Combs C, J Addict Addictv Disord 2024, 11: 166
DOI: 10.24966/AAD-7276/100166

HSOA Journal of Addiction & Addictive Disorders

Commentary

A Neurological Approach to Addictive Behavior Patterns in Body Dysmorphic Disorder and Body Image Disorders

Cassidy Combs, RN*

Blue Water Spa and Plastic Surgery Center, Raleigh, NC, USA

Introduction

When health care providers think of addiction, addictive behavioral patterns are not the most common concern that comes to mind. However, there is a large population of patients who struggle with Mental Illnesses that include addictive behavioral patterns. Body Dysmorphic Disorder (BDD), as well as other disorders surrounding body image, goes undiagnosed, under treated and often overlooked. Similar to creating treatment plans for rehabilitation from other addictions and substance abuse, patient populations struggling with addictive behaviors driven by body image need a specific, evidence-based plan of care that will optimize their wellbeing physically, mentally, and emotionally. This article looks at not only concurrent treatment therapies for patients struggling with BDD and Body Image Disorders, but reviews root-causes found in brain pathways that could further explain and help clinicians understand the processes of these disorders at their neurological level.

Body Dysmorphic Disorder

According to Diagnostic and Statistical Manual of Mental Health Disorders (DSM-5; American Psychiatric Association, 2013), BDD is defined as, "a preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others" (Substance Abuse and Mental Health Services Administration [SAMHSA], 2016).

Individuals suffering from BDD present with behaviors such as:

- Performance of repetitive behaviors (e.g., mirror checking, excessive grooming, skin picking, reassurance seeking)
- Repeated mental acts (e.g., comparing his or her appearance with that of others) at some point during the course of the disorder in response to the appearance concerns;
- Clinically significant distress or impairment in social, occupational or other areas of functioning [1].

Notably, appearance preoccupation is not better explained by concerns with body fat or weight in an individual whose symptoms meet diagnostic criteria for an eating disorder. There are also two specific subcategories within BDD:

- Muscle Dysmorphia, which is characterized by the individual's preoccupation with the idea that their body build is either too small or insufficiently muscular
- Disorder by Proxy, which is characterized by the individual's preoccupation with a perceived physical flaw in another individual [1].

The DSM-5 (2013) further outlines three degrees of insight regarding the individual's beliefs that practitioners should be informed about. These degrees of insight include:

- Fair insight: when the individual recognizes that their BDD beliefs are definitely, or probably, not true.
- Poor insight: when the individual thinks that their BDD beliefs are probably true
- Absent insight, usually correlated with delusional beliefs: when the individual is entirely convinced that their BDD beliefs are true [1]

BDD is classified as an Obsessive-Compulsive and Related Disorder (OCD). Individuals struggling with BDD have an initial obsession, such as negative thoughts surrounding their body image, which can lead to feelings of anxiety, shame, and depression. In order to alleviate the feeling of anxiety, the individual acts on their compulsions such as mirror checking, skin picking, etc. By acting and repeating these obsessive-compulsive behaviors, the individual lessens the pain of their harmful thoughts. This cycle of obsession → anxiety → compulsion → relief, negatively reinforces their dysfunctional coping mechanisms as well as their harmful self-perceptions [1].

Similar to many other disorders that fall under the mental health umbrella, BDD presents on a spectrum. There are correlated levels of severity (from mild to severe) for classifying patients. Individuals with mild to moderate severity are usually high functioning with only minimal impairment of their social and/or personal functions. These individuals are able to pinpoint or localize areas of concern and exhibit a fair degree of insight and express realistic concerns [1]. While individuals struggling with severe BDD exhibit remarkable amounts of distress and impaired daily and social functioning, which can lead to avoidant behavior, isolation, and even the inability to hold a job. They are unreasonably consumed by their perceived defect and have high levels of anxiety and/or depression. Their behaviors or rituals are debilitating and time consuming and can be so extreme as to include self-mutilation or do-it-yourself surgery [1].

***Corresponding author:** Cassidy Combs, RN, Blue Water Spa and Plastic Surgery Center, Raleigh, NC, USA; E-mail: cassidyrn@michaellawmd.com

Citation: Combs C (2024) A Neurological Approach to Addictive Behavior Patterns in Body Dysmorphic Disorder and Body Image Disorders. J Addict Addictv Disord 11: 166.

