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Review article

The interaction between skin and mind: the case of body dysmorphic disorder

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Abstract

This review explores the dynamic interaction between the mind and the skin and how this relationship can be insightful for psychiatrists and other clinicians. Our analysis mainly highlights the connection between a primary psychiatric disorders and dermatological symptoms. It focuses on body dysmorphic disorder and the major challenges in terms of both diagnosis and treatment to achieve the best outcome for patients' physical ailments while treating psychiatric problems.

KEY WORDS: skin, mind, body dimorphic disorder, dermatology.

Introduction

The relationship between the skin and the mind has been studied by the newly established field of psychodermatology, which looks at all aspects of the interaction between psychiatry and dermatology disciplines (1, 2). The overlap between these fields reflects the growing emergence of research in psychosomatic medicine, which can be broadly defined as the interaction between both mind (psyche) and body (soma). It is evident that there is a reciprocal relationship between the skin and mind (3). These organs are derived from the same embryonic layer (ectoderm) which remains interconnected throughout life (4, 5) and affects the same hormones and neurotransmitters (6).
The relationship between the skin and the mind can be divided into three different divisions which include: primary psychiatric disorders with dermatological symptoms, primary dermatological disorders with secondary psychiatric symptoms, and psychophysiological disorders in which patients have skin conditions that are precipitated or exacerbated by psychological distress (1, 7, 8).

How the skin and mind connect?

There is a growing amount of literature investigating the link between the skin and the brain. The brain is the physical organic associated with the mind. Both organs have been deemed as sensory, as they are responsible for our communications with the world, the skin by its appearance and the brain by its interpretation of our thoughts, emotions, memories, etc. (3). They have many similarities from embryological, biological, psychological, and sociocultural aspects (4,5). Central nervous system, peripheral nervous system, and cutaneous cells such as melanocytes and Merckel cells are all developed originally from the neural crest during the embryological life (1). Both parts are connected via complex interplay represented by the Neuro Immuno- Cutaneous System (NICS). The NICS consists of four different systems which are neurological, endocrine, immunological systems, and the skin working together to bridge this skin-mind relationship. Those four system organs share a common language via neuropeptides, glucocorticoids, cytokines, with outer environmental stimuli which are converted to cytokines, hormones, and neurotransmitters to link these systems together. The brain and immune system connected by bi-directional relationship and both can be mediated by neuropeptides which are the chemical messengers released from different tissues including the skin (1, 9). The afferent way represented by specialized neurological sensory structures in the skin which elicit the signal of pain, touch, heat, and vibration. The efferent way is represented by neuropeptides which are able to activate specific skin cells when released from sensory nerves to induce inflammatory reactions in the skin (10). By demonstrating this bidirectional mechanism, the skin and stress relationship has become clearer. Therefore, stress can influence skin diseases and con-

versely skin diseases can cause people to be stressed. Furthermore, skin diseases can be associated with psychiatric illness or even cause complications of certain psychiatric diseases (1, 6).

Skin related psychiatric conditions and their classification

The ever-growing emphasis on outer beauty places importance on the appearance of the skin. With the skin being the largest organ of the body and most visible one, it is understandable that dermatological conditions can affect psychological well-being (1, 2). Moreover, the skin has been associated with self-esteem and socialization from childhood to adulthood and therefore skin conditions play a role in mental health (6). It has been found that about 30% of dermatological patients have psychological signs or symptoms (2, 3, 11). However, many patients seek dermatological help for their skin conditions and do not necessarily receive appropriate treatment for underlying psychological symptoms.

Although skin diseases can be associated with psychiatric disorders including clinical depression, anxiety (8, 12), a growing amount of evidence demonstrates that psychiatric disorders can be presented with cutaneous signs or symptoms such as Body Dysmorphic Disorder (BDD). Therefore, where psychiatrists often focus on the mental state, dermatologists focus on visible skin conditions (3, 6, 7). Understanding psychological factors behind skin conditions is essential for the right management of patients' skin conditions (4) and there is a need for both psychiatrists and dermatologists to recognize comorbidity of dermatological and psychiatric conditions.

