Handbook of Psychodermatology

Introduction to Psychocutaneous Disorders

Mohammad Jafferany

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This book is dedicated to all those who encouraged and inspired me for writing this easy-to-use and concise handbook on psychodermatology.

"Keep your dreams alive. Understand to achieve anything requires faith and belief in yourself, vision, hard work, determination, and dedication. Remember all things are possible for those who believe". Gail Devers.
Mohammad Jafferany
July 2021

Foreword

Recent studies have shown that 35–40% of patients attending a dermatology clinic have psychiatric/emotional comorbidities that directly impact the evolution of their cutaneous disease. Although they share a common embryologic origin, it was only in the last 50 years that we have begun to understand the critical connections between the central nervous system and the skin. In the year 1991, the Association for Psychocutaneous Medicine of North America (APMNA) was founded, followed by annual meetings dedicated to the cutting-edge research in this field. I have had the privilege of serving on its board and as past president. It was in these meetings that I got to know my friend Dr. Mohammad Jafferany, currently Clinical Professor of Psychiatry and Behavioral Medicine at Central Michigan University. Dr. Jafferany was trained in both specialties, dermatology and psychiatry, placing him in a unique position to understand and research the psychosomatic and somato-psychic relationship of both, shedding light on how the mind influences the skin and how the latter in turn influences the mind. Mohammad's contribution to the field has been enormous, highlighted by his more than 150 peer-reviewed publications and 5 edited and authored books on the area of psychodermatology. He has served as the secretary-treasurer of the APMNA for many years and has single-handedly organized the annual meetings and oversaw the growth of this association. Dr. Jafferany has dedicated his career to disseminating the knowledge of psychodermatology. His latest book fills a gap that consists of the education of medical students, dermatology residents, and young practitioners

on how to approach dermatologic patients who suffer from psychiatric comorbidities, and how to understand the role played by stressors and to diagnose the various emotional states. He has the ability to simplify the diagnostic approaches to these conditions, providing the reader with a clear vision from diagnosis to therapeutics. It is an honor to write this foreword to Mohammad's latest book in his prolific scholarly academic life.

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Francisco Tausk, MD

Preface

Psychodermatology encompasses the domain of dermatology and psychiatry. Up to 35–40% of patients attending dermatology clinic have psychological component associated with their skin disease. Currently, although psychodermatology is gaining momentum, many dermatologists have truly little or no knowledge to address the concerns of patients having psychodermatological disorder as shown in many surveys around the world. Keeping in mind this knowledge gap and dire need for training, particularly for young dermatologists, dermatology and psychiatry residents and even general practitioners, this short and concise handbook has specifically addressed most common psychodermatological disorders in simple language for proper understanding and grasping the core message.

It is hoped that this *Handbook of Psychodermatology* will be useful in fulfilling the requirements of interested physicians, particularly dermatology residents and medical students, and filling the gap in knowledge and training of psychodermatology.

Saginaw, MI, USA

Mohammad Jafferany, MD, FAPA, MCPS (Derm.)

Contents

1 The Role of Stress and Psychoneuroimmunological Interactions in the Development of Psychocutaneous Disease

Stress is defined as "a state of psychological strain or pressure due to an adverse or demanding situation." All organisms are equipped to deal with some stress, but their ability to respond to psychological stress depends on various factors, such as the age when stress occurs, the nature and chronicity of the stress, and the mental well-being of the individual. Patients with chronic skin diseases frequently experience a variable degree of psychosocial distress while dealing with appearance altering or disfiguring disorders. The individual factors that impact the level of experienced psychosocial stress in patients with skin conditions include characteristics and life experiences of individual patients themselves along with cultural attitudes and stigma related to the skin disease. Psychological stress can cause disruption of the immune system resulting in weak skin defense, which causes inoculation of new pathogens or reactivation of dormant pathogens. In recent decades, the connection between stress and dermatological disease has been researched. Skin plays a crucial role in maintaining homeostasis when dealing with internal or external stress. There is a multifaceted, complex association between psychoneuroimmunologic processes and overall quality-of-life issues experienced by patients suffering from psychodermatologic disease. The impact of psychosocial stress on psychocutaneous disease development is summarized in Fig. 1.1.

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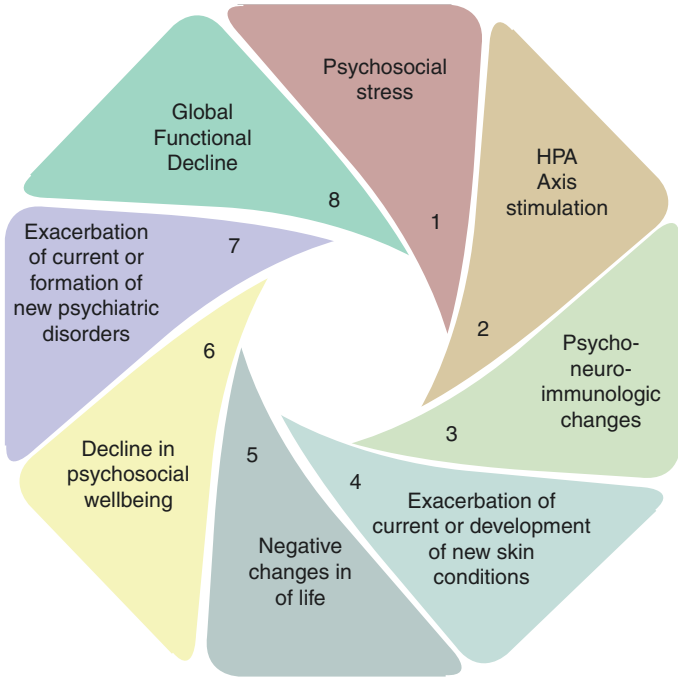

Fig. 1.1 The impact of psychosocial stress on psychocutaneous disease

Psychoneuroimmunology focuses on the interactions among the behavioral, neural, endocrine, and immune systems in a successful defense response against psychosocial stress. When this multidimensional system is overwhelmed or disturbed by perceived high levels of stress, it can result in an expression of disease. While these systems respond on their own to stress, they also interact with each other to develop a sufficient stress response for the body and mind by utilizing a series of neuropeptides, neurotransmitters, and neurohormones. Skin, being the largest and most innervated organ, responds in the most visible way. The brain and skin share an embryological origin from the single layer of germinal cells: the ectoderm. A specialized population of multipotent cells called "neural crest cells" emerges from the axis of neural and surface ectoderm; these cells can form in different

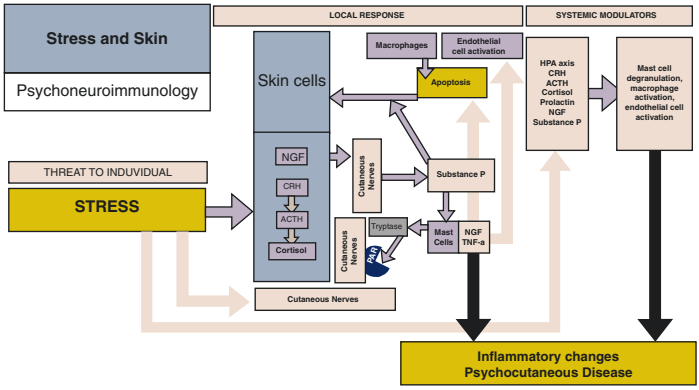

Fig. 1.2 Central stress response and skin peripheral stress response

types of cells, like epidermal, sympathetic nervous system, peripheral sensory neurons, and melanocytes. Under the influence of neurotrophins, growth and expansion of the sensory peripheral nerve cells and ganglion is ensured. The complex relationship between stress and skin conditions cannot be fully explained unless we understand the mechanisms by which the body responds to stress at a deeper level. The central stress response and skin peripheral stress response is shown in Fig. 1.2.

The central nervous system (CNS) modulates the immune response to stress via three distinct mechanisms: activation of the hypothalamic-pituitary-adrenal axis (HPA axis) and autonomic nervous system (ANS), and modulation of microglia on local level. The activation of the ANS and HPA axis leads to a prompt yet sustained response to a particular stress stimuli for as long as is needed. Both of these systems work in sync to maintain the equilibrium in stress response, and rheostat the intensity and length of immune response. Initiation of these pathways also generates biologically active molecules that can then interact with immune cells directly and further adjust the stress immune reaction.

Most organs, including lymphoid organs, are innervated with noradrenergic postganglionic nerve fibers. ANS activation releases norepinephrine from the adrenal cortex, and primary and

secondary lymphoid organs via peptidergic nerve fibers. Nerve fibers are more dense in T-cell zones as compared to the B-cell zone; these nerve fibers create neuroeffector junctions with lymphoid cells to exert effect on immune systems, and any interruption of this pathway can lead to impairment in immune response. The function of sympathetic innervations is to modulate the innate immune response in a proportionate manner. The noradrenergic innervated areas within the lymphoid cells are also rich with neuromodulatory neuropeptides like somatostatin, substance P, neuropeptide Y, opiate peptides, and vasoactive intestinal peptides. The release of norepinephrine within lymphoid cells can activate different receptors, like raw B-adrenergic receptors, to influence the direction of stress response in a certain way, thus adjusting the immune response to a particular offender. Norepinephrine has shown to modulate immune response by modulating thymocyte mitogenesis, lymphocyte proliferation, cellular express of antigens, antibody responses, deterring complement activation, and inhibiting macrophages mediated lysis of certain cancerous or infectious cells. Lymphoid tissues have catecholamine and various neuropeptide-specific receptors. Catecholamines and other neurotransmitters released from nerve fibers can activate these receptors and modulate the immune response via intracellular signals influencing a particular cell line proliferation, antibody and cytotoxin production, etc. This can lead to vasodilation and adhesions of leukocytes, further modulating local inflammatory response to stress.

The endocrine system (HPA) plays a vital role in maintaining homeostasis in response to acute or chronic stress. Stress response starts from the hypothalamus, leading to a synchronized activation of pituitary and adrenal glands. At the anterior pituitary gland, the stress response is comeditated by arginine vasopressin (AVP) and other nonapeptides. Corticotropin-releasing hormone (CRH) and AVP are secreted in near-synchronized pulses, inducing the secretion of adrenocorticotropin hormone (ACTH). Stress triggers CRH release from the hypothalamus, striating a hormonal cascade of HPA axis. CRH receptors have a wide distribution in various neural circuits, and once these receptors are stimulated, it leads to a well-coordinated chain of events including the

psychological, behavioral effects like changes in appetite, arousal, sexual behavior, and activity level. The CRH stimulate secretion of ACTH has peak releases occurring between 6 AM and 8 AM, and the lowest trough taking place at midnight. This diurnal pulse secretion of ACTH is greatly affected by levels of stress. ACTH exerts its actions by binding with melanocortin receptors 2 (MC2) found in all three layers of the adrenal cortex, stimulating adenyl cyclase and generating cAMP that activates downstream enzyme pathways in steroidogenesis. Glucocorticoid synthesis mainly takes place in the zona fasciculata of the adrenal cortex; this in turn initiates negative feedback loop to put a brake to the stress response at the levels of suprahypothalamic centers, hypothalamus and pituitary glands, preventing adverse consequences of prolonged adaptive changes such as catabolism and immunosuppression. When stress is chronic, the self-regulating negative feedback does not occur, leading to continuous hypersecretion of CRH, leading to perpetual activation of HPA axis, which manifests itself in behavioral disturbance symptoms (such as depression, anxiety, eating disorders) and systemic sequelae (hyperthyroidism, osteoporosis, immunosuppression). The HPA axis is one of many neuroendocrine mechanisms that plays a vital role in mounting a stress response. Leukocytes (the first line of defense in stress response) have specific neuroendocrine receptors, such as receptors for growth hormone (GH), B-endorphin, thyroid hormone, luteinizing hormone-releasing hormone, and somatostatin. Deficiency of GH can reduce production of antibodies, natural killer cells, and T-cell lymphocytes. Prolactin can inhibit cellular and antibody responses, making more likely certain infections. When there is an interruption in this neuroendocrine pathway, because of a lesion in the anterior hypothalamic region, cellular response in the spleen and thymus can be suppressed, and antibody production and natural killer cells response is diminished.

Any type of stress results in “allostatic overload,” causing various levels of deregulation ranging from inflammation to immunosuppression. Skin mast cells are crucial in maintaining an allostatic balance and they are labeled as “central switchboard” of skin-stress response. Skin mast cells are activated by stress

mediators such as CRH, ACTH, nerve growth factor (NGF), substance P (SP), and stem cell factor, while glucocorticoids and catecholamines can inhibit the skin mast cell activity. Several dermatological conditions represent a classic model of the stress and expression of disease paradigm; some common examples are atopic dermatitis (AD), psoriasis, hair disorders, urticaria, angioedema, and skin infections. Skin mast cells have specific neuropeptide receptors on their surface making them important in the psycho-immuno-neuro-endocrine axis, and produce various proinflammatory substances leading to local effects of inflammation within the skin, initiating the scratch–itch cycle. Any stressful event leading to psychosocial stress can cause a flare-up of AD, intimating and exacerbating itch–scratch cycle that is central to many skin conditions. Pruritus associated with skin disease can cause stigma leading to anxiety and mood disorders—giving rise to major psychiatric issues. HPA and stress response is shown in Fig. 1.3.

The third pathway the CNS-mediated stress response occurs is through microglia that are inactive or resting macrophages found on the brain and spinal cord, which are activated in response to a stress stimulus. Activation of microglia can lead to expression of cell-surface markers such as major histocompatibility complex (MHC) molecules, complement receptors, and CD4 cells. Microglia then morphologically change to become active phagocytes, which are weak compared to the peripheral macrophages. However, when over activated, these microglia release certain proinflammatory cytokines such as platelet-activating factor, reactive oxygen molecules, and nitric oxide that can lead to neuronal injury.

Psychological stress can impact an individual at any stage of life. The impact of stress can be devastating if it occurs at the stage of infancy or early childhood, where stress can cause irreparable damage to the psyche of an individual, and whose neuronal, hormonal, and immunological systems are still evolving. Atopic dermatitis is a disease of early childhood, where early negative experiences like neglect, abuse, and abandonment or improper care can greatly affect infant stress. Therefore, “skin-to-skin” contact between infants and caregivers conveys love,

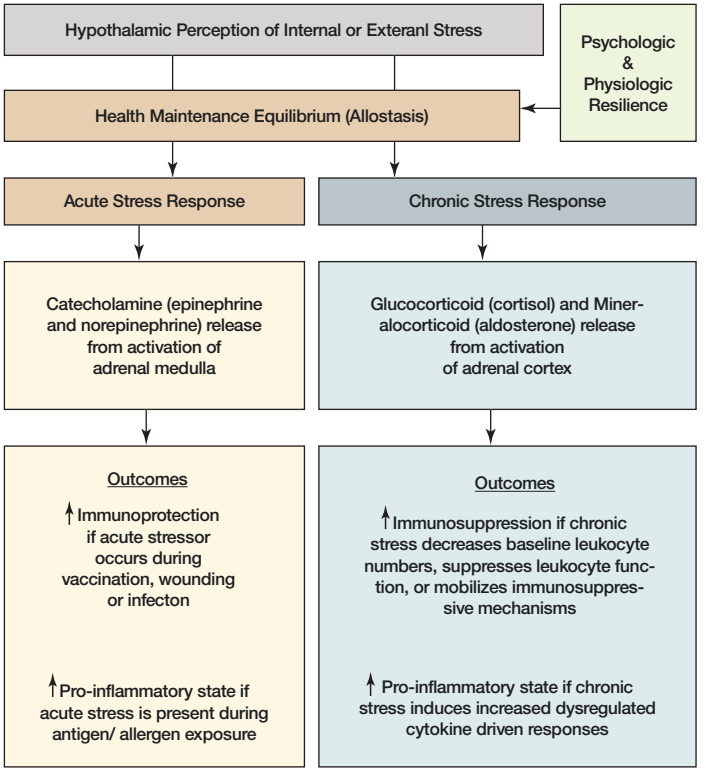

Fig. 1.3 HPA (hypothalamic-pituitary axis) and stress response

affection, and reassurance and is an important form of communication for neonates and plays an important role in neuronal cell growth and maturation. Psychological stress in early days/months/years of development can lead to initiation and permanence of a sense of rejection, abandonment, and helplessness, which can oversensitize the neuroimmune system, predisposing the infant to develop some deregulation of immune responses. Under stress, the sympathetic system causes release of catecholamine that in turn can increase the production of histamine, prostaglandins, ND leukotrienes, starting the cycle of scratch–itch that can initiate the chronic pruritus. The evidence for this response comes from the

finding that CD8 lymphocyte production increases in response to stress and remains elevated even 1 hour after the initial stressful event, suggesting that a heightened autonomic response to stress may be pathognomonic in AD. Presence of various neuropeptide receptors on the skin's surface helps mast cells play a central role in this mechanism. Skin mast cells also produce various proinflammatory substances, causing inflamed skin that can recruit and perpetuate the itch–scratch cycle. In the event of psychological trauma, exacerbation of the itch–scratch cycle can lead to a flare-up of AD. In a child who has a chronically overactive HPA axis, increased productions of catecholamines and glucocorticoids can occur. The stress also stimulates cytokines and proteases. Release of neuropeptides such as Substance P (SP), nerve growth factor, and calcitonin gene–related peptide from efferent nerve fibers occurs. The constant trauma of itch–scratch cycle can lead to disruption of the epidermal barrier, causing further worsening of eczematous lesions and perpetuating the itch–scratch cycle all over again. The unrelenting pruritus of an eczematous lesion and the stigma of the physical appearance of lesions can cause significant anxiety and mood disturbances in patients with atopic dermatitis.

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2 Classification of Psychodermatological Disorders

Skin and Psych are connected through their common embryonic origin by developing from ectoderm. The psychological factors affecting skin are common but underrecognized. About 35–40% of dermatology outpatients suffer from psychological symptoms. Thus, it becomes very important for a dermatologist to be familiar with the psychological component of skin disease. Underlying psychopathologies play an important role in the development of psychodermatological skin disease such as obsessive-compulsive spectrum pathology or psychosis. Any kind of emotional stress also may cause flare-up of various psychophysiological disorders such as psoriasis or atopic dermatitis. Similarly, disfigurement seen by skin patients with vitiligo or ichthyosis may develop significant low self-esteem and severe psychosocial effects on their lives. Social stigma associated with disfiguring skin lesions, lack of insight by patient to recognize the psychological aspect and underpinning of skin disease and refusal to see a psychiatrist, and lack of knowledge on the part of dermatologist about psychodermatological disorder make a psychodermatological disorder a big nightmare.

The association of dermatology and psychiatry is so varied that proper classification system is imperative in familiarizing the dermatologist and other healthcare providers to properly understand and address patient's difficulties and formulate appropriate

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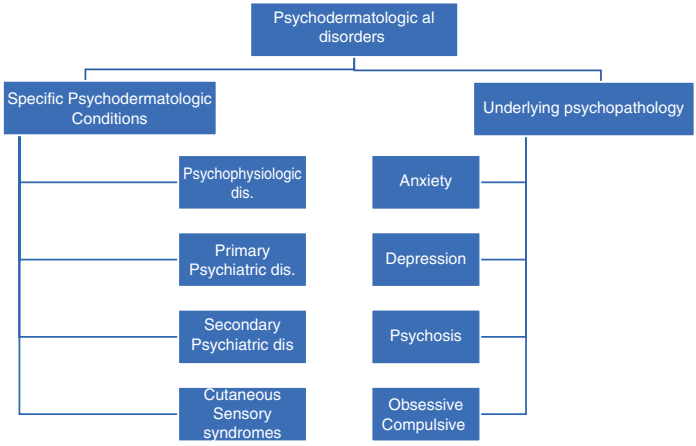

Fig. 2.1 Classification of psychocutaneous disorders

management. Although there is no universally accepting classification system, the most commonly employed system classifies psychodermatological disorders into five main groups according to the category of skin disorder. They are classified as psychophysiological disorders, primary psychiatric disorders, secondary psychiatric disorders, cutaneous sensory syndromes, and use of psychotropic medications in dermatology (Fig. 2.1).

Psychophysiological Disorders

In this category, the skin disorder is exacerbated by stress. Any kind of emotional trauma could lead to exacerbation of symptoms. The emotional stress could directly be linked to worsening of the disease. There must be a close chronological association between stress and exacerbation of skin disease. These conditions impact many patients who frequently report varying degrees of severity from psychosocial triggers. Variety of skin disorders may fall into this group, and these disorders have a significant rate of emotional triggering. The disorders falling into this category may include psoriasis, atopic dermatitis, rosacea, hyperhi-

drosis, lichen simplex chronicus, urticaria, acne vulgaris, and seborrheic dermatitis.

Primary Psychiatric Disorders

In this category, patient has no real skin disease, but all skin pathology is self-induced. These conditions are known as stereotypes of psychodermatological diseases. The disorders always have underlying psychopathology and often exhibit secondary dermatologic manifestations. Although treatment of this group often requires a mental health professional, dermatologists play a vital role in patient management. Individuals most commonly seek dermatologic care due to their physically damaged skin and because they typically do not consider themselves as having a psychiatric condition. These patients always show resentment and offence when dermatologist offers them a referral to a psychiatrist. Many of the patients are lost to follow-up because of this situation. This category includes disorders such as delusional parasitosis, neurotic excoriations, obsessive compulsive spectrum disorders such as trichotillomania and, factitious disorder.

Secondary Psychiatric Disorders

Here patients develop psychological problems as a result of having skin disease. Most commonly, disfigurement caused by some skin diseases may cause severe psychological problems in these patients. These conditions are usually not regarded as life threatening, but they have significant effect on patient's psychological well-being. Since skin is the largest organ of the body and the visible and chronic nature of dermatologic disease predisposes increased risk of secondary psychiatric conditions. Patients often feel uncomfortable discussing the negative psychosocial impact of chronic disfiguring skin conditions. The role of dermatologist becomes more important to address the psychological component, along with skin condition.

