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Research Paper

Muscle Dysmorphia and Disordered Eating Attitude in Male Gym-Goers of Sikkim

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ABSTRACT

Muscle dysmorphia among males has increased immensely in the past few years. In today's society where extremely high standards of physical appearance are often unattainable are displayed on various platforms, male gym-goers may experience muscle dysmorphia, especially, the ones who participate in bodybuilding sports. This further negatively impacts their eating behaviour often leading to disordered eating attitude. The present study aims to understand the relationship between muscle dysmorphia and disordered eating attitude among male gym-goers. An attempt to compare muscle dysmorphia and disordered eating attitude among competitive and non-competitive gymgoers was also made. A sample of 122 male gym-goers from Sikkim were administered the Muscle Satisfaction Appearance Scale, Eating Attitude Test-26 and a self-developed questionnaire on their exercise during and after Covid-19 lockdown. Results revealed a significantly positive correlation between the two variables. The competitive gymgoers were significantly higher in both muscle dysmorphia and disordered eating attitude than the non-competitive gymgoers.

Keywords: *Muscle Dysmorphia, Disordered Eating Attitude, Gym-Goers, Covid-19*

From times immemorial, physical appearance has been an important parameter for societal appreciation which is considered to be linked to positive outcomes such as success. What is considered beautiful also changes with changing times. Being muscular is regarded as a positive attribution for males. Recent advancements in social media have made it a popular trend for males to aspire to go to the gym and use food supplements to achieve a muscular body. This trend of "popularity of exercise" and a good physique is a double-edged sword as people are giving utmost interest to good practice of exercise; however, it is also associated with high expectations towards their body image. This has resulted in pressure on adolescents and young adults to undergo immense dietary modifications involving supplements, sometimes even steroids, and rigorous body-building exercises.

Muscle dysmorphia (MD) is an utmost form of body image distortion that suffers from a pathological desire to become leaner and more muscular (Pope et al., 1993) and it usually occurs in males. In the 5th edition of the Diagnostic and Statistical Manual of Mental

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Disorders (DSM-5), MD has been identified as a variant of the body dysmorphic disorder within the obsessive-compulsive disorder. This disorder is often applied to reverse anorexia colloquially called bigorexia (American Psychiatric Association, 2013). Individuals with this form of body image disturbance have an ideal standard-looking body and are also preoccupied with other parts of the body like skin and hair. A high level of muscle dysmorphia also tends to result in restrictive dieting, engaging in heavy exercise, and lifting weights devilishly. Some of them use anabolic steroids and other substances to make their mass bigger and more muscular (Nonahal, 2013). They also tend to prioritize more into a workout schedule over family and friends (Emini & Bond, 2014), exhibit body monitoring and camouflaging behaviours (Cafri et al., 2005), hide their physique, negatively affect their work (dos Santos Filho et al., 2015), and high risk of depression and suicide (Pope, 2005; Angelakis et al., 2016). The existence of muscle dysmorphia especially among males has been a worrisome issue who tend to engage in weight training (Pope et al., 1993) and bodybuilding communities. Usually, men in the ages of mid-20s to 30s tend to experience the effect of muscle dysmorphia. Social media pressure and a new adaptation of ideas of muscularity could be prime reasons for muscle dysmorphia (Cranswick, 2020). There is growing literature related to muscle dysmorphia all over the globe in both clinical and non-clinical samples (Tod & Cranswick, 2016). Begin et al. (2019) conducted a study on muscle dysmorphia from the socio-cultural viewpoint on 386 non-clinical samples where the result revealed that among the male participants, muscle dysmorphia was indirectly associated with the drive for muscularity via muscle-enhancing behaviour. This indicates the importance of exploring the environmental influences on males to achieve an ideal masculine body leading to the experience of muscle dysmorphia. The unattainable standards portrayed in the virtual world through social media create a vulnerability to falling for such high standards at the cost of one's well-being.

