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When the Desire for Beauty Becomes Pathological: The Body Dysmorphic Disorder - An Overview

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ABSTRACT

This article provides an overview of the development of the body dysmorphic disorder in the context of various prevailing ideals of beauty. The distinction from simple body dissatisfaction is presented, also in view of brain-organic as well as neurochemical differences. Individuals with body dysmorphic disorder have an increased sensitivity to the detection of detail – instead of a holistic view -, making them more likely to notice flaws or blemishes that are unnoticeable to others. This distorted perception can be corrected in the context of cognitive behavioural therapy, provided that the body dysmorphic disorder is recognised as such. The concealment by comorbidities as well as the consequences for affected persons and treatment options are described.

Keywords

Bodydysmorphic disorder, Suicidality, Beauty standards, Plastic surgery aesthetic surgery, Cosmetic surgery.

Introduction

Nowadays there is an increasing number of people who are dissatisfied with their appearance [1]. This phenomenon is reflected in the rapidly increasing number of cosmetic surgeries: the number of aesthetic surgical procedures in the USA rose by 54% from 2020 to 2021 and non-surgical cosmetic procedures by 44%. In a global comparison, the most cosmetic procedures are performed in the USA with 4.7 million, followed by Brazil with around 2 million and Germany with 1.2 million [2,3].

Standards of attractiveness are acquired through socialization with culturally imposed ideals [4]. These ideals of beauty create pressure to conform to the prevailing standards [5]. The influence of these beauty standards can negatively affect self-perception and body image [6]. It may come as little surprise that -given the Hollywood beauty craze we are presented with in the cinema as well as on social media- the numbers for cosmetic surgeries are rising. At least that's the way it is, magazines and television don't show just any faces – mostly they show attractive faces. Attractiveness also affects the choice of partner, as both women and men place great value on good looks in a potential partner [7]. People have always strived for eternal youth and perfection to maintain attractiveness and it has never been easier than nowadays, when you can have wrinkles removed - quick as a coffee to go - with botulinum toxin [8,9]. Beauty has become an obligatory part of dermatology, therefore it is important to also deal with the pathological downsides of beauty. Body dysmorphic disorder is an important diagnosis that is becoming increasingly common in this context: Numerous studies show that about 15% of people who undergo cosmetic surgery suffer from body dysmorphic disorder which is often underestimated and not recognised in patients undergoing facial plastic and reconstructive surgery [10-12]. The prevalence in the general population is up to 5.8 % [13]. Body dysmorphic disorder refers to a disorder in the perception of one's own body. It describes a subjectively perceived ugliness, which is hardly noticeable to others, that creates a high level of suffering [14]. This review article will explain the genesis of body dysmorphic disorder and what distinguishes it from simple dissatisfaction with one's appearance. Furthermore, characteristics and their implications are presented, as well as potential treatment options.

Beauty lies in the Eye of the Beholder- But it depends on Culture, Historical Influences and Evolutionary Background

People have always been concerned with the subject of beauty, as evidenced by traditional art and literature [15]. Even in the ancient tombs of the ancient Egyptian pharaohs, archaeological evidence of cosmetics has been discovered [16]. Many studies show that being perceived as beautiful can be extremely beneficial - besides from better chances in the choice of partner; Beauty is associated with higher socio-economic status, popularity and furthermore, attractive people are ascribed more intelligence by the environment [17,18]. Socio-cultural influences have shaped what has ultimately become established as "attractive" in society [4]. In this context, different standards and ideals of beauty exist across cultures: In many traditional societies, obesity is considered a sign of wealth and health, for example among the semi-nomadic Moors in the Sahara, who have cultivated a female ideal of extreme obesity for centuries [19]. In modern societies in Europe, Asia and North America a very slim physique is considered attractive, as portrayed in the media [20]. Since preferences influence mate choice, they may also have evolved through sexual selection in addition to cultural influences [7]. Given that some studies have found a cross-cultural consensus on perceived attractiveness of faces, this may support the theory that certain preferences are part of our biological rather than cultural heritage [17,21]. A possible explanation has been established that some beauty traits, as for example symmetry of the face or feminine features in female faces and masculine features in male faces [22,23], are supposed to serve as indirect fitness indicators and point to good genes [21,24]. Since the characteristics of attractiveness in favour of sexual selection have evolved over thousands of years, it is difficult to identify the origin of body dysmorphic disorder. When did the pressure to be attractive take on pathological characteristics? Already 2800 years ago, Homer described the ugliest warrior in the Greek army, "Thersites", in his saga of Troy, whom Achilles exposes because of his ugliness, which has also led to the term„ thersites complex“ being used as a synonym for body dysmorphic disorder today [25,26]. In 1886, the Italian psychiatrist Enrico Morselli already described the disorder under the term "fear of disfigurement" [27]. Subsequently, other psychiatrists also described young women who were afraid of not finding a husband because of their imagined ugliness [28]. The term dysmorphophobia is derived from the ancient Greek (dys: bad, morphé: shape, outer appearance, phóbos: fear, anxiety) and translates as fear of deformity. It was not until 100 years later (1987) that dysmorphophobia was included as an independent psychiatric diagnosis in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R, [29]). Body dysmorphic disorder occurs in different variants: In this context, Kasten describes a rare form called Body Integrety Identy Disorder (or Body Identity Dysphoria). In this disorder, affected people feel that parts of their body do not belong to them, which causes them to feel the need to have the corresponding body parts amputated [30]. For further information regarding this topic, the reader is referred to, the article "The girl who wants to get rid of her left leg” by Erich Kasten.