Cutaneous Sensory Syndromes

This is a heterogeneous group of conditions characterized by unpleasant sensations on the skin such as stinging, itching, burning, biting, or crawling with no obvious organic etiology. These patients may have associated psychiatric symptoms or not. The role of psychotropic medications is vital in the treatment of such conditions. These conditions may include glossodynia, vulvodynia, burning scalp, and nonspecific pruritus.

Psychotropic Medications in Dermatology

As we know that psychiatric symptoms in dermatology practice are increasingly being recognized, the use of psychiatric medications by dermatologist is dealt with caution and uncertainty in several psychodermatological conditions. Several skin conditions are associated with anxiety, depression, obsessive-compulsive symptoms, and psychosis. The choice of psychotropic medication depends upon the underlying psychopathology. It is worth mentioning that patients with delusional parasitosis, who may benefit from antipsychotic medication, are extremely resistant to antipsychotic medications and often lost to follow-up when they are prescribed antipsychotic medications or referred to a psychiatrist. For a practicing dermatologist, necessary and reasonable knowledge about psychotropic medications is very important.

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3 Common Psychopathologies in Psychodermatological Disorders

The connection of skin and psyche is undisputable. Psychodermatology focuses on the boundary between psychiatry and dermatology. The intimate relationship between skin and psyche/nervous tissue is related to the common embryonic origin: ectoderm. Skin, being readily available target for patient behavior, manifests internal state more clearly than another organ. Common psychosocial issues in dermatology include but not limited to interpersonal relationship problems, feelings of inferiority and low self-esteem, social stigma, and isolation, decreased sense of body image, sexual and relationship difficulties, and generalized sense of reduced quality of life. In the proper management of patients with psychodermatology, a treating physician should have a proper understanding of the interplay between skin and psyche and reasonable knowledge about targeting the main areas of psychopathology. Selection of appropriate psychotropic medication is based upon understanding the nature of underlying psychopathology. The most common psychopathologies noted in psychodermatological disorders are related to anxiety, depression, obsessive-compulsive spectrum, and psychosis (Fig. 3.1).

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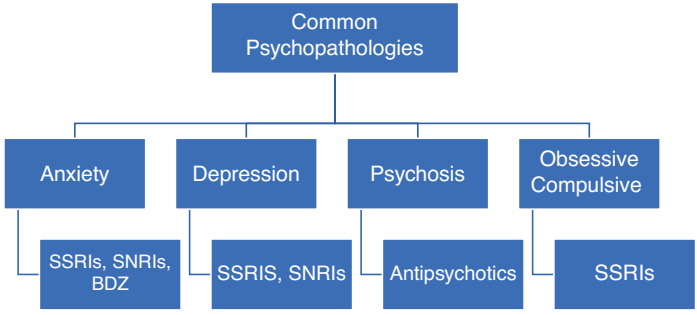

Fig. 3.1 Common psychopathologies seen in psychodermatological disorders. SSRIs (Selective serotonin reuptake inhibitors), SNRIs (Selective norepinephrine reuptake inhibitors), BDZ (Benzodiazepines)

Anxiety

Anxiety is one of the most common symptoms experienced by patients with dermatological disease. Several skin diseases make the person and his/her loved ones anxious and worried about the clinical picture and course of the skin disease. For example, when a patient is relayed the diagnosis of Melanoma, he/she and his/her loved ones get highly anxious and nervous keeping in mind the course of the disease. Anxiety manifests in different ways, ranging from simple anxiety and worry to a full-blown panic attack and severe social phobia. The other common anxiety symptoms, which could be noted in patient in psychodermatological disease, include but not limited to be feeling on edge, restlessness, fatigue and tiredness, difficulty in concentrating, irritability, insomnia, and muscle tension. Patient may also present with other nonspecific anxiety symptoms such as dizziness, palpitations, shortness of breath, shaking and trembling, muscle twitches and aches, clammy and sweaty hands, dry mouth, increased urinary frequency, lightheadedness, difficulty in swallowing, abdominal pain, and diarrhea. All of these symptoms when associated with skin disease significantly impair psychosocial and functional well-being of an individual. A dermatologist should be able to

treat both the dermatological part and anxiety associated with skin disease. In that regard, dermatologist should have ample armamentarium to treat the patient. Anxiety treatment could be twofold, one with medications and other by psychotherapies. Commonly used anti-anxiety agents are selective serotonin reuptake inhibitors (SSRIs), selective norepinephrine reuptake inhibitors (SNRIs), and antihistamines. Benzodiazepines should be avoided at all costs due to their addiction potential and effects of memory. Psychotherapies to treat anxiety may include cognitive behavioral therapy, biofeedback, progressive relaxation, and exposure and response prevention.

Depression

Depression is also very common in patients with psychodermatological conditions. Due to the chronic nature of the skin disease, associated disfigurement if any and nonresponse to treatment coupled with psychosocial percussion and impairment in relationships, these patients often complain of depressed mood, decreased energy, lack of motivation, anhedonia, lack of charm in life or daily activities, feeling hopeless, hopeless, worthless, sleep and appetite disturbances, weight changes, and difficulty in concentrating. This leads to significant personal, marital, occupational, and relational impairments. Many patients have considered and/or attempted suicide. There are several depression ratings scales available on the internet, which are not copyrighted and could be used to measure the level of depression. PHQ-9 (Patient Health Queationnaire-9) is a short and easy to administer questionnaire, which could take less than 5 minutes to complete, in office setting by patient. Most of the time, it is difficult for a patient to acknowledge or confess that he/she is depressed due to social stigma associated with psychiatric diagnoses. In turn, they may somatize their symptoms in the form of different physical symptoms. For a dermatologist to build a better therapeutic bond, he/she may not confront the patient rather than focus their questions on physical symptoms such as inquiries about sleep and energy levels. Patient would be feeling more comfortable in answering those questions.

By doing this, dermatologist will be getting more information about patient's depressive symptoms. Depression in psychodermatology could be treated with SSRIs, SNRIs, and different psychotherapies tailored on individual basis.

Obsessive-Compulsive-Related Symptoms

Obsessive and compulsive disorder (OCD) comprises of both obsessions and compulsions. Obsessions are defined as recurrent and persistent thoughts, urges, or images that are experienced as intrusive and unwanted that cause anxiety or distress. The person tries to ignore or suppress such thoughts or to neutralize them with some other thoughts or actions. Compulsions, on the other hand, are repetitive behaviors such as hand washing, ordering things or checking, or mental acts such as praying, counting, repeating words. The person feels driven to perform in response to an obsession. These behaviors or mental acts are aimed at preventing or reducing anxiety or distress. However, these mental acts are not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive. It may be noted that both obsessions and compulsions are time consuming and cause clinically significant distress or impairment in social, occupational, or other important areas of functioning. Obsession should not be confused with delusions, since both may involve a mental preoccupation with an idea or act. The key distinction between the two is the presence or absence of insight. Patient with obsessive compulsive disorder generally acknowledge their meaningless and bizarre nature of obsession or compulsion but unable to stop their obsessive thought or compulsive act. On the other hand, delusional patients truly believe in the validity of their thoughts and insist on the thought or act being true and real. Patients with OCD usually acknowledge and confess their inability to stop the urges to do their obsessions and compulsions and present with helplessness and being apologetic for their behaviors but patients with delusions do not do that. There are several psychodermatological disorders having OCD-related activity including trichotillomania, onychotillomania, onycho-

phagia, acne excoriée, lichen simplex chronicus, and some cases of factitious dermatitis. To treat OCD, both pharmacological and nonpharmacological approaches could be used. The role of SSRI and SNRI, like in depression and anxiety, in the treatment of OCD, is well documented. Psychotherapy techniques, like cognitive behavioral therapy and habit reversal therapy, are commonly used in the treatment of these disorders.

Psychosis/Delusions

The most common delusional or psychotic condition encountered in psychodermatology is delusion of parasitosis or delusional infestation. It is also known as monosymptomatic hypochondrial psychosis. Patients with delusional parasitosis present with complaints of insects crawling on their skin despite the contrary evidence. They firmly believe on this thought and present with a "match box sign" (debris of insects and other inanimate objects). Their skin will show several scratch marks, redness, and some papules, and patient would relate these findings to bugs crawling underneath their skin. These patients are very difficult to treat and often lost to follow-up when a psychiatric component to their presentation is discussed. These patients often would not give consent to antipsychotic medication or being seen by a psychiatrist. The treatment of choice is antipsychotic treatment. The principles of treatment in these cases is nonconfrontational approach, sympathetic listening, and validation of their concerns and working as a team.

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4 Psychophysiological Disorders

Psychophysiologic disorders are characterized by exacerbation of skin disorders by stress. Any kind of emotional trauma could lead to exacerbation of symptoms, and the emotional stress could directly be linked to worsening of the disease. There must be a close chronological association between stress and exacerbation of skin disease for a disorder to be qualified as psychophysiologic disorder. A variety of skin disorders may fall into this group, and these disorders have a significant rate of emotional triggering. Patients frequently report varying degrees of severity from psychosocial triggers in these disorders. The disorders falling into this category may include psoriasis, atopic dermatitis, rosacea, hyperhidrosis, lichen simplex chronicus, urticaria, acne vulgaris, and seborrheic dermatitis. Some common psychophysiological dermatoses are briefly described here.

Atopic Dermatitis

Common symptoms associated with atopic dermatitis (AD) in dermatological practice include erythema, pruritus, scaling, excoriation, and lichenification. Infants and younger children with AD commonly present with pruritic and erythematous maculopapular eruptions, which subsequently undergo lichenification from repetitive scratching and rubbing. The symptomatology in adults

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is characterized by itching, scratching, lichenification, and pruritus. The recent increase in surge of atopic dermatitis patient may be due to earlier exposure to environmental factors such as food additives, dust mites, pollen, and air pollutants. Many investigators believe that deficient microbial exposure early in life may predispose individuals to develop AD through alteration of normal immune processes.

Treatment of AD is directed toward interrupting the frequency of the itch-scratch cycle. These patients have always comorbid psychiatric difficulties such as depression and anxiety, and they require appropriate psychosocial interventions and psychotherapy along with traditional dermatological treatment as a plan of care. Nonpharmacologic therapies such as habit reversal therapy (HRT) and cognitive behavioral therapy have proven helpful in patients in reducing the itch-scratch cycle and improving quality of life.

Pharmacologic treatment involves the use of first-generation antihistamines, particularly for helping with sleep disturbances and night-time scratching. Tricyclic antidepressant Doxepin has been shown to be effective in managing nocturnal pruritus in adults with AD.

A multifaceted treatment regimen with a combination of both psychotherapeutic interventions and pharmacologic modalities has been shown to be most effective in improving the overall quality of life of individuals with AD.

Psoriasis

Psoriasis is chronic skin condition characterized by the presence of erythematous scaly plaques, appearing on knees, elbows, and scalp. Psoriasis has a bimodal distribution and commonly seen in the age group of 20–30 and 50–60. Stress is noted to be a trigger of the condition in 31–88% of cases and has been well documented in many studies. There is a temporal association between psychologic stress and the onset, recurrence, and disease severity. Individuals also report a greater contributor of stress-induced symptom exacerbation as being related to social stigma and cosmetic disfigurement rather than stressful life events. It has

been noted that woman, younger patients, individuals with earlier life onset, and those with lesions in exposed areas are more susceptible to psychological distress.

Psychotherapies play a major role in the overall management of psoriasis treatment. Different psychotherapeutic modalities have been used in psoriasis including but not limited to mindfulness meditation, cognitive behavioral therapy (CBT), motivational interviewing, and educational and interdisciplinary interventions CBT has been effective in improving the clinical severity and strengthening an individual's ability to cope with the chronic nature of psoriasis. Those patients who have prior psychiatric history may benefit more from psychotherapy combined with antidepressant therapy. When a patient with psoriasis presents to dermatologist for initial consultation, it is imperative to screen the patient with any underlying psychological comorbidity, particularly depression, anxiety, low self-esteem, and interpersonal relationship difficulties. There are several noncopyrighted screening questionnaires available, which could be utilized in office practice. These screening methods would allow for individuals with undiagnosed psychiatric conditions like anxiety and depression to be properly addressed with support and treatment. Psychopharmacological agents such as antidepressants and antianxiety agents should be used along with psychotherapy to address the psychological component of psoriasis. Practicing dermatologists must be familiar with the common side effect of Lithium (a mood stabilizer used in Bipolar disorder), which may cause psoriasiform lesions.

Alopecia Areata

Alopecia areata (AA) is characterized by localized round areas of hair loss without any obvious inflammatory signs. AA may occur in any area of the body with hair, but most commonly seen on scalp. Other areas involved are beard, eyelashes, and eyebrows. Majority of cases show spontaneous regrowth of hair within a year and severity of hair loss at onset is a strong predictor of the long-term outcomes. The primary diagnostic feature of AA is

breakage of the hair shaft comprised of the classic "exclamation-mark" appearance that is thicker at the top and narrower along the length. Due to obvious visibility, patients with AA may show low self-esteem and significant anxiety symptoms. Their interpersonal relationship is significantly affected, and they try to avoid meeting with people or go to common areas such as gym or swimming pool. Several studies have demonstrated strong psychological percussions associated with AA. The use of topical and/or intralesion steroid injections, along with systemic glucocorticoids, are the mainstay treatment options. Recently, however, the use of platelet-rich plasma has also shown promise as a therapeutic alternative.[34] There have been limited studies of psychotropic medication efficacy in AA patients with psychiatric comorbidity; however, concomitant antidepressant, particularly SSRIs and SNRIs, treatment may help patients with depressive and anxiety symptoms, which are commonly associated in these patients. With regard to non-pharmacologic therapeutic options, there is lack of concrete results from controlled studies reporting the efficacy of psychotherapy, relaxation, and stress management techniques. However, group interaction with support groups has been found to be an important avenue to assist in coping with the psychosocial impact of the condition.

Acne Vulgaris

Acne is an inflammatory condition commonly occurs during adolescence and has a multifactorial etiology. There is a genetic predisposition to acne as the majority of individuals with severe acne share a positive family history. The condition involves bacterial colonization with *Cutibacterium acnes* (formerly known as *Propionbacterium*) in pilosebaceous glands located primarily in the face and trunk. Although acne can be self-limited in preadult years, a significant proportion experience acne into adulthood. Adults with acne presenting to dermatologists may have visible, deep, and hypertrophic scars, leading to negative psychosocial effects. Common psychiatric comorbidity includes depression, anxiety, and social phobia. As with many psychocutaneous dis-

eases, appropriate screening with relevant questionnaires should be initiated on first visit in the office. Continued monitoring and follow-up of adolescent patients with acne, particularly females, is essential due to the increased risk of suicide ideation. Typical agents for treatment consist of topical and systemic retinoids, systemic and topical antibiotics, and benzoyl peroxide. Of particular concern is Isotretinoin, which has shown worsening depression and suicidal tendencies in many adolescents. A black box warning since then has been out on insert label. Before prescribing Isotretinoin, a psychiatric consult is of paramount importance to rule out any existing depression or suicidal ideation. Nonpharmacologic options consist of cognitive behavioral therapy, relaxation exercises, and self-hypnosis techniques, which, when combined with carefully monitored pharmacotherapy, may improve therapeutic outcomes for patients with acne.

Urticaria and Angioedema

Urticaria results from mast cell degranulation and is referred to as the formation of hives and/or angioedema. Angioedema results from a process identical to that of urticaria. However, it results in a larger edematous area that is not well circumscribed and involves the deep dermis and mucous membranes rather than the superficial dermis seen in urticaria. The chronic form of the condition lasts for greater than 6 weeks and presents as wheals (hives) and/or angioedema, while acute urticaria presents with spontaneous, recurring wheals for a period less than 6 weeks. Triggers of acute urticaria include infections, drug reactions, and certain foods. In contrast, chronic urticaria is reported to be idiopathic in most cases. In urticaria and angioedema related to a chemical, drug, or food, the prompt elimination of the agent is indicated. The first-line treatment for chronic urticaria and/or angioedema is second-generation antihistamines, while first-generation antihistamines should be avoided due to their notable adverse effect profile. Psychotropic medication doxepin (an antidepressant) has also showed promise as an effective therapeutic option for patients with chronic urticaria. Patients with chronic urticaria commonly

exhibit psychiatric comorbidity, particularly depression and anxiety. Therefore, successful management includes emphatic dialogue, generates a strong patient-physician relationship, and referrals to mental health providers when indicated. Although there is significant psychiatric comorbidity in patients with chronic urticaria, the effectiveness of nonpharmacologic therapies in management of the condition has not been extensively studied, calling for increased research and trials.

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5 Primary Psychiatric Disorders

Patients in this category have no real skin disease, but all skin pathologies are self-induced. These conditions are known as stereotypes of psychodermatological diseases. The disorders always have underlying psychopathology and often exhibit secondary dermatologic manifestations. Individuals most commonly seek dermatologic care due to their physically damaged skin and because they typically do not consider themselves as having a psychiatric condition. These patients always show resentment and offence when dermatologist offers them a referral to a psychiatrist. Many of the patients are lost to follow-up because of this situation. This category includes disorders such as delusional parasitosis, neurotic excoriations, obsessive-compulsive spectrum disorders, such as trichotillomania, and factitious disorder.

Delusional Parasitosis

It is also referred to as delusions of infestation, monosymptomatic hypochondriacal psychosis, Morgellons disease, Ekbom syndrome, parasitophobia, acarophobia, and entomophobia, psychogenic parasitosis, chronic tactile hallucinosis, cocaine bugs. Clinically, these patients typically present to the dermatologist and report experiencing sensations of parasites crawling inside or on their skin. Commonly, patients will bring samples of the bugs,

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which typically are pieces of their own hair or skin, referred to as "matchbox" or "specimen sign." In some cases, patients may use knives, needles, or other tools to remove the parasites. Delusion of parasitosis can be divided into two classes: primary and secondary. In the primary form, the delusion is self-manifested and in secondary form, the delusion is secondary to substance abuse, nutritional deficiencies, and another medical condition or psychiatric illness.

Diagnosing and treating patients with delusion of parasitosis is always a challenge for both dermatologists and psychiatrists alike. Careful history taking is vital in elucidating the underlying cause(s) of patients with the secondary form of the disorder. Specific underlying causes include anemia, hypothyroidism, vitamin B12 deficiency, hepatitis, diabetes, infections like HIV and syphilis, and substance abuse (typically cocaine). Following a careful history and physical exam, appropriate testing can confirm the etiology of secondary form of delusion of parasitosis. CBC, thyroid-stimulating hormone, folate, B12, urea, glucose liver function tests, urine toxicology, syphilis, and HIV screen may be helpful in this regard. The importance of engaging with patients and building trust for initiating and maintaining treatment is of pivotal importance. A nonjudgmental and nonconfrontational attitude is very important. Patient's concerns should be validated, and an assurance be given to patient that we will work together and overcome this problem. Unfortunately, despite this approach and reassurances, patients are often lost to follow-up, since they commonly mistake their doctor's recommendations as a sign of incompetence or apathy.

Other somatic delusional disorders in psychodermatology include delusions related with appearance and foul body odor. The difference between appearance-related delusions and body-dysmorphic disorder (BDD) has been debated, as the conditions can present similarly and may belong within a continuous spectrum. While BDD is categorized under obsessive-compulsive and related disorders (OCRDs), delusional disorders (somatic variants) are classified as psychotic disorders.

Body Dysmorphic Disorder

Also known as dysmorphophobia, body dysmorphic disorder (BDD) presents in patients complaining of heightened preoccupation with their appearance or an area of their body that may be seen as defective or flawed. This disorder is classified as an obsessive-compulsive and related disorder (OCRD). The thoughts and behaviors stemming from the disorder often have a negative impact on a person's interpersonal relationships and everyday functioning. A considerable amount of time is spent thinking, examining, or disguising what is observed to be a defect in his or her appearance. For example, individuals with BDD may repeatedly examine themselves in the mirror to compare specific features to those of others, make daily efforts to hide or camouflage the "flaw" with clothes and/or make-up. Some patients may engage in dangerous diets or seek appearance-altering treatments and cosmetic surgeries. It is very important for a dermatologist to accurately identify the patients and refer them to mental health professionals, to avoid unnecessary procedures or doctor shopping. Diagnosis and treatment could be very tricky and difficult, since these patients typically do not present to a mental health professional and try to seek cosmetic alterations, which may further worsen their condition. Besides that, lack of training and knowledge in dermatologists and plastic surgeons make the matters worse.

Body-Focused Repetitive Behavior Disorders (BFRBDs)

BFRBDs represent a group of impulse-control conditions characterized by self-induced physical damage of the skin, hair, and/or nails. Three most commonly presenting conditions in this category of OCRDs are skin-picking disorder, trichotillomania, and onychophagia or onychotillomania.

