

# Atopic Dermatitis In Relation To Psychological Distress

Asmaa Almalki

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**Abstract:** An association of psychological stress with atopic dermatitis is widely accepted. Serious skin diseases, particularly atopic dermatitis, have a negative effect on patients' total wellbeing. Patients often experience significant psychological and social distress such as a higher level of depression and fear of judgment. Skin illnesses can also affect patients' work-related lives by causing them to miss work or be less productive. High top quality of lifestyle instruments provide important info for doctors, the public, and those involved in submission of medical care resources, which inhibits chronic epidermis condition from being overlooked among other health conditions. Here is a systemic review about the relation of psychological stress in atopic dermatitis (eczema).

**Keywords:** Atopic dermatitis, Psychological stress.

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## 1. INTRODUCTION

Atopic dermatitis or as its also called atopic eczema is a serious skin disorder recognized by pruritus and swelling, starting as an erythematous, maculopapular allergy. Damaging is hard to avoid and results in excoriation and additional disease, leading to lichenification. Atopic dermatitis is the most common inflammation related skin condition of childhood and continues to be common also in adults. It typically starts in children or teenagers with a personal or genealogy of atopic dermatitis, sensitive rhinitis, or bronchial asthma. In most patients, atopic dermatitis is a repeated, relapsing problem, with a terrible circle of itchiness and scratching that results in chronicity. Psychological stress can provoke many cutaneous dermatoses associated with abnormal epidermal barrier function, such as AD. Stress involves different neuromediators, such as sensory neuropeptides, including the substance P-NK-1 receptor system, and the serotonergic system, in, for example, raphe. There is a localization of serotonin and sensory neuropeptides in the nervous system.

**PSYCHOCUTANEOUS DISORDERS** include skin-related diseases that are suffering from emotional factors and emotional diseases in which the skin is the focus on of disordered thinking, actions, or understanding. Emerging evidence of the part of the neurological system in epidermis pathophysiology provides signs into possible links between stress and skin-related diseases. Atopic dermatitis, a chronic skin disorder characterized by pruritus and inflammation (eczema), often begins as an erythematous, pruritic, maculopapular eruption (Ehlers et al. 1995; Gil et al. 1987; Lammintausta et al. 1991). Lichenification, excoriations, and infections frequently occur in response to excessive scratching (Gil et al. 1987). Atopic dermatitis generally starts in beginning childhood or in the time of puberty and is regularly associated with a individual or family history of atopic dermatitis, allergic rhinitis, or bronchial asthma (Ginsburg et al. 1993). Atopic dermatitis is a common disorder, with a female-to-male ratio of 1.2:1.0 (M.L. Johnson 1977; Rajka 1989). The incidence of atopic dermatitis has improved to higher than 10% within the past several years, possibly as a result of higher visibility provocative aspects such as outside pollution, reagents in highly protected structures, house insects, food preservatives, and improved parent and doctor attention of atopic dermatitis (Leung et al. 1999; Rothe and Grant-Kels 1996; Williams 1992, 1995). Mild cases of atopic dermatitis may spontaneously resolve, but most patients experience persistent or relapsing symptoms. In one study of 47 patients diagnosed with atopic dermatitis by age 2 years and followed up for 20 years, 72% continued to have signs of atopic dermatitis (Kissling and Wuthrich 1994). In another study, symptoms persisted or recurred in 77%–91% of the adult patients who had moderate or severe symptoms as teenagers. Psychological stress affects skin barrier function, with itch-scratch behaviors further traumatizing epidermal integrity. SP can induce itch, and rising plasma levels were associated with increased stress and worsening AD. There are significant consequences documented with regards to the association between chronic skin disease and psychiatric morbidity, including higher rates of suicidal ideation. Seven point two percent of severe psoriasis and 5.6% of acne patients reported

suicidal ideation – higher rates than that reported in general medical patients (2.4–3.3%). In a recent study involving 466 dermatologic inpatients and outpatients with a wide array of skin diseases, 8.6% reported suicidal ideation. Some of the factors associated with suicidal ideation included inpatient status, female sex, psychological distress, and the presence of a depressive or anxiety disorder.

## 2. METHOD AND MATERIALS

We conducted a search of comprehensive review and synthesis of data focusing on a topic of atopic eczema PubMed's Medline database of articles in English for the years 2000 to 2014, and we try to make a systemic review in addition to make our conclusion about the relation of Atopic Dermatitis with psychological stress, the review included the terms: atopic eczema, dermatitis, psychological stress and atopic dermatitis.

