

Original Research Article

Is the “dream physique” a mental health paradox? A mixed-methods study on body image perception among adult male bodybuilders from Kolkata, India

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ABSTRACT

Background: The rise of bodybuilding for aesthetic purposes has increased the risk of body image disorders among males. This study aimed to determine the magnitude of body image dysmorphia (BID), identify its associated factors, and explore the perspectives of adult male bodybuilders in an urban area of West Bengal.

Methods: An explanatory sequential mixed-methods study (QUAN → qual) was conducted among 123 adult male bodybuilders in gymnasiums in Dum Dum, Kolkata. In the quantitative phase, study participants were selected via simple random sampling and interviewed using tools, including the PHQ-9, EAT-26, and bodybuilders image grid-original (BIG-O). The qualitative phase was followed by five key-informant interviews (KIIs) with experienced gym trainers, selected via purposive sampling. Quantitative data were analysed using SPSS 16.0, while qualitative data underwent thematic analysis.

Results: The overall magnitude of BID was 68.2%, with 56.9% experiencing fat-related BID and 45.5% muscle-related BID. Participants desired significantly lower fat content and higher muscle mass compared to their current state (p value <0.001). Factors significantly associated with BID included depression (p value <0.001), eating disorders (p value <0.001), shorter training duration (p value 0.009), and anabolic steroid use (p value 0.025). Qualitative findings identified “perceptual drivers”, “psychological impact”, and “high-risk lifestyle factors”, such as social media influence.

Conclusions: A significant portion of bodybuilders suffer from BID, which is linked to clinical depression and disordered eating. The “beginner’s trap” makes novices particularly vulnerable. Strategic interventions, including mental health screening in gyms, trainer training, and stricter regulation of anabolic steroids, are recommended.

Keywords: Bodybuilding, Body composition, Body image dysmorphia, India, Mixed methods research

INTRODUCTION

In the face of the twenty-first-century epidemic of lifestyle-related diseases, maintaining a healthy lifestyle has become a necessity rather than an alternative.¹ Physical activity, encompassing both aerobic and

anaerobic exercise, plays a crucial role in promoting overall well-being.² Among these, weight-lifting and bodybuilding have gained considerable popularity, particularly among youth, owing to their combined benefits for physical health and aesthetics.³ However, the motivation for bodybuilding has increasingly shifted from

health enhancement toward attaining an idealized physical appearance.^{4,5} Although rewarding, bodybuilding may carry psychological risks and contribute to body-image dilemmas.⁶ Traditionally associated more with females due to societal pressures and patriarchal ideals of beauty, body-image disorders are increasingly recognized among males, particularly bodybuilders.⁷⁻¹⁰

Body image disorder is characterized by persistent preoccupation with a perceived flaw or inadequacy in one's physique and can result in substantial psychological and physiological consequences.^{11,12} Individuals may adopt harmful behaviours, including substance abuse and androgenic anabolic steroid use, to achieve their desired physique.^{13,14} Severe cases may be associated with depression and suicidal tendencies.¹⁵ Eating disorders represent another important concern.^{16,17} As diet is integral to bodybuilding, individuals pursuing a "dream physique" may adopt extreme dietary restrictions to become increasingly muscular and lean, potentially producing adverse physical and psychological outcomes.^{18,19} Thus, the pursuit of an ideal physique may paradoxically compromise overall well-being.⁵

Despite affecting both sexes, research on body-image disorders among male bodybuilders remains limited, with most historical evidence focusing on females, leaving an important knowledge gap.²⁰⁻²⁵ Therefore, this study aimed to determine the magnitude of body image disorder and its associated factors among adult male bodybuilders attending selected gymnasiums in and around Dum Dum, Kolkata, West Bengal.

Because body image is a deeply personal psychological construct shaped by evolving societal ideals of masculinity, quantitative findings alone cannot adequately explain the behaviours observed.²⁶ A subsequent qualitative phase was therefore undertaken to explore participants' lived experiences and perspectives, explain statistical trends through individual psychological dilemmas, and provide deeper insight into the relentless pursuit of an idealized physique. Thus, the study also explored participants' perspectives regarding body image perception disorder.

METHODS

Study design and setting

This mixed-method study employed an explanatory sequential design (Morse notation: QUAN → qual) and was conducted in selected gymnasiums in the Dum Dum area of Kolkata, West Bengal, India, from April 2025 to March 2026.

Study population

The quantitative phase included 123 adult males (≥18 years) consistently engaged in bodybuilding for at least 150 minutes on ≥3 days/week for the preceding three

consecutive months. This criterion was based on literature suggesting that at least 100 days of isometric exercise are required to achieve statistically significant increases in muscle mass and muscle strength per unit on both sides of the body.^{27,28} Individuals unwilling to provide written informed consent were excluded. The qualitative phase included professional gymnasium instructors/trainers aged ≥18 years, with 3-5 years of experience and currently working in the selected settings, who were willing to participate and provide written informed consent.