Skin-Picking Disorder (SPD [Excoriation Disorder])

This is also known as excoriation disorder, psychogenic excoriation, and dermatillomania. Most commonly seen in adolescence and middle adulthood. The condition is characterized by physical damage to the skin from excessive and repetitive touching, pulling, squeezing, pinching, and/or rubbing. The lesions are mostly seen in areas, which are reachable by dominant hand. Areas of the body typically involved vary and include those that are easy to reach; however, the "butterfly sign" is a notable clinical sign. This phenomenon is observed on the upper middle to lateral back that is free of lesions as it cannot be easily reached. Of note, the lesions are visible in different stages of healing and may have delayed healing due to the chronic nature of the condition. As such, the lesions are commonly hypo- or hyperpigmented and appear as linear scabs or scars. Upon questioning, patients typically describe experiencing uncomfortable sensations and itching from the involved areas, leading them to engage in the skin-picking behavior. They also report an urge, which cannot be controlled. Psychiatric comorbidity is common and includes depression, anxiety, substance abuse, and in severe cases suicidal ideations. Other BFRBDs such as trichotillomania or onychotillomania may be associated with skin picking. Patients with SPD typically present to a dermatologist for management and cosmetic options for physical lesions rather than going to mental health provider. Unfortunately, many patients are unaware of the fact that SPD is a recognizable disorder and that there are treatment options available. Therefore, it is vital for dermatologists to be knowledgeable and be aware of the common presenting signs, perform a full dermatologic assessment, and make appropriate referrals when indicated. Careful history can reveal the underlying cause of the behavior as medical such as pregnancy, uremia, or liver disease, psychiatric-like depression and anxiety, or both. Currently, no approved or recommended treatment for SPD is available. However, both psychotherapy and pharmacologic treatment have shown to be effective in the successful management of patients. Varying degrees of success with the use of selective serotonin

reuptake inhibitors (SSRIs), antipsychotics, opioid antagonists, and glutamate modulators have been observed. SSRIs are the most widely implemented medication, with new evidence of NAC (N-Acetylcysteine) also showing promise. Cognitive behavioral therapy, and its variant habit reversal therapy, has shown significant improvement in patient symptoms. Although further studies need to be conducted to make accurate conclusions, a collaborative approach with the attention of a multidisciplinary team in providing psychotherapy and medication is recommended.

Trichotillomania (Hair-Pulling Disorder)

Trichotillomania (TTM) or hair-pulling disorder is another member of OCRD wherein affected individuals engage in repetitive pulling or plucking of their hair, leading to noticeable hair loss. The condition is characterized by a chronic course, has a bimodal distribution in childhood and adolescence, and predominantly affects females. Although individuals with the disorder can target any area of the body with hair, the eyebrows, scalp, and eyelashes are the most commonly observed sites of involvement. Psychiatric comorbidity is common in patients with TTM and can alter the severity of the condition. Both anxiety and depression are commonly seen in TTM patients. There are two types of hair pulling: the automatic and focused. In automatic type, patients pull their hair without any awareness and the behavior is driven by boredom, and the focused type, where patients are aware of their pulling urge and it is commonly preceded by stress and anxiety. Regardless of the specific subtype, the hair-pulling action has been reported to occur primarily from the inability to properly regulate the immediately preceding emotional states.

Diagnosis becomes difficult in some cases when patients, particularly young adolescent females, try to hide their pulling habit and often experience shame, resulting in an inability to verbally disclose the behavior to their mothers or examining physician, resulting in a decreased likelihood of seeking treatment. When the possibility of TTM is suspected for a patient, the examining physician should administer specific screening tools in order to

accurately diagnose and confirm that patient meets criteria established by the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, fifth Edition). Examples of screening tools that may be implemented include the National Institute of Mental Health–Trichotillomania Severity Scale (NIMH-TSS), the Massachusetts General Hospital–Hair-Pulling Scale (MGH-HPS), and the Yale-Brown Obsessive-Compulsive Scale–Trichotillomania (Y-BOCS-TTM). Physical examination can confirm the diagnosis, uncover the potential for regrowth by examining the presence of scarring, and the possibility of a co-occurring condition, trichobezoar, where individuals swallow hair, leading to an abdominal mass. Besides that, trichoscopy, hair-punch biopsy, and the hair pull test can be used in order to confirm the diagnosis of TTM and rule out similarly presenting conditions such as alopecia.

Treatment: Currently no specific treatment has been recommended by Food and Drug Administration (FDA) for trichotillomania. There are several treatment options: both pharmacologic and nonpharmacologic options have been described. Habit reversal therapy has been noted as most effective psychotherapeutic method in the treatment of trichotillomania. Selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants (TCAs), and antipsychotics have been used with variable success in treating trichotillomania in several case reports and open label studies. There have been several case reports of using glutamatergic modulator, N-acetyl cysteine (NAC), in treating TTM through the reduction of oxidative stress and neuroinflammation. Overall recommendations consist of implementing a combination of medications such as NAC, TCAs, and SSRIs in addition to behavior therapies like cognitive behavioral therapy and habit reversal therapy.

Onychophagia

It is also known as habitual nail biting, nail-biting disorder. Onychophagia is another BFRB disorder classified with lip biting and cheek chewing under “other specified OCRDs” by the DSM-V. The chronic, nail-biting behavior affects a diverse age group,

but typically presents during childhood and is commonly seen in preteens and adolescents. A significant proportion of the general population is impacted by onychophagia, and the actual prevalence may not be known, because many patients do not seek treatment due to shame and embarrassment. Onychophagia has been found to cause secondary psychosocial issues along with complications of the oral cavity and/or nail unit. Potential triggers include including anxiety, stress, or boredom, and the behavior may be a sign of underlying emotional or mental disorders. A significant negative impact on quality of life and increased levels of stigmatization have been noted with onychophagia. These patients feel very embarrassed in social situations as they cannot help preventing their urge to bite nails. Diagnosing this condition is not that difficult. Clinical history is important in making the diagnosis of the disorder. Treating providers should inquire about comorbid psychiatric conditions and be mindful that not all patients will explicitly disclose that they engage in the behavior. Additionally, a complete dermatologic exam should be completed. With appropriate lighting, inspection should be performed for nails that are uneven or short, nail folds in distinct stages of healing, and damaged cuticles. Similar to the previously mentioned BFRBs, a combination of pharmacologic and nonpharmacologic options exists for managing onychophagia. However, the complicated nature of the disorder makes it difficult to treat and calls for a multidisciplinary team in successful management, which may consist of dermatology, psychiatry, internal medicine, dentistry, and pediatrics. In the treatment of these patients, emphasis is placed on evaluating patient's awareness of his or her nail-biting habit and level of motivation for treatment. Habit reversal therapy (HRT) has been the most effective way in treating the nail-biting disorder through increased awareness and implementation of alternative response training. Combination of pharmacologic treatment targeted toward any underlying psychopathology, such as depression or anxiety, along with habit reversal therapy, may be more useful in treating this condition. Application of nail lacquer, a bitter-tasting substance, is another example of treatment aiming to reduce the behavior through aversion therapy.

Factitious Disorder (Dermatitis Artefacta)

This is a condition where damage to the skin is self-induced, without evidence of clear external incentives. Patients with factious disorders deny the behavior in order to maintain the role of a sick patient. Factitious disorders are distinct from malingering, where intentions of secondary gain are present, and Munchausen syndrome, which is similar but typically involves a comprehensive history of hospital/clinic visits, a more dramatic narrative, and multiple organ involvement. Dermatitis artefacta (DA), also referred to as factitious dermatitis and artefactual skin disease, is a psychocutaneous condition similar to skin-picking disorder: there are self-induced skin lesions; however, patients with DA implement the use of specific tools to facilitate the process such as knives, tweezers, or needle and patients with skin-picking disorder do not always deny the behavior and engage in the compulsive, repeated behavior due to an underlying psychopathologic mechanism. Various psychosocial issues associated with dermatitis artefacta include emotional disturbances, interpersonal relationship problems, and unconscious conflicts. Careful history taking and physical examination is vital in diagnosing DA as the cutaneous lesions can vary in appearance and may even resemble similarly presenting inflammatory conditions. Treatment of this condition may pose a significant challenge to provider, and successful management of the patient requires a combined multidisciplinary clinic involving psychiatry and dermatology. Treating physician must be aware that some patients may reject a referral to see a mental health provider. In such case, it is advised to maintain supervision with continued follow-up to generate trust and build a strong patient–physician relationship, and eventually introduce psychological treatments. Specific psychopharmacologic medications should be prescribed after careful identification of underlying psychiatric condition(s). For example, SSRIs are suggested for patients with DA and underlying depression, while TCAs are indicated for patients that may have accompanying itching, insomnia, and pain. In conjunction with medication, psychotherapy is indicated and beneficial for patients with DA. Wound

care may also be indicated for select patients consisting of topical or oral antibiotics for secondary infections, occlusive dressings to prevent future damage, and analgesics for associated pain.

Psychogenic Purpura

It is also known as Gardner–Diamond syndrome, autoerythrocyte sensitization syndrome, painful ecchymosis syndrome, or painful bruising syndrome. This condition commonly affects woman with a history of psychiatric illness such as anxiety, depression, or OCRDs. For the majority of reported cases, a heightened emotional state, severe stress, or emotional trauma occurs immediately prior to the physical cutaneous findings. The presentation consists of bruising and multiple erythematous patches that progress to ecchymosis within a 24-hour period. The lesions vary in location, accompanied with pain or pruritus. The exact cause and pathophysiology is currently unknown with several possible mechanisms including autoerythrocyte sensitization, factitious disorder, and conversion reaction. In order to rule out other hematologic conditions in the differential, a comprehensive lab work including blood coagulation values and hemostatic tests is vital as they are generally negative in psychogenic purpura. A diagnostic test is intracutaneous injection of the patient's washed erythrocytes in suspension. There is no specific treatment for the condition; however, it is important to treat any underlying psychiatric illness and provide symptomatic therapy like antihistamines and corticosteroids and supportive psychotherapy.

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6 Secondary Psychiatric Disorders

Skin is the largest organ of the body. The visible and chronic nature of dermatologic disease increases the risk of several psychosocial percussions. Unfortunately, many patients do not feel comfortable discussing the negative psychosocial impact of chronic disfiguring skin conditions to their provider. Therefore, it is particularly important for a treating dermatologist to be familiar with and understand the basic aspects of psychocutaneous disease. In doing so, the physician can better suspect potential secondary psychiatric morbidity and offer appropriate care.

The contributing factors or important variables in the production of secondary psychiatric disorders are shown in Box 6.1.

Box 6.1 Contributing Factors in Secondary Psychiatric Disorders

1. Patient-centered factors
   (a) Age
   (b) Sex
   (c) Personality
   (d) Coping style
   (e) Cutaneous body image

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2. Disease-related factors
   (a) Morphology
   (b) Size and shape
   (c) Location
3. External factors
   (a) Patient–doctor relationship
   (b) Validation of patient concerns
4. Cultural factors
   (a) Cultural background
   (b) Family dynamics
   (c) Childhood upbringing
5. Social factors
   (a) Support groups
   (b) Family support

The influence of patient-centered characteristics such as age, sex, personality trait, and coping strategies plays a major role in dermatologic disease and its manifestations. Majority of patients with psychodermatological disorders have anxiety and depression associated with their disease. Patient's age, sex, and his or her coping mechanism to stress greatly impact individual reactions to the onset or worsening of a disease process. It is documented that female patients report higher levels of depression and anxiety associated with their skin disease, and generally, spend more time on physical appearance when compared to men. An understanding of patients' personality traits is helpful in properly understanding patient's expectation to disease and response to treatment. Patients with narcissistic, histrionic, borderline, and obsessive-compulsive personality traits and types have a different and unique presentation when they attend dermatology clinics. Patients with social phobia, panic disorder, anxiety disorders, major depressive disorder, and dysthymia have association with high neuroticism. Cutaneous body image (CBI) is a subjective feeling of a person about how he or she looks at himself or herself regarding hair, skin, and nails. It affects our

thoughts, emotions, behaviors, relationships, and overall quality of life. Thus, it plays a major role in the development of secondary psychiatric disorders in dermatologic patients with visible skin disfigurement. CBI has significant correlation with the severity of dermatologic disorders. There are reports that impaired CBI affects personal and intimate relationships.

Morphological qualities of skin disease such as size, color, and physical location on the body may influence the onset and progression of secondary psychopathology. In patients with vitiligo, for example, the overall visibility of the lesions and disease extent is directly associated with impairment in quality of life with respect to functioning, emotions, and experienced symptoms. The more chronic the skin disease and having potential for exacerbation may impact the development of psychosocial morbidity.

Patient–doctor relationship and how patient with chronic disfiguring skin lesions is welcomed and received in the clinic determines the potential of worsening of psychological well-being. As mentioned earlier, dermatology patients feel uncomfortable to disclose the psychological percussions of their skin disease. Those dermatologists who dismiss emotional factors, or who do not provide an emphatic, comfortable environment for individuals with skin disease to disclose life stressors, may further contribute or aggravate to the distress experienced by patients. Dermatologists, who may not have a desire or knowledge to address the psychiatric morbidity, are advised to empathetically initiate conversations related to mental health and offer referrals, where appropriate.

Patient's cultural background, family dynamics, childhood upbringing, and societal norms greatly influence the presentation, course, and prognosis of skin disease. Stigma associated with skin disease results in negative labels or stereotypes against those that do not match societal norms and can manifest as avoidance and distrust by the general population. The visibility and morphological features of cutaneous disease can lead to misconceptions about certain conditions such as psoriasis regarded as contagious; thus, patients feel stigmatized, having difficulty coping with their condition from appearance-related concerns and thus leading to worsening of self-esteem and decrease in quality of life.

The existence of support networks and group meetings for individuals suffering from dermatologic disease have been found to be tremendously beneficial. These support groups significantly reduce stigmatization and create a sense of well-being and acceptance in many chronic skin conditions. A lack of support may lead to increased isolation and potentially the worsening of skin disease or onset of psychiatric comorbidity. Family support and family groups have an additional beneficial effect on patient's psychological well-being and acceptance.

Major Depressive Disorder

Depression is the most common psychiatric comorbidity seen in patients with chronic skin disease such as psoriasis, atopic dermatitis, vitiligo, acne, and many others. Major depressive disorder is defined as depressed mood (change from normal baseline) or loss of interest in daily activities for more than 2 weeks and impaired social, occupational, and educational function. Additionally, the patient must have 5 of the 9 following specific symptoms, present daily, to meet the criteria: depressed mood or irritably, loss of interest or pleasure, weight or appetite change, changes in sleep, alteration of activity, loss of energy, guilt, diminished concentration, and thoughts of suicide. In order to identify and assist patients that may have depression secondary to chronic skin disease, treating physicians are recommended to administer screening tools like the PHQ-2 in office setting. This would minimize morbidity and help in tailoring specific treatment plan for an individual patient and improve treatment outcome.

Anxiety Disorders

Anxiety, in association with depression, is one of the common symptoms patients with skin disease report to their treating physician. At times, patients are hesitant to offer such information and it is treating physician's responsibility to administer appropriate screening tests to diagnose anxiety and functional impairment encountered by these patients.

Skin conditions that are commonly associated with anxiety disorders include atopic dermatitis, seborrheic dermatitis, acne vulgaris, and rosacea. Diagnosis of generalized anxiety disorder requires excessive anxiety and worry that is out of proportion to the situation, has lasted for greater than 6 months, and results in symptoms such as irritability, fatigue, sleep disorders, concentration issues, and muscle tensions. Chronic skin conditions have an increased risk for anxiety due to appearance-related concerns. In dermatologic conditions such as atopic dermatitis, where pruritus is a chief symptom, anxiety plays a notable role in the disease prognosis through its involvement in the itch–scratch cycle.

Specific Phobias

Phobias are characterized by fear, anxiety, or avoidance about a specific object or situation that is out of proportion to the actual danger the situation or object poses. The intense feelings of fear, anxiety, and avoidance typically last for 6 or more months, and the object or situation is actively avoided as it provokes immediate undesirable feelings. Several psychodermatologic disorders, including vitiligo, acne, or any disfiguring skin lesions or skin disease on exposed parts, have high incidence of avoidance and social phobia. These patients prefer to stay at home and have significant interpersonal relationship difficulties. Social anxiety and phobia negatively impact an individual's school, work, and social life.

Adjustment Disorder

Adjustment disorder is characterized by emotional or behavioral symptoms in response to identifiable stressor. Patients experiences significant functional impairment and marked distress that is out of proportion to the actual severity of the initiating stressor. External social and cultural factors, combined with personal coping mechanisms and personality characteristics, can play a role in the development of adjustment disorders in individuals diagnosed with chronic skin conditions.

General Management Approach

Prompt identification, acknowledgment, and treatment of secondary psychiatric disorders in the dermatologic patient population is essential in improving overall quality of life. The aim of treatment is to improve decreased function and mental distress while properly addressing feelings of isolation and altered self-esteem. It is vital for clinicians to educate themselves regarding the psychological aspects of dermatologic disease to recognize potential emotional disturbances, warning signs, and specific at-risk patient populations in order to prevent the worsening of existing secondary mental health morbidity. A multidisciplinary approach is recommended in the treatment of both dermatologic symptoms and psychiatric ailments. This may include, but is not limited to, dermatologists, psychiatrists, psychologists, pediatricians, general practitioners, therapists, and councilors. A holistic treatment process, through the combination of both pharmacologic and non-pharmacologic options and involvement of multiple health professionals, will give maximum benefit to this patient population.

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7 Cutaneous Sensory Syndromes

There are several symptoms, which cannot be classified into a recognizable skin disorder. These patients present with unpleasant skin sensations like itching, stinging, burning, crawling, or pain (allodynia) without a definitive diagnosis of cutaneous disease or psychiatric illness. These sensations or symptoms have no neurologic, psychiatric, or medical explanation. There is lack of observable underlying inflammation to accompany the unpleasant cutaneous sensations. These unpleasant sensations affect any part of the body but develop most commonly in those areas with greater density of epidermal innervation such as face, scalp, or perineum.

Cutaneous sensory syndromes may affect all ages and both sexes. It is commonly seen in older and perimenopausal females with an increased prevalence in older population. These syndromes are classified according to their location or known pathogenesis (Table 7.1).

Many authors believe that the concept of dissociation and conversion plays a major role in the pathogenesis of cutaneous sensory syndromes. Emotional and psychological trauma suffered in life cause significant psychological percussion, leading to dissociation and conversion of emotional symptoms into cutaneous somatic symptoms. Somatization appears to be an important factor in cutaneous sensory syndromes. In somatization, patient

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Table 7.1 Classification of cutaneous sensory syndromes

Head	Perineal	Known pathogenesis
Glossodynia	Vulvodynia	Erythromelalgia
Burning mouth syndrome (stomatodynia)	Orchiodynia	Trigeminal neuralgia
Trichodynia	Urodynia	Post zoster neuralgia
Scalp dysesthesia	Urethral syndrome	Proctalgia fugax
	Phallodynia	
	Prostatodynia	
	Coccygodynia	
	Perineal pain syndrome	
	Anodynia	
	Proctodynia	

relates the somatic symptom to a physical problem, but the condition actually is a psychiatric illness that responds to psychiatric treatment.

Pathophysiologically, a better understanding of physiological processes of sensation would help understand the causation of cutaneous sensory syndromes. There are two types of nociceptive afferents: the Aδ fibers and C fibers. The Aδ fibers transmits signals for fast well-localized sharp pain and temperature. The C fibers transmits signals for slow, diffuse aching pain, temperature, pressure, and itch. These fibers activate nociceptors in skin, which in turn are activated via TRP (transient receptor potential) and purinergic receptors, allowing Na + and Ca2+ through the membrane of free nerve endings. The TRP channels can be directly modulated by H+, capsaicin, noxious temperature, or force, and the purinergic receptors can be directly modulated by ATP. TRP channels are further potentiated at GPCR receptors by bradykinin, histamine, prostaglandin, and serotonin. Once the nociceptors are activated, the peripheral nervous system utilizes substance P and calcitonin-gene-related peptide to transudate the signal from primary afferent to the anterolateral system. Centrally, the sensation of pain is inhibited by enkephalinergic interneurons and by glutamate, norepinephrine, and serotonin neurotransmitters.

From the management point of view, complete clinical history and a thorough medical, neurologic, and psychiatric examination is required to exclude any organic pathology. The duration of symptoms, aggravating and relieving factors, or any associated symptoms must be thoroughly inquired from patient. Inquiry about sleeping habits and sleep hygiene is important as sleep disruptions are known to aggravate perception of cutaneous dysesthesia. Depression and anxiety are commonly seen in this patient population and must be screened for and treated accordingly. Like many psychodermatological diseases, a neutral and nonconfrontational and nonjudgmental attitude with validation of patient's symptoms is important. This would create a good doctor–patient bond and enhance compliance in treatment. Pharmacological treatment of choice is based upon choosing agents, which act upon pain sensations and pruritus. Selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants, anticonvulsants, and capsaicin are used when pain element is more pronounced. Doxepin is particularly useful in pruritic dysesthesias, and it also helps sleep. Those cases which are resistant to treatment by SSRIs and tricyclic antidepressants, may benefit from Antipsychotic augmentation. In many cases, pharmacotherapy may be continued for longer time. Concomitant psychotherapy as an adjunct therapy has been helpful in resistant cases.

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Psychogenic Pruritus

8

Itch, also referred to as pruritus, is an unpleasant cutaneous sensation provoking the desire to scratch. It is often an uncomfortable, subjective sensation responsible for decreased quality of life in a variety of psychodermatological conditions. Pruritus is one of the most reported symptoms seen in dermatology patients. Comorbid psychiatric conditions, including depression and anxiety, are frequently associated with itch and scratch cycle. The reciprocal and intricate relationship between the psyche and itch has been widely studied. The neurobiology of itch involves the complexity of specific mediators, itch-related neuronal pathways, and central processing of itch. Augmentation of perception of itch due to psychogenic and emotional factors is well known. The connection between itch and the psyche can be grouped under three headings: pruritic diseases with psychosocial sequelae, pruritic diseases aggravated by psychosocial factors, and psychiatric disorders causing pruritus. Itch and pain modulation go together in most circumstances and involve various substances including histamine, interleukins, protease-activated receptors, transient receptor potential receptors, opioids, and cannabinoids. The close interaction between keratinocytes and nerve endings modulating pain and itch also plays a major role. Management of itch associated with its psychosomatic components is directed at an underlying cause and adopting a holistic approach to address not only dermatologic and somatosensory aspects, but also the cognitive,

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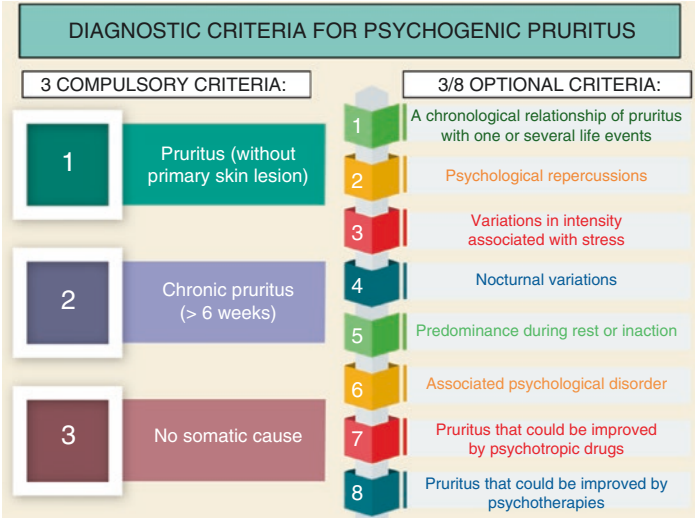

Fig. 8.1 Diagnostic criteria of psychogenic itch

emotional, and psychosocial components. An integrated multidisciplinary team consisting of a dermatologist, psychiatrist, psychologist, and social worker is vital in addressing the multifaceted aspects of pruritus. The diagnostic criterion of psychogenic itch has been shown in Fig. 8.1.