## 3. RESULTS

Atopic dermatitis (AD) is a complicated disease typically such as connections of inherited, ecological, and immunologic aspects. Recent reports suggest psycho-neuro-immunologic aspects and emotional pressure are important in its progress. The findings that internal (bacterial infections) or external (psycho-logic) stresses may generate AD flares is described by research showing that pressure affects the epidermis hurdle operate and prefers a move in resistance toward a T assistant type 2 cell/allergic reaction. Furthermore, those with AD appear to have a got hypothalamic lack of that affects normal hypothalamic-pituitary-adrenal axis operate. Neuropeptides released in the epidermis may also mediate neurogenic swelling, such as mast mobile degranulation. AD causes significant pressure and affected total wellbeing in sufferers and their close relatives. Psychological and stress-reduction treatments were recently shown to enhance individual well-being, and to significantly enhance cutaneous manifestations. Distress appears to interrupt the skin leaking in the framework barrier homeostasis, leading to swelling and pruritus. The stress-induced devastation of the barrier operate may be mediated by glucocorticoids or by neuropeptides launched within the skin (Garg et al. 2001). In a study of children with atopic dermatitis, about a third of the kids with serious atopic dermatitis symptoms had considerably greater mortality stages on behavior testing surveys. The psychological condition in children with atopic dermatitis was carefully relevant to these verities of the disease (Daud et al. 1993). In another study, children with moderate to severe atopic dermatitis were significantly more likely to be distressed than a control group with minor skin problems (Absolon et al. 1997). Certain dimensions of family environment, such as independence and organization, correlated with less severe symptoms of atopic dermatitis, whereas parental responses of attention or physical contact reinforced scratching (Giland Sampson 1989). Because increased distress, anxiety, and depression occur in many patients with atopic dermatitis, a psychiatric evaluation should be included in the overall management of patients with atopic dermatitis, especially in those with moderate to severe symptoms. Psychiatric treatment also might help to improve health-related quality of life, which is adversely affected by atopic dermatitis, particularly in social functioning and psychological wellbeing, Stressful life events often precede the onset or exacerbation of atopic dermatitis (Kodama et al. 1999; Morrenet al. 1994; Picardi and Abeni 2001). Stress may have an impact on atopic dermatitis through an connections between the CNS and the defense mechanisms. The CNS appears to control defense operate through the neuroendocrine program and through immediate efferent autonomic neurological program relationships. Stress-related fluctuations in the neuroendocrine program or autonomic anxious sys-tem might promote the growth of altered immunological reactivity and subsequent increased vulnera bility to allergic inflammation (Buske-Kirshbaum et al.2001). Controlled studies have found that adult patients with atopic dermatitis are more anxious and depressed com-pared with clinical and disease-free control groups (Ehl-ers et al. 1995; Hashiro and Okumura 1997). Although psoriasis patients often suffer from depression, patients with atopic dermatitis tend to experience increased anxiety, neuroticism, and hypochondriasis in addition to depression. Patients often experience anger and frustration with their disease. Although the exact relationship between psychological morbidity and atopic dermatitis has yet been determined, patients clearly experience psychological distress related to their AD. Adults with AD have an increased incidence of psychiatric disorders. In patients with severe disease, the average Becks depression inventory (BDI) and the self-rated anxiety score (SAS) were both higher than in healthy controls.

Children also experience negative psychological impact from AD. For example, a study by (Absolon et al.) showed that children with AD had twice the psychological disturbance as age-matched controls. Another study of infants found that patients with eczema had significant excess of dependency/clinginess (50% vs. 10%), fearfulness (40% vs. 10%) and behavioral problems (50% vs. 12%) as compared to the control population.