Body integrity dysphoria is a special form of body perception disorder; Those affected do not find their body part ugly, as is the case with body dysmorphic disorder, but rather it simply does not fit their body self-image. There is also the so-called Dorian Gray Syndrome, it expresses itself in the urgent and excessive desire not to get older) [31]. Basically, body dysmorphic disorder is characterised by a pronounced body dissatisfaction. However, dissatisfaction with the body is not a specific characteristic, as it is already relatively common in the general population nowadays and also occurs in other mental disorders or physical illnesses [32]. A body dysmorphic disorder is only diagnosed when the appearance-related concerns are accompanied by considerable suffering or impairment in important functional areas of life. In connection with this, typical behaviours of the disorder are e.g. permanent checking and ruminate how to change one's own appearance or excessive body care, but also constant comparing one's appearance with that of other people or with inner ideals [8]. Those affected spend a lot of time worrying about the perceived flaw, often several hours a day. These thoughts are experienced as intrusive and difficult to control [13]. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM) one of the central features of body dysmorphic disorder is the intense preoccupation with one or more perceived deficiencies in appearance [33]. Often elements of the face or head are perceived as ugly, as shown in figure 1 [34].

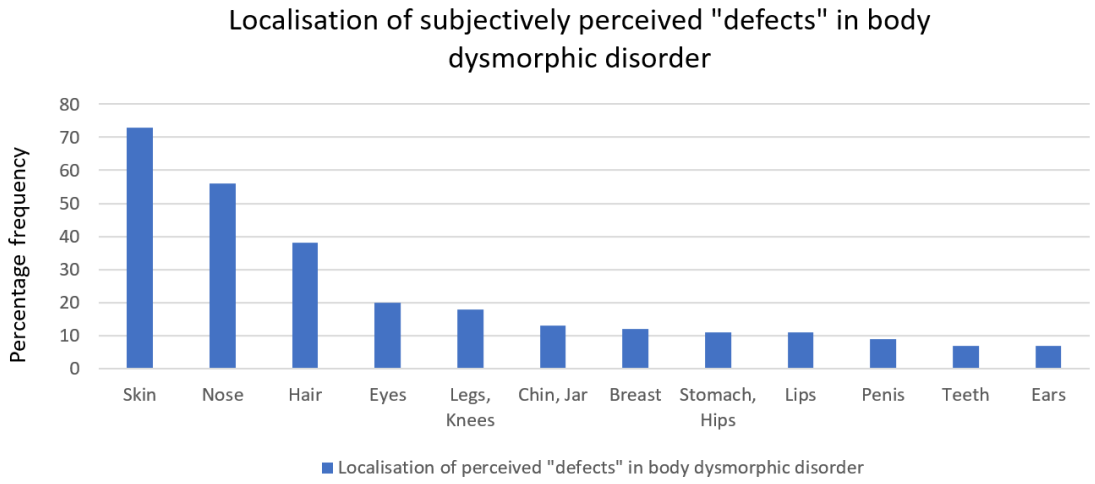

Figure 1: Demographic characteristics, phenomenology, comorbidity, and family history in 200 individuals with body dysmorphic disorder (according to: Phillips, Menard, Fay & Weisberg, 2005).