Sampling

For the quantitative phase, sample size was calculated using Cochran's formula, considering a prevalence (p) of body-image dysmorphia among male bodybuilders of 58.3% reported by Devrim et al, 10% absolute error (L), 95% confidence interval ($Z_{\alpha/2}=1.96$), and a 30% non-response rate.²⁷ The anticipated non-response accounted for the sensitive nature of questions on body image and substance use, which could cause discomfort or social stigma, as well as logistical challenges in gymnasiums, where interruptions to training and survey fatigue may result in incomplete responses. The final calculated sample size was 123.

A sampling frame of eligible adult male bodybuilders was prepared, following which participants were selected using simple random sampling (SRS) without replacement through a random-number table. Ultimately, 149 individuals selected by SRS were approached; 26 refused participation or consent, resulting in a 21% non-response rate, lower than the anticipated 30%.

For the qualitative phase, adult male professional gymnasium instructors/trainers fulfilling the eligibility criteria were purposively selected for key-informant interviews (KIIs) until data saturation was achieved.

Data collection and study tools

Following participant selection, rapport was established and the study objectives were explained. After written informed consent, quantitative data were collected using a pre-designed, structured, close-ended, pre-tested, interviewer-administered questionnaire. Pre-testing was conducted in similar gymnasium settings among 12 adult male bodybuilders (approximately 10% of the calculated sample) who were not included in the final study.

Study variables

Sociodemographic information: age (completed years), sex, residence, occupation, monthly per-capita family income (PCI) in INR, etc.

Behavioural and medical information: tobacco smoking, alcohol and other substance use, androgenic anabolic steroid use, duration of bodybuilding (years), chronic

disease status, and depression. Depression was assessed using the PHQ-9 tool.²⁹ Eating disorders were assessed using the eating attitude test-26 (EAT-26), comprising 26 items scored from 0 to 3 on a six-point Likert scale; a score >20 indicated an eating disorder.³⁰

Male body-image perception

This was assessed using the bodybuilders image grid-original (BIG-O), comprising 30 male figures representing different combinations of fat and muscle mass.⁸ Body fat is represented on a horizontal scale ranging from 0 to 120, progressing from low to high fat from left to right, while muscle mass is represented on a vertical scale ranging from 0 to 100, progressing from low to high mass downward. This two-dimensional configuration permits quantification of different fat and muscle compositions.^{4,10} Participants selected two figures: one most closely representing their current physique and another representing their desired physique. Fat and muscle values were determined from the respective horizontal and vertical scales. To enhance internal validity, both scales were concealed during interviews, preventing participants from choosing figures based on perceived ideal numerical values and reducing social desirability and systematic reporting bias.

Operational definition

BID was defined according to the BIG-O tool as a discrepancy between perceived and ideal body image concerning muscle mass (muscle mass-related BID), fat content (fat content-related BID), or both.

Following the interview, height, weight, waist circumference, and hip circumference were measured according to standard operating procedures.³¹

Qualitative data collection

Following completion of the quantitative phase, face-to-face KIIs were conducted using a pilot-tested, structured KII guide developed based on the quantitative findings. The guide included basic sociodemographic information such as age, education, and duration of experience as a gymnasium instructor/trainer. With key-informant consent, interviews were audio-recorded, and participants were subsequently asked to approve the recordings. Each interview lasted approximately 30–45 minutes, with no repeat or follow-up interviews. None of the approached participants refused participation or consent.

Each KII was transcribed and thematically analysed before proceeding to the next interview, continuing until data saturation. Quantitative interviews were conducted

by all authors, whereas KIIs were predominantly conducted by the second author (SG), assisted by the first author (SR) and third author (LHS). Both quantitative interviews and KIIs were conducted in the participants' native language (Bengali or Hindi) in the gymnasium office to ensure privacy and minimise disruption and background noise.

Data analysis

Quantitative data were analysed using Microsoft Excel 2021, Jamovi v2.6, and SPSS v16.0. Continuous normally distributed variables were presented as mean±standard deviation (SD), non-normally distributed continuous variables as median (interquartile range, IQR), and categorical variables as frequency and percentage (%).

Inferential analyses included the unpaired t-test, Mann-Whitney U test, and Pearson's Chi-square test for normally distributed continuous, non-normally distributed continuous, and categorical variables, respectively. Fisher's exact test was used when any expected cell value was <5. A p value <0.05 was considered statistically significant (5% significance level).