Classification of Itch

There are different ways pruritus is classified such as neuropathological, clinical, and etiological. These classification models are shown in Figs. 8.2, 8.3, and 8.4.

Pathophysiology

Several mediators (like prostaglandins, histamine, proteases, neuropeptides, cytokines, bile salts, etc.) have been identified in playing a role in the initiation and exacerbation of the itch sensation.

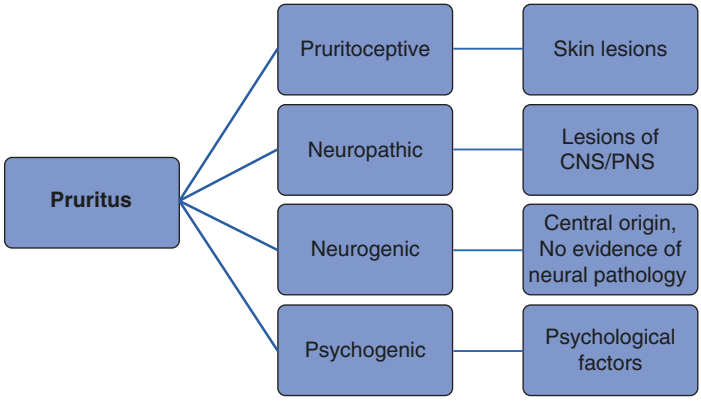

Fig. 8.2 Neuro-patho-physiological classification

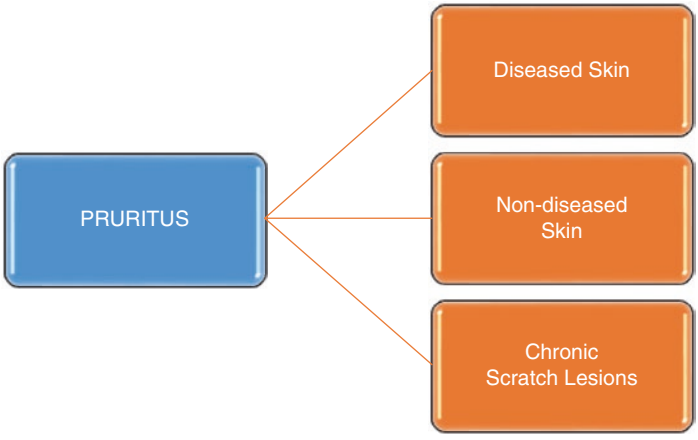

Fig. 8.3 Clinical classification (IFSI). (International Forum on Study of Itch)

For example, endogenous opioids like endorphins act peripherally and centrally to precipitate pruritus. PGE-2 is a prostaglandin that lowers the threshold and potentiates the itch sensation when provoked by histamine. Studies show histamine administration causes the activation of areas of the inferior parietal lobe involved in planned movement. The urge to scratch could be mediated

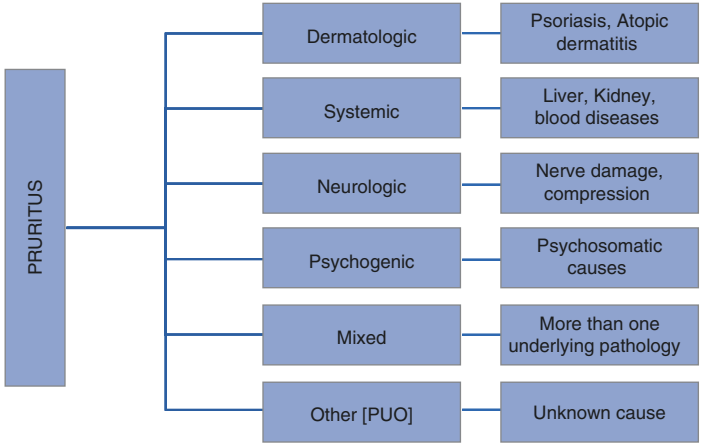

Fig. 8.4 Etiological classification (IFSI). (International Forum on Study of Itch)

through synaptic transmission of these areas to the motor cortex. The perception of itch has also been associated with psychological conditions like stress and depression. These altered mental states can lower the itch threshold through hemodynamic changes like changes in blood flow and body temperature that promote the peripheral release of histamine, neuropeptides, and inflammatory mediators. For example, studies indicate the association of depression with pathways increasing central opiate levels that heighten the perception of itch. Pruritus is one of the most commonly reported symptoms by dermatology patients and has a wide variety of potential causes that can be categorized into cutaneous, neurological, medical, or psychiatric origin. Due to the multiple categories of pruritus, the proper diagnosis and management of patients requires a thorough history and physical examination. With careful evaluation and medical work-up, misdiagnosis can be prevented particularly in cases of pruritus that are easily treatable such as vitamin deficiency or drug toxicity.

Itch is unfortunately a commonly observed symptom in psychiatric patients, with up to 42% of patients exhibiting idiopathic

itch, particularly in individuals with increased emotional temperament and history of difficulty managing anger. Neurologic causes of pruritus should also be considered in the diagnosis of psychogenic pruritus as they can present without evidence of skin lesions. Although psychogenic and neurologic pruritus can manifest together in a mixed clinical presentation, distinct features of each can be analyzed to successfully differentiate and delineate a more concrete diagnosis. Neurogenic pruritus commonly involves a chronic course; is of greater severity/intensity; exhibits a unilateral or bilateral presentation; is associated with sensory phenomenon like allodynia, dysesthesia, and hyperpathia; can be accompanied by paroxysmal constant pain in the same area; and can disrupt sleep. In contrast, psychogenic pruritus is characterized as sharing a temporal relationship with psychiatric symptoms and exhibits a paroxysmal nature with increasing severity, sudden onset/resolution, or intervening periods free of symptoms (Table 8.1).

Table 8.1 Psychogenic pruritus

Pruritic diseases with psych sequelae	Pruritic conditions aggravated by psychosocial factors	Psychological disorders causing pruritus
Pruritic skin conditions	Atopic dermatitis	Somatic symptom disorder
Systemic disease with pruritus	Psoriasis	Dermatitis artefacta
Metabolic	Prurigo nodularis	Excoriation disorder
Endocrine	Lichen simplex	Prurigo nodularis
Infectious	Chronic urticaria	Obsessive-compulsive disorder
Malignancies	Ano-genital pruritus	Delusional infestations
Neurological itch	Xerosis	Tactile hallucinations
CNS		Cocaine- and amphetamine-induced itch
PNS		

Treatment

The psychopathophysiology of a patient's pruritus provides valuable insight into choosing a treatment regimen best suited to treat the underlying cause. There are several classes of pharmacologic treatments implemented in the treatment of pruritus that differ in mechanism and efficacy (Table 8.2).

For patients with pruritus and underlying anxiety, depression, and obsessive-compulsive spectrum disorders, selective serotonin

Table 8.2 Pharmacotherapy of psychogenic itch

Antidepressants *Useful in underlying anxiety, depression, OCD*	A. SSRIs/SNRIs: Citalopram, escitalopram, fluoxetine, paroxetine, fluvoxamine, sertraline B. Atypical antidepressants: Mirtazapine: alpha 2 adrenergic/5-HT2 antagonist C. Tricyclic antidepressants: Doxepin: high affinity to HI receptors
Antipsychotics *Useful in itch related to delusions or psychosis*	Pimozide, risperidone, olanzapine, ziprasidone
Opioid receptor modulators *Useful in itch induced by opiates*	A. Mu-receptor antagonists Naloxone, naltrexone, methylnaltrexone B. Kappa agonist/Mu antagonists Butorphanol
GABAergic agents *Useful in modulating excitatory neurotransmitter release*	A. Gabapentin, pregabalin B. Benzodiazepines: *pruritus associated with stress*
Antihistamines *Decrease pruritus through H1/H2 blockade*	Diphenhydramine, hydroxyzine
NKR-I antagonists *Reduce itch sensitivity by mediation of Substance P*	Aprepitant *Helpful at pruritus associated with atopic dermatitis and prurigo nodularis*
Acetylcholine blockers *Useful in localized pruritus*	Botulism toxin *Beneficial in nostalgia paresthetica, lichen simples chronicus, and neuropathic itch*

reuptake inhibitors (SSRIs) and tricyclic antidepressants (TCAs) have shown the most effectiveness. The SSRI antidepressants that have been used to treat pruritus include sertraline, paroxetine, fluvoxamine, fluoxetine, citalopram, and escitalopram. Doxepin (a TCA) has been successful in the treatment of pruritus through its high affinity and antagonistic activity against histamine receptors. Studies have found doxepin to be efficacious in treating patients with urticaria-associated wheal and itch response. Amitriptyline is also TCA that is known for its superior effectiveness as an analgesic agent and may also be helpful in the treatment of itching associated with pain. However, the overall use of TCAs is limited, because SSRIs lead to fewer adverse effects and a greater overall efficacy. In the class of atypical antidepressants, mirtazapine is the only noradrenergic and specific serotonergic antidepressant that has been used as an antidepressant, anxiolytic, and antipruritic agent. It is specifically useful in treating patients with nocturnal pruritus due to its sedative properties.

Antipsychotics like pimozide, risperidone, olanzapine, and quetiapine are implemented in pruritus associated with delusions or psychosis that have no histamine involvement. However, patents with pruritus related to delusions or psychosis are commonly treated with antipsychotic agents combined with other agents like SSRIs, SNRIs, or antihistamines for increased efficacy.

The opioid receptor system has been shown to have a relationship with the processing of pruritus. Studies have shown Naloxone and Naltrexone, mu opioid receptor antagonists, to be effective in the treatment of pruritus. In addition, other pharmacologic agents like butorphanol (kappa receptor agonist and mu receptor antagonist) and methylnaltrexone (peripheral mu receptor antagonist) have shown to reduce pruritus associated with intravenous morphine administration. GABAergic agents like gabapentin and pregabalin have been implemented in the treatment of pruritus and work through the modulation of excitatory neurotransmitter release. In addition, gabapentin has been found to inhibit the release of substance P (an itch mediator) and calcitonin-gene-related peptide. These medications have been effective in many conditions that cause itching like prurigo nodularis, neuropathic itch, uremic pruritus, and lichen simplex chronicus. Pregabalin is

more effective in the treatment of itch associated with fibromyalgia. The use of benzodiazepines under the class of anxiolytics, like alprazolam and clonazepam, is effective in treating patients with pruritus that is aggravated by stress. Specifically, in conditions that are reactive to stress like atopic dermatitis and psoriasis, studies show that benzodiazepines are successful in reducing flares. The use of medications acting as neurokinin receptor (NRK)-1 antagonists has also been implemented in the treatment of pruritus. For example, a study investigating the efficacy of NRK-1 antagonist aprepitant in chronic pruritus that has shown no response to conventional treatment methods found itch intensity was reduced in 80% of the patients enrolled. Patients with conditions exhibiting pruritus symptoms commonly have psychiatric comorbidity such as depression and anxiety. As such, psychotherapeutic interventions have shown to be effective methods of reducing itch and improving quality of life. Increasing patient understanding and awareness of their disease along with conscious acknowledgment of the impact that specific aggravating factors have on itch perception and the associated feelings that may be elicited can improve the course of disease and lower symptoms. The use of psychoeducation and psychotherapeutic techniques (cognitive behavioral therapy and habit reversal training) in addition to support groups can reduce long-term complications of pruritus by preventing the continuation of the itch–scratch cycle. For example, a study conducted by Chida et al. examining the effects of psychological interventions on atopic dermatitis found that the psychotherapeutic techniques reduced itch severity and intensity.

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9 Trichopsychodermatology (Psychiatric Aspects of Hair Disorders)

Trichopsychodermatology is a subspecialty of psychodermatology that emphasizes the psychosocial aspects of hair disorders. The psychological impact of suffering from a hair disorder can be significant, especially for women. Not only does one's hair play a major role in their self-identity, but many cultures place an emphasis on women's physical appearances and stigmatize hair loss. Patients with hair disorders often report a low quality of life and face increased levels of depression and anxiety. The treatment of disorders in the field of trichopsychodermatology focuses on the role of stress on hair loss and prioritizes the development of effective coping strategies and improvement of quality of life for patients.

Research is needed to identify specific mediators in the pathogenesis of conditions resulting in hair loss for the development of novel pharmacologic and nonpharmacologic interventions. A comprehensive understanding of individual disorders within trichopsychodermatology is an important initial step for potential future clinical application. The role of stress and embarrassment faced by patients with hair disease should not be undermined and must be considered while formulating the treatment plan.

Although hair loss is often considered as a nonthreatening cosmetic concern, the psychological impact can be difficult. In many cultures, hair is associated with one's self or group identity and is

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considered an indication of beauty and health. Additionally, the cultural significance of women's hair is noteworthy, since social norms associate women with long hair, while hair loss is not considered out of the ordinary for men. Further, many stereotypes have been assigned to women based on the color, length, and style of their hair. Patients with hair disorders generally report a low quality of life and feelings of humiliation, low self-worth, and unattractiveness. For these reasons, many prefer to steer clear of any social environments where their appearance may be a subject of ridicule among peers. It is also noteworthy that dermatological treatments do not exist in the treatment of hair loss for some hair disorders such as cicatricial alopecia and even those that have available treatments often provide unsatisfactory results, if any. In these cases, patients should be provided with additional psychological support. Building a robust understanding of the psychosocial and stress-related factors involved in the development of specific hair disorders may facilitate future improvement and development of effective therapeutic interventions for patients. Psychological and physical stress have been known to influence the development of various skin and hair disorders. In recent years, hair cortisol analysis has gained recognition as an effective method of assessing disturbances of the hypothalamus-pituitary-adrenal axis. Hair cortisol concentrations vary with both emotional and physical stress and have proven more reliable than cortisol measurements of blood, saliva, and urine. Hair cortisol may provide beneficial applications in research and public health, since this technique indicates chronic stress, a trigger of several skin and hair changes.

The hair growth cycle consists of three distinct phases: anagen, catagen, and telogen. Anagen is characterized by hair growth that typically lasts between 2 and 6 years with roughly 90% of one's hair occupying this phase. Catagen is associated with the transition between growth and resting in which hair growth ceases. Telogen is the final, resting stage that directly precedes hair loss. However, in alopecia, hair loss may take place before anagen starts, resulting in an empty hair follicle.

The cycle may be influenced by various factors such as hormones, medications, exposure to toxins, inflammation, cytokines,

and neuropeptides. The relationship between a stressor and any subsequent changes in the hair growth cycle has resulted in the designation of a brain-hair follicle axis. Recent studies have explained that the release of specific neuropeptides, neurotransmitters, and hormones along this brain-hair follicle axis may promote noteworthy change in the hair growth cycle by stimulating the transition of anagen hairs into the catagen phase. These hairs then proceed to the telogen phase, leading to a disproportionate amount of telogen hairs.

Trichotillomania, or hair-pulling disorder, is one of the most common dermatopsychiatric conditions studied in trichopsychodermatology. This disorder and others that are frequently observed in this field are described in detail below.

Trichotillomania

Trichotillomania is characterized by the repeated pulling of one's own body hair. This condition demonstrates a strong female predominance with an average age of onset between 10 and 13 years of age and an estimated community prevalence between 1% and 3%. Hair pulling may occur from one or more body sites with the most common sites being the scalp, pubic hair, and facial areas such as the eyebrows, eyelashes, and beard. Trichotillomania may be diagnosed by clinical examination, trichoscopy, and a psychiatric interview. Patients often display asymmetrical regions of hair loss with negative hair pull test, and present typical trichoscopy signs of trichotillomania such as fractured, coiled, and vellus hairs in addition to yellow and black dots. In recent years, the combination of habit reversal therapy and N-acetylcysteine has been a popular treatment option although no FDA(Food and Drug Administration)--approved medication exists at this time. The efficacy of N-acetylcysteine (NAC) in the treatment of TTM and other body-focused repetitive behavior disorders (BFRBs) may be related to its role in the reduction of oxidative stress. Specifically, NAC can reduce oxidative stress through production of glutathione, which may block the compulsive behaviors. This medication is affordable and is generally considered safe, with a favorable side-effect profile.

Recent studies have confirmed that hair pulling may offer temporary relief from negative emotional states such as stress, boredom, anxiety, and sadness. However, since hair pulling may serve as a successful technique of emotion regulation, it is likely that this behavior is reinforced in hopes of more relief and thus the vicious cycle is produced. Similarly, hair-pulling behavior may provide a method of coping with intrusive thoughts as multiple findings have revealed that a reduction in posttraumatic stress disorder (PTSD) symptoms has been correlated with an increased duration of trichotillomania. Trichotillomania patients tend to suffer from significant functional impairment and a low quality of life. Many avoid social environments due to stress and embarrassment regarding their hair loss. Patients tend to fear the idea of being judged by their friends and colleagues, and many report feelings of low self-esteem, unattractiveness, and shame regarding their appearance and hair-pulling behavior. It should not be forgotten that this disorder is associated with increased risks of other focused repetitive behaviors (BFRB) such as skin picking, hair pulling, and nail biting, in addition to depression, anxiety, mood, and substance abuse.

Alopecia Areata

Alopecia Areata (AA) is an autoimmune condition that causes nonscarring hair loss. Large epidemiological studies estimate that approximately 2% of the general population is affected by this disorder with no notable difference between genders. While the most common form is patchy alopecia areata, more severe forms such as alopecia totalis and alopecia universalis involve complete hair loss of the scalp and hair loss of all body regions respectively. Although this disorder may be diagnosed easily, treatment options often lean toward corticosteroids and are only moderately effective. Patients typically demonstrate smooth, round patches of hair loss, test positive on the hair pull test, and present exclamation point hairs. Trichoscopy results may also reveal broken hairs and both yellow and black dots. Although a variety of triggers have been considered, many studies conclude that emotional or physi-

cal stress is likely in part responsible for the manifestation of this disorder. The role of psychosocial stress in the development of AA is suspected by studies demonstrating the occurrence of nail abnormalities in patients with AA, which include pitting and thinning. Other potential environmental triggers include vaccinations, drugs, infections, hormonal changes, and diet. Patients who suffer emotional events during childhood such as the loss of a family member or physical, emotional abuse, or neglect experience a higher incidence of AA. It has been well documented that stressful life events may contribute to the development of alopecia areata and associated with high levels of psychological stress and an impaired quality of life.

Since hair loss is primarily a cosmetic issue, patients voice concerns regarding their appearances and often avoid social events due to feelings of humiliation. The hair loss has a more profound effect on women and children, since societal norms place an emphasis on hair and physical appearances for these groups. It is also important to note that adult patients face higher risks of psychiatric diseases such as depression, anxiety, social phobia, and paranoid disorders. It has been documented in the literature that anxiety, depression, decreased quality of life, and suicide risk have been noted in many patients with alopecia areata. Antidepressant treatment has better effects on the progression and course of AA. Psychotherapies also help patients with AA to deal with everyday stress associated with the clinical picture of AA.

Telogen Effluvium

Telogen effluvium involves nonscarring, diffuse hair loss that follows a physiological or emotional triggering event. Common triggers include stress, hormonal fluctuations (pregnancy), medications, iron deficiency, trauma, and insufficient protein intake. This disorder is more frequently seen in women as a result of postpartum hormonal changes and since they are more likely to obtain treatment. Shedding beings when a stressor causes a substantial amount of hairs in the anagen phase to enter the telogen phase. Hair loss begins to take place approximately 3 months

after the triggering event and tends to be resolved within 6 months. However, unlike the more common, acute version of this disorder, the chronic form generally lasts several years and affects middle-aged women. While chronic telogen effluvium may directly follow the acute form in which a stressor has been detected, a specific trigger may not be identified in other cases. Telogen effluvium may be easily diagnosed with a detailed history and examination. However, a scalp biopsy or serial hair collection can be used to confirm the diagnosis. Although no effective FDA(Food and Drug Administration)-approved anagen inducers or catagen inhibitors currently exist, hair loss will cease after triggers are recognized and effectively treated. Since emotional stress is a primary trigger, psychological counseling is advised to be the safest and most successful treatment. Patients should also be reassured that telogen effluvium will not lead to baldness and hair growth will continue after adequate treatment.

Anagen Effluvium

Anagen effluvium is a form of nonscarring alopecia that often accompanies the administration of chemotherapy. This disorder commonly occurs when chemotherapeutic agents disrupt the anagen phase, resulting in loss of anagen hairs. Hair loss may begin a few days to weeks after chemotherapy begins and total hair loss typically occurs after 2–3 months. The incidence of alopecia is approximately 65% with the extent of hair loss varying with the dose, duration, and specific chemotherapeutic agent. Hair growth is usually reversible and resumes a few months after chemotherapy is discontinued. However, in many cases, a patient's new hair differs in color, thickness, or texture from their original hair. Although no FDA-approved treatment to prevent chemotherapy-induced hair loss currently exists, the temporary use of a wig has proven to be a successful coping strategy in patients. To prevent and minimize hair loss during short infusion cycles, favorable results have been reported through scalp cooling. Specifically, cooling below 22 °C can reduce the toxic effects of cytostatic agents on hair follicles.