The perceived deficiencies in external appearance are typically not recognisable to other persons, or they are only assessed as minor blemishes [35]. Furthermore, affected persons show a pronounced security and control behaviour in terms of their appearance. For example, they constantly check their appearance in mirrors or other reflective objects ("mirror-checking"). Confirmation from the environment is achieved through targeted questions (“Isn’t my nose to big?”, “Do I need to have broader lips?”,” Is my hair too thin?”). A lot of time is spent covering up the perceived flaws and they are often touched. Often, shame leads to social withdrawal and/or the complete avoidance of reflective surfaces in order not to have to bear one's own reflection [36]. The patients' complaints focus mainly on the appearance of the skin (e.g. wrinkles, spots, scars, vascular markings), face (e.g. nose, eyes chin), the hair (e.g. hair loss), legs and breasts (Figure 1). However, other parts of the body, such as teeth, are sometimes also affected and are hidden out of shame. For men, in addition to the above-mentioned complaints, the subjectively perceived insufficiently pronounced muscles and short genitals cause great suffering [34]. Moreover, the pathological preoccupation with the musculature, which is experienced as too little and lanky is an increasingly recognised form of body dysmorphic disorder among men which is called bigorexia and is more researched in western societies compared to other cultures [37,38]. There are few studies that examine the clinical features of body dysmorphic disorder across cultures. Most studies currently come from North America and Western Europe [39]. At least, several studies have shown that body dysmorphic disorder has similar clinical features in different parts of the world, such as South America, Africa, Turkey and India [40-44] However, there is evidence that cultural ideas of beauty influence the development and characteristics of body dysmorphic disorder. For example, Japanese case reports show that the eyelids are the focus of the disorder, which is rarely found in Western culture [45]. In any case, there are indications that the ideal of beauty set by the media shapes self-esteem and personal ideals. A cross-cultural study, for example, showed that German and Colombian women from urban regions look much slimmer, prefer slimmer bodies and have lower body-related self-esteem compared to the Q'eqchi', a native people living in the jungle [46]. It could be concluded that the prevalence of body dysmorphic disorder and the resulting preoccupation with the body is likely to be higher in regions that are strongly influenced by the media. In fact, preoccupation with only one body part is rare; on average, most patients focus on three to four body parts during the development of the disorder [47]. Body dysmorphic disorder often appears in adolescence, although some studies report that in more than 70% of cases the disorder begins before the age of 18, but it can also manifest after menopause, which may indicate a neurochemical component [48,49].

How Does Body Dysmorphic Disorder Develop? Socialisation, Heritability and Neurocognitive Processes

As with all mental disorders, the genesis of body dysmorphic disorder is multifactorial and includes biological, psychological and sociocultural aspects. Often, indivuduals report abuse and adverse childhood experiences such as teasing, which lead to low self-esteem and insecurity. In fact, 69% of patients report experiences of teasing and bullying in childhood [49-51]. The increasing popularity of social media not only creates pressure to conform to a desired look, but also provides an additional, increasingly relevant platform for bullying when socially prescribed beauty ideals are not achieved. For example, 30.7% of male and 36.3% of female adolescents aged 12-17 report having been cyberbullied in the past [52]. Thus, the possibility of bullying and the promotion of beauty ideals online have taken on new dimensions, which have found expression in so-called "body-shaming" [53]: Bodyshaming involves unsolicited, mostly negative comments about the body of a target person. Bodyshaming can range from well-intentioned advice to malicious insults and usually occurs via social media. Overall, bodyshaming represents a form of social aggression that has negative effects on individuals [54]. According to another online survey, 94% of female adolescents and 64% of male adolescents shared that they have been victims of bodyshaming online [55]. In order to meet the beauty ideals, the images are edited accordingly before being published online. In this context, the terms "digitalized dysmorphia" and "Snapchat Dysmorphia" have developed [56], as the face can be altered directly by the use of special mobile phone programs like Snapshat, Instragram, etc.. These programmes create instantly e.g. smooth skin, a small snub nose, big eyes, long eyelashes, and full lips while taking a picture of ones self (so called “selfie”). Further, with programs such as fotoshop, both the face and the body can be adjusted to the ideal of beauty before it is published in the social media [56]. The incongruence between online and real images creates dissatisfaction with one's appearance and is associated with the development of anxiety disorders, body dysmorphic disorders, and problems with behavioral and emotional regulation [5,56,57]. The divergence between the ideal of beauty proposed by the media and actual appearance is not a new phenomenon. Before social media became so influential, advertising and television have constantly promoted new beauty standards, which had a negative impact on body satisfaction [58,59]. Indeed, there is a strong connection between the popularization of beauty ideals through the use of social media, which pushes the promotion of these ideals to a new level - and the development of body dysmorphic disorder [60]. The development of Snapchat dysmorphia has triggered further debate about the de novo emergence or detection of body dysmorphic disorder [56,60,61].

However, as mentioned, there are also biological components that could contribute to the genesis of the disorder or its persistence: Although there is not much scientific work on the heritability of body dysmorphic disorder, there seems to be a genetic basis. For example, 8% of individuals with body dysmorphic disorder have a family member who also has body dysmorphic disorder, which is 3 to 5 times higher compared to the general population [62]. Furthermore, there appears to be another genetic basis for body dysmorphic and obsessive-compulsive behavior: thus, approximately 65% of their correlation has been explained by common genetic factors [63]. However, there are also neurophysiological features that distinguish people with body dysmorphic disorder from healthy individuals. Some studies, based on brain imaging techniques, suggest that patients with