Another very related issue is the "Disordered Eating Attitude" (DEA) which refers to the difficulty in eating behaviour that appears less acute than those required to meet the full basis for the diagnosis of an eating disorder and is advised as an early indication of an eating disorder (U.S Department of Health and Human Services, 2005) and health problems such as obesity, weak bone, gastrointestinal disturbance, low heart rate, blood pressure, anxiety, depression, self-seclusion, and mental stress (Anderson, 2018). Although disordered eating (DE) can appear at any age; however, it is found to most commonly start in mid to late adolescence. Since the 1990s, the prevalence of DE has been increasing more frequently among men (Hepertz-Dahlmann et al., 2008). Long-term weight changes, culpability after eating, obsession with body weight, preoccupation with physical appearance, strict rituals related to food, excessive exercise along with abstaining from food, frequent dieting, and irrepressible feelings around food including compulsive eating habits are some signs of disordered eating (Anderson, 2018).

A plethora of literature has found a positive association between muscle dysmorphia and disordered eating in varied populations, especially, among males. Men with muscle dysmorphia experience a high level of disordered eating symptoms as compared to men without muscle dysmorphia (Murray et al., 2017). Body image distortion and disordered eating-related issues in males affect extremely in their lives (Dakanalis et al., 2015). Devrim et al. (2018) found a positively correlation between body dysmorphia symptoms and eating attitude among competitive bodybuilders. A similar trend was also reported by Babusa and Turi (2012) in non-competitive bodybuilders and Nieuwoudt et al. (2015) in weightlifters.

Men who are engaged in sports and physical activities such as bodybuilding, focused on their body image and such individuals are more prone to develop disordered eating attitude or behaviour. To attain an ideal body, they are more likely to engage in restrictive eating (Karges, 2015). It has also been suggested that bodybuilders might be a vulnerable group for the development of muscle dysmorphia leading to unhealthy behaviours such as using steroids (Blouin & Goldfield,1995). Generally, in most sports, performance is one of the most crucial factors but in the sport of bodybuilding, appearance plays an important aspect (Lambert et al., 2004). Therefore, the sources of body image concerns and eating disorders among bodybuilders might be due to the presence of preoccupation with appearance (Niewoudt et al., 2015). Non-competitive and competitive builders are found to be prone to body image concerns and eating disorders leading them to become obsessed with being muscular and leaner (Cafri et al., 2008). The motives of both categories of bodybuilders are different but have comparable restrictive eating and workout schedules (Blouin & Goldfield, 1995). Though non-competitive have more inclination to gain muscle for their outer looks and self-satisfaction and competitive builders are more inclined to become leaner and muscular to compete (Pickett, 2005). This might be one of the reasons that muscle dysmorphia is more prevalent among male bodybuilders (Mosley, 2019).

The Covid-19 lockdown had imposed restrictions on public gatherings and movements leading to remaining indoors, maintaining isolation and shutting down all kinds of institutions to avoid the spread of the airborne virus. In that situation, many individuals who had been regular trainers in the gym had to stay home which might have obstructed their routine. For some, it may have resulted in more consciousness of their body shape than usual. Those who extensively prioritize body image may become too concerned about their body as they cannot continue their workout leading to body dysmorphia and disordered eating behavior (Greenblatt, 2022). Even men who had a healthy body image before the pandemic also struggled with their weight and appearance during the pandemic (Wong, 2021). Also, after COVID-19 lockdown relaxation, gym goers especially the ones who are sportsmen might spend more time in the gym to compensate for re-muscle build-up leading to engaging in a more restrictive diet and disordered eating attitude. Thus, an attempt was made to explore the workout pattern during the COVID-19 lockdown and related aspects over and above the study of the relationship between muscle dysmorphia and disordered eating attitude.