For qualitative analysis, participant-approved audio recordings were carefully reviewed, transcribed verbatim in Bengali or Hindi, and translated into English. Thematic analysis followed a codes → sub-themes → themes framework. All authors were trained in qualitative research. SR and SG independently conducted the initial coding and thematic analysis; their transcripts and findings were subsequently compared to ensure consistency. Any disagreement regarding codes or themes was resolved by LHS, who was not involved in the initial thematic analysis.

RESULTS

Sociodemographic characteristics

Among 123 participants, the mean age was 30.24±6.3 years, and most (68.3%) of them were graduates (Table 1).

Behavioural and medical information

Among them, the median duration of engagement in bodybuilding was 3 (1.5, 6) years, and only 8.1% of them used androgenic anabolic steroids. Smoking and alcohol were used by 10.6% and 43.1% of them, respectively. Among the participants, 57.7% screened positive for depression, and 33.3% had found to have an eating disorder. As per the WHO criteria of BMI, 92.7% of them were found to be obese and overweight (Table 1).

Table 1: Distribution of the study participants as per various parameters (n=123).

Parameters	Number (%)	Parameters	Number (%)
Age (Years)[#]	30.24±6.3	Training Duration (Years)[§]	3 (1.5, 6)
Education		Anabolic Steroids	
Higher Secondary	8 (6.5)	Used	10 (8.1)
Graduate	84 (68.3)	Not used	113 (91.9)
Post-graduate	28 (22.8)	Smoking	
Doctoral	3 (2.4)	Yes	13 (10.6)
Monthly PCI (1000 INR) [§]	25 (13.3, 46.6)	No	110 (89.4)
BMI (as per WHO criteria)		Alcohol use	
Normal	9 (7.3)	Yes	53 (43.1)
Overweight and obese	114 (92.7)	No	70 (56.9)
Waist-hip ratio		Depression	
Normal	42 (34.1)	Present	71 (57.7)
At risk	81 (65.9)	Absent	52 (42.3)
Chronic disease		Eating disorder	
Present	11 (8.9)	Present	41 (33.3)
Absent	112 (91.1)	Absent	82 (66.7)
Total	123 (100)	Total	123 (100)

[#] Mean ± Standard Deviation (SD), [§]Median (interquartile range: IQR).

Perceived and ideal body image

Among the participants, it was found that they desired a statistically significantly lower fat content in comparison to their current state (54.55 ± 2.4 versus 42.2 ± 4.9 ; p value <0.001). In contrast, it was also seen that they desired a statistically significantly higher muscle mass, in comparison to their current state (54.88 ± 7.4 versus 59.52 ± 1.7 ; p value 0.001) ([Figure 1]). Lastly, among them, 45.5% had muscle mass-related body image dysmorphia (BID), 56.9% had fat content-related BID, and overall, 68.2% had one or both types of BID (Table 2).

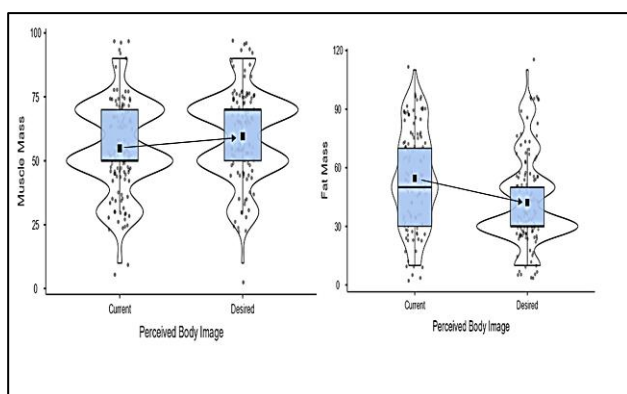


Figure 1: Violin Plots showing the comparison between current and desired muscle mass and fat content (n=123).

Factors associated with BID

The following factors were found to be associated with BIDs (Table 2), such as-

Age: participants with muscle mass related BID ($n=56$) were statistically significantly older (31.68 ± 7.5 versus 29.03 ± 4.8 years; p value 0.02).

Monthly income: participants with both muscle mass and fat content related BID ($n=70$) had statistically significantly higher monthly per capita income (p value <0.01).

Overweight and obesity: participants with fat content-related BID ($n=70$) had a statistically significantly higher proportion of overweight and obesity (60.5% versus 39.5% ; p value 0.004). Also, a similar finding was noticed in the overall participants ($n=84$) with any kind of BID (71.1% versus 28.9% ; p value 0.019).

Waist-hip ratio (WHR): participants with muscle mass-related BID ($n=56$) had a statistically significantly higher proportion of elevated WHR (59.3% versus 40.7% , p value <0.001). Also, a similar finding was noticed in the overall participants ($n=84$) with any kind of BID (74.1% versus 25.9% ; p value 0.046).

Chronic disease: participants with muscle mass-related BID ($n=56$) had a statistically significantly higher proportion of chronic disease (81.8% versus 18.2% ; p value 0.011).

