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A Proposed Learning Model of Body Dysmorphic Disorder

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1. Introduction

While it is common for individuals to have concerns about their appearance, individuals with body dysmorphic disorder (BDD) experience a marked distress that often results in time-consuming rituals, social anxiety, and depression among other debilitating effects. Body dysmorphic disorder (BDD) is a severe and debilitating disorder that is characterized by a perceived physical defect that causes significant impairments in everyday functioning (American Psychiatric Association, 2000). BDD was first mention in the late 1800's (Morselli, 1891). It was described as dysmorphophobia and referred to a strong emotional response (e.g. anxiety) to certain changes in physical appearance. Body dysmorphic disorder was not mentioned again until the advent of the third *Diagnostic and Statistical Manual for Mental Disorders* (DSM III), in which BDD was listed as a somotaform disorder (American Psychiatric Association, 1987). While BDD remains classified as a somotaform disorder in the current edition of the DSM (DSM IV-TR), more recently it has been conceptualized as an obsessive-compulsive related disorder (OCRD). Like other OCRD, BDD involves symptoms of obsessions and compulsions.

Similar to obsessive compulsive disorder (OCD), individuals with BDD experience intrusive thoughts and/or images. The obsessive nature of BDD is usually centered around a perceived, or slight defect in physical appearance. The BDD concern can be general (e.g. an overall feeling of ugliness or feeling too feminine or masculine) or focus on a specific feature. The most common preoccupations are around the face, particularly the nose, skin, hair, eyes, mouth, lips, jaw, and chin. However, the preoccupation can focus on any body part and often involves several body parts. Additionally, the location of the main flaw or defect can change over time (Veale & Neziroglu, 2010).

The preoccupation greatly impairs one's social, occupational, and/or academic functioning (American Psychiatric Association, 2000), and typically leads to compulsive behaviors in an attempt to decrease the anxiety and distress experienced. Common compulsions include safety and/or avoidance behaviors such as mirror-checking, mirror-avoidance, camouflaging, excessive grooming, reassurance seeking, and skin picking.

The level of dysfunction caused by BDD symptoms is very disabling. Individuals with BDD have poor employment history, low marital rates, higher suicide rates than the general population, and typically present with high degrees of co-morbid mood disorders (Neziroglu, Khemlani-Patel, & Jacofsky, 2009; Phillips & Menard, 2006). Gunstand and

Phillips (2003) examined rates of depression in 293 individuals with BDD. They found 59% of participants at the time of the study had major depression and a lifetime rate of depression of 76%. Moreover, individuals with BDD experience an array of negative emotions including anxiety and shame. Many individuals with BDD often do not seek medical and/or psychological treatment due to their experience of shame and self disgust. They do not want to be perceived as vain or superficial. Initially, many seek alternative treatments for their perceived defect such as dermatological procedures and cosmetic surgery. Often, when individuals with BDD seek psychological treatment it is for a co-morbid condition. In fact, many BDD patients do not typically present for treatment until 10-15 years after the age of symptom onset (McKay & Neziroglu, 2011). By the time they enter into treatment, their BDD concern is strengthened and maintained and can be very challenging to treat.

The lapse of time between symptom onset and entering into treatment makes it difficult to formulate a comprehensive etiology of the disorder because most of what is known is based on patient reports. Although the etiology of BDD is unknown, various models attempt to explain the disorder. Models are structures or frameworks based on hypotheses that explain how a certain disorder develops, progresses, and is maintained. Models guide research aimed at developing efficacious treatments (Neziroglu et al., 2009; Rabinowitz, Neziroglu, & Khemlani-Patel, 2007). Current models of BDD include aesthetic sensitivity and the self as an aesthetic object (Veale, Ennis, Lambrou, 2002), social learning and conditioning (Neziroglu, Khemlani-Patel, & Veale, 2008), neurobiological (Yaryura-Tobias, Neziroglu, Chang, et al., 2002; Yaryura-Tobias, Neziroglu & Torres-Gallegos, 2002; Saxena & Feusner, 2006; , Feusner, Townsend, Bystritsky & Bookheimer, 2007; Feusner, Yaryura-Tobias, & Saxena, 2008,), and neuroanatomical (Rauch, Phillips, Segal, Makris, Shin, Whalen,et al., 2003).

