. [14] found that college men selected the ideal body to be 25 pounds (11.34 kg) more muscular than their own level of muscle. They further examined whether lower levels of perceived muscularity and perceived fatness were associated with depressed mood and body dissatisfaction. Results showed that only perceptions of low muscularity were related to such negative attitudes and mood. Perceptions of fatness or heaviness did not predict such negative effects thereby indicating that muscularity may be more important to some men. Similarly, new efforts [48] found that more muscular body types were the desired feature among both sexual minority and heterosexual men.

Several researchers infer that many men who strive for greater muscularity tend to hold stricter gender-role principles and conform to societal male norms [49]. In fact, minimal muscularity among men was found significantly related to body dissatisfaction and less perceived masculinity [14]. Researchers [50] also recognize that there are indeed gay men who value muscularity norms. Even in same-sex romantic relationships, many men perceive pressures to be physically attractive and pressures to appear highly muscular and masculine in order to be accepted by society and perceived as desirable by other gay men [51]. Consequently, pressure to gain muscle mass can be experienced by men regardless of weight status or sexual orientation.

#### **4.1. Eating disorders, dieting, and fasting regimes**

Frequently, body image is discussed in terms of weight loss and eating disorders such as anorexia and bulimia nervosa. In some cases, however, weight gain, obesity and binge eating are consequences of negative body image [52]. When exploring the body images of obese and non-obese men, the most common aspects of physical appearance that contribute to body dissatisfaction for both obese and non-obese men are the waist or abdomen followed closely by chest, arms, and the body as a whole [53]. There is also strong evidence suggesting that obesity is related to poor body image, but that not all obese persons suffer from this problem or are equally vulnerable. Although properly monitored and regulated weight-control eating practices may be appropriate for obese individuals, extreme weight control and weight loss regimes can cause physical and mental degradation [54]. For example, severe dieting or fasting can cause fatigue, sinus problems, bloodshot eyes, gallbladder disease, seizures, dehydration, malnutrition, and atrophy of muscles (i.e., when muscles fade). Psychological consequences of dieting and fasting may include irritability, depression, lower sex drive, and the risk of falling vulnerable to eating disorders like bulimia nervosa, anorexia nervosa, or binge eating which typically contributes to the issue of obesity rather than help the person shed weight and improve their body image [55].

Furthermore, eating disorders can affect body image quality of life. A cross sectional survey study with 311 participants examined the differences between groups in quality of life among a clinical sample with eating disorders ( $n = 70$ ; 15.7% men), a clinical sample with other psychological disorders such as anxiety and depression ( $n = 106$ ; 36.8% men), and a non-clinical student sample ( $n = 135$ ; 40% men). [56] The findings revealed that the eating disorder group experienced the lowest body image quality of life, followed by the clinical group with other psychiatric disorders who experienced modest body image quality of life, and the student group who experienced the highest quality of life. Contrary to most previous studies, they also



found that men with an eating disorder experienced poorer body image quality of life compared to women with an eating disorder. Today, some studies suggest that boys report more body dissatisfaction than girls and hence, might explain the gender difference observed in this study. Additional research is required to further explore the impact of male body image and eating disorders on quality of life measures and vice versa.

#### **4.2. Substance use (steroids, prohormones, and ephedrine)**

In response to body dissatisfaction and general body image disturbances, some men seek ways to modify their body, which often leads to extreme and harmful actions. Some men use anabolic-androgenic steroids (AASs), prohormones, and/or ephedrine to improve their appearance through muscle augmentation [5, 44]. A study based on data collected in 2001 and 2002 from the Health Behaviour in School-Aged Children National Research Project in Canada found that 4% of boys in the ninth and tenth grade reported anabolic steroid use [57]. The practice of using anabolic steroids forecasts many psychological and physiological risks such as fluctuations in mood and changes in the level of low-density lipoproteins (LDL) and high-density lipoproteins (HDL) in the blood stream [14]. Explicitly, AASs cause an increase in LDL (lipoproteins that deposit cholesterol in the arteries), and a decrease in HDL (lipoproteins that cleanse the arteries) thereby increasing the risk of heart disease. In general, anabolic steroid use can have serious deleterious effects on psychological and somatic well-being.

Prior to the 1980s, AAS use was largely limited to elite athletes. Since then, the dissemination of mainstream books and online information has contributed to a shift in AASs usage from athletes to the general population [58]. In fact, a recent analysis estimated that 2.9 to 4.0 million individuals in the United States, nearly all of whom are male, have used AASs at some time in their lives [59]. Within this growing new population of users, even the oldest members, who first initiated AAS use as youth in the 1980s, are now entering middle age and beginning to experience the combined effects of long-term steroid abuse.

Emerging research has connected several adverse health effects with AAS use. For example, there is an increased risk of psychiatric effects, prolonged suppression of the hypothalamic-pituitary-testicular axis, premature death, cardiovascular disorders, and potential lasting neurotoxic effects [60]. Long-term exposure to supraphysiologic doses of AASs (extremely high doses than typically recommended) has been linked to myocardial dysfunction, stroke, severe cardiomyopathy, and acceleration of atherosclerotic disease in young individuals [61]. In addition, users may develop manic or hypomanic symptoms that are sometimes associated with aggression, violence, and even homicide.