Therapeutic aims in psychodermatology include patients' personal development in addition to improving their symptoms. Consequently, patients can change from the one who wants to get rid of their symptoms to the one who is more confident and autonomic to develop their own potential (9). The collaboration among primary care, dermatologists, psychologists, and psychiatrist can be very beneficial to patients and it has been encouraging to see psychodermatological patients treated by clinicians aware of the potential psychological and dermatological problems experienced by their patients. Psychiatric consultation can be considered as an essential part in treating psychodermatological patients (6). However, the field of psychodermatology and the extent of psychiatric comorbidity in dermatological patients are under recognized or even underestimated worldwide (2, 3, 11). Patients may need psychological intervention within dermatology care, yet may be reluctant to seek psychiatric help (10). The most common mental health illness which usually present in dermatology department and need psychotherapy are BDD, social phobia, OCD, and its related skin harmful manipulation such as dermatitis artifacta, acne excoree, psychogenic pruritis, or when patients' acute or chronic stress cause precipitations or exacerbations of their skin symptoms (13). Ideally, a well-connected and collaborated team consisting of members who have knowledge in dermatology, psychology, and psychiatry will result in the best treatment outcome.

Many classifications of psychodermatological disorders have been defined in literature, due to the comorbidity within these conditions. The most commonly used and accepted system of classification is the one that divides psychodermatological conditions into three different divisions, which are:

- Primary psychiatric disorders with dermatological symptoms including OCD, BDD trichotillomania, dermatitis artefacta, delusional parasitosis amongt others
- Primary dermatological disorders with secondary psychiatric symptoms including alopecia areata, vitiligo, psoriasis, eczema amongst others
- Psychophysiological disorders: in which patients have skin conditions which are precipitated or exacerbated by psychological distress such as psoriasis, dermatitis, acne and alopecia areata (2,7).

The relationship between Body Dysmorphic Disorder (BDD) and the skin

One of the primary psychiatric diseases which presents often to dermatologists is Body Dysmorphic Disorder (BDD) in which patients believe they have a deformed part in their body or they look ugly while they appear normal in reality. As a result, they stop socializing or working and even they think of suicide (19). The management of this mental health disorder is quite challenging as it requires psychiatric treatment despite the fact that the majority of patients do not present to psychiatrists and often reject psychiatric referral or consultation.

BDD can be defined as a preoccupation with an imaginary defect or slight flaw in appearance with excessive concern which leads to distress and serious impairment (14-16). Any element of physical appearance could be a target of this concern. Most often these concerns focus on elements in face or head such as the skin (scars, skin color, wrinkles, etc.) hair, nose (shape or size) (16). These refer to the most common presented themes of BDD which aggravate intrusive anxiety and hypervigilant state (17,18). Patients are usually preoccupied with nonexisted or minimal flaw in their appearance, sometimes describing themselves as ugly or unattractive. Patients can spend several hours every day thinking of their appearance imaginary or slight flaws as these thoughts are difficult to control or resist (15,19). Although this condition is a psychiatric disorder, patients present frequently to dermatologists, general practitioners, and different surgical specialties with the aim of improving their appearance (15). Moreover, some patients tend to see numerous clinicians in order to fix their perceived flaw, whilst the underlying psychiatric symptoms may be left undetected. They less commonly seek psychiatric help unless

other associated mental health problems affect day to day functioning (20). The prevalence of BDD differs across contexts, the prevalence of BDD in community is approximately 2% of the general population, and about 3.3% in student populations. In psychiatric outpatients' clinics the prevalence is approximately 5.8%. The most frequently carried out cosmetic procedure is rhinoplasty surgery. Although some studies reveal that the prevalence of cosmetic surgery is similar between males and females, most studies showed that BDD prevalence is higher among females (21). The female to male ratio could range from 1:1 to 3:2 (15, 22).

Dermatologists describe BDD patients as "rich in symptoms and poor in signs" and hence this condition has been known as "dermatological-non disease". The skin represents the most common concern in both genders and followed by concerns about hair and nose (23). Some studies showed that the skin is the second most common concern among other body parts which represent 36% of BDD patients after face and nose which comprise 46% of BDD patients. These preoccupations are difficult to self-manage and can affect social function (24). Symptoms are frequently accompanied by low self-esteem, feeling of hopelessness and shame. Patients seek dermatological or surgical help to alter their perceived flaws and may try to relieve their anxiety by following strategies such as covering the defects, frequent mirror checking, avoiding the mirror and frequent asking for reassurance.

BDD is often associated with additional symptoms including depression, which usually occurs after or secondary to the BDD. Other comorbidities are social and occupational impairment, social phobia, skin picking, OCD, substance abuse, and suicide ideation (6,13). According to the diagnostic and statistical manual of mental disorders, fifth edition (DSM-V), BDD is considered within the OCDs because it causes repetitive behaviours and it may be associated with family history (25).