body dysmorphic disorder may have impaired frontostriatal and temporoparietaloccipital circuitry [64]. Feusner et al. compared the patterns of brain activation in patients with body dysmorphic disorder and in control subjects. In this study, photographs of faces were altered to contain either only a high or a low proportion of a detail. In this way, images were created that contained either only holistic and configurative information or mainly detailed visual information. The authors came to the conclusion that individuals with body dysmorphic disorder showed higher left hemisphere activity in all facial tasks, especially in the lateral prefrontal cortex and lateral temporal lobes, compared to controls. Furthermore, they showed increased dorsal anterior cingulate activity for the low detail and the normal images. For the high detailed images, they showed statistically significant activation of the left middle and temporal gyri compared to controls. Thus it was possible to show that individuals with body dysmorphic disorder use fewer holistic processing systems (located on the right side of the brain). Rather, more detailed processing systems (on the left side of the brain) are used, even for images that are not very detailed. Another study also showed to what extent the degree of detailed visual processing is directly related to how unattractive people with body dysmorphic disorder perceive a face [65]. These findings may provide an explanation for the increased attention to tiny blemishes and the resulting inability to see them as insignificant compared to the body as a whole [66]. The results presented reflect that individuals with body dysmorphic disorder have an increased sensitivity to the detection of detail, making them more likely to notice flaws or blemishes that are unnoticeable to others. To support the previous findings, different studies have investigated whether the ability to recognise flaws in facial features or asymmetry was more pronounced in people with body dysmorphic disorder than in healthy people. It was found that subjects with body dysmorphic disorder perceived distortions in digital images of their own faces that were not actually present as well as they recognised changes in the aesthetic features of others' faces more accurately than the control group [67,68]. Further imaging studies also support the previous research results: Feusner et al. conducted a fMRI study using the subjects' own faces as stimuli. A lower activation in parts of the brain responsible for visual processing when looking at low detail images, and increased activity in the frontal lobe and deeper parts of the brain when looking at normal images was found in subjects with body dysmorphic disorder, where the severity of of obsessive thoughts and compulsive behaviour correlated with brain activity in the secondary visual systems and frontostriatal systems. The abnormal frontostriatal activity in this imaging study is similar to what other studies have observed in obsessive-compulsive disorder [69]. These results may support the inclusion of body dysmorphic disorder in the spectrum of obsessive-compulsive disorders [70]. In conclusion, there is evidence of aberrant holistic visual processing in people with body dysmorphic disorder. It is possible that details, such as small blemishes, are not adequately integrated into the total visual processing, which could lead to perceptual distortions. This could at least explain the misperception of one's appearance that often accompanies the use of surgery or other cosmetic corrections. In order to investigate the brain structure in more detail, several studies were conducted on brain morphology, where it was not only found that the mean volumes of the orbitofrontal cortex and the anterior cingulate cortex were significantly smaller in people with body dysmorphic disorder compared to controls but also the mean white matter volume (meaning matter that transmits signals between different areas of the cerebral cortex) was larger. There were also specific abnormal connections between regions that process visual and emotional stimuli at higher and lower levels. This could indicate a disturbance in the emotional processing of visual information in people with body dysmorphic disorder [71,72].

Thus, evidence exists for aberrant brain morphology as well as for abnormal white matter connectivity in the brain. If the connections between these brain regions are different and perhaps too sensitive, this may be responsible for deficits in visual and emotional processing. These findings are consistent with those of Buhlmann et al. who found that individuals with body dysmorphic disorder appear to have deficits in the recognition of facial emotions. In self-referential situations, people with body dysmorphic disorder more often judged neutral faces as angry or contemptuous compared to controls [73]. This could indicate a higher sensitivity of those brain regions and systems involved in the perception of facial emotions. These include, for example, the inferior frontal cortex, the right parietal cortex, the occipito-temporal cortex, the insula, the striatum and/or the amygdala [74]. Overall, the totality of studies, including brain imaging studies, suggest that people with body dysmorphic disorder have a heightened sensitivity to detail, which can lead them to notice deficiencies that remain unnoticeable to others.

Accordingly, neurochemical deviations in the brain are of great relevance for the possibility of drug therapy, which will be discussed in more detail later. For example, the results of Marazziti et al. indicate an irregular serotonin function, which was shown in a reduced serotonin binding density [75]. Furthermore, people with body dysmorphic disorder were found to have elevated serum oxytocin levels, with oxytocin levels also correlating with the severity of obsessive-compulsive symptoms. Oxytocin is also known as the "bonding hormone" and strengthens trust and promotes social bonds. This finding may thus be linked indirectly to the social difficulties experienced by people with body dysmorphic disorder, which may contribute to, or possibly result from, symptoms such as rumination, repetitive behaviours and avoidance behaviours [76]. Symptom enhancement by dopanergic agonists may also be associated with pathological plucking of the skin in body dysmorphic disorder. These may be the same mechanisms by which cocaine and amphetamine use increase dopamine in the ventral striatum, leading to uncontrollable skin picking and even tissue damage in patients with body dysmorphic disorder [77,78].

Of course, the aberrant interactions between cerebral networks and neurotransmitter and neurochemical systems may be etiological or a secondary consequence of the disease. The neurobiological abnormalities described could, however, have an effect on the misperception of one's own appearance due to faulty visual

processing. The impaired frontostriatal circuitry could also explain the tendency to repetitive behaviour.

Hidden by comorbidities: What makes body dysmorphic disorder so difficult to diagnose?