The present study was conducted in Sikkim which is the 2nd smallest state of India sandwiched between Bhutan in the East, Nepal in the West, and China in the North. Much research related to body image concerns like muscle dysmorphia of male bodybuilders has been done in developed countries and a few in metropolitan cities of India. Research exploring body image-related issues such as muscle dysmorphia as well as disordered eating attitude in the state of Sikkim is at a nascent stage. The research endeavour humbly aims to assess the prevalence of muscle dysmorphia and disordered eating attitude among male gym-goers. Further, an attempt was made to understand the relationship between the above stated variable and compare any difference among the competitive and non-competitive gym goers.

Objectives

The primary objectives of the present study are as follows,

- To assess the level of muscle dysmorphia and disordered eating attitude of male gym goers.

- To explore the relation between muscle dysmorphia and disordered eating attitude of male gym goers.
- To compare the muscle dysmorphia and disordered eating attitude of competitive male gym goers and non-competitive male gym goers.

Hypotheses

- There will be a positive relationship between muscle dysmorphia and disordered eating attitude among male gym goers.
- There will be a significant difference in the muscle dysmorphia and disordered eating attitude of competitive male gym goers and non-competitive male gym goers.

Sample

It comprised 122 male gym-goers, age ranging from 16 to 35 years from Sikkim, India. Firstly, the state of Sikkim has been divided into districts of Sikkim namely East, West, South and North; however, North Sikkim was later dropped due to the unavailability of the gym. Thus, two gyms were randomly selected from the three districts of the state after which the sample was drawn through a purposive sampling technique. The coach or the manager of the gyms were contacted and permission was taken before the conduction of the study. Informed consent was taken before administering the test.

Tools:

Two standardized psychological scales and self-constructed questionnaire was used which are described below.

1. **Muscle Appearance Satisfaction Scale (MASS):** It is a 6-item scale to measure the level of muscle dysmorphia developed by Ryan and Morrison (2010). It has 5 points Likert scale ranging from Strongly disagree=1 to Strongly agree=5. The total score ranges from 6 to 30, with higher score denoting a high level of Muscle Dysmorphia symptomatology. In the present study, the Cronbach alpha of the scale came out to be 0.63.
2. **Eating Attitude Test 26 (EAT-26):** It is a 26-item scale to measure disordered eating attitude was developed by Garner (1982). It has a 4-point Likert scale ranging from always = 3, usually = 2, often = 1, sometimes =0, rarely = 0 and never = 0. Item no 26 is a reverse scoring item. The total score ranges from 0 to 78. A score above 20 denotes a high level of concern about dieting, body weight, or problematic eating behavior. The Cronbach alpha of the scale in a population of competitive bodybuilders, non-competitive weight trainers, and athletically active people was 0.87 (Pickett, 2005). In the present study, the Cronbach alpha of the scale came out to be 0.82
3. **Self-constructed questionnaire:** It consisted of three questions related to working out during the pre and post Covid-19 lockdown. The 3 questions are mentioned below: Did you work out indoors at home during the Covid-19 pandemic lockdown, have you ever felt guilty or sad when you didn't hit the gym during the Covid-19 lockdown, and how do you feel now joining the gym after the Covid-19 rules protocol relaxation.

Statistical analyses

The data was entered and analysed in SPSS (20 version). Descriptive analysis (Percentage, Mean, and Standard Deviation), Pearson correlation and independent sample t-test were calculated.

The present study was to explore the relationship between muscle dysmorphia and disordered eating attitude among male gym-goers. Thus, all of the participants were males who actively engage in bodybuilding with various motivations, such as competitors who participate in the sports of bodybuilding and non-competitors who go to the gym as a hobby, fitness or to keep up with the trend. All of them were active members of the gym with a minimum time of one year. The detail demographic characteristics of the sample are shown in Table 1.