#### **4. PERIPHERAL AND CUTANEOUS INFLAMMATORY CELLS IN STRESSED PATIENTS WITH ATOPIC DERMATITIS**

In both lesion and non-lesion skin of the atopic dermatitis individual an improved number of Th2 tissues and levels of IL-4, IL-5, and IL-13 can be noticed in contrast to healthy controls. Increased variety of blood stream eosinophils are also found in atopic sufferers, with eosinophil matters and IgE manufacturing increasing in reaction to pressure. In German potential beginning cohort research confirmed a beneficial organization with stress-related expectant mothers aspects during pregnancy and the existence of childhood acne in the first decades of lifestyle, as identified by parent review of a physician's analysis of neuro dermatitis or sensitive or atopic acne in their children. Moreover, higher care provider pressure in the first decades of lifestyle, as calculated by the Recognized Stress Range, was associated with improved complete IgE appearance and improved allergen-specific proliferative reactions in children predisposed to atopy. When stressed, patients with AD with higher serum IgE stages had an in vitro increase in IL-4 stages from triggered side-line blood lymphocytes in contrast to both healthier manages and sufferers with AD with low guideline serum IgE. In addition, great feature stress, as determined by the state-trait stress inventory, was positively associated with serum IgE stages, but inversely associated with Th1/Th2 percentages in sufferers with AD in contrast to healthier manages without a history of allergic disorders. Stressed patients with AD also had increased numbers of serotonin-receptive mast cells, and there was improvement in skin disease and pruritus following treatment with serotonin agonists and SSRIs, respectively. The underlying mechanism of this anti-pruritic effect has yet to be determined. While intradermal serotonin administration can induce itch. The inhibitory effect of SSRIs is predominately in the CNS. Thus, the anti-pruritic effect of SSRIs is likely due to their central action rather than peripheral effects. The anxiolytic serotonin agonist TC showed promise in the management of stress-associated aggravation of AD, and data from mouse models suggest that inhibition of stress-induced mast cell degranulation may underlie its clinical efficacy.

##### ***Psychosocial Morbidity in Atopic Dermatitis:***

Atopic dermatitis individuals with emotional problems may develop a terrible circle between anxiety/depression and dermatologic symptoms. In one route of causality, stress and depressive disorders are regular repercussions of the epidermis disorder. The agony of living with atopic dermatitis may have a significantly negative effect on health-related total wellbeing (HRQOL) of kids and their loved ones. Intractable itchiness causes important sleeplessness, and lack of sleep leads to exhaustion, feelings lability, and affected performing. Proposition and violence by kids and discomfort in kids and adults can cause public solitude and school prevention. The public judgment of a noticeable epidermis condition, regular trips to physicians and the need to constantly apply unpleasant external remedies all add to the pressure of illness. Lifestyle restrictions in more severe cases can be important, such as restrictions on clothing, staying with friends, having animals, diving, or playing sports. The incapacity of total wellbeing caused by child years atopic dermatitis has been shown to be greater than or similar to that of asthma or diabetes. In the other route of causality, stress and depressive disorders worsen atopic dermatitis. This may occur via several possible systems, such as modulation of pruritus understanding, perturbation of skin leaks in the structure hurdle homeostasis, or speeding of defense reactions. Because AD is more generally found in kids, the illness often impacts the connections between sufferers and their loved ones. Kids AD are more likely to create behavior problems such as clinginess, reliance, and fear as in comparison to kids of the same age. Furthermore, kids with AD have been mentioned to have a less protected connection to their moms. This has been theorized to be caused by the improved pressure of having to care for kids with AD. Mothers of AD kids have recognized themselves as sensation more frustrated, despairing, and overprotective toward their babies as in comparison to control topics. Howlett recommended that AD can impact the freedom of kids because overprotective mother and father may restrict their social actions out of issue for their skin.

#### **5. TREATMENT OF ATOPIC DERMATITIS FROM PHYSIOLOGICAL AND PSYCHOLOGICAL APPROACH**

Aims to get rid of the terrible circle of itchiness and damaging. Emotional treatment methods include psychological or behavior therapies and psychotropic medicines. In monitored studies, relaxation coaching, addiction change coaching, cognitive-behavioral techniques, and stress management training resulted in significant and constant adjunctive treatment responses to standard health care and reduction in anxiety and depressive disorders (Ehlers et al. 1995). Topical 5% doxepincream, which has potent histamine antagonism, was effective in reducing pruritus in patients with atopic dermatitis in controlled trials (Drake et al. 1994, 1995). Another antidepressant with histamine receptor antagonism, trimipramine (50 mg/day), decreased the fragmentation of sleep and reduced the time spent in stage I sleep, which

reduced the amount of scratching during the night in atopic dermatitis patient's responses to conventional health proper care and decrease in stress and depressive disorders (Ehlers et al. 1995). External 5% doxepin cream, which has effective histamine antagonism, was effective in decreasing pruritus in patients with atopic dermatitis in monitored tests (Drake et al. 1994, 1995). Another antidepressant with histamine receptor antagonism, trimipramine (50 mg/day), decreased the fragmentation of rest and decreased the time invested in level I sleep, which reduced the quantity of damaging during the evening in patients with atopic eczema.

