Psychological Aspects of Hair Disorders: Consideration for Dermatologists, Cosmetologists, Aesthetic, and Plastic Surgeons

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Abstract

Hair loss disorders may cause considerable distress to patients. Although many do not pose a significant medical risk, the sociocultural importance of hair is substantial. Often the extent of hair loss does not correlate to the impact on psychosocial function, thus necessitating an individualized approach. Hair loss disorders are interrelated with mental health and at times exert significant psychological repercussions, and therefore, providers should address both medical and psychological aspects of treatment. This review contains a discussion of the impact on quality of life of common hair loss disorders and the psychological approaches that providers may utilize to improve care. The incorporation of psychodermatology and psychotrichology in dermatology and psychiatry residency programs is of vital importance. Dermatology and psychiatry liaison clinics may prove useful in the treatment of these patients.

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Introduction/Literature Review

Hair loss is a common clinical complaint seen by providers that present in a variety of fashions. While hair loss rarely presents a serious medical risk to the patient, the psychological impact is often devastating. The sociocultural significance of hair is present throughout history and transcends geographic borders. The treatment of hair disorders often falls under the care of dermatologists, yet other physicians such as plastic and aesthetic surgeons and beauty specialists such as cosmetologists frequently encounter such patients.

The field of study termed psychodermatology, and its sub-branch psychotrichology, contains a growing body of evidence that elucidates the connection between the skin and its appendages with the psyche. The nervous system and skin arise from the same embryonic tissue called ectoderm. A complex interplay of communication transpires via the nervous, endocrine, immunologic, and cutaneous systems. The skin has begun to be viewed as a peripheral neuroendocrine organ. Indeed, human scalp hair follicles exhibit a fully functional hypothalamic-pituitary-adrenal

Table 1. Classification of psychotrichological disorders

Classification	Psychotrichological disorders
Primary psychiatric Hair loss condition is a psychiatric disorder	Trichotillomania Trichoteiromania Trichotemnomania Trichodaknomania Trichorrhizophagia Trichobezoar
Secondary psychiatric Hair loss condition has propensity to cause comorbid psychiatric condition, such as major depressive disorder or generalized anxiety disorder	Anagen effluvium Cicatricial alopecia Androgenetic alopecia Traction alopecia Tinea capitis
Psychophysiologic Hair loss condition may be exacerbated by and interrelated to mental health	Telogen effluvium Alopecia areata
Cutaneous sensory disorder Hair loss condition caused by unspecified somatic complaint	Scalp pruritus or burning not related to other disorder

axis equivalent, which includes cortisol synthesis and feedback regulation [1]. Activation of this axis with psychological stress and subsequent release of corticotrophin-releasing hormone may induce degranulation of mast cells to trigger premature catagen leading to hair loss [2]. These findings highlight the role stress may play in hair loss disorders such as alopecia areata.

The study of hair within psychodermatology is known as psychotrichology and covers primary psychiatric conditions such as trichotillomania, secondary psychiatric conditions such as depression or anxiety found after hair loss, and psychophysiologic conditions such as telogen effluvium or alopecia areata that are exacerbated or caused by stress. The classification of psychotrichological disorders is shown in Table 1 [3]. At present, the field is understudied, yet efforts have been made to present this important topic in the literature [4, 5]. In this review, we discuss the psychological impact and its subsequent implications for holistically managing several of the most common hair loss disorders presenting in office practice.

Trichotillomania

Trichotillomania is an obsessive-compulsive spectrum disorder characterized by unconscious or distressing urges that are alleviated by hairpulling. Closely related to skin picking disorder and nail picking disorder, trichotillomania primarily affects women with an estimated prevalence of between 0.6 and 3.6% of adults [6]. Age of onset is typ-

ically 10–13 years with the most common sites of hairpulling being the scalp, eyebrows, and pubic region [7]. Trichotillomania is associated with several comorbid psychiatric disorders, primarily impulse control related, including kleptomania, pyromania, obsessive-compulsive disorder, skin picking disorder, bulimia nervosa, and pathological nail biting [8].

