

questioned or had their recollections hypnotically enhanced followed by questioning. The hypnotically enhanced individuals recalled significantly more critical details than the group that was questioned without going under hypnosis. The hypnosis treatment enhanced memory retrieval, allowing investigators to ask less questions and question for a shorter duration, while increasing the accuracy of the recollection [6].

## CONCLUSION

In summary, research suggests that witnesses of less intense crimes require more prompts during questioning and questions based on recalled information. Witnesses of high intensity

crimes can be expected to provide all relevant details to be used as evidence in criminal trials. Individuals with gaps in peripheral details should still be considered to provide usable testimony given they demonstrate thorough recollection of the major details. Lastly, using hypnosis to enhance recollection, when conducted in an unbiased manner, enhances accuracy of recollection. Investigators and hypnosis providers should be well-trained and regulated to ensure questioning style and hypnosis enhance recollection ability. Ensuring quality and validity of eyewitness testimony is critical to avoid wrongful convictions. 🗣️



# SOCIAL MEDIA & BODY DYSMORPHIC DISORDER

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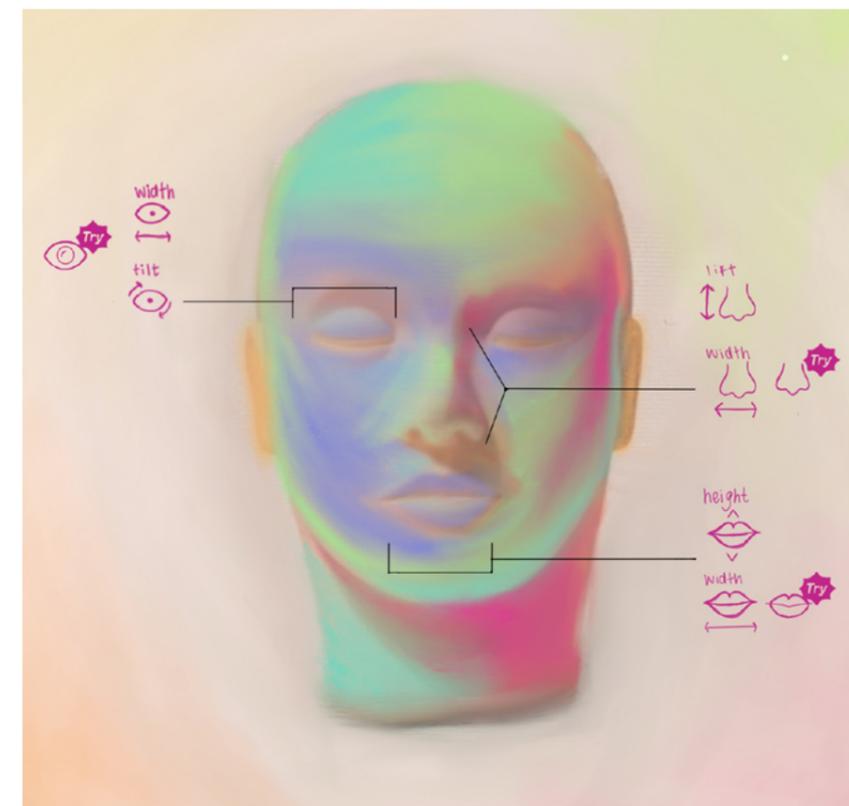
BY AMBER PUTMAN  
ART BY DANNI SIGLER

The prevalence of social media in today's society has increased greatly over the past ten years, especially amongst adolescents who are growing up with the internet and media influencing how they view themselves and the world around them. Social media's uprise has not only influenced society but also mental health. This influence can be more detrimental at a young age because the adolescent brain is still developing. It is also at this time where symptoms of mental illness, such as Body Dysmorphic Disorder (BDD), can begin to develop [1]. It is important to notice the effects media has on adolescents' mental health during this developmental moment in their lives. This increased presence of social media could potentially increase the severity of Body Dysmorphic Disorder symptoms.

## WHAT IS BODY DYSMORPHIC DISORDER?

When most people hear the term 'body dysmorphia' they often associate it with an eating disorder; however, these are two separate illnesses. Body Dysmorphic Disorder (BDD) is classified as an anxiety disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), which serves as a guide to diagnosing mental disorders. More specifically, BDD is classified as an obsessive-compulsive disorder due to the obsessive and uncontrollable intrusive thoughts individuals experience, and the different rituals used to relieve the anxiety [2]. BDD usually starts to develop in adolescent life, starting as early as age 12, with an average age of 16-17 years old [1]. Individuals diagnosed with BDD account for 2.4% of the population, making this disorder more common than the eating disorder Anorexia Nervosa (AN) [3]. However, as opposed to AN, which is characterized by anxiety surrounding one's body weight, BDD involves anxieties over non-weight appearance concerns. Although most often these flaws are imaginary or not observed by others, the individual can become

very distressed with their obsessive thoughts. This causes interference in their everyday life due to their constant attempt to hide their perceived flaws [4].