The learning model by Neziroglu and colleagues (Neziroglu, Khemlani-Patel, & Veale, 2008; Neziroglu, Robert, & Yaryura-Tobias, 2004) is similar to Cash's (2002) general CBT model of body image disturbance. This model proposes that cultural socialization, interpersonal experiences, physical characteristics, and personality attributes contribute to the development of body image perception and attitudes (e.g. body satisfaction). The importance and/or sensitivity about attractiveness significantly contribute to the beliefs, assumptions, and values that are developed in individuals with BDD (Wilhelm & Neziroglu, 2002).

The key components of the CBT model for BDD are shown in Figure 1 and include a) a biological predisposition; b) initial operant conditioning; c) social and/or vicarious learning; d) classical/evaluative conditioning; e) relational responding; and f) secondary operant conditioning (Neziroglu et al., 2008; Neziroglu, Roberts, & Yaryura-Tobias, 2004).

2. Cognitive behavioral model of body dysmorphic disorder

2.1 Biological predisposition

The proposed learning model of BDD keeps with the diathesis-stress model concerning mental disorders suggests that some individuals are genetically predisposed to develop a psychological disorder in times of stress. A biological predisposition alone does not necessarily predict whether one will develop a specific disorder. Rather, the development of BDD, or any psychological disorder, is the result of an interaction of a variety of factors, including a biological predisposition. Biological predispositions include genetic factors, visual processing problems, somatosensory problems, and changes in neuroanatomical/neurochemical circuitry (Neziroglu et al., 2004).

2.2 Initial operant conditioning

The CBT model of BDD hypothesizes that operant conditioning coupled with social learning results in the development of values and beliefs about attractiveness, as well as a sense of the self's value being conditionally based on body image (Neziroglu et al., 2004). Childhood experiences that positively reinforce an individual for appearance can contribute to BDD development. These experiences may reinforce the notion that appearance is important despite the accompanying behavior (e.g. comments such as "You looked so beautiful in your dance costume!" rather than "You danced so beautifully in your recital"). While many individuals with BDD were not positively or intermittently reinforced for their overall appearance, many were reinforced as children or adolescents for certain parts of their appearance such as, height, weight, body shape, and poise. Individuals with BDD report general childhood and adolescent experiences where their appearance was valued and exaggerated such as being in the attractive crowd in school or early dating success.

While positive reinforcement for appearance plays an important role in BDD development, early childhood and adolescent experiences need not be positive to have an influence. Negative experiences (e.g. teasing, bullying, and neglect) may prepare an individual for the negative affect s/he feels when observing body parts later in life (Osman, Cooper, Hackmann, & Veale, 2004; Phillips, 1996a). These experiences may become part of the core beliefs concerning the value of attractiveness.

2.3 Social and/or vicarious learning

Social and/or vicarious learning occurs when others are observed being rewarded or punished for a particular belief or behavior (Bandura, 1977). An individual may learn or strengthen beliefs by learning how others are rewarded. From an early age, individuals learn that physical attractiveness yields rewards. The association between self worth and physical attractiveness is reinforced by observed experiences in which other attractive individuals are positively reinforced and by society's overvaluation of physical attractiveness (Rabinowitz et al., 2007). This is extremely salient in the media and popular culture. Most, if not all, leading television and movie roles are played by attractive men and women. Children and adolescents are taught that physical attractiveness is necessary for success. Furthermore, television commercials and magazines advertise a multitude of cosmetic products to help achieve the goal of beauty.

In addition to the bombarding images in the media, vicarious learning extends beyond the sociocultural environment to one's immediate environment. Family members can express over concern about their own appearance and extend this preoccupation to their children, making frequent comments about their child's appearance. This further confirms that appearance is an important factor that is valued in society.

2.4 Symptom development through classical and evaluative conditioning

BDD development is formulated to be a function of classical (conditioning of liking or disliking of stimuli) or evaluative conditioning (conditioning of physiological responses). In the case of BDD, negative events about one's physical appearance may serve as the unconditioned stimulus (UCS) (e.g. being teased about reaching puberty early) and cause an

unconditioned emotional response (UCR) (e.g. anxiety, depression, disgust, or shame). The unconditioned stimulus (UCS) is evaluated as negative and therefore, anything paired with it is evaluated as negative as well. For example, a person is teased (UCS) for having a big nose and this evokes a negative affect. Subsequently, a word (CS: "big") or a body part (CS: "nose") is evaluated as negative. According to evaluative conditioning, any previously neutral body part or word ("big") can take on the same negative reaction as the UCS. When an individual is exposed to the body part of concern, a negative emotional response is elicited. Not only is the CS evaluated negatively, but it evokes the same response as the UCS (e.g. anxiety, shame, or disgust).