Table 1. Demographic details of the participants

	Categories	**N (%)**
Age	16-20	18 (14.8)
	21-30	69 (56.6)
	31-40	35 (28.7)
Competition	Competitive bodybuilders	34 (27.9)
	Non-competitive bodybuilders	88 (72.1)
Weight	Normal	102 (83.6)
	Overweight	16 (13.1)
	Obese class 1	4 (3.3)
Level of Competition	University level	1 (0.8)
	State-level	22 (16.4)
	National level	9 (4.1)
	International level	2 (1.6)
Supplements	Multivitamins	39.3
	Caffeine	38.5
	Fish oil	32.8
	Creatine	31.1
	Vitamins	30.3
	Protein	21.3
	Carbohydrate	17.2
	Herbal	12.3
	Fat burning	5.7
	Bicarbonate	2.5
	No supplements	19.7

Table 2. Showing the Mean, S.D. and Pearson correlation coefficient of the study variables

Variables	**Mean**	**S.D.**	**MD**	**DEA**
Muscle Dysmorphia (MD)	20.79	3.81	1	
Disordered eating attitude (DEA)	19.79	12.16	0.311*	1

*$p < 0.05$

It can be seen from Table 2. that the mean score of MD came out to be 20.79 indicating a high level of muscle dysmorphia among the male gym-goers. Previous studies have also reported high MD among bodybuilders (Devrim et al., 2018; Sandhu et al., 2013). Further, Lantz et al. (2002) found the presence of muscle dysmorphia among bodybuilders more than those in other sports physical activities. The mean score of disordered eating attitude came out to be 19.79 indicating slightly prone to disordered eating attitude. Men who tend to engage in sports like weight lifting activities that emphasize body image are more susceptible to developing disordered eating behaviour. In an aim to achieve their perfect

body, particularly those who engage in bodybuilding may be more prone to change their diet, and eating habits and regularly engage in restrictive eating (Karges, 2015). The correlation between MD and DEA came out to be 0.311 indicating a significant positive correlation showing that those male gym goers who are high on MD also have a likelihood to have DEA. Thus, the hypothesis (H1) of a positive relationship between muscle dysmorphia and disordered eating attitude among male gymgoers was accepted. This finding was in line with the findings of Devrim et al. (2018) who also reported a positive relationship between muscle dysmorphia and the eating attitude among bodybuilders in Ankara, Turkey. Thus, it is pertinent to make gymgoers aware of the ill consequences of focusing too much on body image. It is important to engage in physical activities and exercise regularly but there is always a tendency to get carried away with the outlook which must be regularly checked.

As the literature highlights gymgoers who participated in bodybuilding competitions have been found to have more MD and hence an attempt was made to further compare the MD and DEA of competitive and non-competitive male gymgoers. The result of the independent sample t-test between the two groups is shown in the table below.

Table 3. Mean, SD, and independent sample t-value of Competitive and Noncompetitive bodybuilders gymgoers on MD and DEA.

Variables	Standard groups	Mean	S.D.	t-value	p
MD	Competitive	21.85	4.17		
	Non-competitive	20.38	3.61	-1.94	.055
DEA	Competitive	24.38	11.30		
	Non-competitive	18.01	12.07	-2.66	.009

Table 3 indicated that there was a significant difference in the scores of MD for competitive bodybuilders (M=21.85, SD=4.17) and non-competitive bodybuilders (M=20.38, SD=3.61); t(120)= -1.94, p = 0.055. The result indicated that the level of muscle dysmorphia in competitive bodybuilders is comparatively higher than in non-competitive bodybuilders. Prior research conducted by Santarnecchi & Dettore (2012) also found a significantly higher level of MD in competitive male bodybuilders than in non-competitive male bodybuilders. Further, there was also a significant difference in the scores of DEA for competitive bodybuilders (M=24.38, SD=11.30) and non-competitive bodybuilders (M=18.01, SD=12.07); t(120) = -2.66, p = 0.009. It implied that the level of DEA was significantly higher among competitive bodybuilders as compared to non-competitive bodybuilders. A previous study which compared non-competitive bodybuilders and competitive bodybuilders also found that competitive bodybuilder was a more at-risk category in engaging in disordered eating behavior (Chabaa et al., 2018). Hence, the hypothesis (H2) that there will be a significant difference in the muscle dysmorphia and disordered eating attitude of competitive male gym goers and non-competitive male gym goers was accepted.