BDD is much more than having a negative body image. What sets BDD apart from simply having low self-esteem is the obsessive thoughts and compulsive behaviors that come with the disorder. One example of these OCD tendencies is mirror checking. An individual with BDD might have a ritual of checking themselves in the mirror more than a hundred times during the day, reinforcing more negative feelings about their body image [2].

However, this does not mean that self-esteem cannot influence BDD symptoms. A compilation of studies from Kuck and colleagues of the Department of Psychology at the University of

Münster analyzed the relationship between the severity of BDD symptoms and global self-esteem in individuals diagnosed with BDD, cosmetic surgery patients, and mentally healthy controls. Generally, control groups are unchanging variables: in the case of this study, controls were individuals with no BDD symptoms. The statistical analysis revealed a moderately negative relationship between BDD symptom severity and self-esteem, which indicated that severe BDD symptoms correlate with lower self-esteem levels [5]. It was also noted that this result is consistent among several studies assessing the relationship between BDD and low self-esteem [5]. This can suggest an important connection between self-esteem and BDD symptoms.

## NEUROLOGICAL EFFECTS OF BODY DYSMORPHIA

Multiple studies were conducted to analyze the brain structure of BDD patients. Researchers utilize neurological technology such as functional magnetic resonance imaging (fMRI), to determine functional abnormalities in the brain. Multiple studies by Dr. Feusner, the director of the Body Dysmorphic Disorder Research Program at Semel Institute for Neuroscience at UCLA [6], analyzed abnormal brain patterns in BDD patients through face and object perception. Over the course of three different studies, individuals viewed pictures of different faces and houses. These photos were altered in two ways; to show only high spatial frequency (HSF) or low spatial frequency (LSF) information [7, 8, 9]. The HSF photos contained sharp and clear features in fine detail, whereas the LSF photos showed visual information in low detail in order to only show the main shapes and ideas. The type of visual information shown by LSF photos is also called a "holistic view", which means larger main picture because main details are the only information available to perceive.

Abnormal brain activation in regions relating to visual processing and attention was found among individuals with BDD throughout all three studies, implying that BDD symptoms are specific to both facial perception and object perception [7, 8, 9]. One of these studies, completed in 2007, involved viewing others' faces. BDD patients showed greater activity in the left hemisphere of the brain while viewing both LSF and HSF information, compared to healthy individuals (control group). The control group did not show any region with greater activation than the BDD group for the 2007 study [9]. However, when viewing images of their own face and house structures in future studies, BDD patients were found to have hypoactivity, or lack of activity, in the visual areas associated with processing LSF images. This is interesting because studies suggest that the right hemisphere

of the brain specializes in processing holistic information, looking at the larger picture and main ideas, conveyed through LSF, while the left hemisphere specializes in processing highly detailed information conveyed through HSF [10].

These findings suggest that patients with BDD focus on analyzing the fine details when processing visual information, even if the information provided is purely holistic (LSF). This could also mean individuals with BDD can get caught up in visual sources, especially if it is high in details, very easily as opposed to healthy controls. One example of a primarily visual source most people use daily is social media. It could be easy for someone with BDD to get caught up in the details and OCD rituals that come with social media.

## SOCIAL MEDIA AND THE BRAIN

Social media's main goal is to capitalize on the social drives that already exist in humans [11]. This is done by affecting three main systems: attention, memory, and social cognition. Social media is constantly sustaining our attention, even when there is nothing to see. This is due to behavioral reinforcement, the idea that a stimulus or consequence applied to a certain behavior will strengthen that behavior in the future [12]. Since information can be given instantly by checking your phone, reward signals are also released instantly. For example, if a reward signal is released from gaining social media notifications, we may begin to check our phone more often to experience more of these rewards, even in the absence of notifications. This is a reflection of "checking" behaviors most people with OCD or BDD may experience, and someone with those specific disorders may find the need to check social media in order to

gain those rewards signals more often [12]. A recent study on Temple students showed that those who value instant rewards tend to be more engaged with their social networks. Although this does not show direct causation, it does further the idea that social media is affecting one's attention and patience [13]. These studies provide evidence leading to the conclusion that the amount of time spent on media technology is tied to reward sensitivity differences in individuals. Meaning social media engagement can have an effect on how the brain processes reward signals [13]. Researchers are also looking into the possibility that the internet is affecting semantic memory processes. That is, people are becoming more reliant on the internet for information rather than building their own knowledge or semantic memory [12].