Table 2: Parameters associated with body image dysmorphia among study participants (N = 123)

Parameters	Body image dysmorphia (BID)			Muscle mass-related BID			Fatness-related BID		
	Present N (%) (n=84)	Absent N (%) (n=39)	P value	Present, N (%) (n=56)	Absent N (%) (n=67)	P value	Present, (%) (n=70)	Absent (%) (n=53)	P value
Age (years)#	30.75±6.5	29.13±5.6	0.187	31.68±7.5	29.03±4.8	0.02	30.77±6.08	29.87±6.5	0.414
Education									
Higher secondary	7 (87.5)	1 (12.5) *	0.028*	5 (47.6)	3 (37.5)	0.259*	7 (87.5)	1 (12.5) *	0.047*
Graduate	44 (52.4)	40 (47.6)		40 (47.6)	44 (52.4)		57 (67.9)	27 (32.1)	
Post-graduate	19 (67.9)	9 (32.1)		11 (39.3)	17 (60.7)		20 (71.4)	8 (28.6)	
Doctoral	0 (0) *	3 (100) *		0 (0) *	2 (100) *		0 (0) *	3 (100) *	
Monthly PCI (1000 INR) \$	33.3 (20, 56.2)	13.3 (9.1, 33.3)	<0.001	33.3 (20, 64.5)	25 (10.7, 37.5)	<0.01	33.3 (20, 62.5)	22.5 (10.7, 33.3)	0.003
BMI									
Normal	3 (33.3)	6 (66.7)	0.019	2 (22.2)	7 (77.8)	0.145	1 (11.1) *	8 (88.9)	0.004
Overweight and Obese	81 (71.1)	33 (28.9)		60 (52.6)	54 (47.4)		69 (60.5)	45 (39.5)	
Waist-hip ratio									
Normal	24 (57.1)	18 (42.9)	0.046	8 (19)	34 (81)	<0.001	23 (54.8)	19 (45.2)	0.729
At risk	60 (74.1)	21 (25.9)		48 (59.3)	22 (40.7)		47 (58)	34 (42)	
Chronic disease									
Present	75 (67)	37 (33)	0.312	47 (42)	65 (58)	0.011	64 (57.1)	48 (42.9)	0.868
Absent	9 (81.9)	2 (18.2) *		9 (81.8)	2 (18.2) *		6 (54.5)	5 (45.5)	
Smoking									
Yes	71 (64.5)	39 (35.5)	0.009*	43 (39.1)	67 (60.9)	<0.001	60 (54.5)	50 (45.5)	0.123
No	13 (100)	0 (0) *		13 (100)	0 (0)		10 (76.9)	3 (23.1)	
Alcohol use									
Yes	43 (61.4)	27 (38.6)	0.06	26 (37.1)	44 (62.9)	0.032	42 (60)	28 (40)	0.427
No	41 (77.4)	12 (22.3)		30 (66.6)	23 (43.4)		30 (66.6)	23 (43.4)	
Training duration (years)\$	2.75 (1.5, 5)	4 (3, 7.5)	0.009	3 (1.5, 6)	3 (1.5, 6)	0.497	2.5 (1, 4)	4 (3, 9)	<0.001
Anabolic Steroids									
Used	74 (65.5)	39 (34.5)	0.025*	48 (42.5)	65 (57.5)	0.022*	67 (59.3)	46 (40.7)	0.073
Not used	10 (100)	0 (0) *		8 (80)	2 (20) *		3 (30)	7 (70)	
Depression									
Present	25 (48.1)	27 (51.9)	<0.001	16 (30.8)	36 (69.2)	0.005	18 (34.6)	34 (65.4)	<0.001
Absent	59 (83.1)	12 (16.9)		40 (56.3)	31 (43.7)		52 (73.2)	19 (26.8)	
Eating disorder									
Present	47 (57.3)	35 (42.7)	<0.001	33 (40.2)	49 (59.8)	0.096	41 (50)	41 (50)	0.029
Absent	37 (90.2)	4 (9.8)		23 (70.7)	18 (43.9)		29 (70.7)	12 (29.3)	

#Mean±SD with Unpaired with t-test statistic \$Median (IQR) with Mann-Whitney test statistic *Fisher's exact test statistic with Expected value less than five.

Substance use: among the participants with muscle mass-related BID (n=56) had statistically significantly higher proportion of smoking (100% versus 0%, p value 0.009). Also, a similar finding was noticed in the overall participants (n=84) with any kind of BID (100% versus 0%, p value 0.009). Among the participants with muscle mass-related BID (n=56) had statistically significantly higher proportion of alcohol use (66.6% versus 43.4%, p value 0.032).

Duration of training: participants with fat content-related BID (n=70) had statistically significantly lower median duration of training (2.5 years versus 4 years; p value <0.001). Also, a similar finding was noticed in the overall participants (n=84) with any kind of BID (2.75 years versus 4 years; p value 0.009).