Received: May 23, 2024; **Accepted:** May 31, 2024; **Published:** June 07, 2024

Psychological Impacts of BDD

BDD is thought to be underdiagnosed and is most likely not fully reported. It is present in approximately 1.9% of the population, with higher percentages in psychiatric settings and among adolescents and students. Women appear to have a higher rate of BDD in the general population; however, in psychiatric settings men experience BDD at about the same ratio as women. Individuals with BDD are four times more likely to experience suicidal thoughts and ideation, and 2.6 times more likely to attempt suicide than individuals who do not have BDD. Approximately one-third of the BDD community exhibits absent insight and delusional behavior [1]. Although BDD affects approximately 2% of the population, it is 15 times more prevalent in Medical Aesthetics patients, particularly those who seek plastic surgery. Because of poor insight and a belief that surgery or a particular aesthetic treatment will "fix" their concerns, individuals with BDD tend to seek surgical consultation before and in preference to undergoing psychiatric evaluation [1].

BDD and other Body Image Disorders

While BDD individuals tend to be more concerned about particular preoccupations surrounding their body image - such as their nose, hair, skin, etc., - the subcategory of Muscle Dysmorphia (MD) is similar to other Eating Disorders (ED). Both MD and ED are specifically marked by distress caused by general body shape, size, or weight. Similarly to ED, individuals with MD commonly practice extreme diets and a strict exercise regimen in order to reach their desired body shape [2]. Due to this, there is some debate regarding the classification of MD within the OCD spectrum, categorized under BDD, despite its similarities to other feeding and eating disorders [3]. People who present with symptoms and meet criteria for MD may also present with ED symptomatology, both of which may be associated with a greater psychopathology [4].

BDD, MD, and ED all share the characteristic of having high levels of body dissatisfaction and distorted perceptions surrounding appearance; i.e., in MD the individual is never muscular enough, in ED the individual is never skinny enough. MD and ED also share certain underlying psychological traits. Clinical studies have found that individuals suffering from MD and ED displayed lower self-esteem, narcissistic traits, neuroticism and perfectionism [3]. It was discovered that clinical levels of weight or shape overvaluation are directly linked to body dissatisfaction, eating disorders and surrounding cognitive functions, lower self esteem, and an impaired quality of life [2].

A Neurological Approach to Addictive Behavior Types

There is one string attaching these Body Image Disorders together- cognitive function leading to compulsive and addictive behaviors. There are numerous studies that have found it plausible that atypical brain activation might be upholding this distorted self image [5]. Studies have found an association between reward, food intake, and excessive exercise; specifically in patients suffering from Anorexia Nervosa (AN). Practicing behaviors surrounding food intake and exercise that are goal driven by body image may initially trigger their reward center, but this can ultimately end up in punishing, pathological practice when consistently reinforced [5].

Research surrounding Brain reward mechanisms have found evidence, through brain imaging, that these [brain reward] circuits may be altered in this patient population; further contributing to better comprehension of the pathophysiology of these disorders. ED may develop as reward-dependent syndromes, rewarding particular feeding and eating habits and practices, with the goal to reduce negative emotional states [6]. Similar to the OCD cycle of BDD patients with the goal to alleviate negative emotions by acting on compulsions.

Functional Brain Imaging studies focusing on activation of brain reward circuits surrounding body image cues relating to food deprivation and physical hyperactivity, also revealed several dysfunctions in ED patients. Within the brain reward system, the Anterior Cingulate Cortex (ACC), Orbitofrontal Cortex (OFC), and Ventromedial Prefrontal Cortex (PFC), help control higher order processes necessary for identifying rewarding stimuli, mitigating emotional responses and promoting behavioral outcomes [6]. There is a consistent pattern of brain activity linked to processing body, food, emotions, cognition, and reward anticipated stimuli [5].

A recent study found supporting evidence of the existence of a universal anticipatory system, sharing reactions for both reward or aversive cues, by suggesting that aversive anticipation involves similar brain structure in reward anticipation such as the ACC and PFC [7]. Review of evidence from further neuroimaging looks at the Anterior Mid Cingulate Cortex (AmCC) as the network in the brain that drives willpower and tenacity, perfectly positioned to integrate and process various signals all with the focus of attaining goals. The AmCC can serve to regulate levels of effort directed at potential behavior, but respond with different levels of activity dependent upon the individual [8].

The AmCC and ACC could be hypoactive, which is present in disorders such as depression, neurodegenerative diseases, ED and other disorders impacting body image, and drug addicted individuals. On the other side of the spectrum, a hyperactive ACC is presented in OCD [5,9,10]. The hypoactivity found within the ACC and AmCC may contribute to the altered reward-punishment system, leading to more irregularity of processing punishing behavioral actions; this maladaptive neurological pathway would ultimately only sustain the disorder unless addressed [5].