2.4.1 Information processing/development of belief system based on relational frame theory

Early experiences and conditioning begin to shape an individual's cognitions and emotions. However, human beings have the capacity for language. Language mediates conditioning and learning in humans and significantly contributes to the strengthening and development of appearance related beliefs. Relational frame theory explains the role of language and how it influences emotions and cognitions (Hayes, Barnes-Holmes, & Roche, 2001). Three of the main premises of relational frame theory and how they relate to BDD are highlighted below.

2.4.2 Bi-directional stimulus relations

Only for humans, does a word and the actual item or event enter into a bi-directional stimulus relation, wherein each can equally stand for the other (e.g. the words "potato chip" and the actual potato chip are equal). Because of our capacity for language, we do not need to see the potato chip to anticipate having one. Hearing "potato chip" is a powerful enough stimulus, and the words "potato chip" and the actual potato chip are equally powerful reinforcers. Our ability to use language allows us to learn about things and events even if we have never experienced the particular event. Furthermore, for animals, order in which the words "potato chip" is said and the actual potato chip is presented is important. However, for children the order of the words and presentation of the actual item does not matter. The words "potato chip" could be said either before or after a child eats the potato chip. Once the child learns the words "potato chip", other similar reinforcers can be taught, so that both elicit the thought even though the child may not have had direct experience with the second stimulus. For example, we can teach a child that a "potato chip" is similar to a "pretzel" and eventually both words, "potato chip" and "pretzel," will elicit the thought "potato chip" and "pretzel," even if the child has never seen a pretzel. This bi-directionality is the most important defining feature of human language and cognition. It explains why evaluative conditioning can occur and why arbitrary associations can be made.

2.4.3 Relational frames

The ability to think relationally allows us not only to make predictions, but allows our mind to generate various other relations. Language assists evaluative conditioning by stimulating complex networks of associated ideas, images, and evaluations. Relational responding occurs during early language by teaching relational frames (e.g. learning that things are "similar", learning temporal and causal relations – "before" and "after", "if..then," and

comparative and evaluative – "bigger than, better than" etc.). Language assists classical conditioning. For example, a child could learn that having a scar (UCS) makes her feel disgust (UCR) and later, any scar (CS) elicits disgust (CR). Likewise, the words "cut," "scratch," or "wound" can elicit the same negative affect (classical/evaluative conditioning via relational frame of coordination or similarity). Words that connote similar concepts conjure up the same thoughts. This is why a BDD individual may respond with negative affect to any event or word that reminds him/her of a similar situation. If at some point a child had a disgust reaction to a scar, then anything similar to it can elicit the same reaction simply by thinking about it.

2.4.4 Arbitrary and non-arbitrary connections

Relational frame theory (Hayes et al., 2001) suggests that as human beings we use language as a way of making connections that may or may not be factual. Perhaps in the case of BDD, humans make arbitrary associations between appearance, social success, and/or undesirable human traits. For example, a child may hear an adult talking about a peer who whines incessantly. However, the adults may comment that the peer always looks beautiful and too bad, she is consistently whining. The child may learn that people will tolerate unpleasantness if the person is attractive, and therefore, beauty is important. Thus, people will accept unpleasant traits from attractive people. The child may begin to compare herself with her peer to see is she is just as pretty, in order for people to accept her as well.

In addition to language and cognitions, thoughts can take on meaning and elicit emotions. For example, if you think of a spoon you may have a neutral response, but if you think of a spoon that has fallen into the toilet bowl and later sanitized you may have a disgust reaction. This demonstrates that due to language, we make arbitrary associations and have certain emotional responses to those thoughts. There may be either direct conditioning of the CS and UCS occurring via the mediation of language. As the CS is paired with the CR, a set of cognitions is strengthened, information is processed, and a set of beliefs initially introduced through early life experiences continues to be reinforced. These beliefs may center on thoughts such as, "Being attractive is the most important thing in the world," "I can only succeed in life if I am attractive," "I am worthless if I am not attractive," etc. It is during this time that attention is drawn to the perceived defective body part. Selective attention to the defective part leads to more focused attention on the defect and thus, a strengthening of the conditioning process.