Use of steroids: among the participants with muscle mass-related BID (n=56) had statistically significantly

higher proportion of use of androgenic anabolic steroids (80% versus 20%, p value 0.022). Also, a similar finding was noticed in the overall participants ($n=84$) with any kind of BID (100% versus 0%, p value 0.025).

Depression: among the participants with muscle mass-related BID ($n=56$) had statistically significantly higher proportion of depression (56.3% versus 43.7%, p value 0.005). Participants with fat content-related BID ($n=70$) had a statistically significantly higher proportion of depression (73.2% versus 26.8%; p value <0.001). Also, a similar finding was noticed in the overall participants ($n=84$) with any kind of BID (83.1% versus 16.9%, p value <0.001).

Eating disorder: participants with fat content-related BID ($n=70$) had a statistically significantly higher proportion of eating disorder (70.7% versus 29.3%; p value 0.029).

Also, a similar finding was noticed in the overall participants ($n=84$) with any kind of BID (90.2% versus 9.8%; p value <0.001).

Qualitative exploration of quantitative findings on BID

The qualitative phase, involving in-depth insights from experienced gym trainers, identified several critical drivers and consequences of body image dysmorphia (BID) among male bodybuilders (Figure 2). There were a total of six KIIs conducted as we reached data saturation. The median age of the key-informants was 38.5 (36.5, 41.25) years, and their median years of experience as trainer/ instructor was 15.5 (14.25, 19) years. All ($n=6$) of them were graduates.