Careful history and physical along with trichoscopy are important in diagnosis. Clinical features may differ between individuals, and it is important to note that many children and adolescents may display mild hairpulling that does not negatively impact quality of life or functioning. Individuals may use their fingers or other objects, such as tweezers, to remove hair. Preference for hairs with certain characteristics and preceding behaviors of combing, tugging, or visually inspecting hairs may occur [9]. Removed hairs may be discarded, twirled between fingers, inspected, or ingested [9]. Large undigested masses of ingested hairs, known as trichobezoars, are a serious complication which may present with abdominal pain, vomiting, or constipation due to obstruction [10]. If suspected, prompt referral to a gastroenterologist is indicated. On visual inspection, uneven patches of scalp alopecia display broken hairs of different lengths and sometimes scalp trauma. Trichoscopy demonstrates broken hairs, black and yellow dots, most commonly absence of exclamation mark hairs (although they may rarely be found), and presence of characteristic coiled hairs [11].

Nearly one-third of patients with trichotillomania report a poor quality of life and seek treatment of other

Table 2. Common screening and rating instruments for trichotillomania

Instrument	Brief description
DSM-V	Diagnostic tool published by the American Psychiatric Association
MGH-HPS	Self-reported, 7-item questionnaire to assess repetitive hairpulling
PITS	Clinician-rated tool assessing hairpulling
NIMH-TSS	Clinical interview of 5 questions discussing hair-pulling behaviors
NIMH-TIS	Clinician rating of patient impairment
CGI	Clinical rating of illness severity, improvement/change, and therapeutic response

DSM-V, diagnostic and statistical manual of mental disorders, 5th edition; MGH-HPS, MGH* Hairpulling Scale; PITS, Psychiatric Institute Trichotillomania Scale; NIMH-TSS, NIMH** Trichotillomania Severity Scale; NIMH-TIS, NIMH** Trichotillomania Impairment Scale; CGI, Clinical Global Impression.

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mood or anxiety disorders [12, 13]. Most patients report mild to moderate life impairment across social, occupational, academic, and psychological functioning and feel that providers are not aware of the disorder, which results in only 40% seeking treatment from a therapist and only 27% seeking treatment from a psychiatrist [12]. As a result of hairpulling, 83% and 70% of patients report anxiety and depression, respectively, and it is not uncommon for the patient to utilize drugs or alcohol as coping strategies [12]. Effective assessment of trichotillomania includes screening for not just clinical symptoms but also degree of functional impairment, comorbid psychiatric conditions, and adverse coping mechanisms. Most common screening and rating instruments for trichotillomania are shown in Table 2. Referral to psychiatry is almost always appropriate for the best management of these patients.

Both pharmacologic and nonpharmacologic treatment options are available for trichotillomania. Meta-analysis of available randomized control trial data shows a large benefit for behavioral therapy with habit reversal training to improve clinical, depressive, and anxiety symptoms and recommends this therapeutic approach as first-line treatment [14]. Several other psychotherapeutic options exist including acceptance and commitment therapy, approach-avoidance training, and group cognitive-behavioral therapy. Further meta-analysis of available data also showed that clomipramine, olanzapine, and *N*-acetylcysteine all demonstrate significant benefit in improving clinical, but not depressive or anxiety, symptoms [14]. Of note, the side effect profile of clomipramine and olanzapine is more adverse than *N*-acetylcysteine. Interestingly, a small, open-label study

showed the cannabinoid agonist, dronabinol, produced significant reductions in clinical symptoms, although further research with placebo-controlled studies is required [15]. Because many patients do not respond or only partially respond to treatment, care must be taken to minimize the impact of both medical and psychiatric comorbidities.

Alopecia Areata

Alopecia areata is a hair loss disorder characterized by temporary, nonscarring alopecia with an autoimmune etiology. Hair loss can range from discrete patches to total hair loss from all body areas. Epidemiologic studies estimate the lifetime risk to be about 2% in the general population [16]. Although alopecia areata was once thought to be a psychosomatic disease, there is now evidence for genetic susceptibility of an immune-mediated attack on hair follicles, which may be exacerbated by a variety of stimuli including emotional stress [17]. Indeed, in a murine model of alopecia areata, mice exhibit a blunted neuroendocrine response to physiologic stress [18]. Many patients often describe the significance of life events prior to onset of disease.