2.5 Higher order conditioning

Higher order conditioning may account for BDD symptoms secondary to the patient's primary concern (e.g. while mirror checking one body part, a secondary body part may become more noticeable and elicit the same negative response as the original area of concern). As a result of higher-order conditioning, the negative emotional reaction generalizes to other body parts that are noticed while evaluating the primary body part of concern (Neziroglu, et al., 2004).

Higher order conditioning may be direct or through relational framing. For example, children are taught to look at an object, then hear its name, and then say its name.

Eventually, children can hear the name and point to the object. Once the object-word and word-object relation is trained, relational responding occurs. If a child is taught, "This is your mouth, ear, and eye," then the child can identify the parts of the face when asked "Where is your mouth, ear, and eye?" even without differential reinforcement. This derived arbitrarily applicable relation is referred to as a "relational frame." It is brought under the control of contextual cues through a process of differential reinforcement. Once we, as human beings, are taught through reinforcement, we can generalize to novel situations without direct reinforcement by using what we have learned in the past. This is similar to higher-order conditioning where a CS is paired with another CS and therefore, generates the same response.

2.6 Maintenance of symptoms through operant conditioning

Once BDD appearance related beliefs, values, and assumptions are established, operant conditioning in the form of negative reinforcement maintains maladaptive cognitions and compulsions (Neziroglu et al., 2008; Neziroglu, et al., 2004). More specifically, compulsive behaviors serve to reduce short-term distress by "taking away" the negative emotional reaction triggered by either an intrusive thought or contact with the perceived flaw. Individuals with BDD engage in safety and/or avoidance behaviors such as mirror checking, mirror avoiding, camouflaging, excessive grooming, and/or reassurance-seeking in attempt to reduce the negative feelings such as anxiety, shame, and disgust (Neziroglu et al., 2008). BDD patients can be identified by two main types of compulsions: mirror checking or mirror avoiding. However, BDD patients can engage in both mirror checking and mirror avoiding behaviors. Those who engage in mirror checking may spend countless hours a day in front of a mirror scrutinizing their appearance and checking for flaws. They continuously attempt to fix their appearance to hide their flaw, so it is not noticeable to others. Those who engage in mirror avoiding go out of their way to avoid seeing their own reflection (e.g. covering/removing mirrors from their home, removing all reflective surfaces from their home) (Rabinowitz et al., 2007). For example, a BDD patient who engages in mirror avoidance experiences relief because of not being exposed to their image. This relief represents a negative reinforcer in that it allows one to avoid the anxiety associated with the perceived physical flaw thus, increasing the probability that the avoidance behavior will be used again when in a similar situation. Conversely, a BDD patient may engage in mirror checking and like the way he/she looks. In this case, the mirror checking behavior has decreased the anxiety associated with the perceived physical flaw. The random positive feedback encourages the patient to continue mirror checking. In either situation, the BDD patient's behavior has temporarily reduced the patient's anxiety concerning his or her appearance, and is maintained by negative reinforcement. Whether a BDD patient engages in mirror-checking, mirror-avoidance, camouflaging, or reassurance-seeking, each behavior aims at reducing the anxiety associated with the thoughts "Do I look horrible?" or "Has my appearance changed since I last looked at myself." Depending on the individual's mood state, expectations, lighting in the area, or mirror used different images may be perceived at different times. These variables may lead to more or less safety and/or avoidance behaviors. This is a variable- ratio schedule of reinforcement. Since variable ratios are the most successful schedules of reinforcement at increasing and maintaining behavior, the BDD behaviors are strong and thus, difficult to extinguish and treat.

3. Treatment approach derived from the model

Exposure and response prevention (ERP) is the preferred treatment for BDD. ERP applies basic behavioral principles such as habituation and extinction to reverse learning that has happened through classical and operant conditioning. In the case of BDD, ERP involves repeated exposures of the defective body part (CS) across multiple situations that elicit negative responses (CR) and prevents the individual from engaging in the compulsive behaviors that reduce negative mood. The repeated exposure without anxiety reduction causes two behavioral changes. Continued exposure to the negative mood state without escape via compulsive behaviors leads to eventual habituation to the negative feelings of anxiety, disgust, and shame elicited by the perceived flaw and the intensity of the negative feelings diminish. Breaking the negative reinforcement of compulsive and safety seeking behaviors leads to extinction of these behaviors.