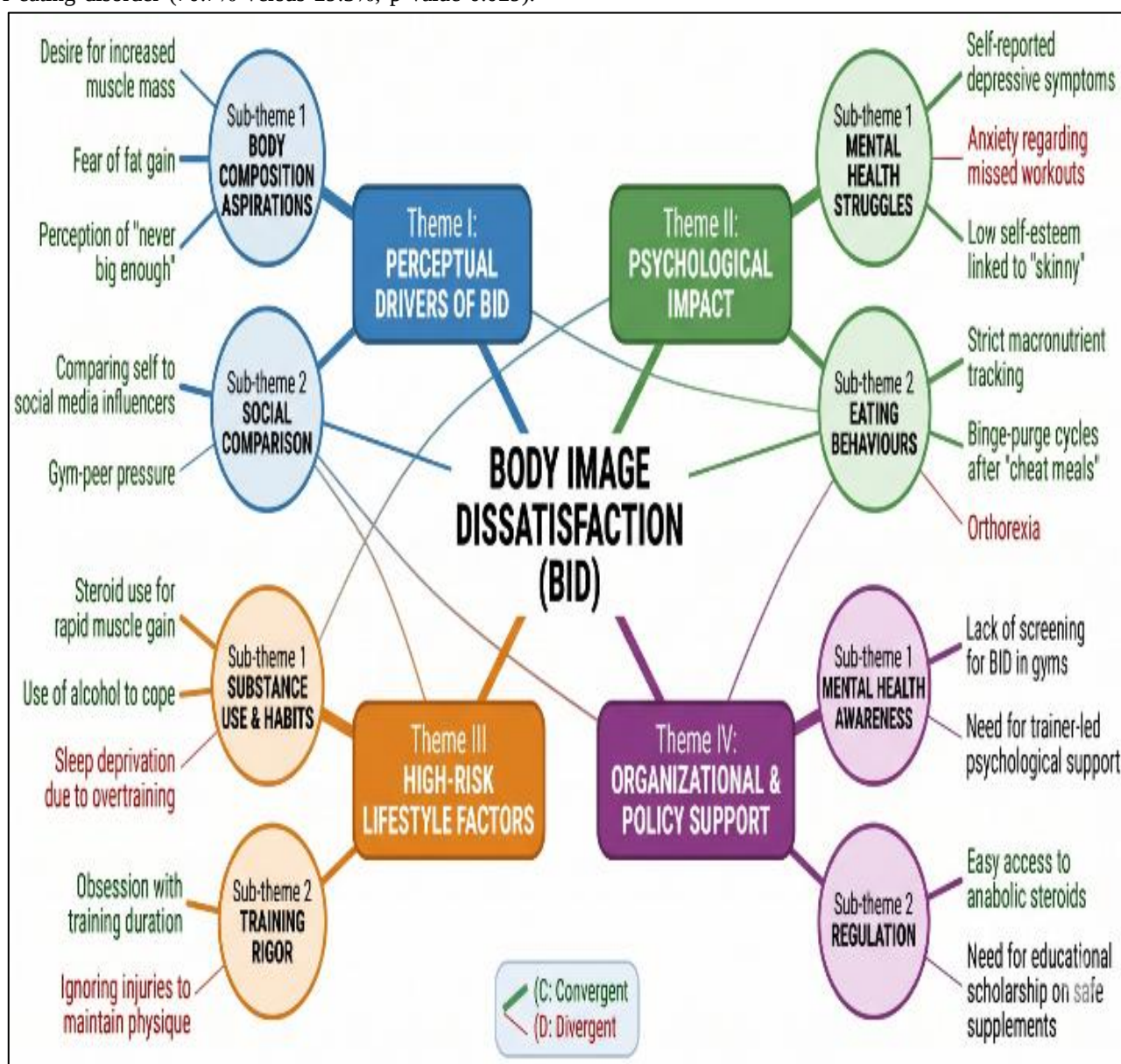


Figure 2: Network diagram showing interconnection between themes, sub-themes, and codes.

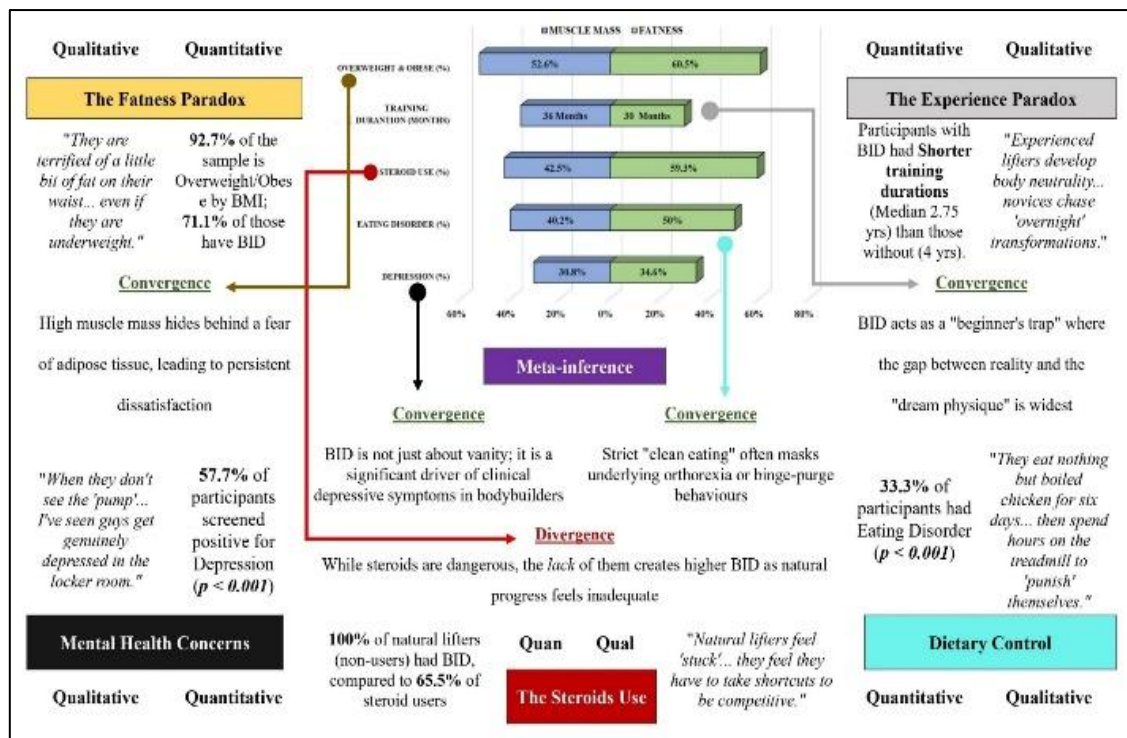


Figure 3: Joint display showing integration of quantitative and qualitative findings.

Perceptual drivers of BID

This theme explores the internal and external factors that shape how individuals perceive their physical selves. Trainers observed a body composition aspiration for increased muscle mass, often reaching unrealistic proportions. One trainer remarked, “Most young boys come here with a picture on their phone. They don’t want to be ‘fit’; they want to look like a comic book hero. Even when they put on 5 kg of solid muscle, they look in the mirror and still feel small” (1st trainer, 42 years, 20 years’ experience).

A constant fear of fat gain remains a primary driver. “The fear of losing their ‘abs’ is constant. I see guys who are clearly underweight for their height, but they refuse to eat more because they are terrified of a little bit of fat on their waist” (2nd trainer, 45 years, 22 years’ experience). Also, a divergent code emerged as perception of “never big enough”; as per the shifting nature of body goals. “It’s a moving target. In the beginning, they just want bigger arms. Once they get them, they realize their chest looks small. It’s a cycle of dissatisfaction that the numbers on the scale can’t fix” (1st trainer, 42 years, 20 years’ experience).