Clinical features of the most common patchy variant include discrete areas of hair loss, most commonly in the scalp but sometimes also the beard in men. History often reveals rapid, asymptomatic hair loss. Exam may show smooth, nonerythematous areas of hair loss. Common features of trichoscopy are yellow dots, black dots, broken hairs, “exclamation point” hairs, and short vellus hairs [11]. “Exclamation point” hairs are short broken hairs

where the proximal end is tapered and narrow. Biopsy may be used to confirm an uncertain diagnosis.

The psychosocial and quality of life implications of alopecia areata have been well-studied in comparison to other hair loss disorders. Survey of affected patients uncovered their experiences as distressing with intense emotional suffering that impacts multiple domains of life [19]. Patients report issues revolving around their identity, which represents an especially difficult challenge for affected children and adolescents who already struggle with identity formation [19]. Depression, anxiety, and obsessive-compulsive disorders have been associated with affected patients at a higher rate than the general population with 50% of psychiatric disorders occurring prior to diagnosis of alopecia areata [20]. Further research demonstrated a bidirectional association between major depressive disorder and alopecia areata. Major depressive disorder increases risk of subsequent alopecia areata by 90% with antidepressant use showing a protective effect, and alopecia areata increases risk of subsequent major depressive disorder by 34% [21]. Huang et al. [22] postulate that stress hormones may promote inflammation around the hair follicle and underscore the intertwined nature of mental health and disease activity. A meta-analysis of health-related quality of life studies in alopecia areata patients showed that wearing a wig has a positive impact, while scalp involvement and comorbid anxiety or depression have negative impacts [23]. A small double-blind, placebo-controlled study of 13 patients with alopecia areata demonstrated that the tricyclic antidepressant, imipramine, produced clinically significant hair regrowth in 5/7 patients while no response was observed in the placebo group [24]. Similarly, a subsequent study found that treatment with paroxetine in 13 alopecia areata patients with comorbid psychiatric disorders produced total or partial hair regrowth in 6/8 patients while almost total regrowth was only observed in 1/5 control patients receiving placebo [25]. Addressing mental health in the treatment of alopecia areata is paramount in maximizing therapeutic effect.

Alopecia areata presents additional challenges in the pediatric population. Anxiety levels of patients' ages 8–18 appear to be higher in those with alopecia areata than control [26]. A study examined perceptions of school children with alopecia areata by showing images to their peers. The authors found that younger students were more likely to show visible discomfort and express fear of being near a classmate with alopecia areata. Almost half of students from all age levels believe that the affected student was sick, and a much smaller proportion even

believed they were dying [27]. In addition, a brief research letter in Australia noted that 4 adolescent boys with recent diagnoses of multifocal alopecia and no preceding psychological disorders had died by suicide [28]. These findings point to the devastating impact on social acceptance and mental health that hair loss places on children and adolescents.

Patients should be informed that remission may occur naturally without the use of pharmacologic therapy. Standard treatment of care for alopecia areata includes topical and injected corticosteroid therapy. Providers should also be conscious of screening for mental health disorders and impact on quality of life. Psychosocial treatments include hypnosis, therapy, synthetic hair, and in certain cases antidepressant use. Hypnosis has demonstrated significant improvements in alexithymia, anxiety, and depression with results sustained over a 6-month period and a nonsignificant improvement in clinical symptoms [29]. Alexithymia is a subclinical absence of emotional awareness that includes the reduced ability of an individual to describe their feelings. The British Association of Dermatologists has issued guidelines recommending referral to a pediatric mental health professional if children exhibit signs of withdrawal, low self-esteem, or other significant changes [30]. In addition, the group recommends that wigs, headpieces, scarves, false eyelashes, drawn-on eyebrows, and even semipermanent tattoo are all effective coping strategies [30]. In patients presenting with comorbid depression, a small trial demonstrated significant improvement in mean diameter of patches in a group receiving both triamcinolone injections and antidepressant therapy (citalopram) compared to triamcinolone alone [31]. However, providers should be aware that antidepressants, specifically selective serotonin-reuptake inhibitors, may produce alopecia in some patients [32]. Mental health and alopecia areata are interrelated, and a successful treatment strategy should take care to address both aspects of the disease.