This behavioral model has been used to treat many BDD patients. Below, a case study illustrates how treatment was successfully applied with one patient to explicate how the behavioral model and the treatment are intertwined.

4. Case study

Chris, a 19 year old male, presented for intensive treatment expressing excessive concerns about the appearance of his nose. Prior to age 17, Chris reports having been socially active, popular, and happy. At the age of 16, he broke his nose while playing ice hockey, after which he had cosmetic surgery to repair the damage to his nose. Since the surgery, Chris has been preoccupied with fears that his nose was changing shape and collapsing on the left side. He believed that defects in his nose were extremely offensive and visible to all. Anxiety related to his perceived flaw interfered with his interpersonal relationships, social life, and education. Chris began to drink heavily so he could tolerate discomfort in social situations.

Chris spent several hours each day engaging in mirror checking and camouflaging behaviors. He wore hats to create a shadow on his face and detract attention from his nose. On multiple occasions, Chris would apply tinted moisturizer in an attempt to correct his defect. Additionally, he would take countless photographs of his nose, until he found one that he felt was bearable. Eventually, the anxiety, disgust, and shame related to his perceived defect became unbearable, and he dropped out of school and avoided most social contact, except his parents, remaining in his home most days and nights.

4.1 Case conceptualization

4.1.1 Biological predisposition and social learning

In discussing his family history, Chris reported a strong family focus on appearance and attractiveness. He reported that his mother and sisters were highly focused looking perfectly put together, and that his mother had been diagnosed with a mild case of obsessive-compulsive disorder, supporting a possible biological predisposition in his family.

4.1.2 Early childhood reinforcement history

Chris reported that throughout his childhood, his appearance was exaggerated to the exclusion of other personality traits and behavioral accomplishments. He was positively

reinforced (operant conditioning) for his good looks. As a child, he modeled for clothing catalogues and often went shopping with his mother. These appearance based activities were central to his relationship with his mother. Chris reports that prior to his emergence of BDD symptoms, he engaged in appearance related behaviors, such as styling his hair daily, as well as non-compulsive mirror checking. He was rather popular in his social group and received significant positive attention from friends and girlfriends for his appearance.

4.2 Symptom development and maintenance

4.2.1 Classical conditioning

After Chris's surgery, he began to feel differently about his appearance. The change in his appearance (broken nose), the pain and discomfort from the surgery (US) became associated with disgust and anxiety (UR). His nose then (CS) became associated with these negative mood states (CR).

4.2.2 Operant conditioning

Chris began to avoid the anxiety and disgust associated with his appearance. He engaged in various behaviors such as mirror checking, taking multiple photographs of his nose, camouflaging with hats and make-up, social avoidance, and excessive drinking. Chris's compulsions were strengthened and maintained via negative reinforcement (the avoidance of a negative outcome- anxiety, shame, social rejection, etc.).

5. Treatment

5.1 Treatment frequency

Initially treatment consisted of 3 hour sessions 5 times a week. After 6 weeks, frequency was reduced to 90 minute sessions 4-5 times a week. As Chris experienced symptom reduction, he was seen on average twice a week for 90 minutes.

5.2 Treatment content

The initial treatment sessions concentrated on gathering information about Chris' symptoms as well as providing psychoeducation about BDD. As ERP involves exposure to the most anxiety provoking situations, trust between the patient and therapist is necessary. Therefore, the initial sessions also focused on rapport building and engaging Chris in treatment. His motivation wavered as is typical of BDD individuals.

The above model stresses that BDD is maintained through both classical and operant conditioning principles such as habituation and exposure. These principles are applied in order to treat BDD and reverse pathological behavior patterns. Chris must unlearn all of his previously conditioned responses and learn new responses.

First, information was collected and used to create a hierarchy of situations that elicited negative mood states such as feelings of disgust and anxiety about his appearance in which he would normally engage in compulsions and safety behaviors to avoid these negative