AAS users sometimes combine supraphysiologic doses with other appearance- and performance-enhancing substances such as human growth hormone, thyroid hormones, insulin, and clenbuterol in their attempts to gain muscle and drop body fat [59]. Furthermore, a large percentage of individuals consume over-the-counter herbal or dietary supplements that claim to enhance performance and appearance. Unfortunately, the retail of such supplements is largely unregulated and many merchandise have been found to contain illegal AASs, other anabolic compounds (e.g., androgen receptor modulators), and even toxic contaminants [62]. In these occurrences, users may not be aware of the damage being elicited.

### 4.3. Cosmetic surgery

Men are also increasingly likely to use cosmetic surgery to modify their appearance [63]. Although Canadian statistics are not yet available through the Canadian Society of Plastic Surgeons, the United States and the United Kingdom generate national cosmetic surgery statistics. According to the American Society of Plastic Surgeons 2015 documentation, the most popular procedures for men are rhinoplasty (nose reshaping), blepharoplasty (eyelid surgery), breast reduction, liposuction, and facelift. Although these same procedures were the top five surgical procedures in 2005, the rate of occurrence has increased. Likewise, according to the British Association of Esthetic and Plastic Surgeons the most common procedures in order of popularity are blepharoplasty, rhinoplasty, breast reduction, liposuction, ear correction, and facelift.

Botox anti-wrinkle injections are also increasing in popularity [64]. Between 2002 and 2006, the number of total surgical cosmetic procedures for men in the United States grew by 5% while less invasive methods (such as collagen fillers) increased by 41%. Evidently, men are using various surgical methods and injection treatments to modify their appearance.

## 5. Cognitive consequences

Although attention dedicated to the psychological and behavioral consequences of men's body image disturbances has proliferated, a great deal is still unknown. In particular, the effects on cerebral processes and cognitive performance are scarce. To date, articles investigating the relationship between men's body image and cognitive health are scarce.

### 5.1. Appearance schema

The notion of appearance schema has been suggested by a number of authors particularly in their discussions of societal ideals on body image and weight-related ailments. Based on self-schema theory, [65] appearance schemas are the mental structures that organize and determine the processing of appearance and self-related information [66]. Exposure to schema-relevant information, for instance attractive models in the media, can activate a schema, leading to a heightened sense of self-awareness and increased attention to further schema-relevant information. This schema activation subsequently primes cognitive-affective processing corollaries such as changes in mood, body dissatisfaction, or additional impediments in mental ability. It is important to recognize that while nearly everyone develops an appearance-related schema, the complexity and importance of appearance and weight is much more developed in some individuals, thus increasing their likelihood of being selectively attentive to appearance-related stimuli in their everyday lives.

According to recent work, [67] exposure to the media's renowned male muscular ideal led to increased appearance schema activation in a sample of male university students as a function of increased levels of state self-objectification (heightened level of self monitoring). Likewise, others [68] found that exposure to male focused appearance-related commercials significantly stimulated the appearance schema among adolescent boys. Interestingly, even exposure to



opposite sex body ideals can prime boys and men's cognitive schemas. In particular, [69] found that exposure to idealized images of women in commercial ads had a significant negative effect on men's cognitive functioning. Not only did male participants recall significantly more commercials in the female 'thin ideal' condition, they also generated significantly more appearance words on the word-stem completion task compared to the control group, thereby indicating more appearance schema activation. Similarly, [70] revealed that exposure to the female 'thin ideal' increased the number of appearance-related words generated on the word-stem completion task among young adult men compared to the control group. Findings reiterate that heterosexual men exposed to the female thin ideal tend to also experience biases in cognitive schema.

As a whole, the results support the utility of self-schema theory in proposing schema activation as the underlying process through which the media and other sociocultural pressures can increase body dissatisfaction and appearance schematicity. It also provides an explanation for why some men are more vulnerable than others to weight- and body image-related information.

## 5.2. Cognitive performance

Studies have also explored the relationship between negative body image and academic performance among undergraduate men [71, 72]. Results have revealed that academic interference, such as lower levels of concentration in school, were associated with body dissatisfaction as well as eating and appearance apprehensions. Another study explored the effects of an induced state of appearance self-awareness on math performance (the GRE test) among college men [73]. Essentially, students were assigned to either the body objectification condition (i.e., induced state of self-awareness and monitoring) or the neutral condition. The results showed that men in the objectifying gaze condition performed similar to men in the control condition. However, the limitations suggested that men typically score relatively high on math related tasks and therefore future studies should explore similar body image-related manipulations using different cognitive function tests.

Accordingly, scholars [74] investigated whether set shifting performance and a weak central coherence were associated with the drive for muscularity and muscularity-oriented disordered eating in college men. Set shifting (the ability to switch between mental tasks) was measured using the Wisconsin Card Sorting Test (WCST) which relies on cognitive functions including attention, working memory, and visual processing. Central coherence (the ability to "see the big picture" without fixating on details) was measured using the Matching Familiar Figures Test, a measure of detail-processing ability. The findings revealed that set shifting difficulties and a weak central coherence were both positively associated with the drive for muscularity, and set shifting difficulties were positively associated with muscularity-oriented disordered eating. Hence, cognitive performance based on attention, working memory, and global integration was poorer among men who reported a higher drive for muscularity and muscularity-oriented disordered eating.