This research suggests that disorders surrounding body image share the same neural activations as those who struggle with drug abuse. Drug abuse has been associated with ACC hypoactivity, specifically for the ability to detect errors. Inability to properly detect error clinically presents itself as loss of insight, delusions, and perseverative behavior; all of which describe severe BDD characteristics and Body Image Disorder traits [11].

A "Root-Cause" Plan of Care

Truly, disorders surrounding body image should be first and foremost addressed by a psychiatrist and medical interdisciplinary team. Often the motivating force behind these negative and addictive behaviors stems from avoidance of painful emotions [12]. Individuals partake in these maladaptive behaviors in order to help avoid or regulate their negative emotions; similarly mirrored in BDD behaviors and their OCD cycles. This being said, understanding the importance of the ACC and how it supports processes such as regulation of emotions, brain reward systems leading to habit building, and cognition can further help clinicians create a "root-cause" plan of therapy [12].

This research leads to the suggestion of possibly treating the traits of Body Image disorders at the neurological level. Would it be

beneficial to incorporate ACC damage care into therapeutic work, such as one might care for a traumatic brain injury (TBI) that affects these areas of the brain?

Some possible treatments that could be included when caring for patients with symptoms of ACC damage include:

- Cognitive-Behavioral Therapy (CBT): particularly helpful for individuals to help understand addictive behavior patterns and develop positive coping mechanisms to avoid their harmful behaviors [13]
- Cognitive Rehabilitation Exercises: practicing these on a regular basis helps catalyze neuroplasticity of the brain, allowing the individual to create new neural connections and efficiently create adaptive changes [13]

Is It Safe to use Plastic Surgery and Aesthetic Interventions?

However, that leaves the question about the patients who look past psychiatric practice and opt to search for plastic surgery and aesthetic interventions, specifically characterized with the BDD population. To safely treat this population there are 4 main steps to incorporate into practice:

1. Be knowledgeable of the signs and symptoms presented by patients struggling with BDD and have the ability to identify a patient presenting with BDD. Listen intently to the way the patient describes their problems and evaluate carefully whether their response is rational and proportionate with the proposed expectations of the desired treatment [1]
2. Assess the patient's level of BDD severity and insight. If the patient presents with moderate to severe severity and absent insight, conduct a second consultation [1]
3. Complete a validated and appropriate preoperative screening to obtain a baseline of the patient's current presentation and perceptions. Notably, this is only applicable if the patient does not present with severe signs of BDD. Practitioners should not provide treatment for clients who present with severe BDD. Remember, aesthetic practitioners are not psychiatrists! Diagnosing mental illness is not included in the aesthetics specialty. Use screening tools to assist with making an informed decision, and ultimately a rationally backed "judgment call" when deciding whether or not to provide treatment [1]
4. Use effective communication skills when discussing whether the patient should, or should not, undergo treatment [1]

Physicians have argued that this is strictly a matter of body image, therefore aesthetic interventions will most likely offer minimal to no improvement. Due to the psychological nature, these patients should be evaluated and treated psychiatrically, before receiving any treatment from a surgical team [1]. In the past, BDD was considered a direct contraindication for cosmetic interventions and surgeries; however, more recent research has demonstrated that individuals with mild to moderate BDD may benefit from cosmetic interventions. For these patients, plastic surgery may provide functional and aesthetic restoration as well as psychosocial benefits; this is known as Eumorphic Plastic Surgery and is being assessed as a possible conjunctive therapy for BDD [1].

Conversely, performing surgery on patients with severe BDD invites controversy about the legal and ethical implications of having patients sign informed consents given their altered levels of insight. It has been postulated that due to the nature of this disorder, some patients may not be competent to fully understand the implications of treatment and therefore should not sign consents. Patients presenting with severe BDD pose a clear contraindication to receiving treatment. The majority of this population are delusional with absent insight, and they may perform rituals, including do-it-yourself surgery and other forms of self-mutilation. Allowing patients with severe BDD to undergo cosmetic procedures has led to dangerous situations and sometimes deadly repercussions for the provider. If the patient believes the surgical team has worsened their original "flaws," they may attempt to obtain retribution by reporting, seeking litigation against, assaulting, and in some cases even murdering their medical providers [1].