Patients often struggle with the psychosocial impact of anagen effluvium, as reported in literature. Hair loss has been found to be a significant predictor of self-esteem among cancer patients receiving chemotherapy in addition to other factors like gender, marital status, working status, anxiety, and depression. Hair loss is especially difficult for women due to self-consciousness about their deviation from accepted societal norms regarding appearances. Thus, many women report a low quality of life and tend to avoid social events. Many women have reported that hair loss has been a constant reminder about their cancer. It is imperative that clinicians support patients with an effective management plan and stress that hair loss is temporary.

Cicatricial Alopecia

Cicatricial alopecia, or scarring alopecia, encompasses various conditions in which hair follicles are permanently destroyed. Although few large epidemiological studies have taken place, the primary form of scarring alopecia is estimated to account for 7% of all patients seen in hair loss clinics and exhibits a female majority. Primary cicatricial alopecia is an inflammatory disorder that causes the permanent destruction of hair follicles, thus leading to irreversible hair loss. The less common secondary form is typically a result of infection or a form of trauma such as burns or radiation. A diagnosis can be made from an examination of lesions and hair pull test, although scalp biopsy from the center of a lesion is often used as confirmation. Characteristic trichoscopy results include white and red regions without follicular openings. Since no treatment exists, hair growth will never occur from follicles that have been susceptible to cicatricial alopecia. Appropriate management of scarring alopecia should be focused toward prompt diagnosis to slow down or prevent further hair loss. Cicatricial alopecia is associated with substantial psychological impairment and impaired quality of life. Scarring alopecia are sometimes referred as trichologic emergencies due to the permanently disfiguring nature of the condition and ability to cause extreme psychosocial stress. Patients are known to isolate

themselves from peers and tend to suffer from anxiety, depression, and low self-esteem. Recent findings reveal that patients with scarring alopecia reported significantly higher scores on the Dermatology Life Quality Index and Hospital Anxiety and Depression scales when compared to patients with nonscarring alopecia. It is likely that the unfavorable prognosis has a significant impact on the psychosocial burden that is faced by those who suffer from this disorder.

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10 Skin-Picking Disorder (Excoriation Disorder)

Skin-picking disorder (SPD) is fairly common but underrecognized disorder. It is also known as excoriation disorder and is characterized by picking, digging, scratching, and squeezing of the skin resulting in visible lesions, and is repetitive and compulsive in nature. It is classified under "obsessive-compulsive and related disorders" (OCRDs) in DSM-5 (Diagnostic and Statistical Manual of Mental health disorders, ed. 5) (Table 10.1).

Due to the prevalence, significant psychosocial impact, and overall lack of understanding of the disorder, recognition and increased awareness of SPD is vital in the effective diagnosis and management of patients. The disorder has a female predominance and is commonly occurring in adolescence and adulthood. Patients with SPD excessively dig, scratch, squeeze, and/or rub the skin. Many patients experience repetitive, compulsive urges to remove visible abnormalities and alterations in the texture of their previously normal skin from acne, scabs, scars, insect bites, and papules. Patients always complain of some unpleasant sensations such as pruritus that may cause initiation of the itch–scratch cycle. The resulting lesions from picking show various areas of hypo- or hyperpigmented linear erosions, scabs, and scars, indicating varying stages of healing that may be interrupted and delayed from continued picking. The usual locations of picking include multiple areas of the body that are easily accessible such as face,

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Table 10.1 Skin-picking disease (SPD) diagnostic criteria

DSM-5	French Psychodermatology Group
1: Recurrent skin picking resulting in skin lesions. **2:** Repeated attempts to decrease or stop skin picking. **3:** The skin picking causes clinically significant distress or impairment in social, occupational, or other important areas of functioning. **4:** The skin picking is not attributable to the physiological effects of a substance or another medical condition. **5:** The skin picking is not better explained by symptoms of another mental disorder.	**A:** Maladaptive skin excoriation (e.g., scratching, picking, gouging, lancing, digging, rubbing, or squeezing skin) or maladaptive preoccupation with skin excoriation as indicated by at least one of the following: Preoccupation with skin excoriation and/or recurrent impulses to excoriate the skin that is/are experienced as irresistible, intrusive, and/or senseless; recurrent excoriation of the skin resulting in noticeable skin damage. **B:** The preoccupation, impulses, or behaviors associated with skin excoriation cause marked distress, are time consuming, significantly interfere with social or occupational activities, or result in medical problems (e.g., infections). **C:** The disorder is not due to a somatic disease. **D:** There is an associated psychological suffering.

extensor surface of the arms, anterior thigh. During physical examination, the identification of upper and lateral back sparing or "butterfly sign" is classic finding in SPD, due to the inaccessible nature of this location. It is important to note that this finding serves primarily as a clinical clue and is not a diagnostic sign.

Psychosocial Aspects

Skin-picking behavior is associated with multiple psychosocial comorbidities. These individuals have the lowest quality of life, which could be due to the potentially permanent nature of the resulting scars from the self-inflicted physical lesions. Patients with skin picking have negative affective states like anxiety,

boredom, and tension with increased intensity immediately before the behavior and a marked decrease in the period prior to initiation as well as its termination. Following the fulfillment of the urge to pick, many patients show gratification, pleasure, and sense of relief. Physical sensations can also act as a trigger to initiate the picking behavior such as areas that are uneven from previous conditions like acne or eczema. Significant negative consequences such as occupational and academic impairment, financial burdens, and increased psychosocial issues like depression, anxiety, and avoidance are commonly noted in patients with skin picking. Increased incidence of obsessive-compulsive disorder (OCD), mood disorder, body dysmorphic disorder (BDD), and generalized anxiety disorder has been noticed in individuals with SPD. Although this disorder and associated comorbidities are primarily psychiatric, individuals with SPD commonly present to the dermatologist first. Specifically, many patients avoid mental health professional due to stigma and instead desire cosmetic treatments of associated lesions from dermatology.

Diagnosis

For proper diagnosis of skin picking, a full complete dermatological examination is mandatory in all cases where skin picking, or self-mutilation, is suspected. Several skin conditions may mimic and coexist with skin-picking symptoms. A thorough skin examination and ruling out other dermatoses will give treating physician a better approach toward diagnosis and tailor proper management for individual patient. During initial evaluation, focus should be placed on clinical presentation of lesions, and associated comorbid distress and disorders associated with picking, which may affect self-esteem and cause functional impairment. It must be noted that patients with skin picking have a high level of shame and embarrassment associated with their disease, particularly if the lesions are present on visible parts of body such as face, forehead, or hands. During the interview and initial evaluation, an empathic and passionate approach toward patient will develop a bond and rapport that could positively influence the

treatment outcome. The other important aspect of the interview is to pay special attention to any comorbid psychiatric condition, especially anxiety and depression that is frequently associated with patients with skin picking. Additionally, many obsessive-compulsive spectrum–related disorders such as body-focused repetitive behavior disorders may accompany with skin-picking patients, which may complicate the clinical picture and produce difficulties in treatment. Body-focused repetitive behavior disorders, including skin picking, often manifest in automatic and focused patterns. In automatic type, patients are not aware of their picking habits, and they have less conscious awareness, as compared to focused type—where patients engage in picking behavior more consciously and focused on picking habit. A variety of standardized assessment questionnaires have been utilized to assess the severity and styles of skin-picking behaviors. Many providers use these instruments before treatment and each subsequent visit to assess the progress of treatment. These instruments also confirm the diagnosis at initial evaluation and during clinical interview. Different instruments used in the diagnosis and subsequent assessment of severity and progress of treatment are summarized in Table 10.2.

Table 10.2 Assessment instruments in skin-picking disorder

Name	Focus	Administration	Est. time
Milwaukee Inventory for the dimensions of adult skin picking	Picking style	Self-report	3 minutes
Skin Picking Impact Scale (SPIS)	Impairment	Self-report	3 minutes
Skin Picking Severity Scale (SPS)	Severity	Self-report	2 minutes
Skin Picking Severity-Revised (SPS-R)	Severity	Self-report	3 minutes
The Keuthen Diagnostic Inventory for Skin Picking (K-DISP)for DSM-V	Diagnostic	Clinician rated	2 minutes

Adopted from: Jones G, Keuthen N, Greenberg E. Assessment and treatment of trichotillomania (hair pulling disorder) and excoriation (skin picking) disorder. Clin Dermatol 2018;36:728–36

Management

There is no specific recommended treatment for skin-picking disorder. Both behavioral and pharmacological interventions have been used. Different therapeutic and pharmacological treatment options are summarized in Table 10.3.

Table 10.3 Skin-picking treatment options

Nonpharmacological	Pharmacological
Cognitive behavioral therapy (CBT)	Selective serotonin reuptake inhibitors (SSRIs).
Multiple techniques under this category of treatment have been successfully implemented in patients with body-focused repetitive behaviors (BFRBs).	Commonly used in SPD with variable success and may be most efficacious in patients with comorbid depression, anxiety, or obsessive-compulsive symptoms.
Habit reversal therapy (HRT)	*Antipsychotics*
A core component of skin-picking disease (SPD) treatment consists of awareness training, stimulus control, competing response, social support, and generalization of skills.	Studies indicate the reduction of skin picking through the disruption of the dopaminergic reward pathway.
Acceptance and commitment therapy	*Glutamatergic modulating drugs*
Comprises of methods to facilitate the development of psychological flexibility and acceptance of negative inner experiences.	Medications under this category of treatment have been shown to suppress the abnormal increase in excitatory neurotransmitter glutamate in patents with SPD, e.g., NAC.
Psychodynamic psychotherapy	*N-acetyl-cysteine (NAC)*
Examines early life experiences and personal thought processes that contribute to the development of an unwanted behavior.	Studies show SPD symptom improvement through neuroprotection from an increase in levels of endogenous antioxidants.
Psychodynamic psychotherapy	*Naltrexone*
Examines early life experiences and personal thought processes that contribute to the development of an unwanted behavior.	Case reports indicate improvement in SPD symptoms through the potential involvement/association of the dopaminergic pathway in reward and addiction.

(continued)

Table 10.3 (continued)

Nonpharmacological	Pharmacological
Mindfulness-based therapy	*Inositol*
Mindfulness-based therapy: A treatment method that teaches patients to observe inner thoughts in a nonjudgmental way to increase awareness of the present situation and disengage from autonomic thoughts.	Case reports indicate this glucose isomer's efficacy in skin-picking symptom improvement through the involvement of specific receptor subtypes that utilize the phosphatidyl-inositol second messenger cycle.
Progressive muscle relaxation (PMR)	
A stress management therapy that teaches patients to decrease autonomic responses.	

Cognitive behavioral therapy including its variants habit reversal therapy and acceptance and commitment therapy have shown promising results in several studies, and currently are the most common behavioral techniques used in the treatment of skin-picking disorder. Various pharmacological agents including selective serotonin reuptake inhibitors (SSRIs) serotonin norepinephrine reuptake inhibitors, antipsychotics, glutamate modulators, and other miscellaneous agents have been used in various case reports, open label trials, and randomized controlled trials with variable results. Combination therapies with behavioral techniques and medications or augmentation of one medication with other have also been used in the treatment. Cognitive behavioral therapy and its various techniques including awareness training, self-monitoring, aversion, relaxation training, habit reversal and competing response training, and stimulus control have been widely used with variable success. Figure 10.1 shows skin-picking management algorithm.

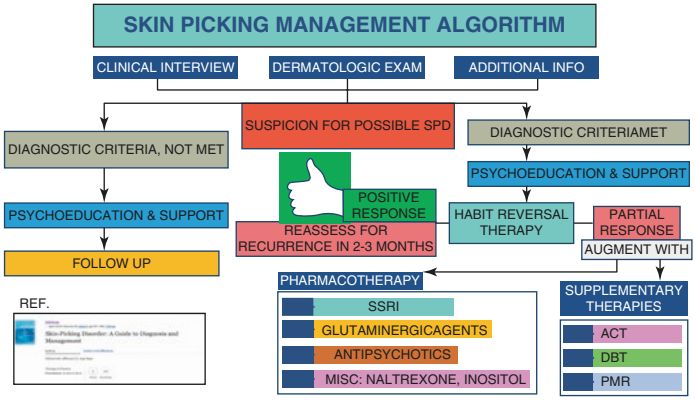

Fig. 10.1 Skin-picking management algorithm

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11 Delusional Infestation (Parasitosis)

Delusional infestation (DI) is a psychiatric condition classified in the DSM-5 (Diagnostic and statistical manual ed. 5) as a delusional disorder, somatic type. The delusion in these patients is that they mistakenly believe their skin or other body parts are infested by small, living organisms. Some common organisms in these delusions include worms, flies, lice, and mites. Patients often express a firm, unwavering belief that they are infested with some type of organism, despite patients having relatively normal cognitive functioning. The nature of the delusion and the stigma of having a psychiatric disorder makes most patients hesitant to pursue a psychiatric referral. The prevalence of the DI remains unknown. It is difficult to predict particularly due to patients hopping from specialist to specialist and due to patients' lack of insight into the delusion. From nomenclature point of view, it is better to use term "delusional infestation" rather than delusional parasitosis because not all patients suffer from parasitic infections. It is important not to confuse DI with other similar syndromes including Morgellons, which presents with similar symptomatology to DI except the patient believes that inanimate objects like strings and fibers are the cause of the symptoms.

DI is classified as either a primary or a secondary disorder. Primary delusional infestation is a true psychiatric disorder in which a patient has a monosymptomatic, unwavering delusion

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that they are infested with some sort of living organism, even though no organisms can be found upon investigation. The delusion occurs concurrently with abnormal, cutaneous sensations. Secondary delusional infestation also presents as a monosymptomatic, unwavering delusion with abnormal, cutaneous sensations, but it occurs secondary to a medical condition, medication, or another psychiatric disorder, most commonly substance abuse. Refer to Table 11.1 for a comprehensive list of medical condi-

Table 11.1 Medical conditions, medications, and illicit drugs reported to cause secondary DI

Medical condition	Medication	Illicit drug
AIDS/HIV	Antibiotics	Benzodiazepines
Alcoholism	Antifungals	Cannabis
Anxiety	Parkinson disease treatments: Levodopa/benserazide, levodopa/carbidopa, entacapone, amantadine, levodopa, decarboxylase inhibitor, ropinirole, pramipexole	Cocaine
Autoimmune disease	Nonsteroidal anti-inflammatory drugs	Heroin withdrawal
Bipolar disorder	Steroids	Methadone
Cancer [a]		Methamphetamine
Cholestasis		Opiates
Cysticercosis		
Delirium		
Dementia		
Depression		
Diabetes mellitus		
Hepatic disease		
Hepatitis B, C		
Hyperthyroidism		
Hypothyroidism		
Lupus erythematous		
Obsessive compulsive disorder		

Table 11.1 (continued)

Medical condition	Medication	Illicit drug
Parkinson disease		
Peripheral neuropathy		
Renal failure		
Schizophrenia		
Stress		
Stroke		
Vascular encephalopathy		
Vitamin B deficiencies		

Adapted from: Kimsey LS. Delusional infestation and chronic pruritus: a review. Acat Derm Venereol 2016;96(3):298–02. https://doi.org/10.2340/00015555-2236.
[a]Includes carcinoma, chronic lymphocytic leukemia, lung cancer, multiple myeloma, or neoplasia

tions, medications, and illicit drugs, which can contribute to secondary DI in patients.

DI has a bimodal distribution model. The first peak prevalence occurs between ages 20 and 30 years. The second peak prevalence occurs in patients >50 years of age. The younger age group has mostly DI symptoms related to concurrent drug abuse, for example, methamphetamine, cocaine and these individuals are more likely to be male compared to the older affected age group. In older age groups, who most commonly present with primary DI, the female to male ratio is 5:1. Being a female appears to be a risk factor for developing DI and this risk varies depending on the age of the patient.

Clinical Features

All patients with DI present with a firm, unwavering belief, which has been present for at least 1 month, that they are infested with some type of organism. These organisms could range from microscopic pathogens like bacteria and viruses to organisms, which are visible to the naked eye including but not limited to

vermin, insects, parasites, mites, scabies, (pubic) lice, worms, fleas, flies, ticks, and spiders. Most patients with primary DI describe macroscopic organisms (typically no larger than a couple centimeters) compared to microscopic organisms. As mentioned earlier thes epatients may appear very convinced and delusioanl about their reported symptoms. Besides the delusion of infestation, patients with primary DI have a typical grasp on reality and otherwise normal cognitive function. Many patients present with abnormal tactile sensations, which patients describe as itching, crawling, pinching, tingling, burning, and prickling. The patients' tactile symptomatology often results in patients scratching themselves to relieve their symptoms and/or remove the organisms. This can progress to create a range of skin irritation and damage in varying stages of healing. Additionally, patients might cause intentional damage to skin in attempts to expose organisms, which they believe are lying beneath the surface of the skin. Skin irritation and damage can include but is not limited to excoriations, erosions, hair loss, lichen simplex chronicus, prurigo nodularis, dermatitis, deep ulcerations, lesions, serious secondary infections, ulcers, hemorrhagic crusts, hyperpigmentation and depigmentation, and scars with nodes and plaques. Common sites of involvement include hands, arms, feet, legs, scalp, upper back, chest, and genitals.

Patients will often elaborate and create explanations for their symptoms by describing that the organisms are "eating," "breeding," or "building nests." Patients often bring in specimens as proof of the infestation, the "matchbox sign." This box will contain a variety of things including string, lint, plant material, common insects like ants, and skin flakes. Patients may also complain of insomnia secondary to their tactile symptomatology or secondary to their response to the delusion: waking up to change undergarments multiple times in the night. Patients may isolate themselves from friends and family out of fear that they may contaminate others, become further infested, or out of embarrassment. They might even get rid of beloved pets believing that they are the root cause of the infestation. A patient with DI might lead to a friend or family member sharing similar symptomatology. This is called folie à deux, and it occurs in approximately 8–12% of patients diagnosed with DI.

Diagnosis and Workup

Primary DI is a diagnosis of exclusion. Physician must rule out all causes of secondary DI, but one must also rule out medical conditions, which cause similar physical symptoms without a concurrent delusion (Table 11.1). For a proper diagnosis, clinician must determine whether the patient is suffering from a delusion in addition to the tactile symptoms. Determining if a patient is truly having a delusion requires that the clinician do investigative work to determine if there is a true infestation. Once a true infestation is ruled out, the clinician must ask more questions about their beliefs of an infestation. It is important to determine how unwavering the patients' belief of an infestation is. Patients are often resistant and a nonjudgmental and nonconfrontational approach is always helpful. Once it is determined that a patient both has a delusion of an infestation plus the tactile symptoms, the patient likely has DI. The next step is to determine whether the patient has primary or secondary DI. As mentioned previously, primary DI is a diagnosis of exclusion; therefore, all secondary causes of DI must be ruled out prior to diagnosis of primary DI. Refer to Table 11.1 for the medical conditions, medications, and illicit drugs, which must be ruled out prior to proceeding. A standard list of laboratory tests, which are used to rule out secondary causes of DI can be found in Table 11.2.

Table 11.2 Laboratory tests to consider in diagnosis of secondary DI

Initial laboratory tests	More specific tests to consider
CBC Increased eosinophils suggest parasitosis, infection, allergy, or hypersensitivity	Serology for *Borrelia* and/ or *Treponema*
Erythrocyte sedimentation rate	HIV screening
C-reactive protein	Hepatitis serology
Serum creatinine	Vasculitis screening
Electrolytes	Allergy testing
Liver function tests	Vitamin B12
Thyroid stimulating hormone	Folate level
Fasting glucose	Leprosy
Urine drug screen	

If the patient is found to have secondary DI, the next step is to determine what is the root cause. A series of standard laboratory tests are typically ordered to rule out the more common causes of secondary DI. Refer to Table 11.2 for a list of laboratory tests used for this diagnosis. In some instances, it might be appropriate to perform laboratory tests or specimen examinations in order to maintain rapport with the patient; however, it might reinforce the delusions if the test results are negative.

Treatment

Secondary DI Treatment If a patient has been diagnosed with secondary DI, the first step is to treat the underlying medical condition, discontinue the prescribed medication, and/or suggest the discontinuation of any illicit drug use. When DI is associated with prescribed or illicit drug use, discontinuation of the substance typically resolves the patient's symptoms.

Primary DI Treatment The treatment of primary DI is best accomplished in a psychodermatology clinic. However, these clinics are not common and in that situation dermatology–psychiatry liaison is very important in the management of these patients. It may be noted that these patients initially present to dermatologist and thus dermatologist should be knowledgeable about this problem. It is important for clinicians to build a rapport with patients prior to treatment, as these patients are easy to lose and empathetic, nonconfrontational approach is very important. Use the language, which neither reinforces the delusion nor questions the delusion. Ask patients to explain their symptoms by asking open-ended questions. Focus conversations on what can be done to help the patient's symptomatology instead of confrontational attitude or convincing them that the delusion is not reality. Antipsychotics are the treatment of choice for patients with persisting, primary DI. Many DI patients do not believe they have a psychiatric disorder and therefore are reluctant to be referred out to a psychiatrist or take antipsychotic

medications prescribed by dermatologist. It is important that all clinicians are comfortable with using antipsychotics to treat DI. No antipsychotic treatment is specifically indicated for primary DI. The choice of antipsychotics should be tailored individually keeping in mind the side-effect profile and individual patient. Some antipsychotics cause weight gain and glucose control issues; therefore, if a patient is diabetic, it might be best to choose an antipsychotic with a different side-effect profile. The best approach would be to start at a lower dosage with a plan to titrate. It typically takes 6–8 weeks to achieve optimal therapeutic effect, and it is recommended that patients remain on a steady dosage of the antipsychotic for approximately 3 months prior to tapering. Table 11.3 shows common antipsychotics used in the treatment of DI.