Telogen Effluvium

Telogen effluvium is a disorder characterized by excessive hair shedding that is diffuse and nonscarring. Typically following an inciting event, hair follicles prematurely shift from anagen to telogen phase causing shedding of hair. Women seek treatment more frequently than men, especially in the postpartum period which is attributed to the hormonal changes during this time [33]. In acute telogen effluvium, hair loss typically begins 2 to 3 months after triggering event and undergoes remission in 95% of cases [34]. Chronic telogen effluvium typically

affects middle-aged women and demonstrates a fluctuating clinical course, lasting >6 months, that may not always present with an identifiable triggering event. Various events can trigger disturbance in the hair cycle including physiologic stress (high fever, systemic illness, and childbirth), major emotional stress from life-changing events, medical conditions (hyper/hypothyroidism, systemic lupus erythematosus, and psoriasis), nutritional deficiencies (iron/zinc deficiency and crash dieting), and drugs (oral contraceptives, androgens, β -blockers, and retinoids) [35]. Indeed, a recent study showed an over 400% increase in incidence of telogen effluvium in minority predominant communities heavily affected by COVID-19 several months after shelter in place directives [36].

Patients typically present with diffuse reduction in scalp hair density that may not be readily appreciated by the clinician in patients with voluminous hair. Hair loss may accentuate androgenic alopecia patterns. Careful history often elucidates the typical temporal course and any potential inciting factors. Trichodynia is sometimes reported and has noted to be found more frequently in patients with telogen effluvium compared to androgenic alopecia [37]. Physical exam reveals an often normal-appearing scalp with the absence of broken hairs. The hair-pull test, performed anytime after shampooing or brushing, is considered positive if >2 hairs are removed [38]. Scalp biopsy can confirm diagnosis, especially in patients with chronic telogen effluvium.

Stress can be a primary or secondary factor in telogen effluvium, and the psychosocial impact of hair loss can often be severe [39]. Clinicians should be aware that extent of hair loss does not predict impact on quality of life, and women rate their hair loss severity as more severe than dermatologists [40]. Care should be taken to elicit each individual patient's perception of their hair loss and its effect on their quality of life. Although the relationship between stress and telogen effluvium has been difficult to prove in humans, murine studies have demonstrated that psychoemotional stress induces premature catagen development, intrafollicular apoptosis, and deleterious inflammatory events surrounding the hair follicle [41].

Identification of the trigger and psychological support are key to the management of telogen effluvium. An isolated event will resolve spontaneously, but underlying associated illness, nutritional deficiency, or continuous exposure of a suspected drug should be addressed. Education is vital to help the patient understand the normal hair follicle cycle and relationship between stressors, timing of hair loss, and shedding. Patience is necessary for recovery. Reassurance should be made that the patient will not

go bald, and hair loss rarely exceeds 50% of scalp [42]. Pharmacologic treatment involves stopping any catagen-inducing medications. In addition, minoxidil may help stimulate hair growth and play a role in the management of chronic telogen effluvium.

Anagen Effluvium

Anagen effluvium is a disorder characterized by nonscarring alopecia which occurs after a toxic or inflammatory exposure. Typically seen after chemotherapy treatment, the cytotoxic effect disrupts dividing hair matrix keratinocytes leading to weakened hair strands that eventually break. Beginning within days to weeks after exposure, hair loss is usually severe because approximately 90% of hair follicles are in anagen phase. Prolonged exposures can result in loss of hair from the eyebrows, eyelashes, axillary, and pubic regions. Other causes of anagen effluvium include head and neck radiation, malnutrition, pemphigus vulgaris, and exposure to mercury, boron, thallium, bismuth, levodopa, colchicine, or cyclosporine [43].

Patients usually first lose hair from the crown and area above the ears, and complete hair loss is evident by 2 to 3 months following exposure [44]. Some evidence exists that hair loss follows an androgenic pattern between men and women [45]. Although the majority of patients experience hair regrowth starting 1–3 months following discontinuation of chemotherapy, approximately 65% regrow hair of a different color, texture, or thickness [45]. Diagnosis can be made on history and physical exam alone, rarely requiring biopsy. Exam of hair follicle shows a tapered fracture of the hair shaft.