feelings. Chris rated the situations from lowest to highest based on how much anxiety, disgust, and distress each caused. The ERP exercises were designed to (a) help the patient habituate to his anxiety and other negative emotions in the presence of the conditioned stimuli (e.g. his nose and the chance that others may scrutinize him) and (b) extinguish his compulsive and safety seeking behaviors. To challenge his avoidance and belief that others only saw his defect, exposures were designed around anxiety-provoking situations in which Chris felt his flaw was most prominent. The ERP exercises involved extensive social interactions in which Chris was not allowed to engage in camouflaging behaviors. For example, an early exposure consisted of Chris sitting in the waiting room for treatment without a hat on. By extending his time without camouflaging, Chris habituated to his anxiety in that situation and to the accompanying negative feelings of anxiety, disgust, and shame about being seen in public. Similar exposures were conducted across various settings (e.g. while driving in the car, at a movie theatre, and in a coffee shop). He was able to extinguish the camouflage behavior and wearing his hat whenever he was in a public place. A later exposure involved approaching and engaging salespeople in a department store without camouflage. This allowed habituation to the negative emotions when in closer proximity to others and extinction of the camouflage behavior when engaged in one on one interactions. ERP exercises also involved decreasing the frequency and length of Chris's mirror checking and photographing behaviors. This was done by exposing Chris with verbal negative prompts by his appearance in the presence of a mirror without letting him look and habituating to the negative feelings the verbal prompts and his appearance elicited. Chris was taught to practice quick mirror checks even in the presence of his "defect" to extinguish obsessive time consuming mirror checking behaviors.

In addition to previously learned behaviors, Chris was provided with new conditioning experiences in which he could challenge previously learned irrational beliefs and behaviors and learn appropriate and healthy interactions. Assertiveness training was provided as part of the exposure exercises at local coffee houses and bars in order in help the patient in developing the social skills lost due to the Chris's substance use when in social situations. He learned how to approach others, initiate conversations with confidence, and maintain a conversation. Positive reinforcement provided by the therapist and conversation recipient increased Chris's confidence and decreased the previously negative emotions associated with social interactions.

During treatment, Chris's beliefs were challenged as well. For example, Chris believed that his job and relationship success were dependent on his physical attractiveness. He felt that without a perfectly straight nose he would never be able to make friends, have a girlfriend, or finish school. These thoughts were challenged by providing empirical evidence and corrective feedback. For example, Chris's irrational beliefs about the importance of appearance for success were challenged with examples of how others have succeeded without physical perfection. To empirically challenge Chris's beliefs, we gave photo's of Chris's nose (one in which he thought his nose looked "acceptable" and one in which his "deformity" was prominent) to third party individuals and had them rate the attractiveness of the photo. The rating of the attractiveness did not change from photo to photo. By combining ERP and exercises to challenge Chris's cognition distortions, he was able to decrease his BDD symptoms.