Table 11.3 Antipsychotics used in the treatment of DI

Antipsychotics	Dose range	Common side effects
Amisulpride	200–400 mg/day	Sedation, galactorrhea, male breast enlargement, weight gain, menstrual irregularities
Aripiprazole	2–30 mg/day	Sedation, weight gain, akathisia, restlessness
Olanzapine	2.5–20 mg/day	Sedation, weight gain, impaired glucose tolerance
Paliperidone	– 12 mg/day	Dizziness, headache, Lightheadedness, Upset stomach, weight gain.
Quetiapine	25–600 mg/day	Constipation, sedation, weight gain, impaired glucose tolerance
Risperidone	0.5–6 mg/day	Sedation, weight gain, impaired glucose tolerance, galactorrhea, male breast enlargement
Ziprasidone	20–160 mg/day	Tremors, dry mouth, weight gain, QT interval prolongation
Haloperidol	2–5 mg/day	Extrapyramidal symptoms, dry mouth, weight gain
Pimozide	1–10 mg/day	Postural hypotension, extrapyramidal side effects, and QT prolongation

Suggested Readings

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Body Dysmorphic Disorder

12

Body dysmorphic disorder (BDD), also known as dysmorphophobia and dermatologic nondisease, is a relatively common but underrecognized disorder. It is a chronic and often severe disorder. The severity ranges from mild to life-threatening symptoms. It is often difficult to diagnose and go unrecognized for many years. Patients are often reluctant to reveal and ashamed of their symptoms. It is characterized by relapse and remissions. There is a low probability (20%) of full remission after 4 years and high probability (42%) of full relapse during 4 years after remission. The disorder is characterized by a preoccupation with an imagined or slight defect in one's physical appearance. Patient overreact to a slight trivial anomaly. Their preoccupation is associated with time-consuming rituals, such as mirror gazing or constantly comparing their imagined ugliness with other people or comparing parts of their own body. They often seek unnecessary dermatologic treatment and cosmetic surgery. BDD is classified under obsessive-compulsive and related disorder in DSM-5 (Diagnostic and statistical Manual of mental disorders, ed. 5). See Box 12.1.

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Box 12.1 DSM-5 Criteria of BDD

A. Preoccupation with one or more perceived defect or flaws in physical appearance that are not observable or appear slight to others.
B. At some point during the course of the disorder, the individual has performed repetitive behaviors (e.g., mirror checking, excessive grooming, skin picking, reassurance seeking) or mental acts (e.g., comparing his or her appearance with that of others) in response to appearance concerns.
C. The preoccupation causes clinically significant stress or impairment in social, occupational, or other important areas of functioning.
D. The appearance preoccupation is not better explained by concerns with body fat or weight in an individual whose symptoms meet diagnostic criteria for an eating disorder.
E. Specifiers:
   (a) With muscle dysmorphia: The individual is preoccupied that his or her body build is too small or insufficiently muscular.
   (b) With degree of insight:
      (i) With good or fair insight.
      (ii) With poor insight.
      (iii) With absent insight/delusional beliefs.

Clinical Features

Body dysmorphic disorder is a relatively common and affects 1.7–2.9% of the general population. Incidence in females is slightly higher than males. Patients with BDD have a pervasive subjective feeling of ugliness regarding some aspect of their appearance despite a normal or nearly normal appearance. They are convinced that some part of their body is too large, too small,

or misshapen. To other people, the appearance is normal or there is a trivial abnormality. The common concerns are about the nose, ears, mouth, breasts, buttocks, or penis. BDD patients are constantly preoccupied by their beliefs, feeling that other people notice and talk about the supposed deformity. These patients often involve in time-consuming behaviors such as reassurance seeking, re-examining, or hiding or camouflaging the perceived defect. They are more likely to complain of depression or social anxiety unless they are specifically asked about symptoms of BDD. Avoidance behaviors such as mirror avoidance or the avoidance of social activities are very common. In children, BDD may present with symptoms of refusing to attend school and contemplating suicidal or parasuicidal behaviors. Patients with BDD are most likely to present to cosmetic surgeons; dermatologists; ear, nose, and throat surgeons; or primary care physicians. They are usually not formally diagnosed by mental health professionals until 10 to 15 years after the onset of BDD. The motives to seek cosmetic procedures include but not limited to a desire to enhance self-confidence, body image, feminine look and feeling, desire to show independence and self-empowerment, and desire to overcome issues from an actual or perceived physical abnormality. Individuals with BDD may display a variable spectrum of imagined and perceived defects in appearance that can involve the skin and its related structures such as hair, nails, sweat glands, as well as asymmetries or disproportionate appearance. Commonly reported anomalies include hair loss or hypertrichosis, pigmentary disorders, pore size, vessel pattern, pallor, or reddening of the skin, as well as sweating. Individuals with BDD might be involved in compulsive behaviors that can sometimes become destructive, frequently worsening a mild or nonexistent condition. Examples of these compulsive behaviors include skin picking, excessive scratching, removing their own moles, and scouring their skin with harsh household chemicals with catastrophic results. Perceived defects of the hair are also one of the common concerns BDD patient may have and include preoccupations with hair loss, fear of going bald, and focus on excessive facial hair or too much or too little body hair. Patients may go to great lengths to cover

these body areas and may shave, wax, or pluck body hair excessively. Hair plucking can be time consuming and can be ritualistic. Hair plucking can result in disfigurement, infection, and scarring. The hair plucking associated with BDD should be differentiated from normal hair plucking and that of trichotillomania. Patients with anorexia and BDD share severe body image concerns. Many patients with anorexia have appearance concerns other than weight and body shape. Individuals with eating disorders may also have comorbid BDD. BDD-by-Proxy is a condition where BDD symptoms present as concerns about someone else's appearance. Body dysmorphic disorder is common in cosmetic surgery clinics. It is reported that 5–15% of patients in cosmetic surgery clinics have BDD-related symptoms.

Differential Diagnoses

BDD can be confused with eating disorders, obsessive-compulsive-related disorders, major depressive disorder, anxiety disorders, and psychotic disorders. A good differentia point in relation to eating disorders is that these patients have concerns about being overweight. Patients with BDD also may have weight concerns; however, they are more concerned about body areas as opposed to weight and shape itself in eating disorders. Patients with BDD have more anxiety concerns as they are worried about their appearance and would believe that they would be ridiculed or rejected in social situations. Patients with obsessive compulsive disorders (OCDs) have more insight into their problems as opposed to patients with BDD. Additionally, patients with OCD are not focused on their appearance as opposed to BDD who always concentrate on their appearance. As for psychotic disorders area concerned, patients with BDD are highly convinced up to delusional level that their body part is defective; however, they would not show other typical symptoms of psychosis such as auditory or visual hallucinations, paranoia, or disorganized thinking.

Table 12.1 Scales used for BDD

Body Dysmorphic Disorder Questionnaire (BDDQ)
Body Dysmorphic Disorder Questionnaire-Dermatology version (BDDQ-DV)
Body Dysmorphic Disorder Examination – Self Report (BDDE-SR)
Body Dysmorphic Symptom Scale (BDSS)
Dysmorphic Concern Scale (DCQ)
Cosmetic Procedure Screening Questionnaire (CPSQ)
Body Image Concern Inventory (BICI)
Appearance Anxiety Inventory (AAI)
Brown Assessment of Beliefs Scale (BABS)
Body Image Disturbance Questionnaire (BIDQ)
Body Image Quality of Life Inventory (BIQoLI)
Body Dysmorphic Disorder Dimensional Scale (BDD-D)
Yale Brown Obsessive Compulsive Scale, modified for BDD (YBOCS-BDD)

Diagnostic Scales

A variety of scales have been used to diagnose BDD. Since patients with BDD have multiple psychosocial comorbidities, several scales directly measure patient's associated anxiety, depression, or any other associated pathology. Table 12.1 shows various scales.

Psychiatric Comorbidities

Associated comorbidity in BDD may include depression, OCD, impairment in social and occupational functioning, social phobias, anxiety disorders, skin picking, marital difficulties, eating disorder, perfectionist traits, and substance abuse. Patients with BDD have high levels of distress, are highly symptomatic, and have poor quality of life. Patients with OCD and BDD share many similarities such as recurrent time-consuming thoughts and ritualized behaviors, high levels of perfectionism, and preferences for

symmetry, repetitive checking behaviors, and avoidances of triggering situations. Both disorders have same male to female ratio, average age of onset, and response to pharmacological treatment. BDD patients commonly present with social anxiety or social phobia. BDD patients have high concerns for being scrutinized or negatively evaluated by other people. Careful history taking and clinical interview would differentiate the two conditions. Depression is commonly associated with BDD symptoms, which necessitates treatment for better quality of life. Patients with significant weight/shape concerns also endorsed significantly more symptoms of depression, anxiety, and suicidality, as well as higher levels of dissociation, sexual concerns, and posttraumatic stress disorder symptomatology. Body dysmorphic disorder co-occurs with pathological skin picking in 26–45% of cases. Several studies have demonstrated that eating disorders are frequently associated with patients with BDD. Substance abuse has been commonly associated with patients with BDD. In some studies, it has been shown that 30–50% of patients had substance-abuse problem. Most abused drugs were alcohol and marijuana.

Management Guidelines

A practical approach to treat patient with BDD is to properly understand patient's dynamics and creating a good rapport with patient and developing patient–physician bond. Nonjudgmental and nonconfrontation approach with neutral attitude is of paramount importance. Education of patient that he/she does not have a big dermatologic or cosmetic problem but rather a body image problem, where patients are concerned about their appearance. Patients must be given reassurance that their concern is treatable, but actual change of body part would not help. Patient may be given some reading material about BD and their family and friends, and significant others should also be educated. Again, empathizing the patient and validating their concern and distress would be helpful. Avoid any dermatological procedures or cosmetic interventions or surgeries at all costs. Patients should be explained that any surgery would not resolve the problem, but other treatment approaches are available that could address

patient's concerns and distress. Referral to a psychiatrist or therapist should be considered if patient is significantly depressed or anxious or having any self-harm ideations.

Treatment of BDD requires both psychotherapeutic techniques and pharmacological interventions. There are no FDA-approved medications for the treatment of BDD: selective serotonin reuptake inhibitors (SSRIs) and selective norepinephrine reuptake inhibitors (SNRIs), and tricyclic antidepressants are the most studied and efficacious medication in the treatment of BDD. SSRIs particularly have been most studied and used. Although not FDA recommended for BDD, these agents are also used for treatment of anxiety disorders, major depressive disorders, OCD, panic disorders, phobias, and posttraumatic stress disorder. Sometimes these agents could be augmented with antipsychotics when single agent is not helpful (Table 12.2).

The major evidence-based psychotherapeutic intervention in the treatment of BDD is cognitive behavioral therapy (CBT). During this method of therapy, patients with BDD are psychoeducated about the nature and course of the disorder and a cognitive behavioral model is formulated depending on individual

Table 12.2 Pharmacotherapy for BDD

Medication	Dose range	Side effect
Fluoxetine	10–80 mg	Stomach upset, nausea, headache, diarrhea, weight gain, sexual side effect
Sertraline	25–200 mg	Dizziness, stomach upset, headache, tremors, shaking, sweating, sexual side effects
Citalopram	10–40 mg	Shaking, tremors, tachycardia, dry mouth, nausea, headache
Escitalopram	5–20 mg	Headache, nausea, diarrhea, insomnia, sedation, sweating
Fluvoxamine	25–400 mg	Headache, nausea, diarrhea, insomnia, sedation, sweating
Paroxetine	10–60 mg	Sweating, headache, dry mouth, sexual side effect, sedation, weight gain
Vortioxetine	5–20 mg	Headache, nausea, diarrhea, insomnia, sedation, stomach upset
Vilazodone	10–40 mg	Headache, nausea, dizziness, abnormal dreams, insomnia, stomach upset

patient's needs. Patient's maladaptive and distorted thought process is carefully evaluated with the goal of developing more accurate and rational beliefs. Patients are taught exposure identification, which provides insight on situations that provoke anxiety Patients practice confronting and challenging these situations until these situations no longer cause anxiety. Ritual prevention is another goal in CBT. Here those situations are identified where rituals are performed and patients are taught alternative behaviors and strategies to replace those rituals. Mindfulness training is another part of CBT where patients use objective and nonjudgmental approach to focus on body as a whole and avoid excessive focusing on details. Relapse prevention strategies lead to scheduling healthy activities to replace and distract from time spent on compulsive behaviors. Those patients who have targeted behaviors, in addition to BDD such as body-focused repetitive behaviors, muscularity and weight-related issues, cosmetic treatment and mood instability, may require individualized targeted modular interventions.

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13 Trichotillomania (Hair-Pulling Disorder)

Trichotillomania (TTM) is an obsessive-compulsive disorder–related condition characterized by the repetitive act of hair pulling, causing hair loss. The word trichotillomania is derived from the Greek words "thrix" meaning hair, "tillein" meaning to pull, and "mania" meaning madness. In 1889, François Henri Hallopeau, a French dermatologist, coined this term. This is one of the most underresearched and understudied disorder. Psychiatric literature was referred in 1930s. Vast majority of research has been conducted within last two decades. Currently, it is classified under obsessive-compulsive spectrum disorder by DSM-5 (Diagnostic and statistical Manual, ed. 5), by American Psychiatric Association. The disorder was recently included in the latest edition of DSM V and the name "Hair-pulling disorder" was added to it. In the DSM V, TTM has been grouped with obsessive–compulsive disorder (OCD), body dysmorphic disorder (BDD), nail-biting disorder, skin-picking disorder, tic disorders, and eating disorders. All these disorders have an overlap of common genetic predisposition, clinical features, and treatment response. The diagnostic criteria for TTM are shown in Table 13.1.

Although extensive epidemiological studies are lacking, it is estimated that subclinical hair pulling may be present in around 11% of the general population. Actual diagnosed cases range from 0.6% to 3.4%. A higher prevalence of TTM is seen in

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Table 13.1 DSM-5 criteria for trichotillomania

A. Recurrent pulling out of one's hair, resulting in hair loss
B. Repeated attempts to decrease or stop the hair-pulling behavior
C. The hair pulling causes clinically significant distress or impairment in social, occupational, or other important areas of functioning
D. The hair pulling, or hair loss, cannot be attributed to another medical condition (e.g., a dermatologic condition)
E. The hair pulling cannot be better explained by the symptoms of another mental disorder (e.g., attempts to improve a perceived defect or flaw in appearance, such as may be observed in body dysmorphic disorder)

women. The mean age is 13 years. A bimodal distribution has been noted. This disorder is seen, either in early childhood or in adolescence. Childhood onset is a relatively benign form and late onset is more severe, resistant to treatment, and associated with comorbid psychopathology. TTM predominantly is seen in females. A variety of family dynamics and onset triggers have been reported with the initiation or predisposition of this disorder including but not limited to childhood illness or injury; death, illness or injury in family; change in residence; alienation or separation from friends; entrance into school; academic difficulties or school tensions; onset of menarche; parental divorce; brief separation from parents; birth of sibling or sibling rivalry; poor marital relations and poor mother–child interactions. Several behavioral associations accompanied with TTM include nail biting; cuticle biting; knuckle biting; thumb sucking; skin picking; picking at acne; nose picking; lip biting; cheek chewing; face slapping; tongue chewing or biting; head banging; lip pinching and twisting; body rocking; bruxism; face picking and clothes picking.

Phenomenologically, there are two types of hair pulling: Automatic type (5–47%), where hair puller's attention is focused elsewhere during the act of pulling and Focused or Compulsive type (15–34%), where puller's attention being expressly concentrated upon the act itself. TTM may run in the families. In some cases, familial occurrences have been noted in first-degree relatives. Some hair pullers are fascinated with morphological characteristics of hair like kinky, brittle, and straight, which tempts them

to pull. Besides that, visual qualities of hair also appeal some hair pullers such as color, shape, and location of hair. Postpulling manipulation of hair is also common in several hair pullers and include stroking the hair against lips or face; biting off the root; examining the hair; playing with hair; chewing hair; and eating the hair (trichophagia and trichobezoars). Premenstrual exacerbation of urges to pull hair, which was alleviated during menstruation and thereafter has been reported. Several patients with TTM may engage in different activities while pulling their hair knowingly or unknowingly such as watching TV, reading, talking on the phone, lying in the bed, driving, or during writing.

Most common site of hair pulling include scalp, eyelashes, eyebrows, pubic hair, body hair, and facial hair. Patients pull their hair by grasping between the tips of thumb and index finger or alternatively, hair is wrapped around the index finger prior to pulling. Dominant hand is used in majority of cases, but nondominant hand and both hands also could be used. Some patients use tweezers.

Etiological Models

Etiology of TTM is multifactorial. There is a debate that whether it is a syndrome by itself or a form of obsessive-compulsive spectrum disorder or it is a symptom observed in various disorders like transient mild habit, obsessive-compulsive disorder, depression, body dysmorphic disorder, or a manifestation of borderline or histrionic personality. No consensus on the universally accepted cause is known; however, it is currently classified as obsessive-compulsive spectrum disorder. Various hypothetical models have been postulated including psychoanalytical model, biologic model, and behavioral model.

- Psychoanalytical model: Several psychoanalysts think that TTM is a symbolic expression of unconscious conflicts. They also support poor object relation theory and suggest it as a means of working through real or perceived threats of object

loss. In this context, childhood trauma, physical and sexual abuse come into play, as discussed elsewhere in this chapter.

- Biologic model: Development of TTM influenced by genetic factors remains unclear.
- Several authors reported that 4–8% of first-degree relatives of trichotillomania patients have hair-pulling habits. It has also been hypothesized that the existence of a threshold for "repetitive grooming behaviors" could be lowered through the effects of stress or genetic susceptibility or triggered by autoimmune reactions. In the context of genetic mutations, gene *Hoxb8* has been suggested in animal models of mice for excessive grooming and mutation in SLIT and TRK like 1 (*slitrk1*) gene has been associated with trichotillomania. Also, a variant of *5-HT2A T102C* has been associated with south African Caucasians patients with trichotillomania.
- Neurobiologic model: Abnormalities have been noted in neuropsychological functioning, specifically visuospatial functions. PET (positron emission tomography) has shown resting brain metabolic differences in global, bilateral cerebellar and right parietal regions. Structural MRI (magnetic resonance imaging) has shown significant volumetric reductions in trichotillomania patients versus controls in right amygdala and left putamen. Localized shape deformities have been noticed in bilateral nucleus accumbens, bilateral amygdala, right caudate, and right putamen. These structural abnormalities of subcortical regions have shown significant effect on affect regulation, inhibitory control, and habit generation, which play a key role in the pathophysiology of trichotillomania. Cortical thickness abnormalities have also been noticed in trichotillomania. These patients have shown excess cortical thickness in a cluster maximal at right inferior frontal gyrus. It is interesting to note that other impulsive-compulsive disorders such as OCD, attention-deficit hyperactivity disorder, and gambling disorder, which have typically been associated with reduced, rather than increased, cortical thickness.

Clinical Characteristics

The pattern of hair loss is often bizarre with angular or irregular borders. Eyebrows, eyelashes, face, limbs, pubic area, underarms, and chest hair can be involved. In majority of cases, patchy, nearly full, or full alopecia of scalp. Plucking starts in a wave-like fashion across the scalp or centrifugally from a single starting point. Pulling often occurs while engaged in sedentary activities and in a "trance-like" state. Linear or circular patches with irregular borders containing hairs of varying length are often noticed. Hair loss usually tends to occur on the contralateral side of the body from dominant hand. Commonly, a single hair is pulled at a time and each episode of pulling can last for hours. Patients with TTM have hair shafts of varying lengths and shapes. Usually, hairs are broken and have blunt ends.

Variants of Trichotillomania

There are certain variants of hair pulling described in literature, although less common than TTM but produce similar psychological distress and challenge in management.

1. Trichorrhizophagia [(*Thrix (hair), Rhizo (root), Phagos (eating)*]. Here patients eat the roots of plugged hair. In severe cases, this may lead to trichobezoar.
2. Trichotemnomania [*Thrix (hair), Temnien (to cut), Mania (madness)*]. Here patients have a compulsive habit to remove the hair of the scalp, eyebrows, and axillary and pubic areas by shaving.
3. Trichodaganomania [*Thrix (hair), Daganein (to bite), Mania (madness)*]. Here patients have a compulsive habit of biting one's own hair. Seen commonly in adolescents.
4. Trichotieromania [*Thrix (hair), Teireien (to rub), Mania (madness)*] Here patients remove their hair by a compulsive habit of rubbing one's own hair and thus producing a bald patch or thinning of hairs in areas, mostly in temple areas.

Trichoscopy

Trichoscopy findings show localized decreased hair density, short vellus hair, broken hairs with different shaft lengths, coiled hairs, short vellus hair, trichoptilosis, sparse yellow dots, which may or may not contain black dots, flame hairs, V-sign, and tulip hairs. Moreover, exclamation mark hairs, yellow dots, and upright regrowing hairs may be observed. Trichoscopic findings are shown in Fig. 13.1.

Histopathology

Specific histological findings include tracheomalacia and pigmented casts, while nonspecific histological findings include follicular plugging, decreased number of follicles, reversed anagen: telogen ratio, decreased number of sebaceous glands, melanoderma, increased number of fibrous tracts and vellus hairs, superficial dermal inflammation, evidence of hemorrhage, and presence of hair granulomas.