Chemotherapy-induced alopecia has been found to be an incredibly distressing event with profound impact on quality of life. A review of the literature found that hair loss was consistently rated as one of the most troubling side effects of chemotherapy [46]. One study even showed that 8% of women considered foregoing chemotherapy in order to avoid hair loss [47]. A cross-sectional study of women with breast cancer showed 55% reported psychological distress from hair loss which was negatively associated with body image, psychosocial well-being, and depression [48]. The findings are not just limited to women, as men also describe negative feelings toward chemotherapy-induced alopecia, albeit uniquely affecting their masculinity [49]. Clearly, care must be taken by providers to prioritize the psychological effects of this disorder. Utilization of a tool such as the chemotherapy-induced alopecia distress scale may be helpful for individualizing treatment and measuring impact of hair loss [50].

Management of chemotherapy-induced alopecia includes preventative treatment and coping strategies. A meta-analysis showed that only scalp cooling during chemotherapy administration was significantly effective in reducing risk of hair loss [51]. Cooling is thought to vasoconstrict scalp vessels and reduces hair follicle biochemical activity. Minoxidil and other pharmacologic interventions have not been found to significantly reduce risk, although their use may still be discussed with the patient [51]. Effective coping strategies include referral to mental health professionals, providing resources for wigs and other head coverings, and considering preemptive shortening or removal of hair to avoid the insidious trauma of hair loss [44]. Patient education and planning are important tools in managing expectations to minimize distress.

Cicatricial Alopecia

While the aforementioned hair loss disorders are all reversible to some degree, cicatricial alopecias are characterized by inflammation that permanently destroys hair follicles and leads to fibrotic scarring. Primary cicatricial alopecia features inflammatory processes that target the hair follicle itself, and secondary cicatricial alopecia features an inflammatory, neoplastic, or traumatic process that damages the dermis and associated hair follicles. Primary cicatricial alopecia may be further categorized by type of inflammatory infiltrate: lymphocytic, neutrophilic, or mixed. Epidemiologic data on cicatricial alopecia are scarce, although 1 study showed that only 3.2% of patients presenting to a hair clinic were diagnosed with primary cicatricial alopecia over a 5-year period [52]. Presentation to a clinic and eventual diagnosis is usually delayed as hair loss progresses subclinically [53].

Individual types of cicatricial alopecia have differing clinical presentations, trichoscopic features, and histopathologic findings. Physical exam should begin with assessment of areas of alopecia and inflammation. In general, trichoscopy is significant for decreased hair density and loss of follicular openings, which may present simply as white dots on a darker scalp [11]. Another useful application of trichoscopy is for selecting a representative area for biopsy, preferably on the edge of scarring [54].

The irreversible nature and severe psychosocial impact have led scarring alopecia to be considered a trichologic emergency that requires prompt diagnosis and multidisciplinary care [52]. Dlova et al. [55] propose a promising community outreach strategy for dermatologists to educate local hairstylists and beauty practitioners to identify

scarring alopecia, so that they may then, in turn, educate patients to seek earlier intervention. Evidence supports the observation that women with scarring alopecia have poorer quality of life and heavier psychosocial burden compared to women with nonscarring alopecia, which is potentially explained by poor response to treatment, permanent hair loss, and distressing-associated symptoms [56]. In women with scarring alopecia, low quality of life was found to be associated with feelings of anxiety, depression, loneliness, social isolation, and low self-esteem [56]. This population has been found to view their disease as a chronic condition that is unlikely to be affected by treatment indicating a low external locus of control surrounding their alopecia [57]. Similar to findings in other hair loss disorders, the extent of psychosocial impact in scarring alopecia does not appear to be influenced by severity of disease, which indicates the need for an individualized approach to each patient [58]. One study examining psychiatric comorbidities in patients with central centrifugal cicatricial alopecia, a scarring alopecia primarily affecting Black women, found a 10% prevalence of comorbid depressive or anxiety disorders [59]. Early assessment of patients with scarring alopecia should include illness perception, quality of life impact, and screening for mood disorders [57]. Easily accessible questionnaires such as the Illness Perception Questionnaire, Dermatology Life Quality Index, Hospital Anxiety and Depression Scale, Patient Health Questionnaire-2 and -9, or Generalized Anxiety Disorder-7 may be utilized to identify at-risk patients.