In general, extant research has uncovered the notion that conditions which heighten body image awareness and/or instigate weight disturbances may interfere with optimal cognitive

functioning. When adolescent and young adult men are primed to focus on their appearance, their performance may be undermined, indicating that body image disturbances can prevent some men from achieving their full potential mentally.

### 5.3. Cognitive load and malnutrition on cognitive functioning

A variety of perspectives have investigated the relationship between body image and cognitive functioning. Some studies indicate that body image preoccupations, weight loss strategies, or contexts that enhance body image apprehensions may increase cognitive load by directing attention inward onto the self (increasing self-consciousness and self-monitoring) thereby limiting cognitive resources and impairing cognitive performance on alternative tasks [75]. Other studies found that body dissatisfaction led to poorer self-esteem [76] and poorer self-assessments [71] which in turn, distracted and thwarted student efforts to succeed in school. Lastly, some research has demonstrated the deleterious effects of malnutrition in clinical samples (e.g., anorexia patients), [77] non-clinical samples, [78] and dieters [79] on cognitive functioning. For example, [80] found that compared to non-dieters, dieters and restrained eaters displayed impaired performance on a visual-spatial processing vigilance task, short-term memory task, and motor control test. The authors proposed that the effect of food restriction on energy metabolism or other physiological mechanisms might explain the impairments in neurocognitive functioning.

Recently, a study compared the neuropsychological function of patients with anorexia nervosa, bulimia nervosa and healthy controls [81]. Though gender was not controlled for, the authors found that patients suffering from anorexia nervosa demonstrated severe impairment in executive functioning, motor ability, and visuospatial proficiency. Consistent with research in the sphere, [82] severe malnutrition may impede neuropsychological function in men and women. According to a sophisticated meta-analysis, [83] neuroimaging such as magnetic resonance imaging (MRI) and computer tomography (CT scans) show that the brain structure in anorexia patients is actually quite remarkable compared to that of a healthy person. The brain of an anorexia patient structurally suffers a loss of white and gray matter. Importantly, a loss of white matter is associated with poor executive functioning and reduced processing abilities. A comprehensive review by Jáuregui-Lobera et al. [84] noted that hormonal and metabolic mediators can also influence the severity of neuropsychological symptoms. On the contrary, chronic high fat diets and high saturated fat consumption are also associated with cognitive deficits [85]. Overall, cognitive consequences are, quite seemingly, affecting adolescent and adult men and should therefore be a priority for future investigations [86].

## 6. Conclusion

The ever-increasing number of men who experience body image- and weight-related issues is indeed a concern and priority for public policy [8]. According to an analysis of three North American large-sample surveys (conducted in 1972, 1985, and 1996), negative body image among men has become increasingly widespread [87]. Over the 24-year period, appearance dissatisfaction grew from roughly 15 to 43%. A more recent Canadian analysis based on two large-scale surveys (collected in 2002 and 2012) reported that the prevalence of eating disorders

significantly increased among men and significantly decreased among women. Men between 15 and 64 years of age who reported seeking professional help for an eating disorder increased from approximately 20,000 to more than 27,000 over the 10-year period while women who reported seeking professional help for an eating disorder decreased from roughly 102,000 to approximately 85,000 [88]. Consistent with previous findings, the prevalence of eating disorders in North America is regarded as approximately one third men and two thirds women.

Research findings across Western nations also demonstrate increasingly higher rates of body image disturbances in men including Australia, [89] the United States, [90] and the United Kingdom [91]. Health practitioners assert that men in many Western cultures are facing an epidemic of eating disorders since research reveals widespread proportions across different communities. Fundamentally, the problems associated with negative body image and weight concerns have reached new records among men and therefore, current research undertakings, health practitioners, and policy leaders are advocating for the development of new research initiatives specific to the male experience and intervention programs to help alleviate the issues.

Given the numerous consequences of men's unhealthy body image discussed herein, there is considerable consensus for the psychological, behavioral, and cognitive effects. Although the literature is dominated by a focus on unhealthy body image that aims to understand various pathologies, current efforts have begun to explore how to promote positive body image in order to attain a comprehensive understanding of the construct. Solely focusing on relieving symptoms of negative body image without taking into consideration how to foster positive body image essentially limits knowledge and inadvertently diminishes the efficacy of treatment programs [24]. Scholars have called for new research initiatives [21] to investigate the development and experience of positive body image by probing its resilience and protective factors as well as by exploring individual defense factors against negative body image.

In general, experts in the field emphasize that failing to explain why some individuals are more resistant than others to the deleterious effects associated with cultural body ideals and weight concerns continues to remain a large gap in the literature. Future investigations, prevention strategies, and intervention efforts aimed at reducing and deterring negative body image outcomes among men will benefit from the inclusion of protective factors.

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## **Conflict of interest**

There are no conflicts of interest to declare.

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