Fig. 13.1 Trichoscopy of Trichotillomania. (Courtesy: Prof. Asmahane Souissi)

Differential Diagnosis

The diagnosis is generally straightforward, but in some cases, it may be confused with alopecia areata, tinea capitis, traction alopecia, androgenetic alopecia, monilethrix, pili torti, loose anagen syndrome, and various secondary causes of alopecia such as syphilis, lupus erythematosus, lymphoma, and various endocrinopathies.

Diagnosis and Assessment Tools and Scales

A comprehensive evaluation of individuals with trichotillomania must be conducted by a physician trained in the field of trichopsychodermatology. This is an emerging field of psychodermatology focused on the study of the psychosocial impact of hair disorders. A detailed past medical history, including personal and familial history, psychiatric history particularly focusing on history of trauma, will help in in the proper management of this condition.

A variety of assessment tools and scales have been developed, which could be used in everyday practice or for in research purposes. Various assessment scales are shown in Table 13.2.

Table 13.2 Assessment tool/measures in trichotillomania

Clinical interview	MTAI-II *(Minnesota Trichotillomania Assessment Inventory-II)*
Clinician rating scales	Y-BOCS-TM *(Yale-Brown Obsessive-compulsive scale-TTM)* PITS *(Psychiatric Institute Trichotillomania Scale)* NIMH-TSS *(NIMH-Trichotillomania Severity Scale)*
Self-report measures	M-DOTS *(Milwaukee Dimensions of Trichotillomania Scale)* MGH Hair-Pulling Scale *(Massachusetts General Hospital)* Hair-Pulling Survey
Self-monitoring	Saving pulled hair Keeping daily record
Collateral reports	Family members For children For cognitively impaired
Objective measures	Pre- and posttreatment photographs

Medical Complications

TTM could be associated with several medical complications requiring patient to see emergency rooms, medical wards, or even surgery. These complications may include trichophagia, trichobezoar, skin infection at the site, blepharitis when pulling eye lashes, chronic neck, back or shoulder pain due to abnormal pulling postures, Carpel tunnel syndrome and avoidance of health care to escape shame and consequently missing serious disorders like basal cell carcinoma of scalp.

Trichophagia is the medical term used to describe individuals who ingest hairs. In some cases, the ingestion can become chronic and lead to a ball of hair in the stomach called a trichobezoar. A rare presentation of this Trichobezoar is the "Rapunzel syndrome" in which the tail of the hairball extends into the intestines and can cause intestinal obstruction. Rapunzel syndrome and trichobezoar are more common in neglected children.

Psychiatric Comorbidity

Trichotillomania patients are known to suffer from comorbid mental disorders at a much greater rate than the general population. The most common associated disorders are anxiety, major depression, substance abuse, eating disorders, posttraumatic stress disorder (PTSD), personality disorders, OCD, and BDD. It has been reported to overlap with other OCRD, such as skin picking and nail biting. The rates of both trichotillomania patients with comorbid OCD and OCD patients that suffer from trichotillomania are higher than those found in the general population. Childhood trauma has been frequently attributed in TTM. The association of childhood traumatic events such as emotional neglect, abuse, extreme violence, sexual harassment, and abuse has a significant impact on patients who later engage in other self-injurious behaviors including pulling hair.

The development of trichotillomania may be a potential behavioral response in order to cope with unwanted negative emotions. It has been reported that patients with TTM struggle with emotion regulation. Their pulling may serve as a means to release tension that is generated by various emotional states. Pulling may provide temporary relief from negative emotions such as shame, sadness, frustration, anger, anxiety, and boredom. Patients frequently experience self-isolation and avoidance due to feeling of unattractiveness caused by hair loss. TTM most commonly involves visible areas of the body such as the scalp, eyebrows, and eyelashes, causing embarrassment and shame. Other negative feelings commonly identified in these patients are humiliation, fear, and guilt, which contribute to social isolation and functional impairment.

Relationship of trichotillomania with OCD has always been a subject of interest. There were conflicting opinions about relationship of OCD and trichotillomania, until the advent of DSM-V, when it was officially classified into obsessive-compulsive spectrum disorders. There are certain similarities and some differences between the two disorders. About 5–8% first-degree relatives of trichotillomania patients have obsessive-compulsive disorder. Similarities and differences between OCD and trichotillomania are summarized in Table 13.3.

Table 13.3 Similarities and differences between OCD and trichotillomania

	Behavior	OCD	TTM
1	Stereotypical behavior	Yes	Yes
2	Ability of patients to view their behavior as senseless	Yes	Yes
3	About 50% have lifelong affective and/or anxiety disorder	Yes	Yes
4	May have autoimmune basis	Yes	Yes
5	Clomipramine negatively correlated with metabolic activity in anterior cingulate and orbital frontal areas	Yes	Yes
6	Marked by obsession	Yes	No
7	Behavior performed to prevent/escape harm	Yes	No
8	Earlier age of onset	Yes	Yes
9	Equal sex distribution	Yes	No

Table 13.4 OCD, trichotillomania, and skin picking overlap

	Trichotillomania/skin picking	OCD
1	Patients believe their impulses occur suddenly	Patients with OCD can delay their impulses
2	When there is a will to act, patients with TTM/skin picking act as soon as possible	Patients with OCD spend more time thinking about whether they should act and then planning how to do it
3	Patients with TTM/skin picking feel indifferent or pleased	Acting-out patients with OCD feel more guilt
4	They feel guilt more intensively than the patients with OCD	After acting, patient with OCD feel guilty but less than TTM
5	They do not follow rituals	They follow rituals when acting out
6	They believe they will have some relief and benefits if not able to act	They believe that something harmful might happen if they are prevented from acting

There are lot of differences and similarities among trichotillomania, skin picking, and OCD. All of them are currently classified in obsessive-compulsive and related disorders in DSM-5. Table 13.4 shows the overlap of these three disorders.

Prognosis

Trichotillomania is characterized by periods of exacerbation and remissions, but in most cases, it is chronic. Many studies suggest that remitting and chronic form is related to age at onset and sex of the patient. Adolescent female patients are more susceptible to chronic form.

Treatment Guidelines

Pharmacological Treatments

Although no FDA-approved medication for trichotillomania currently exists, habit reversal therapy (HRT) in combination with

pharmacological treatment has been used successfully in different case reports and trials. Age-specific treatment recommendations vary with different population groups. In preschool years, this disorder is considered as habit disorder analogous to thumb sucking and expected to disappear on its own. Parental support and education about the benign course of disorder is emphasized with family. In school age children, behavioral approaches have been found more efficacious than pharmacotherapy. There is likelihood of comorbid psychiatric disorders such as anxiety, phobias, and depression in this age group, so a psychiatric referral with child psychiatrist is warranted. In adolescents and adults, combination of pharmacotherapy, behavioral therapy, and treatment of comorbid psychiatric disorders, if any, offers most clinical benefits.

Selective serotonin reuptake inhibitors (SSRIs) are currently the most popular agents being used. A person not responding to one SSRI may respond to another SSRI. Augmentation strategies with neuroleptics, anxiolytics, lithium, naltrexone, or topical steroid or topical capsaicin may be helpful in resistant cases. In some cases, selective norepinephrine reuptake inhibitors (SNRIs) are also used in treating trichotillomania comorbid with anxiety and depression. Tricyclic antidepressants block the reuptake of norepinephrine and serotonin in the brain and have been used in the past but nowadays are not commonly used due to their side-effect profile and effects on heart conduction. Antipsychotics, which act by blocking dopamine, could be used alone but most are augmented with SSRIs or SNRIs.

Other uncommon medications used in the treatment include opioid antagonists, which act by decreasing the positive reinforcement derived from hair pulling and thus decreasing the urge to pull. Naltrexone is an opioid antagonist that has been tried in some cases with variable success.

Recently attention is being given to N-acetylcysteine (NAC) in the treatment of trichotillomania. NAC is a derivative of the amino acid cysteine. It is a glutamate inhibitor and synthesize glutathione in the body. NAC is also known to have anti- inflammatory effects and immunomodulatory properties. NAC has been shown to reduce inflammation in the microglia and reduce oxidative

damage. It also acts on the N-methyl-D-aspartate (NMDA) and 2-amino- 3-hydroxy-5-methyl-4-isoxazolepropionate (AMPA) receptors. NAC is used in 1200–24 mg per day. It has shown some promise in some studies, but in others, it has not shown its efficacy. Nevertheless, it appears to be a promising agent because of its lower side-effect profile, over the counter availability without prescription and being safe.

Silymarin is another alternative in treatment, but its efficacy has not proven in double-blind placebo-controlled trials. It is a flavonoid derivative of milk thistle, an herb with medicinal properties. Silymarin exerts antioxidant effects and increases dopamine level by inhibiting the monoaminoxidase enzyme (MAO), thus improving symptoms of obsessive-compulsive-related disorders.

Psychotherapy

As mentioned earlier, combination of psychotherapy and medications has proven more effective that either alone. A variety of psychotherapeutic techniques have been implemented in the treatment of TTM. However, Habit reversal therapy has been widely used with success, particularly when combined with pharmacological treatment. Habit Reversal Therapy (HRT) shares essential principles of cognitive behavioral therapy but aims to reverse the positive reinforcement that patients with TTM have developed. By completing the therapy, patients learn to effectively monitor and increase awareness of their hair-pulling behavior. Cognitive restructuring methods are an essential component of HRT, which decrease the dysfunctional cognitions and off-balanced emotional regulation, which increases hair pulling. HRT has a focus to assist patients to reduce receptive unwanted behaviors by bringing them to conscious awareness and replacing them with alternative behaviors that are not bothersome or interfere with overall quality of life.

The four components of HRT include Awareness Training, Competing Response Training, Motivational techniques and social support, and Generalization training. *Awareness Training*

involves specific steps to allow the patient to increase self-control against hair pulling by increasing their attention of their behavior. Specifically, patients can practice awareness training by techniques like filling out the self-monitoring form describing their daily moods and emotions and triggering factors. They also mention vulnerable places where they are tempted to pull their hair. It is also encouraged to involve family members, counselors, and therapists to point out when the person engages in the behavior. Awareness training prepares patients for the next component of HRT of developing a competing response, eliminating behaviors that occur immediately prior to hair pulling, and avoidance of stressful situations. *Competing Response Training* assists in the development of behaviors that are different from those related to hair pulling specifically when the urges occur. The patient is taught to perform this replacement act whenever there are thoughts or engagement in hair pulling An example of a replacement act can be to hold a fist with both hands to the side of the body whenever there is an urge or thought of hair pulling. *Motivation techniques* are important to implement after the successful formation of a replacement act for continued habit reversal and to prevent relapse. Habit inconvenience review is a method to motivate the patient to continue to avoid the unwanted behavior by brainstorming specific negative aspects attributed with it such as feelings of embarrassment, impact on work and social life, and general inconvenience. *Social support procedure* involves family members, school counselors, and close friends in the treatment process by praising the patient for the nonoccurrence of the unwanted behavior. In addition, they are instructed to be attentive of instances when the patient may relapse and engage in the behavior. In such case, they are encouraged to practice the competing response with continued motivation.

Generalization training involves symbolic reversal procedure where the patients imagined themselves in stressful situations or triggers previously identified that typically result in them engaging in an unwanted behavior. They would be asked to imagine themselves starting the behavior but stopping without completion and committing to the competing behavior instead.

Similar to CBT, posttreatment relapse rate is high with HRT. In addition, the relationship between emotional regulation processes and the severity of TTM indicates that HRT does not target all the factors that contribute to the development, maintenance, and relapse of TTM. However, for many patients, HRT remains promising and increased awareness of TTM and HRT as a treatment method should be stressed at a primary care and dermatologic level to more accurately determine its effectiveness.

Suggested Readings

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14 Factitious Disorders (Dermatitis Artefacta)

Etiology and Pathogenesis

Factitious disorders (FDs) are relatively rare primary psychiatric disorders with somatic expression. FD is currently classified in somatic symptoms and related disorders in the DSM-5. Patients with factitious disorder present with various symptoms of disease processes that are intentionally produced to assume the role of a sick person. The symptoms are produced voluntarily and consciously with no intention of secondary gain. Patients assume the sick role to receive the associated care and attention from others to cope with their emotional or psychological distress. Severe psychological distress and desire to play a role of a sick person role without any clear external incentives are supposed to be motivating factors. Patients with FD are highly manipulative and demonstrate extensive knowledge on medical specialties while fabricating their symptoms. The prevalence of factitious disorder can be difficult to determine due to many factors including multiple providers involved in the care of these patients, patients with factitious disorder being efficient at hiding their fraudulent behavior, and lack of healthcare providers trained in making the diagnosis. Recent studies suggest the prevalence of FD in dermatology clinics is between 0.04% and 1.5%. Females are mostly affected as the female/male ratio is as high as 20:1, and many patients are about 20 years of age. The mean age of children and adolescents with FD has been found to be approximately 13 years and females

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are commonly affected. Symptoms may develop in childhood as a desire to receive comfort, attention, and protection from healthcare providers to compensate for a neglectful or abusive home environment. Patients should not be confronted to explore the underlying psychological conflicts, rather gentle, nonjudgmental, and empathic approach be utilized for a good therapeutic rapport. High index of suspicion on provider's part is a key to correct diagnosis.

Clinical Features

DSM-5 criteria for FD is shown in Table 14.1, which include falsification of symptoms, presenting as ill or injured, evidence of deceptive behavior, and signs and symptoms not better explained by another psychiatric diagnosis. Factitious disorder imposed on another, is another category, with similar criteria for FD, which used to be called in the past as factitious disorder by proxy, when an individual presents another individual (victim) to others as ill, impaired, or injured.

The clinical presentation of these patients varies greatly from presenting with seizures or infections to headaches or kidney stones. There are multiple reports of factitious disorder in which patients have falsified laboratory tests or exaggerated symptoms. Patient presents with skin lesions, but he/she denies causing any skin lesions or keeps his/her self-harm secret without demonstrating any obvious incentives for self-inflicting behavior. This

Table 14.1 DSM-5 criteria

Factitious disorder. DSM-5 criteria
A. Falsification of physical or psychological signs or symptoms or induction of injury or disease associated with identified deception.
B. The individual presents himself or herself to others as ill, impaired, or injured.
C. The deceptive behavior is evident even in the absence of obvious external rewards.
D. The behavior is not better explained by another mental disorder, such as delusional disorder or another psychiatric disorder.

description differentiates FD from malingering, skin picking, and self-inflicted skin lesions, caused by other obsessive and compulsive behaviors.

Clinically, patients self-harm themselves without the direct intention of committing suicide. There are multiple mechanisms by which patients produce lesions including mechanical causes such as by pressure, friction, occlusion, biting, cutting, stabbing, and mutilation. Some patients produce lesions by toxic damage such as using acids, alkalis, and thermal causes. Other patients tamper with their pre-existing infections or using various pharmacological agents such as insulin or heparin injections. The hallmark of dermatitis artefacta syndrome is unconscious self-injury and self-manipulation. The morphology of these lesions can imitate most skin diseases. Dermatitis artefacta syndrome must be suspected when a typical clinical pattern has atypical localization, morphology, histology, or no response to standard treatment. It is not uncommon for patients to present with psychiatric symptoms including dissociative identity disorder, bipolar disorder, depression, and psychosis. Patients with factitious disorder often provide vague histories or symptoms, which are often exaggerated and do not correlate with their physical appearance. There are several warning signs or suspicious behaviors for FD and dermatologist should be familiar with that (Table 14.2). These include patients seeking treatment and testing at multiple sites, inconsistent histories, and discrepancies among patient behavior, symptoms, and history. The physical examination of these patients may

Table 14.2 Warning signs for factitious disorders

Female sex, healthcare training
Multiple emergency room visits, hospitalizations, doctor shopping
Vague symptoms and history
Lack of objective findings to support history
Suspicious shape and color of the lesions on examination
Blood, urine, or sputum cultures that grow unexpected organisms

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provide clues to self-inflicted injuries such as suspicious shapes or patterns of lesions or cultures that grow certain organisms.

Differential Diagnosis

There are several conditions, which could be included in the differential diagnosis of factitious disorders including somatic symptom disorder, malingering, conversion disorder, illness anxiety disorder, anxiety disorders, psychotic disorders, affective disorders with psychotic components, autism spectrum disorder, emotionally unstable personality, child abuse, comorbidity with various organic diseases, plant dermatitis, cultural or religious practices, and hypochondriacal delusions. Malingering is the conscious production of signs or symptoms for secondary gain, which may include drug seeking, monetary gain, and time off work. Patients with somatoform disorder have unconscious production of physical symptoms, which results in high levels of anxiety and distress in their lives. They have no intention of assuming the sick role or any other secondary gain. In conversion disorder, patients will exhibit genuine physical symptoms, which are the result of psychological distress, for example, seizures in young women at times of high stress during exam week at college. See Table 14.3.

Etiology and Pathogenesis

All patients with FD have an underlying psychopathology. These patients would reveal frequent history of stressful life events.

Most patients give frequent reports of being mentally or sexually abused or neglected in childhood. Bullying in school is also

Table 14.3 Differential diagnosis of factitious disorder

Disorder	Production	Motive
Dermatitis artefacta	Conscious	Unconscious
Malingering	Conscious	Conscious
Conversion	Unconscious	Unconscious

an important precursor of FD subsequently. Patients with FD use their self-harm as emotional coping mechanism. They use skin as an organ to manifest their emotional distress. It has also been suggested that increased risk of developing self-harm in children is associated with comorbid psychiatric conditions such as anxiety and depression and personality disorders. Several hypotheses have been debated to discuss the actual pathogenesis of FD. Social learning hypothesis discusses the behavior that was learned by observing others. Self-punishment hypothesis discusses behavior to punish oneself for some wrongdoing or results from self-hate, self-deprecation, guilt, or shame. Social signaling hypothesis states that self-injury as a more effective way of communication or signaling distress than speaking or crying. Implicit identification hypothesis relates self-injury as the most effective way of identification of coping strategy to regulate emotions. Pain-analgesia or opiate hypothesis states that in some patients with decreased pain sensitivity, a repeated self-injury may increase levels of endorphins, which evokes a feeling of pleasure. Pragmatic hypothesis points self-injury as a fast and easily accessible method to cope with negative emotions and finally Tension-regulation hypothesis relates self-injury as an immediate relief to unbearable tension.

Psychological Aspects of Factitious Disorder

As mentioned earlier, FD patients often have unconscious conflicts and significant undiagnosed psychiatric comorbidity. It is well known that these patients have thrill of undergoing medical procedures and a need for attention or care. They feel an unconscious sense of control through the deception of healthcare providers. It has been known that these patients have disruptive attachment in childhood. It is well known that healthy relationships with caregiver are important for the child development. If there are problems in these relationships, children may seek to satisfy their innate need for caregiver attention by exhibiting illness behaviors. In this way, children can satisfy their need for comfort and protection through the attention of healthcare providers who

act as substitute caregivers. These abnormal illness behaviors may extend into adolescence and adulthood. In this way, abnormal illness behaviors may affect the next generation either indirectly—if children model their own behavior after the parent with a history of FD—or directly if the parent abuses their child by forcing them to assume the patient role. Here comes the intergenerational transfer process. Adults who experienced abuse or neglect as children are more likely to become abusers themselves. Therefore, individuals who develop FD in childhood to cope with abuse or neglect may be more likely to become abusers as adults. Through this process of the abused becoming abusers, the offspring of adults who coped with childhood abuse through FD may be at higher risk of becoming victims of FD imposed on another (also called Munchausen syndrome by proxy). Patients with FD often lack personal identity. They commonly have a history of abuse, neglect, and unstable childhood environments. Due to these factors, patients often do not develop a strong sense of self and suffer from low self-esteem. The instability of their childhood results in these patients experiencing a lack of control over their lives. Hence, patients fabricate symptoms and their medical histories, which allows them to feel a sense of control over an aspect of their lives. Many authors propose a concept of masochism in these patients. Undergoing multiple invasive and possibly painful diagnostic tests, procedures, and treatment can be viewed as masochistic attempts. Patients may use these painful measures to punish themselves in order to cope with guilt that may exist as part of their psychiatric comorbidities or history of abuse. From psychodynamic point of view, patient's behavior is regarded as an intrapsychic defense, wherein patients feel a sense of importance when receiving close care for their somatic complaints that can counter their low self-esteem. When patients experience anger or aggression toward others, they mobilize somatic complaints as a pathway to obtain their attention.

Management Approach

Treatment of factitious disorder could pose a challenge. It would require a multidisciplinary team of a dermatologist, psychiatrist, primary care physician, therapist, social worker, and family members to help the patient develop insight and continue with treatment and recover. Empathic and nonjudgmental approach is always necessary. When patients are confronted, or a psychiatric referral is discussed, these patients become defensive and lost to follow-up or follow the treatment plan. The goal of treatment is to limit the patient's self-injurious behavior, risk of adverse reactions, and healthcare costs of unnecessary treatment and diagnostic tests. Treatment approach is directed toward psychotherapeutic techniques and pharmacology. Management Guidelines for Factitious disorder are outlined in Table 14.4.

Psychotherapy is first-line treatment. Psychodynamic therapy has been more effective than other therapies due to uncovering underlying unconscious conflicts, which could be triggers for the illness. There is no specific pharmacologic agent approved by the

Table 14.4 Management guidelines for factitious disorder

Nonconfrontational and neutral attitude
Thorough clinical history and dermatological exam
Focus on history of childhood trauma and abuse
Psychoeducation about the illness
Distinction between factitious disorder and malingering (to minimize negative reactions)
Making patient understand symptoms "as request for help"
Inexact interpretation (the patient is informed that there is a problem; however, it is related to psychological factors)
Face-saving technique (to prevent any humiliation by informing the patient that the symptoms or illness may not be responsive to conventional medication treatment)
Psychodynamic therapy (To interpret unconscious conflicts)
Family therapy (to increase the compliance)
Psychotropic medications for comorbid psychiatric symptoms

US Food and Drug Administration; however, selective serotonin reuptake inhibitors (SSRIs), antipsychotics, mood stabilizers, and antianxiety agents have been used with variable success in comorbid psychiatric symptoms such as depression, anxiety, and post-traumatic stress disorder due to past history of abuse or trauma.