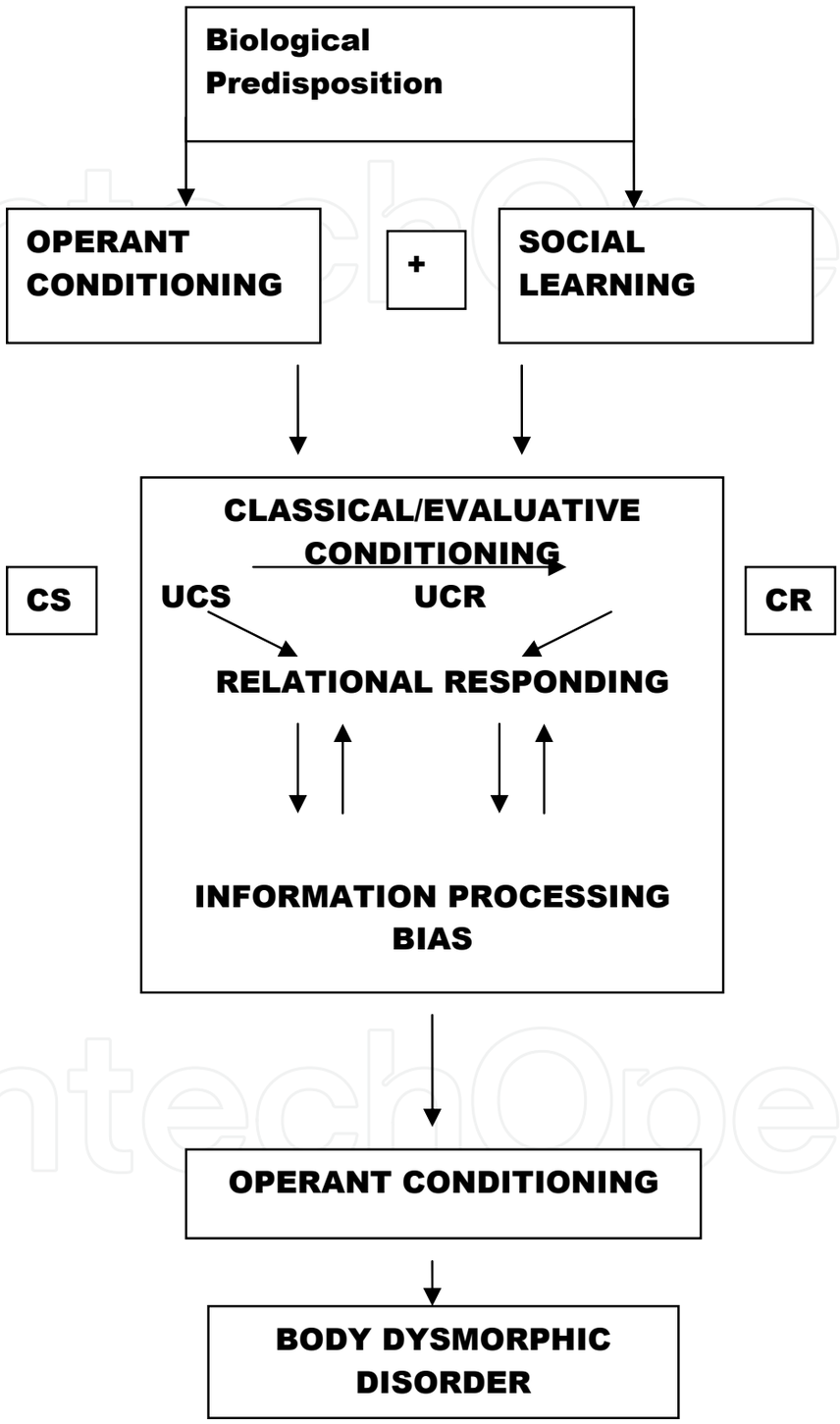

Biological Predisposition
OPERANT CONDITIONING
+
SOCIAL LEARNING
CLASSICAL/EVALUATIVE CONDITIONING
CS
UCS
UCR
CR
RELATIONAL RESPONDING
INFORMATION PROCESSING BIAS
OPERANT CONDITIONING
BODY DYSMORPHIC DISORDER

Fig. 1.

6. Conclusion

While there is no leading model of BDD formulation, the aforementioned CBT model of BDD attempts to explain the development and maintenance of BDD symptoms. The CBT model based on learning suggests that a biological predisposition along with early learning experiences via direct reinforcement and vicarious learning can lead to BDD symptoms. Additionally, relational frames may play a role in the development in BDD. It is how an individual associates events based on their learning experiences. Once BDD symptoms are developed, they are maintained via negative reinforcement. ERP coupled with cognitive therapy is an efficacious treatment approach. Repeated exposures to beliefs, behaviors, and negative emotions while preventing learned escape and avoidance behaviors can aid the BDD individual in habituation and extinction of BDD behaviors, and prepare the individual to re-learn healthy behaviors.

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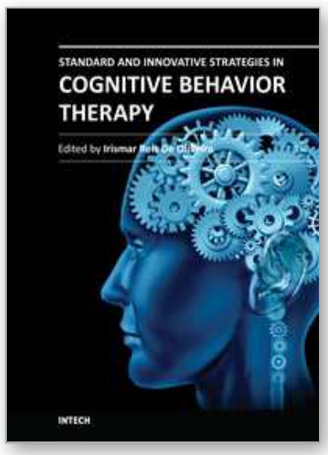
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Edited by Dr. Irismar Reis De Oliveira

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Cognitive-behavioral therapy (CBT) is the fastest growing and the best empirically validated psychotherapeutic approach. Written by international experts, this book intends to bring CBT to as many mental health professionals as possible. Section 1 introduces basic and conceptual aspects. The reader is informed on how to assess and restructure cognitions, focusing on automatic thoughts and underlying assumptions as well as the main techniques developed to modify core beliefs. Section 2 of this book covers the cognitive therapy of some important psychiatric disorders, providing reviews of the recent developments of CBT for depression, bipolar disorder and obsessive-compulsive disorder. It also provides the latest advances in the CBT for somatoform disorders as well as a new learning model of body dysmorphic disorder. Two chapters on addiction close this book, providing a thorough review of the recent phenomenon of Internet addiction and its treatment, concluding with the CBT for substance abuse.

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