Imagine you are looking in the mirror and seeing a fully disfigured and ugly face. Even if this does not objectively correspond to reality, this is the subjective impression of many affected people. It is therefore not surprising that body dysmorphic disorder is associated with a reduced quality of life and high levels of suffering. This provides the basis for further mental disorders to develop. Therefore, body dysmorphic disorder is often not the only diagnosis, although there is indeed evidence that body dysmorphic disorder itself is extremly underdiagnosed, as sufferers often avoid disclosing their disorder due to shame [79]. Even in inpatient psychiatry, body dysmorphic disorder is rarely recognised unless a structured diagnostic interview is conducted [79]. One reason for this could be that the symptoms are masked by comorbidities, making the diagnosis of body dysmorphic disorder more difficult [80]. 21.7% of people with body dysmorphic disorder have one, 28.6% have two and 41.4% have three or more axis I comorbidities. Figure 2 shows the typical axis 1 comorbidities [81]:

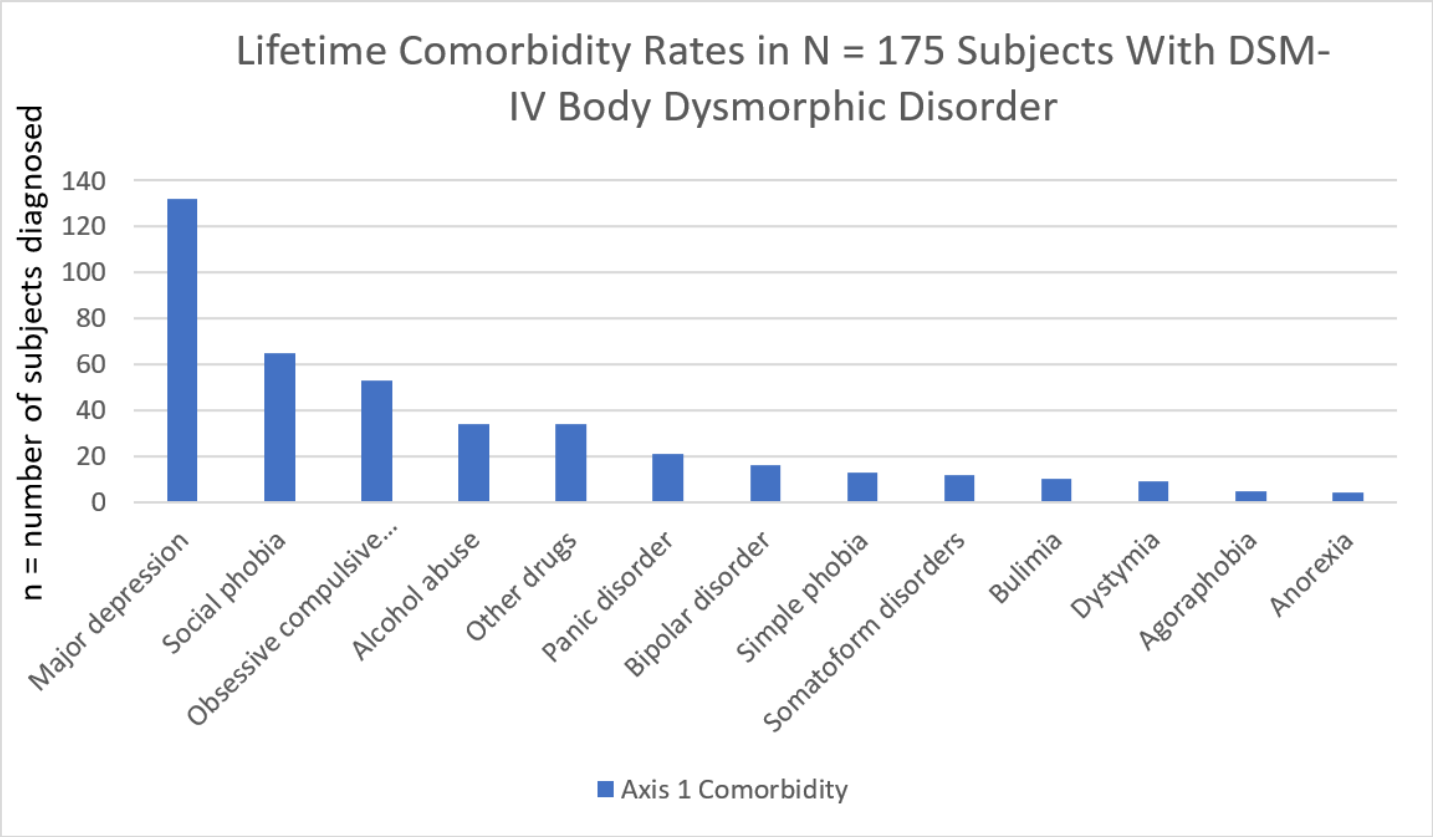

Figure 2: Axis I comorbidity in body dysmorphic disorder (according to: Gunstad & Phillips, 2003).