Prognosis

Many cases of FD are chronic, and lasting several years, with periods of slight improvement. Sometimes, lack of communication among different health professionals may worsen the prognosis. Furthermore, the psychiatric comorbidities and psychosocial context are also important in the prognosis of factitious disorders. As opposed to adults, children, without severe comorbidities and with a shorter duration of the disease, have a better prognosis. The understanding the social context (family and school) may also help to find out the trigger of the factitious disorder and can be a key in the management and treatment.

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15 Psychotropic Medications in Dermatology Practice

There is increasing awareness of psychological symptoms in dermatology practice and the incidence of psychiatric disorders in dermatology patients is estimated at 35–40%. Dermatologists have always been reluctant to prescribe psychiatric medication due to lack of proper knowledge and experience. Therefore, it is essential for a dermatologist to have some basic knowledge about the psychotropic drugs, their indications, mechanism of action, and side effects to make them more comfortable and confident in prescribing these medications. This would help develop a greater patient–physician bond. This fact should also not be ignored that prescription of psychotropic medication by dermatologist would readily be accepted by patient as compared to by psychiatrist, due to social stigma associated with mental illness and visiting a psychiatrist.

There are four major clinical situations where psychotropic drugs in dermatology are being used. First, the management of dermatological symptoms associated with psychiatric disorders, secondly, management of psychiatric symptoms associated with skin disease, thirdly, management of cutaneous side effects of Psychotropic drugs, and fourthly, management of conditions where other pharmacologic effects of psychotropic drugs are desired. The choice of psychotropic medications is based upon

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the nature of underlying psychopathology. The most common psychopathologies in dermatology practice are depression, anxiety, psychosis, and obsessive behaviors. These conditions could be treated by anxiolytics, antidepressants, antipsychotics, or mood stabilizers in individual situations.

Antidepressant Use in Psychodermatology

There are four types of antidepressants used in dermatology, which include selective serotonin reuptake inhibitors (SSRIs), serotonin norepinephrine reuptake inhibitors (SNRIs), atypical antidepressants, and tricyclic antidepressants (TCAs). Antidepressants work on serotonin and norepinephrine receptors mainly to help with anxiety, depression, and obsessive symptoms associated with various skin diseases. Several types of psychophysiologic disorders such as psoriasis and atopic dermatitis, for example, are commonly associated with significant depression, low self-esteem, and high anxiety. Similarly, primary psychiatric disorders consist of conditions with underlying psychopathology and secondary cutaneous manifestations are always depressed and anxious and require antidepressants for proper functioning and better quality of life. Conditions like hair-pulling, skin-picking, and nail-biting disorders are obsessive-compulsive-related disorders and have been reported to be successfully managed with antidepressant medications. Cutaneous sensory syndromes, such as burning mouth syndrome and vulvodynia also respond well to SSRIs and improve disease-related symptoms and quality of life.

The side-effect profile of antidepressants is determined by their major action on an individual neurotransmitter. Serotonin is the main neurotransmitter, but several antidepressants also act upon norepinephrine, histamine, and dopamine neurotransmitter, which lead to side effects especially attributed to these neurotransmitters. Common side effects attributed to antidepressants are nausea, vomiting, diarrhea, dizziness, tiredness, headache, weight gain, insomnia, lack of appetite, or increased appetite. Sexual side effects are major concern for noncompliance in treatment. Paroxetine is category D antidepressant and should not be used in

pregnant females. Certain antidepressant such as Venlafaxine may cause increased blood pressure. SSRI withdrawal syndrome or discontinuation syndrome should be kept in mind when a person suddenly stops taking antidepressant. Symptoms associated with withdrawal are shown in Box 15.1.

Serotonin syndrome is characterized by excessive use of SSRI antidepressants in situations like intentional overdoses or taking too many pills accidentally. The symptom complex is characterized by a triad of altered mental status, neuromuscular abnormalities, and autonomic hyperactivity symptoms. The clinical picture is summarized in Box 15.2.

Antidepressants are summarized in Table 15.1.

Box 15.1 SSRI Discontinuation/Withdrawal Syndrome

- Flu-like symptoms
- Insomnia
- Nausea
- Imbalance
- Sensory disturbances
- Hyperarousal

Box 15.2 Clinical Picture of Serotonin Syndrome

Serotonin syndrome

- *Mild*: Mild hypertension, tachycardia, mydriasis, diaphoresis, shivering, tremors, myoclonus, and hyperreflexia.
- *Moderate*: High fever, hyperactive bowel sounds ocular clonus, agitation, hypervigilance, and pressured speech.
- *Severe*: Extremely high fever, high blood pressure, delirium, and muscle rigidity. Severe cases are often complicated by seizures, rhabdomyolysis, myoglobinuria, metabolic acidosis, renal failure, acute respiratory distress syndrome, respiratory failure, coma, and death.

Table 15.1 Antidepressants

Generic name	Brand name	Daily Dosage (mg/d)	Side effects
Selective serotonin-reuptake inhibitors (SSRIs)			
Fluoxetine	Prozac Daforin	10–80	Nausea, insomnia, anorexia, anxiety, drug interactions
Sertraline	Zoloft Tolrest Assert	25–200	Dry mouth, nausea, diarrhea, insomnia, sexual dysfunction, sweating
Paroxetine	Paxil Pndera Aropax	20–60	Drowsiness, weakness, dizziness, sweating, anxiety, insomnia, dry month, headache, vision changes
Fluvoxamine	Luvox Revoc	50–300	Dry mouth, headache, nausea, insomnia, anxiety, drug interaction, diarrhea, sexual problems, muscle pain
Citalopram	Celexa Procimax	20–60	Dry mouth, sweating, nausea, somnolence, insomnia, headache, drowsiness, fast heartbeats
Escitalopram	Lexapro Reconter	5–20	Drowsiness, insomnia, dry mouth, sweating, loss of appetite, nausea, yawning, weight changes
Serotonin norepinephrine reuptake inhibitors (SNRIs)			
Desvenlafaxine	Pristiq Khedezla	50–400	Nausea, dizziness, insomnia, decreased appetite, hyperhidrosis, xerostomia
Duloxetine	Cymbalta Drizamla sprinkle	40–60	Nausea, dizziness, headache, insomnia, constipation
Levomilnacipran	Fetzima	40–120	Nausea, dizziness, dry mouth, headache, increased blood pressure/pulse, insomnia
Milnacipran	Savella	50–100	Nausea, dizziness, dry mouth, headache, increased blood pressure, insomnia, constipation sweating

Table 15.1 (continued)

Generic name	Brand name	Daily Dosage (mg/d)	Side effects
Venlafaxine	Effexor	75–375	Nausea, constipation sweating, headache, increased blood pressure, anxiety and insomnia
Atypical antidepressants			
Vilazodone	Viibryd	10–40	Nausea, dizziness, dry mouth, diarrhea, vomiting, insomnia
Nafazodone	Serzone	100–250	Drowsiness, headache, nausea, dizziness, dry mouth, diarrhea, vomiting, insomnia, vision problems, increased appetite
Vortioxetine	Trintellix Brintellix	5–20	Nausea, headache, dry mouth, diarrhea, vomiting, insomnia, dizziness, itchy skin,
Duloxetine	Velija Cymbalta	40–60	Nausea, dizziness, loss of appetite, dry mouth, sleepiness, fatigue, eye pain, increased sweating, constipation
Bupropion	Welburtrin Zetron	250–450	Jitteriness, flushing, seizures, anorexia, tachycardia, psychosis
Venlafaxine	Effexor Zyvifax Zaredrop	75–300	Nausea, headache, dry mouth, increased blood pressure, diarrhea, vomiting, insomnia, dizziness, itchy skin, sexual dysfunction
Trazodone	Donaren Desyrel Oleptrol	150–600	Drowsiness, blurred vision, confusion, dizziness, sedation, dry mouth, ventricular irritability, anorexia, tachycardia, psychosis
Mirtazapine	Remeron Zispin Norest	10–45	Somnolence, drowsiness, dry mouth, increased appetite, constipation, weight gain, neutropenia, muscle pain, tremor

(continued)

Table 15.1 (continued)

Generic name	Brand name	Daily Dosage (mg/d)	Side effects
Tricyclic antidepressants			
Nortriptyline	Pamelor Avently HCI	10–150	Nausea, vomiting, loss of appetite, insomnia, dry mouth, vision changes, sexual dysfunction,
Amitriptyline	Amytril Tryptanol Elavil	10–150	Nausea, constipation, headache, diarrhea, vomiting, insomnia, dizziness, rash, breast swelling, sexual dysfunction
Clomipramine	Anafranil	10–250	Nausea, drowsiness, constipation, stomach upset, dry mouth, diarrhea, vomiting, insomnia, dizziness, sexual dysfunction, flushing
Doxepin	Silenor Sinequan	100–300	Drowsiness, blurred vision, dry mouth, constipation, urinary retention, weight gain or loss, rash, low blood pressure, hepatitis
Protriptyline	Vivactil	15–60	Nausea, anxiety, dry mouth, diarrhea, vomiting, insomnia, sexual dysfunction, constipation, vision changes
Imipramine	Tofranil	150–300	Nausea, headache, loss of appetite, dry mouth, dizziness, vomiting, weight gain/loss, weakness, diarrhea, vomiting, sexual dysfunction, constipation, blurred vision

Mood Stabilizers in Psychodermatology

The use of mood stabilizers in dermatology has shown efficacy in several local and systemic causes of pruritus and in some cases of cutaneous sensory syndromes. Problems with poor impulse control in dermatology such as obsessive-compulsive spectrum–

related disorders (excoriation disorders) are also benefitted from mood stabilizers. Autonomic nervous system activation, which could predispose to flushing, hyperhidrosis, and urticaria, may also benefit from different mood stabilizers. Mood stabilizers basically affect glutamatergic neurotransmission. Glutamate, which is an excitatory neurotransmitter, is a key regulator of synaptic strength and plasticity and plays a major role in the neurobiology of learning, memory, and general cognition.

The dermatologist should be familiar with common side effects associated with mood stabilizers such as sedation, tremors, dizziness, cognitive difficulties, aplastic anemia, and syndrome of inappropriate diuretic hormone. Valproic acid and Carbamazepine are category D medication and thus should be avoided in potentially pregnant patients. Lamotrigine is notorious for a rash, which could lead to Stevens–Johnson Syndrome. Lithium is famous for causing more dermatological side effects than any other mood stabilizer including acneiform rash, geographical tongue, and psoriasiform rash among others. Lithium level determination is mandatory until patient is on Lithium therapy. Initially, the levels are drawn at 2 months and then every 6 months. Lithium has a very narrow therapeutic window and thus, any fluctuation in levels could send the patient to emergency room. Common mood stabilizers are shown in Table 15.2.

Antipsychotics in Psychodermatology

Antipsychotic drugs used in dermatology treat psychosis, a common symptom seen in conditions like delusion of parasitosis or iatrogenic steroid-induced psychosis. Besides that, antipsychotics could be used in dermatitis artefacta or augmentation with selective serotonin receptor antagonists in several psychodermatological conditions characterized by depression and anxiety. Antipsychotics are dopamine receptor antagonist acting mainly on dopamine D_2 receptors. Antipsychotics may be divided into two broad groups: typical and atypical or first generation or second generation. Several of the newer antipsychotics approved in last few years have relatively lesser side effects. The difference

Table 15.2 Mood stabilizers

Trade name	Generic name	Dose (mg)	Side effects
Lithium carbonate	Lithobid, Eskalith, lithium	150–1800	Hand tremors, mild thirst, increased urination, diarrhea, vomiting, drowsiness, weakness, blurred vision, dermatological side effects
Sodium valproate	Depakote, Depakene	125–2000	Bleeding gums, bloating, confusion, cough, diarrhea, dysphoria, fever, headache, nausea, liver dysfunction
Lamotrigine	Lamictal, Lamitor	25–400	Ataxia, skin rash, headache, insomnia, nausea, dyspepsia, infection, drowsiness, constipation
Carbamazepine	Tegretol, Tegrex, Carbatrol, Equetro, Epitol	200–1600	Ataxia, dizziness, pruritus, amblyopia, xerostomia, nausea, vomiting, drowsiness, blurred
Topiramate	Topamax, Trokendi, Qudexy XR	50–400	Anxiety, ataxia, confusion, diarrhea, diplopia, fatigue, headache, insomnia, nausea, dyspepsia, dizziness, anorexia, drowsiness, weight loss
Pregabalin	Lyrica	25–600	Infection, ataxia, headache, dyspepsia, infection, blurred vision, drowsiness, dizziness
Gabapentin	Neurontin, Gralise	100–3600	Ataxia, fatigue, fever, sedated state, insomnia, nausea, dyspepsia, infection, tremor, drowsiness

between typical and atypical antipsychotics is binding to and affinity for D2 receptors. The typical antipsychotics bind more tightly; thus, they are more notorious for extrapyramidal side effects. The more recently developed antipsychotics and atypical or second-generation antipsychotics have a lower affinity and thus cause lesser side effects and lower incidence of extrapyramidal side effects.

Side effects related to antipsychotics include postural hypotension due to blockade of an alpha-1 receptor, weight gain and sedation via histamine H1 blockade, and constipation and urinary retention, dry mouth, pupil dilatation, tachycardia due to anticholinergic effects. The high potency agents are characterized by extrapyramidal symptoms such as dystonia, akathisia, parkinsonism, and tardive dyskinesia. A very severe and life-threatening reaction is the neuroleptic malignant syndrome, characterized by tachycardia, elevated blood pressure, fever, confusion, rigidity, and Parkinsonism. Laboratory indicators of leukocytosis, elevated creatine phosphokinase, elevated liver function tests, and myoglobinuria are paramount for the proper identification of this syndrome. Other general side effects to antipsychotics include weight gain, galactorrhea, amenorrhea, blood dyscrasias, photosensitivity, and cholestatic jaundice. Tables 15.3 and 15.4 show Atypical and novel antipsychotics.

Table 15.3 Atypical Antipsychotics

Trade name	Generic name	Daily dosage (mg/d)	Side effects
Clozaril	Clozapine	100–900	Constipation, drooling, weight gain, dry mouth, blurred vision, drowsiness, dizziness, headache, tremors, confusion, fainting, fever, sweating
Risperdal	Risperidone	2–8	Extrapyramidal effects, dizziness, sedation, dry mouth, headache, nausea, vomiting, cough, insomnia, cough, skin rash, muscle spasms, galactorrhea
Zyprexa	Olanzapine	5–20	Loss of balance control, muscle trembling, blurred vision, weight gain, dizziness, dry mouth
Seroquel	Quetiapine	75–800	Chills, confusion, cold sweats, dizziness, drowsiness, nausea, vomiting, stomach pain, weight gain, mood changes, nightmares

(continued)

Table 15.3 (continued)

Trade name	Generic name	Daily dosage (mg/d)	Side effects
Geodon	Ziprasidone	40–160	Cough, sedation, fever, loss of balance control, drooling, restlessness, sneezing
Abilify	Aripiprazole	5–30	Weight gain, blurred vision, nausea, vomiting, headache, anxiety, insomnia, dizziness, drowsiness, anxiety
Saphris	Asenapine	2.5–20	Restlessness, uncontrolled movements, sticking out of tongue, constipation, dry mouth, insomnia, drowsiness, dizziness, upset stomach and weight gain, suicidal tendencies
Latuda	Lurasidone	20–160	Loss of balance control, muscle trembling, restlessness, slow reflexes, nausea, dizziness, drowsiness, shaking, diarrhea
Fanapt	Iloperidone	1–24	Blurred vision, cough, drooling, fever, headache, loss of voice, restlessness, runny nose, sweating, drowsiness, dizziness
Invega	Paliperidone	6–12	Drooling, loss of balance control, muscle trembling, shuffling walk, uncontrolled movements, drowsiness, dizziness, nausea, cough, dry mouth, blurred vision

Anxiolytics and Hypnotics in Psychodermatology

The role of anxiolytics in dermatology is limited to severe anxiety reactions and sleep difficulties associated with psychodermatological disorders. Anxiety medications could be divided into two major groups. Benzodiazepine (BDZs) and nonbenzodiazepines (NBDZs). BZDs act by potentiating the gamma aminobutyric acid (GABA)-A Receptor. GABA is an inhibitory brain neurotransmitter and is of three subtypes A, B, and C. Side effects of BZDs manifest through the central nervous system by excessive sedation, impairment of motor function, tiredness, and stupor. BZDs with

Table 15.4 Novel antipsychotics

Trade name	Generic name	Daily dose (mg/d)	Side effects
Caplyta	Lumateperone	42	Neuroleptic malignant syndrome, tardive dyskinesia, seizures, dizziness, allergic reaction, drowsiness, dry mouth, nausea, fatigue, vomiting, decreased appetite
Rexulti	Brexpiprazole	1–4	Anxiety, dizziness, drowsiness, fatigue, dyspepsia, nasopharyngitis, increased creatine phosphokinase in blood specimen, tremor, hypersomnia, weight gain
Vraylar	Cariprazine	1.5–6	Blurred vision, dizziness, drooling, drowsiness, fever, muscle trembling, tremor, weight gain, nervousness, restlessness
Nuplazid	Pimavanserin	10–34	Peripheral edema, confusion, nausea, rapid weight gain, bloating, Weight gain or loss, hallucination, walking abnormally

longer half-life tend to accumulate and can lead to memory impairment. They can enhance the effects of narcotic analgesics, anticonvulsants, and antipsychotics, so care should be taken in patients on concomitant therapy. Chronic use can also lead to tolerance and dependence. Dependence is characterized by psychological dependence (cravings and preoccupation with obtaining the substance) and physiological dependence (which manifests as physical withdrawal symptoms). Tolerance is the uncontrollable desire to increase the use of a substance in order to achieve the same effect. NBDZs are agents, which are also used for anxiety and sleep difficulties in psychodermatological disorders, but they do not belong to class of BDZs. They include antihistamines, beta-blockers, buspirone, and zolpidem. Zolpidem acts as a partial benzodiazepine but has no anticonvulsant activity. Zaleplon has fewer cognitive problems. Eszopiclone is for long-term use in insomnia. Rozerem works on the melatonin receptors. Anxiolytics and hypnotic medications are summarized in Tables 15.5 and 15.6.

Table 15.5 Benzodiazepines

Brand name	Generic name	Daily dosage (mg/d)	Side effects
Long acting	Chlordiazepoxide	5–75	Dizziness, drowsiness, tiredness, nausea, vomiting, headache, skin rash, swelling, blurred vision, constipation, hallucinations, hyperactivity, trouble walking
Librium	Diazepam	2–40	Hypotonia, shakiness and unsteady walk, unsteadiness, trembling, tiredness, blurred vision, drowsiness, dizziness
Valium	Flurazepam	15–30	Confusion, headache, dizziness, vertigo, insomnia, irritability, weakness, heartburn, blurred vision, loss of coordination
Dalmane			
Intermediate	Alprazolam	0.25–4 mg	Ataxia, cognitive dysfunction, constipation, drowsiness, dysarthria, fatigue, anxiety, blurred vision, skin rash, insomnia, sexual dysfunction
Xanax	Lorazepam	0.5–10	Sedation, dizziness, drowsiness, sleepiness
Ativan	Clonazepam	0.25–4	Muscle weakness, drowsiness, dizziness, confusion, cough, abnormal thinking
Klonopin	Temazepam	7.5–30	Dizziness, insomnia, lethargy, irritability, muscle weakness, headache, blurred vision
Restoril	Oxazepam	10–30	Drowsiness, dizziness, insomnia, vertigo, irritability, confusion, insomnia, headache, blurred vision, amnesia, swelling
Serax			
Short acting	Triazolam	0.25–0.5	Dizziness, insomnia, irritability, tiredness, depression, headache, blurred vision
Halcion	Midazolam	IV only	Dizziness, tiredness, insomnia, irritability, loss of co-ordination, headache, itching, blurred vision
Versed			

Table 15.6 Sedative-hypnotics

Class/brand name	Generic name	Daily dosage (mg/d)	Side effects
Short acting	Triazolam	0.125–	Dizziness, insomnia, tiredness, irritability, headache, blurred vision, loss of
Halcion	Estazolam	0.25	coordination, excitability
Intermediate	Temazepam	0.5–2	Absence of or decrease in body movement, clumsiness or unsteadiness,
Prosom	Flurazepam	7.5–45	dizziness, sleepiness, hypokinesia
Restoril	Quazepam	15–45	Dizziness, insomnia, lethargy, irritability, amnesia, headache, depression,
Long acting		7.5–15	blurred vision
Dalmane			Dizziness, irritability, weakness, headache, loss of coordination, headache,
Doral			stomach pain, blurred vision
			Drowsiness, dizziness, vertigo, insomnia, confusion, headache,
Nonbenzodiazepines	Zolpidem	5–20	Dizziness, hallucination, dry mouth, nausea, constipation, weakness,
Ambien	Zaleplon	5–20	headache, diarrhea
Sonata	Eszopiclone	2–3	Dizziness, drowsiness, amnesia, nausea, headache, anxiety, depression,
Lunesta			constipation, dry mouth, back pain
			Infection, drowsiness, unpleasant taste, nausea, dizziness, xerostomia,
Melatonin receptor agonists	Ramelteon	8	Dizziness, drowsiness, fatigue, sleepiness, nausea, tiredness
Rozerem			
Barbiturate like agents	Chloral hydrate	500–1500	Drowsiness, diarrhea, vomiting, nausea, headache, stomach pain
Notec			
Natural agents	Melatonin	0.3–2	Dizziness, insomnia, depression, headache, stomach cramps
	Valerian root	400–900	Headache, excitability, uneasiness, insomnia, mental dullness

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