A plausible reason for the significant difference might be that the two categories of gym-goers could have disparities regarding motivation for bodybuilding. Pickett et al. (2005) also stated that non-competitive bodybuilders are more inclined to gain muscle for their appearance and self-satisfaction while those who participate in competitions are inclined to become leaner and muscular to compete. This could be one of the major reasons for the significant differences between competitors and non-competitors in both muscle dysmorphia and disordered eating attitude. The competitors have focused goals to win the competition which makes them prone to develop high expectation of their body resulting in higher MD.

Also, competitive bodybuilders have been found to taking supplements to achieve their ideal muscular physique. Bodybuilders use supplements to speed up muscle gain faster than changing their eating behavior (Taylor & Mensah, 2017). Fitranti et al. (2022) also found that 80% of the participants of their study who consumed supplements had MD. In line with this, the present study also found a significantly higher DEA in the competitive gym goers than non-competitive gym goers.

Table 4. Participant's responses on the self-constructed questions

Questions	**Response of the participants**	**Percentage %**
Workout at home during lockdown	Never	31.1
	Rarely	17.2
	Sometimes	32.0
	Often	9.0
	Everyday	10.7
Guilt & sad for not hitting the gym during lockdown	Never	36.1
	Rarely	20.5
	Sometimes	32.8
	Often	3.3
	Always	7.4
Gym goers' satisfaction	Satisfied	86.1
	Neutral	13.9
	Unsatisfied	0

Three self-constructed questions were also asked related to work out during lockdown and the responses are shown in Table 4. It can be seen that 32% of the participants responded to work out at home at least sometime during the lockdown. It is noteworthy that more than 40% responded that they felt guilty and sad for not going to the gym during the lockdown and 86% responded that they felt satisfied when they joined the gym after the relaxation of Covid-19 protocol restrictions which showed their concern about their body when they do not work out. This concern about their physique can be seen as a double-edged sword as a positive attitude towards a healthy lifestyle and workout is a positive sign; however, being obsessed with building the body might lead to various negative outcomes. Thus, the findings open the gate to an important issue that coaches in the gym must be made aware of the ill consequences of MD which might also lead to distorted eating behaviour. This may further lead to the deterioration of the mental health of the bodybuilder and hence proper steps must be taken to sensitize them to the right and balanced approach to physical exercise and the importance of having a positive body image.

It can be concluded that MD was positively related to DEA among the male gymgoers which indicate that inculcating a positive body image is very important specially for those who actively engages in body building exercises as too much concern of achieving the ideal muscular body might unknowingly exert severe pressure in their eating behaviour. Also, competitive gymgoers were found to be significantly higher in both MD and DEA than non-competitive gymgoers. Hence, bodybuilders especially the competitors, must be properly educated about healthy eating and positive body image as they are prone to develop MD and DEA because of their consistent attention to their body muscle, weight and appearance. Inculcating a balanced approach towards the sports of bodybuilding and gyming is pertinent in today's scenario where physical fitness has received utmost attention. Furthermore, a high number of participants noted feeling guilty of not gyming during Covid-19 lockdown

indicating their inclination to bodybuilding exercise. Awareness of MD must be incorporated in the routine of the workout schedule by the coach so as to protect the gymgoers to maintain a healthy attitude to bodybuilding and exercise and protect themselves from the extreme concern of body image as MD can further lead to severe consequences and thus protection of the gymgoers from the further negative health consequences will also lead to a holistic well-being and mental health.

Limitations of the study

The present study has several limitations. Firstly, the study was only conducted on male samples; including female samples in the study could have shown some significant results related to motives and other demographic factors influencing the psychological variables. Also, the male gym-goers were segregated only into two groups which were competitive and non-competitive bodybuilders. Other psychological variables like the Internalization of media or a social standard of appearance might also bring out numerous insights.

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Conflict of Interest

The author(s) declared no conflict of interest.

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