Figure 2 shows that major depression was the most common, followed by social phobia, obsessive-compulsive disorder and substance use disorders. The highest rate of comorbidity with major depression is striking. In accordance with this, a high rate of suicidal thoughts (78 % - 81 %) as well as suicide attempts (24% - 28%) throughout life is often reported, although the average age of those affected is often only in the early 30s [82,83]. As mentioned earlier, body dysmorphic disorder is associated with a high level of psychological distress. Patients often describe feelings of hopelessness, shame or discomfort about their appearance and body image. These circumstances favour the development of depressive symptoms and often mask the underlying body dysmorphic disorder [36,82,84]. This often leads to isolation and social withdrawal, which promotes and maintains suicidality per se in the sense of a vicious circle [85,86]. For example, one young woman, who was fixated on the wrinkles under her eyes, said: "I think about them all the time, about my face and how I have changed. Make-up is a waste of time. Life is not worth living. "Like this woman, other documented cases were so distressed about her supposedly "big" nose, "ugly" hair and "small" breasts that they contemplated suicide. Each of them thought about their supposed blemishes "every second of the day" and described these thoughts as "very, very distressing - an obsession. "I'm so ugly I'm suicidal; that's why I overdosed...." [87,88]. Thus, it is of great importance to identify body dysmorphic disorder as the underlying condition, as treating only the comorbidities would be counterproductive to optimal treatment.

In this context, there is a case of a 37-year-old female patient who suffers from the so-called "Barbie doll syndrome". The fascination with Barbie dolls was maintained from childhood into adulthood and deviations of her own appearance to a Barbie doll

created great suffering. The patient suffered from beliefs about physical disfigurement that were difficult to correct. She felt her belly was too fat, her buttocks too flat, her cellulite too severe, her skin too pale etc. There was also a constant need to compare her appearance with others, as well as numerous body-related fears, such as being too thick or having messy make-up. There were also social phobic fears, such as the fear of embarrassing herself in front of others because of her appearance and behaviour. The patient became compulsively preoccupied with food as a result of her fear of gaining weight and suffered from bulimia nervosa. In this context, body dysmorphic disorder and eating disorders often intertwine, as both are characterised by a disturbance of body image [89]. As a result of her concerns about her appearance, she spent up to three hours a day on personal hygiene and cosmetics. Parallel to this, there was also a strong reassurance tendency with frequent glances in the mirror, selfies or questions to others. Furthermore, the patient showed avoidance behaviour, never showing herself without make-up, not visiting public baths or showing herself naked in the light in front of her partner. In order to modify her appearance, the patient had a breast augmentation on a previously normal-proportioned breast as well as a liposuction of the fat pads around the knees. The cosmetic operations were performed in a clinic in the Czech Republic. Due to complications from unilateral capsular fibrosis of the breast, the patient had persistent pain and further visits to a plastic surgeon were made. It was mentioned at the beginning that the percentage of people with body dysmorphic disorder who have cosmetic surgery is 15%. Therefore, it is important to use screening procedures in this context to identify patients with body dysmorphic disorder, as most of these patients remain dissatisfied with their appearance even after cosmetic treatment. For example, a study of a sample of 200 patients with body dysmorphic disorder who underwent cosmetic surgery found that there was no change in the severity of body dysmorphic disorder [90]. In another study, 25% of subjects showed a longer-term improvement in their preoccupation with the treated body part, but only 2.3% of surgical procedures resulted in a longer-term improvement in symptoms overall [77]. Studies of dermatology patients with body dysmorphic disorder show that they often respond poorly to dermatological treatments and remain dissatisfied with their appearance. In addition, there is evidence that perceived unattractiveness may shift to other areas of the body after cosmetic procedures [91].

A Little-Known Special Form: Bodydysmorphic Disorder by Proxy

There is another significant but little-studied variant of body dysmorphic disorder, which will be illustrated below with two case examples: body dysmorphic disorder by proxy. In this particular form, the focus is on the perceived imperfections of another person. As with body dysmorphic disorder, individuals with body dysmorphic disorder by proxy engage in time-consuming procedures to "correct" the other person's appearance, such as making the person wear certain clothing or makeup. Avoidance behaviors are also common - especially in social situations or situations that could reveal the flaw of the person in concern. Furthermore, the impact of body dysmorphic disorder by proxy on social functioning is severe: Affected individuals may be absent from or contribute less to work or social activities, for example, because they spend several hours a day worrying about the perceived flaws of the person of concern. As a consequence of excessive occupation, the relationship with the person of concern is often severely impaired [92]. Here, the focus can be on more than one person. The main person of concern is usually a significant other, such as a partner, child or sibling, which can also switch. Many affected people describe strong feelings of guilt about their preoccupations and are afraid that this will make them a "bad partner/parent" [93].