Treatment of cicatricial alopecia depends on the inflammatory infiltrate and rarely produces regrowth of hair, instead focusing on halting progression of disease. Focus should be placed on also addressing associated symptoms such as pain, burning, and itching. Treatment is decided in accordance with the type of cicatricial alopecia, although patients should be educated that hair will not regrow in areas of scar tissue. There is no evidence supporting use of over-the-counter products for hair loss, expensive shampoos, or that chemical treatments are harmful [53]. Providers are encouraged to discuss therapeutic goals and coping strategies such as camouflage techniques. Reducing the psychosocial burden of the disease is achieved by incorporating psychological consultation and support groups into the care plan. Ultimately, a personalized and multidisciplinary approach consisting of dermatologists, psychologists, and community hair and beauty specialists is key to the treatment of cicatricial alopecia. The summary of psychological treatments associated with common hair disorders is shown in Table 3.

Table 3. Summary of psychological approaches to selected hair disorders

Hair disorder	Psychological approaches to treatment
Trichotillomania	Referral to psychiatry [14] Behavioral therapy with habit reversal training Acceptance and commitment therapy Approach-avoidance training Cognitive-behavioral therapy <i>N</i> -acetylcysteine [14] Clomipramine [14] Olanzapine [14] Dronabinol [15]
Alopecia areata	Patient education Screening for mental health disorders Hypnosis [29] Referral to mental health professional [30] Coping strategies [30] Wigs Headpieces Scarves False eyelashes Drawn-on eyebrows or semipermanent tattoo Antidepressant therapy [31]
Telogen effluvium	Identification and discontinuation of trigger if possible [32] Isolated, heavily distressing event, illness, nutritional deficiency, suspected drug Patient education Natural hair cycle Relationship to stressors Patience
Anagen effluvium	CADS Questionnaire [49] Managing patient expectations [43] Education Preemptive shortening or removal of hair Resources for wigs and other head coverings Referral to mental health professional [43]
Cicatricial alopecia	IPQ, DLQI, HADS, PHQ-2,9, GAD-7 questionnaires Screening [56] Illness perception Quality of life Mental health disorders Address associated symptoms of pain, burning, itching Referral to mental health professional Coping strategies Support groups

IPQ, Illness Perception Questionnaire; DLQI, Dermatology Life Quality Index; HADS, Hospital Anxiety and Depression Scale; PHQ, Patient Health Questionnaire-2 and -9; GAD-7, Generalized Anxiety Disorder-7; CADS, chemotherapy-induced alopecia distress scale.

Conclusion

As demonstrated in the preceding discussion, the impact of hair loss on a patient's psychosocial state can be tremendous. Fortunately, there are avenues to provide

support and bolster the quality of care provided to this population. A summary of psychological treatment approaches is found in Table 3. A common approach to a patient with any hair loss disorder includes assessing the impact the disease may have on their life. The utilization

of various questionnaires is suggested, but sometimes asking a simple question such as “how has this affected your life”? can be effective. Patient education, discussion of coping strategies, and professional mental health support can then be provided or offered. Too often, we underestimate the power that words may have in treating a patient.

Looking forward to the future, the field of psychotrichology stands to make important contributions to patients with hair loss disorders. Several steps must be made to improve our current knowledge. First, the incorporation of the psychological impact of hair loss disorders into medical school curricula and residency training programs will greatly increase awareness and promote collaboration. Researchers and providers interested in this topic may look toward the integration of psychological treatments in other dermatologic conditions for promising ideas. Paramount to the care of these patients is establishing standard psychological support within dermatology and plastic surgery clinics and developing evidence-based psychological

interventions. As the connection between skin and psyche unfolds, treatment strategies that incorporate both approaches will excel.

Conflict of Interest Statement

The authors have no conflicts of interest to disclose.

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Author Contributions

M.J. conceptualized, designed, and critically reviewed the manuscript. C.R.M. searched the references and compiled the manuscript.

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