The effect of digital media influence was profound. Trainers highlighted that comparing oneself to social media fitness influencers creates a standard that is “physically impossible to maintain 365 days a year” (3rd trainer, 31 years, 9 years’ experience).

Psychological impact

The pursuit of an idealized physique often leads to significant mental and behavioural shifts. Trainers reported observing self-reported mental health struggles, such as depressive symptoms, when goals are not met. “When they don’t see the ‘pump’, or they have a bad workout, it ruins their entire week. I’ve seen guys get genuinely depressed” (4th trainer, 38 years, 15 years’ experience). For many, the missed workouts become a source of Anxiety rather than health. “For some, missing one session isn’t just a missed day- it’s a crisis. They genuinely believe they will lose all their progress in 24 hours.” (3rd trainer, 31 years, 9 years’ experience).

Rigorous training is often paired with disordered eating patterns. One informant noted, “I’ve seen clients eat nothing but boiled chicken for six days and then eat 5,000 calories in one sitting on Sunday because they ‘snapped’. Then they spend three hours on the treadmill on Monday to ‘punish’ themselves” (4th trainer, 38 years, 15 years’ experience). This Binge-Purge cycle after a ‘cheat meal’ and orthorexia (obsession with clean eating) is not perceived as healthy by the trainers.

High-risk lifestyle factors

This theme captures the dangerous methods and habits adopted to achieve aesthetic goals. To achieve rapid gains, many prioritize the “look” over long-term organ health by indulging in substance use like androgenic

anabolic steroids without any professional guidance or supervision. *“The pressure is too high. Many feel that since everyone else is taking ‘shortcuts’ (anabolic steroids), they have to as well, or they’ll never be competitive”* (1st trainer, 45 years, 22 years’ experience). As for Coping Mechanisms, some use alcohol to manage body-related stress. *“It’s a strange mix; they are health-conscious during the day, but many use alcohol on weekends to forget the stress of maintaining their physique. It’s their only way to stop overthinking their body”* (5th trainer, 39 years, 16 years’ experience).

An obsession with higher training rigor for maintaining the ‘size’ leads many to lift through physical trauma. *“I’ve had trainees come in with torn ligaments or severe back pain who refuse to stop lifting. They are more afraid of their muscles ‘deflating’ than they are of permanent physical disability”* (6th trainer, 36 years, 14 years’ experience).

Organizational and policy support

This theme addresses the systemic gaps in supporting the mental and physical health of the bodybuilding community. Trainers expressed a general lack of mental health awareness and a desire for better diagnostic tools within the gym. *“We are trained to check their form and their heart rate, but nobody teaches us how to check their mind”* (6th trainer, 36 years, 14 years’ experience).

Informants highlighted the easy access to anabolic steroids in urban areas. *“You don’t even need a prescription anymore. You can find these ‘supplements’ under the counter in half the supplement shops in the city.”* (5th trainer, 39 years, 16 years’ experience). Thus, they advocated for Regulation.

Joint display

The integrated quantitative and qualitative findings were illustrated in the joint display (Figure 3), revealing several critical “paradoxes” and meta-inferences regarding body image dysmorphia (BID) among male bodybuilders.

The fatness and experience paradoxes

A primary meta-inference identified is the fatness paradox, where a clear convergence exists between the quantitative finding that 92.7% of the overall participants were classified as overweight or obese by BMI and the qualitative observation that these individuals are “terrified of a little bit of fat on their waist”. This indicates that high muscle mass often hides behind a persistent fear of adipose tissue, leading to chronic dissatisfaction despite substantial physical size. Similarly, the experience paradox shows a convergence between training duration and BID. Quantitatively, those with BID had significantly shorter median training durations (2.75 years) compared to those without (4 years). Qualitatively, trainers noted that BID acts as a “beginner’s trap” where novices chase

“overnight transformations”, while more experienced lifters eventually develop a sense of body neutrality.

Mental health and dietary control

The study demonstrates a significant convergence regarding mental health concerns. Quantitatively, 57.7% of participants screened positive for depression (p value <0.001), a finding mirrored by qualitative reports of lifters becoming “genuinely depressed in the locker room” when they do not see a “pump”. This suggests that BID is not merely a matter of vanity but a significant driver of clinical depressive symptoms. Regarding dietary control, the quantitative presence of eating disorders in 33.3% of participants (p value <0.001) converges with qualitative descriptions of “punishing” behaviours, such as spending hours on a treadmill to compensate for “cheat meals”. These strict “clean eating” rituals often mask underlying orthorexia or binge-purge cycles.

The steroid use divergence

A notable divergence was observed regarding Steroid Use. While qualitative insights suggest that trainers see lifters taking “shortcuts” due to high pressure, the quantitative data revealed that 100% of natural lifters (non-users) experienced BID, compared to 65.5% of steroid users. The meta-inference here suggests that while steroids are physically dangerous, the lack of them may correlate with higher BID, as natural progress often feels inadequate when compared to the “idealized” physiques found in digital media and social comparison circles.