In one of the case studies presented here, the concern about one's appearance was transferred to another person: this is about a 28-year-old affected woman who was concerned not only about perceived deformities in herself but also in her daughter [94]. The patient suffered from body dysmorphic disorder for over 10 years, focusing on her body size and a perceived facial deformity, which she repeatedly checked in the mirror. Her weight decreased as a result of her loss of appetite and she lay awake at night brooding over her perceived ugliness. She did not believe the positive words of her partner, she hardly met with friends and became more and more socially withdrawn for fear that people would make fun of her because of her appearance. After marrying her partner and becoming pregnant, she became increasingly critical of her husband's appearance and suddenly felt that his face, for example, was disproportionately large. Fearing that their baby would inherit the physical ugliness, the patient had an abortion, without success. When the healthy baby girl was finally born, the patient constantly checked her daughter's face for deformities and reassured relatives that everything was fine. She described feeling unbearably guilty about passing on her subjective ugliness to her daughter. Furthermore, the patient increasingly suffered from obsessive thoughts of strangling her own child because of her daughters “ugliness”, which is why she avoided contact with her daughter.

The women from the case studies presented were eventually treated successfully with cognitive behavioral psychotherapy and psychopharmacological treatment [94,95]. But unfortunately, this is not always the case. As with classic body dysmorphic disorder, body dysmorphic disorder by proxy can also lead to depression and suicidality: In another case, a 63-year-old father is described who could not get away from the thought that he had passed on too thin hair to his daughter, which only he felt was too thin [96]. The obsession with his daughter's hair and the associated feelings of guilt became so severe that the patient became suicidal. He stated that he was constantly thinking about his daughter's hair - as a result, he withdrew socially and suffered from lack of sleep. He was not concerned about his own appearance at the time, but in the past he has had several surgical procedures performed on his face. There were no previous psychiatric abnormalities. Laboratory findings and imaging procedures on his head were inconclusive. He stayed at the hospital for a few weeks and frequently asked the staff there if he was to blame for his daughter's thin hair, showing pictures of his daughter who objectively had normal hair. After his condition improved following psychopharmacological therapy,

the patient was finally sent home, where he committed suicide a few weeks later by shooting himself in the head. Both variants of body dysmorphic disorder share similar characteristics, such as feelings of shame, severe distress, and limited functioning - as well as a potentially fatal outcome. As mentioned before, little is known about the body dysmorphic disorder by proxy. Therefore, the disorder could be under-reported, analogous to the classic body dysmorphic disorder. Pharmacological therapy was also promising in most cases, although there are also examples where this did not have the desired effect [92,96].

Nevertheless, it is clear from the three case examples that both forms of body dysmorphic disorder were diagnosed at a very late stage. It is possible that the body-related symptoms of the women from the case studies were interpreted as a body schema disorder related to an eating disorder. Among eating disorder patients, the presence of body dysmorphic disorder has only been investigated in recent years. Whereas in body dysmorphic disorder individual body parts are perceived as ugly, in eating disorders the body schema disorder refers only to body shape and silhouette. Eating disorders are often associated with body dysmorphic disorder and both disorders have similar psychopathological characteristics, including an extreme preoccupation with physical appearance and compulsive and repetitive behaviours (such as checking one's appearance in the mirror or body measurements) [97].

Treatment of Body Dysmorphic Disorder

The gold standard in the treatment of body dysmorphic disorder is cognitive behavioural therapy and treatment with serotonin reuptake inhibitors (SRIs).Here, SRIs refer to all antidepressants in the selective SRI (SSRI) class (e.g. Sertraline, Fluoxetine, Citalopram, Paroxetine, Escitalopram and Fluvoxamine). Clomipramine, an antidepressant from the tricyclic class, is also used in the treatment of body dysmorphic disorder. For example, Phillips et al. showed that Fluoxetine was significantly more effective than placebo in improving symptoms of body dysmorphic disorder (d = 0.70) [98]. Hollander et al. found that Clomipramine was more effective than the non-SRI antidepressant Desipramine in improving body dysmorphic symptoms and depressive symptoms [99]. Further studies on Fluvoxamine, Citalopram and Escitalopram found that 63% to 83% of patients with body dysmorphic disorder improved their symptoms [100-102]. Compared to the treatment of purely depressive symptoms, higher doses are sometimes required. Some patients even may require more than the prescribed maximum dose [103]. Often, people with body dysmorphic disorder do not seek psychotherapy, but frequently seek surgical or dermatological interventions to correct the perceived flaws in their appearance. As mentioned earlier, they usually remain unhappy with the results of the aesthetic procedures. These observations suggest that non-psychiatric medical treatment does not fundamentally improve symptoms and that excessive preoccupation with the now surgically adjusted flaw does not disappear [56,104].

Cognitive behavioural therapy in the treatment of body dysmorphic disorder is designed to help patients develop an alternative understanding of their difficulties, reduce self-focused attention, manage rumination processes and reduce self-harming coping strategies. Patients are encouraged to confront their fears through graded exposure or behavioural experiments [105]. For example, there are guidelines for cognitive-behavioural therapy from the National Institute for Health and Clinical Excellence, which specifically addresses body dysmorphic disorder and follows a 16-24 session manual [106]. The manual uses 5 questions to identify symptoms ("Do you think a lot about your appearance and wish you could think about it less?", "What specific concerns do you have about your appearance?", "How many hours a day do you spend worrying about your appearance?" (Where more than 1 hour a day is considered excessive),"What impact does it have on your life?", Does it make it more difficult for you to work or to be with friends?").