Conclusion

Body Dysmorphic Disorder, and other Disorders surrounding Body image, require a special plan of care to cater not only to their addictive behaviors and compulsions, but require an understanding of hypo- and hyper- active brain systems leading to these defining characteristics. By understanding the impacts at the root of the brain systems, it creates a perspective of how much neurological maladaptive pathways impact these behaviors, and how we can further use the neuroplasticity of the brain to alleviate some of these symptoms over time. Body Dysmorphic Disorder, and other Body Image Disorders, are being more and more researched, but much more needs to be completed in order to thoroughly and effectively treat this patient population holistically.

References

1. Combs C (2024) Caring for patients with body dysmorphic disorder seeking to undergo plastic surgery and/or aesthetic interventions. Plastic and Aesthetic Nursing 44: 133-139.
2. Prnjak K, Jukic I, Mitchison D, Griffiths S, Hay P (2022) Body image as a multidimensional concept: A systematic review of body image facets in eating disorders and muscle dysmorphia. Body Image 42: 347-360.
3. Rodrigue C, Labrecque I, Turcotte O, Bégin C (2018) Muscle Dysmorphia and Eating Disorders: Comparison on Self-Esteem and Personality Traits. Int J Psychol Psychoanal 4: 037.
4. Badenes-Ribera L, Rubio-Aparicio M, Sánchez-Meca J, Fabris MA, Longobardi C (2019) The association between Muscle Dysmorphia and eating disorder symptomatology: A systematic review and meta-analysis. J Behav Addict 8: 351-371.
5. Zhong S, Su T, Gong J, Huang L, Wang Y (2023) Brain functional alterations in patients with anorexia nervosa: A meta-analysis of task-based functional MRI studies. Psychiatry Res 327: 115358.
6. Monteleone AM, Castellini G, Volpe U, Ricca V, Lelli L, et al. (2017) Neuroendocrinology and brain imaging of reward in eating disorders: A possible key to the treatment of anorexia nervosa and bulimia nervosa. Prog Neuropsychopharmacol Biol Psychiatry 80: 132-142.
7. Yu X, Desrivières S (2023) Altered anticipatory brain responses in eating disorders: A neuroimaging meta-analysis. Eur Eat Disord Rev 31: 363-376.
8. Touroutoglou A, Andreano J, Dickerson BC, Barrett LF (2019) The tenacious brain: How the anterior mid-cingulate contributes to achieving goals. Cortex 123: 12-29.
9. Goldstein RZ, Alia-Klein N, Tomasi D, Carrillo JH, Maloney T, et al. (2009) Anterior cingulate cortex hypoactivations to an emotionally salient task in cocaine addiction. Proc Natl Acad Sci USA 106: 9453-9458.

10. van de Veerdonk MMGH, Bouwens van der Vlis TAM, Ackermans L, Schruers KRJ, Temel Y, et al. (2023) The role of the dorsal anterior cingulate cortex in obsessive-compulsive disorder. Deep Brain Stimulation 3: 1-7.

11. Hester R, Nestor L, Garavan H (2009) Impaired error awareness and anterior cingulate cortex hypoactivity in chronic cannabis users. Neuropsychopharmacology 34(11):2450-2458.

12. Stevens FL, Hurley RA, Taber KH (2011) Anterior cingulate cortex: Unique role in cognition and Emotion. J Neuropsychiatry Clin Neurosci 23: 121-125.

13. Flint Rehab (2022) Anterior Cingulate Cortex Damage: Understanding the Secondary Effects & Recovery Process. Flint Rehab, USA.