Detecting and treating BDD

Although BDD is a psychiatric disorder, the majority of patients are likely to visit a dermatologist or a surgeon as they perceive that cosmetic treatment is what they need to solve their appearance problems (15). Patients with BDD often present with a slight or perceived physical defect and they tend to ignore their mental health symptoms. The diagnosis is relatively easy if the clinician asks the right question or using a validated screening measure. Without asking them directly, they may present with other physical or mental health symptoms. Consequently, the question should be open ended and target their appearance preoccupation. For example: "some people worry a lot about their appearance. Do you worry a lot about the way you look and wish you could think about it less?"

The preoccupation of the perceived or the slight defect is the cornerstone for making the right diagnosis. This preoccupation should be thinking of this "defect" at least for an hour every day. However, clinicians should bear in mind that some patients do not feel this preoccupation as they hide their imaginary flaws by camouflaging with make up or clothing. At the same time, they will become stressed if someone sees them without camouflaging. They usually prevent themselves from being seen as they avoid some activities which reveal their body parts like swimming or intimacy. Some patients may cope with their concerns by being housebound and prevent socialization. BDD symptoms can manifest by feeling self-disgust about specific features in appearance or persons describing themselves as ugly and unattractive in general.

Another crucial feature is the significant distress or the impairment this preoccupation can cause. This diagnostic feature distinguishes BDD from body dissatisfaction, which is very common, but does not handicap people or affect their quality of life (23). Body dissatisfaction ratio can be reached to about 40% of females and 27% of males who preoccupied with at least one part of their appearance but the dissatisfaction does not impair their personal, social, and occupational life. However, when this dissatisfaction leads to distress and impairment it should be considered as BDD (26). Another important point to diagnose a preoccupied person with BDD is their preoccupation does not account for other mental health problems especially delusional disorders, eating disorders, or associated comorbid diseases such as depression, social phobia, OCD (23).

Challenges in treatment of BDD

Reassuring and acknowledging patients that their perceived flaw is slight, and probably invisible to others usually unsatisfactory and ineffective. Psychiatric consultation or referral can often be refused. Therefore, it has been recommended that as soon as BDD is diagnosed psychiatric approach should be carried out to successfully treat the patients. Dermatologists or surgeons or any treating doctor should begin with provide information about BDD and it actually represents a body image problem. Educational material about body dysmorphic disorder could be given to the patients. After this, the clinician should draw upon the evidence to communicate with patients that treatment with plastic surgery will not address the core issue. The effective options are Selective Serotonin Reuptake Inhibitor (SSRI) or Cognitive Behavioral Therapy (CBT) and this should be given through a psychiatrist or a mental health professional. However, SSRIs can also be prescribed by primary care clinicians (27).

Offering cosmetic treatments and even surgery to BDD patients will not improve symptoms of BDD and providing image enhancing medications increases their anxiety instead of reducing it (28). Approximately 90% of patients who seek dermatological treatments to enhance their body image have not experi-

enced improvement in symptoms related to their BDD. The diagnosis in these cases is essential to avoid unneeded surgical procedures and other cosmetic treatment or interventions (27). Sometimes after aesthetically dealing with their "defect", patients return to admit that this defect was not that much noticeable before and it has become more noticeable or "worse" after the treatment. Then they ended up preoccupied with their new "defect". This way of management can exacerbate patients' psychiatric condition and it has been considered as contraindicated way of treatment in many studies (12). Therefore, making the right diagnosis and begin with the right steps in management are essential for patients' best physical and psychological outcome.

Discussion, conclusion and future direction

This review highlights the need for clinical and research based action. Although BDD is a psychiatric disorder, it is unrecognized or underestimated when presents outside of the psychiatrists' clinic. BDD is challenging in terms of diagnosis and treatment because patients do not easily reveal their psychological symptoms. Therefore, future directions in psychodermatology require interdisciplinary knowledge exchange to detect symptoms of BDD that present in patients within the dermatology clinic. Once diagnosis has been made, the next challenge is to engage the patient with psychiatric intervention. Patients may be reluctant to engage with psychiatric therapy and therefore, multidisciplinary teams within the dermatology clinic may aid the process of appropriate intervention being delivered by a psychiatrist or psychologist working within a dermatology clinic.

Moreover, there is a need to further explore the evidence base in the field. Growth in this field should focus on identifying prevalence of BDD and other psychiatric conditions that present within the dermatology field. This not only includes the presence of underlying psychiatric problems within dermatology clinics, but also within plastic surgery and non-clinical settings such as individuals who frequently use performance and image enhancing drugs and skin lightening products. It is becoming evidence that providing patients with cosmetic products and aesthetic surgery could exacerbate their symptoms whereas psychiatric treatment including SSRI and CBT are the best options to improve patients' physical and psychological symptoms. This evidence would in turn, be essential to inform clinical practice and could also be integrated into existing educational resources for both patients and clinicians.

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