This involves perceptual retraining as well as habit reversal regarding skin picking or hair pulling. This involves awareness training (e.g. self-monitoring, identifying triggers for the behaviour) and stimulus control, which involves learning how to deal healthily with situations that trigger avoidance behaviour, for example, or relate to particular symptom triggers, such as surfing and self-comparison on social media. Competitive response training is practised together to replace the pathological behaviour (e.g. knitting or squeezing a ball).

Since most patients have little or no insight, motivational techniques are often needed to increase their willingness to participate and stay in therapy. However, it is currently unknown whether medication or cognitive-behavioural therapy is more effective, as there are currently no randomised controlled trials that directly compare the two types of therapy. Nevertheless, a combined therapy is recommended [106].

Conclusions

The prevailing ideals of beauty have an immense influence on our self-image and accordingly on the genesis of a body dysmorphic disorder. Both the general and the specific use of social media platforms such as Instagram or Snapshat could contribute to the perpetuation of the problem and for this reason should be addressed in their functionality within the framework of therapy. The internalisation of the media beauty ideal is also an important mediating factor that should be addressed in the context of therapy as well, as many individuals compare themselves to shared images on social media platforms such as instagram and develop a negative self-image and body dysmorphic disorder as a result [107]. In this context, the terms digitalized dysmorphia and Snapchat dysmorphia were introduced at the beginning. As we have learned, the term Snapchat dysmorphia is used to describe an excessive comparison of one's appearance with so called "filters" that can be applied through mobile phone programmes. This filter can directly optimize the face when taking a photo by smoothing it and adjusting the entire face configuration (optimize nose, eyes, cheekbones, chin etc.). In this context, users of these mobile phone programmes focus on their perceived flaws, which appear even more pronounced without the use of the programme, leading to dissatisfaction with their appearance [108]. The "selfie"

trend is unbroken, although it has already been established that a selfie increases the width of the nose by 30%, this phenomenon is unknown to most [109]. An average of 93 million selfies are posted on the social media platform instagram every day [110]. Plastic surgeons report that many of their patients make requests for changes to their appearance that match these filters of programmes on social media platforms [111]. The use of these filters leads to a distorted view of one's self and creates unrealistic expectations of one's appearance. In light of this development, a study showed that young girls aged 13 to 15 are unable to distinguish natural bodies and faces from digitally manipulated ones, with this distorted perception becoming more pronounced the more time the girls spend on the internet [61]. However, this trend will increasingly need to be discussed, particularly in light of the growing number of teenagers between the ages of 13 and 19 who are increasingly seeking cosmetic procedures and suffering from anxiety disorders, depression and low self-esteem as a direct result of a fixation on body image promoted by social media [61,112-115]. There is thus a close link between prevailing beauty ideals, the use of social media, which promotes those ideals and the development of body dysmorphic disorder [116]. Underdiagnosis of bodydysmorphic disorder in the area of cosmetic surgery results in a different type of mishandling, which makes special attention to the potential presence of a body dysmorphic disorder indispensable. However, there is also a need for caution in classifying dissatisfaction with appearance as a body dysmorphic disorder and overlooking a potential underlying trauma. Many people who have suffered psychological trauma in their past, such as abuse and bullying at school, later choose to have cosmetic surgery in order to be happy with their body image. The distinction may be difficult to make in this case, as many people with body dysmorphic disorder report past experiences of bullying [49-51]. Studies on this show that cosmetic surgery can boost self-confidence as well as reduce dissatisfaction with one's own body. It can also help to resolve inner conflicts and reduce psychological stress. Thus, cosmetic surgery can have a potentially healing effect on psychological trauma [117]. This can be underlined by a real case from practice: A young woman went to psychotherapy for a (mis)diagnosed body dysmorphic disorder after several surgeons turned her down with the wish to change her face because there was nothing to improve about her face. In the end, the therapy revealed a trauma caused by abusive experiences with the patient's father. After puberty, she began to see similarities in her own face to that of her hated father. That was the reason why she tried to change something about her face. Finally, she found a plastic surgeon who did some operations to change her appearance. After that, her positive self-image was restored and the patient had no further interest in cosmetic surgery [Kasten, personal communication].

In summary, it can be stated that body dysmorphic disorder is a complex psychological illness that is hidden in the pathological effects of the ubiquitous obsession with beauty. Neurochemical differences give a further indication of pathological structures, which also explain the positive effects of psychopharmaceuticals, which illustrates the close connection with depressive symptoms. In principle, it is of immense importance - not least because of the increased suicidality - not to dismiss the body dysmorphic disorder as exaggerated vanity or to overlook it completely and to apply the specially developed screening tools for the detection of the disorder in order to ensure optimal treatment.

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