HERALD

Advances In Industrial Biotechnology | ISSN: 2639-5665

Advances In Microbiology Research | ISSN: 2689-694X

Archives Of Surgery And Surgical Education | ISSN: 2689-3126

Archives Of Urology

Archives Of Zoological Studies | ISSN: 2640-7779

Current Trends Medical And Biological Engineering

International Journal Of Case Reports And Therapeutic Studies | ISSN: 2689-310X

Journal Of Addiction & Addictive Disorders | ISSN: 2578-7276

Journal Of Agronomy & Agricultural Science | ISSN: 2689-8292

Journal Of AIDS Clinical Research & STDs | ISSN: 2572-7370

Journal Of Alcoholism Drug Abuse & Substance Dependence | ISSN: 2572-9594

Journal Of Allergy Disorders & Therapy | ISSN: 2470-749X

Journal Of Alternative Complementary & Integrative Medicine | ISSN: 2470-7562

Journal Of Alzheimers & Neurodegenerative Diseases | ISSN: 2572-9608

Journal Of Anesthesia & Clinical Care | ISSN: 2378-8879

Journal Of Angiology & Vascular Surgery | ISSN: 2572-7397

Journal Of Animal Research & Veterinary Science | ISSN: 2639-3751

Journal Of Aquaculture & Fisheries | ISSN: 2576-5523

Journal Of Atmospheric & Earth Sciences | ISSN: 2689-8780

Journal Of Biotech Research & Biochemistry

Journal Of Brain & Neuroscience Research

Journal Of Cancer Biology & Treatment | ISSN: 2470-7546

Journal Of Cardiology Study & Research | ISSN: 2640-768X

Journal Of Cell Biology & Cell Metabolism | ISSN: 2381-1943

Journal Of Clinical Dermatology & Therapy | ISSN: 2378-8771

Journal Of Clinical Immunology & Immunotherapy | ISSN: 2378-8844

Journal Of Clinical Studies & Medical Case Reports | ISSN: 2378-8801

Journal Of Community Medicine & Public Health Care | ISSN: 2381-1978

Journal Of Cytology & Tissue Biology | ISSN: 2378-9107

Journal Of Dairy Research & Technology | ISSN: 2688-9315

Journal Of Dentistry Oral Health & Cosmesis | ISSN: 2473-6783

Journal Of Diabetes & Metabolic Disorders | ISSN: 2381-201X

Journal Of Emergency Medicine Trauma & Surgical Care | ISSN: 2378-8798

Journal Of Environmental Science Current Research | ISSN: 2643-5020

Journal Of Food Science & Nutrition | ISSN: 2470-1076

Journal Of Forensic Legal & Investigative Sciences | ISSN: 2473-733X

Journal Of Gastroenterology & Hepatology Research | ISSN: 2574-2566

Journal Of Genetics & Genomic Sciences | ISSN: 2574-2485

Journal Of Gerontology & Geriatric Medicine | ISSN: 2381-8662

Journal Of Hematology Blood Transfusion & Disorders | ISSN: 2572-2999

Journal Of Hospice & Palliative Medical Care

Journal Of Human Endocrinology | ISSN: 2572-9640

Journal Of Infectious & Non Infectious Diseases | ISSN: 2381-8654

Journal Of Internal Medicine & Primary Healthcare | ISSN: 2574-2493

Journal Of Light & Laser Current Trends

Journal Of Medicine Study & Research | ISSN: 2639-5657

Journal Of Modern Chemical Sciences

Journal Of Nanotechnology Nanomedicine & Nanobiotechnology | ISSN: 2381-2044

Journal Of Neonatology & Clinical Pediatrics | ISSN: 2378-878X

Journal Of Nephrology & Renal Therapy | ISSN: 2473-7313

Journal Of Non Invasive Vascular Investigation | ISSN: 2572-7400

Journal Of Nuclear Medicine Radiology & Radiation Therapy | ISSN: 2572-7419

Journal Of Obesity & Weight Loss | ISSN: 2473-7372

Journal Of Ophthalmology & Clinical Research | ISSN: 2378-8887

Journal Of Orthopedic Research & Physiotherapy | ISSN: 2381-2052

Journal Of Otolaryngology Head & Neck Surgery | ISSN: 2573-010X

Journal Of Pathology Clinical & Medical Research

Journal Of Pharmacology Pharmaceutics & Pharmacovigilance | ISSN: 2639-5649

Journal Of Physical Medicine Rehabilitation & Disabilities | ISSN: 2381-8670

Journal Of Plant Science Current Research | ISSN: 2639-3743

Journal Of Practical & Professional Nursing | ISSN: 2639-5681

Journal Of Protein Research & Bioinformatics

Journal Of Psychiatry Depression & Anxiety | ISSN: 2573-0150

Journal Of Pulmonary Medicine & Respiratory Research | ISSN: 2573-0177

Journal Of Reproductive Medicine Gynaecology & Obstetrics | ISSN: 2574-2574

Journal Of Stem Cells Research Development & Therapy | ISSN: 2381-2060

Journal Of Surgery Current Trends & Innovations | ISSN: 2578-7284

Journal Of Toxicology Current Research | ISSN: 2639-3735

Journal Of Translational Science And Research

Journal Of Vaccines Research & Vaccination | ISSN: 2573-0193

Journal Of Virology & Antivirals

Sports Medicine And Injury Care Journal | ISSN: 2689-8829

Trends In Anatomy & Physiology | ISSN: 2640-7752