The most extensive research on social media and the internet has gone towards looking into its effect on social cognition. Dr.

Bickart of the Boston University School of Medicine did a study on amygdala volume and social network sizes. The amygdala's main function is to regulate emotions such as fear and aggression. The results of an MRI scan showed that a greater number of online friends and likes had a positive correlation with amygdala volume [14]. These conclusions show an overlap between online and offline brains. For example, when being rejected online, the same brain regions are activated as when being rejected in person giving off the same feeling. A rejection online could even cause more negative feelings than an in-person rejection because an in-person interaction can still leave some form of interpretation, online success and failures are provided clearly through measurable quantities such as a number of likes or comments [12]. These metrics are very important to our reward systems and our reinforcement behavior. The positive or negative feedback we receive through likes draws us back to social media for more [11].

For individuals with BDD, this reinforcement is focused more on the negative feedback. Since the rewards found online (i.e. amount of likes and comments) are easily measurable, someone with BDD might engage in more social comparison online. This is when one compares their own rewards gained through social networks with others [11]. It is this social comparison that contributes to negative effects on self-esteem. Through this reinforcing behavior and comparable metrics, it is easy to gain a negative self-image or, in the case of BDD, reinforce an already negative self-image.

## BODY DYSMORPHIA AND SOCIAL MEDIA

A case report on a female with BDD was followed by Dr. Khanna and Dr. Sharma of the Department of Clinical Psychology in Kolkata and Karnataka, India [15]. The report on this 21-year-old individual highlighted how her use of social media acted as a form of reinforcement for her BDD symptoms. Her symptoms include checking the mirror every hour of the day when she is at home and avoiding going out in public. When she would go out, she would avoid seeing herself in mirrors with the fear that she would look bad. She would end up using her phone for most of the day and preferred being with others online behind a screen rather than out in the real world. After attending therapy for fifteen sessions and reducing her social media use to 2-3 hours every day, she started seeing positive results. Although her craving for social media was still present, she was able to challenge her negative thoughts [15].

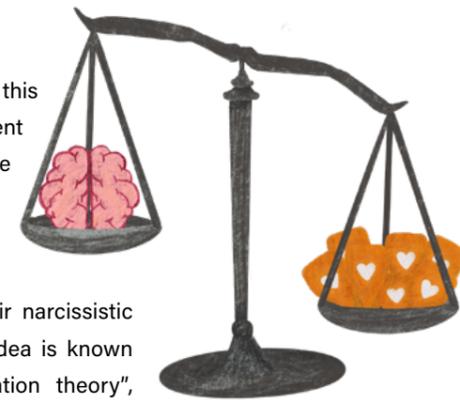
Researchers believe that individuals with BDD tend to be more involved with social media, specifically Instagram and Snapchat, and BDD has been associated with spending more time on both of these applications [16]. Dr. Khanna and Dr. Sharma's

case study supports this theory. For a patient with BDD, their use of social media sites acts as a form of reinforcement in order to encourage their narcissistic thoughts [15]. This idea is known as the "Self-verification theory", which proposes that people seek for others to see them as they perceive themselves, whether that be in a positive or negative way [17]. For individuals with BDD, they tend to seek out and remember negative aspects of social interaction rather than the optimistic parts that defy their narcissistic views. On social media, this is seen in the form of seeking to compare themselves to others through comments, likes, and posts.

However, not all media involves this social comparison. For example, Spotify is a form of social media that revolves around music and not images. Since there are fewer ways to compare oneself on this network, there could be less influence on BDD symptoms. Likewise, there are many BDD rituals that have no connection to the internet, such as mirror checking or makeup appliance. So, although social media does not directly cause BDD, it can be a reinforcement to the negative thoughts of an individual with body dysmorphia.

## DISCUSSION

BDD, like most mental illnesses, is a very complex disorder and can be shown in very different ways depending on the individual. The way social media is used is also person-specific and can vary depending on which media is being used and the reason the person is using it. There is still so much we don't know about the effects of both BDD and social media and the relationship between the two of them. The examples of social media that have been mentioned, such as Instagram and Snapchat, are highly visual sources with many triggers for reward signals (i.e. commenting, liking, etc). However, social media can be used in ways that may not involve social comparison or the reinforcement of negative thoughts that BDD patients experience when scrolling through Instagram. Whether this is a body-positive media source or something completely unrelated to body image, such as Spotify for music, not all social media is involved in the reinforcement of BDD behaviors. However, this is another topic that requires additional research to confirm. 🧠



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### STEP ASIDE SUBOXONE, THERE'S A NEW TREATMENT IN TOWN

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