DISCUSSION

The present mixed-method explanatory sequential study aimed to determine the magnitude of body image dysmorphia (BID), identify associated factors, and explore the perspectives of adult male bodybuilders in urban West Bengal. A high prevalence of BID (68.2%) was observed, with 45.5% having muscle-related BID and 56.9% fat-related BID. This was comparable to a Turkish study reporting muscle dysmorphia in 58.3% of male bodybuilders, but substantially higher than the 10.6% risk of body dysmorphic disorder (BDD) reported in an Australian online survey.^{17,27} Differences may reflect variations in assessment tools and the strong influence of digital media identified qualitatively, with trainers describing social media as creating “physically impossible” standards for local youth.

Eating disorders affected 33.3% of participants, closely resembling the Australian estimate of 33.8% but lower than the 67.5% reported in Turkey.^{17,27} The joint display demonstrated convergence around “dietary control,” with qualitative accounts describing “punishing” dietary behaviours and “orthorexia” (obsession with clean eating). This supports evidence that body dysmorphia is an important predictor of disordered eating.

A key finding was the “perceptual paradox of muscle versus fat,” with significant discrepancies between perceived and ideal body composition. Participants desired significantly lower fat and higher muscle mass than their current state (p value <0.001). Despite 92.7% being overweight or obese by BMI, participants remained “terrified of a little bit of fat,” illustrating the “fatness paradox.” This is consistent with findings among competitive bodybuilders who wished to be significantly heavier and supports the role of drive for muscularity in BID.

BID was strongly associated with depression, with depression present in 83.1% of those with any BID (p value <0.001), consistent with Brazilian findings linking overweight dissatisfaction with depressive symptoms (p value 0.01). 32 Participants with BID also had significantly shorter training duration than those without BID (median 2.75 versus 4 years; p value 0.009). This “beginner’s trap” may indicate greater susceptibility among novices to the “never big enough” perception, whereas experienced lifters may develop greater body neutrality. However, attainment bias and survival effects must be considered. Individuals with severe BID and depression may discontinue bodybuilding when their ideal physique remains unattainable, leaving a resilient subset with more stable body perceptions among those who continue beyond four years.

Muscle-related BID was significantly associated with smoking (100% versus 0%; p value <0.001), alcohol use (66.6% versus 43.4%; p value 0.032), and anabolic steroid use (80% versus 20%; p value 0.022). Qualitative findings suggested that alcohol and other substances may serve as chemical coping mechanisms, with alcohol reportedly used to “forget the stress” of body maintenance. Interestingly, 100% of natural lifters exhibited BID compared with 65.5% of steroid users. AAS may therefore provide a temporary psychological “fix” by rapidly narrowing the perceived gap between the actual and ideal physique, whereas natural lifters may experience persistent inadequacy due to physiological plateaus. However, this apparent relief may be transient, with dissatisfaction resurfacing during “off cycle” periods and fears of muscles “deflating.” Trainers further described competitive pressure, “shortcuts,” and lifting despite physical trauma, often prioritizing aesthetics over “long-term organ health,” while easy access to anabolic steroids in urban areas may facilitate use.

The sole qualitative finding concerning “mental health awareness” highlighted a critical gap in the bodybuilding community. Trainers reported being trained to assess physical form but lacking the tools to “check their mind,” underscoring the need for mental-health-oriented support within fitness settings.

This explanatory sequential mixed-methods study is among the first in urban West Bengal to use the BIG-O tool to examine body image discrepancies in male

bodybuilders. The identified “fatness paradox” and “experience paradox” demonstrate how high muscle mass can coexist with psychological dissatisfaction, depression, and systemic drivers of BID. Despite limitations including the localized Dum Dum sample, cross-sectional design, and potential self-reporting bias regarding stigmatized behaviours, the findings highlight important mental health risks in fitness environments. Future research should incorporate peer focus group discussions (FGDs) and longitudinal tracking to examine the progression and persistence of BID.

CONCLUSION

A significant proportion of adult male bodybuilders in urban West Bengal suffer from Body Image Dysmorphia (BID), where the pursuit of idealized physiques- fuelled by social media and the “Beginner’s Trap”- frequently masks underlying depression, disordered eating, and substance use. Addressing this public health crisis requires multi-level interventions: gyms should introduce basic mental health screenings and train instructors to identify psychological distress and provide counselling referrals; the fitness community must cultivate social support prioritizing body neutrality and natural progress; the government should curb unregulated “under-the-counter” steroid sales by enforcing stricter drug scheduling (such as Schedule H or X) with mandatory prescription and inventory audits; and broad educational campaigns must actively counter distorted digital media standards to foster healthier body perceptions among youth.

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