## 6. DISCUSSION

The beginning or exacerbation of atopic dermatitis often follows stressful life events. Divorce of parents and severe disease of a friend have been recognized as particularly increasing risk. Adults with atopic dermatitis are more anxious and frustrated compared with clinical and healthier control groups. Children with atopic dermatitis have higher levels of emotional problems and more behavior issues than healthier children or kids minimal skin issues. Psychological stress is a significant contributor to AD disease course through its direct and indirect effects on immune response, cutaneous neuropeptide expression, and skin barrier function. Psychological stress is associated with flares of itching in AD. The itch sensation, with urge to scratch, is a significant source of continued psychological stress for the patient, suggesting that psychopharmacologic interventions may be efficacious. The correlation between high anxiety scores in patients with AD with pruritus and more intense NPY and NGF reactivity suggests that anxiety may upregulate expression of these neuropeptides, both of which could contribute to pruritus.

## REFERENCES

- [1] Absolon CM, Cottrell D, Eldridge SM, et al: Psychological disturbance in atopic eczema: the extent of the problem in school aged children. *Br J Dermatol* 137:241–245, 1997
- [2] Hanifin JM, Cooper KD, Ho VC, et al. Guidelines of care for atopic dermatitis. *Journal of the American Academy of Dermatology*. 2004;50(3):391–404. [PubMed]
- [3] Friedmann PS, Holden CA. Atopic dermatitis. In: Burns DA, Braethnach SM, Cox N, Griffiths CE, editors. *Rook's Textbook of Dermatology*. 7th ed. Blackwell Publishers; 2004.
- [4] Herd RM, Tidman MJ, Prescott RJ, et al. The cost of atopic eczema. *British Journal of Dermatology*. 1996;135(1):20–3. [PubMed]
- [5] Hoare C, Li Wan PA, Williams H. Systematic review of treatments for atopic eczema. *Health Technology Assessment*. 2000; 4(37):1–191. [PubMed]
- [6] Morren MA, Przybilla B, Bamelis M, Heykants B, Reynaers A, Degreef H. Atopic dermatitis: triggering factors. *J Am Acad Dermatol*. 1994; 31:467–473. [PubMed]
- [7] Ehlers A, Stangier U, Gieler U: Treatment of atopic dermatitis: a comparison of psychological and dermatological approaches to relapse prevention. *J Consult Clin Psychol* 63:624–635, 1995
- [8] Larsen FS, Holm NV, Henningsen K. Atopic dermatitis. A genetic-epidemiologic study in a population-based twin sample. *J Am Acad Dermatol*. 1986;15:487–494
- [9] Arndt J, Smith N, Tausk F. Stress and atopic dermatitis. *Curr Allergy Asthma Rep*. 2008; 8:312–317. [PubMed]
- [10] Lonne-Rahm SB, Rickberg H, El-Nour H, Marin P, Azmitia EC, Nordlind K. Neuroimmune mechanisms in patients with atopic dermatitis during chronic stress. *J Eur Acad Dermatol Venereol*. 2008; 22:11–18.
- [11] Buske-Kirschbaum A, Jobst S, Wustmans A, Kirschbaum C, Rauh W, Hellhammer D. Attenuated free cortisol response to psychosocial stress in children with atopic dermatitis. *Psychosom Med*. 1997; 59:419–426. [PubMed]
- [12] Pincus M, Keil T, Rucke M, Bruenahl C, Magdorf K, Klapp BF, et al. Fetal origin of atopic dermatitis. *J Allergy Clin Immunol*. 2010; 125:273–275. E271–274. [PubMed]
- [13] Seiffert K, Hilbert E, Schaechinger H, Zouboulis CC, Deter HC. Psychophysiological reactivity under mental stress in atopic dermatitis. *Dermatology*. 2005; 210:286–293. [PubMed]

- [14] Tran BW, Papoiu AD, Russoniello CV, Wang H, Patel TS, Chan YH, et al. Effect of itch, scratching and mental stress on autonomic nervous system function in atopic dermatitis. *Acta Derm Venereol.* 2010; 90:354–361. [PubMed]
- [15] Oh SH, Bae BG, Park CO, Noh JY, Park IH, Wu WH, et al. Association of stress with symptoms of atopic dermatitis. *Acta Derm Venereol.* 2010; 90:582–588. [PubMed]
- [16] Wang IJ, Hsieh WS, Guo YL, Jee SH, Hsieh CJ, Hwang YH, et al. Neuro-mediators as predictors of paediatric atopic dermatitis. *Clin Exp Allergy.* 2008; 38:1302–1308. [PubMed]
- [17] Pavlovic S, Danilchenko M, Tobin DJ, Hagen E, Hunt SP, Klapp BF, et al. Further exploring the brain-skin connection: stress worsens dermatitis via substance P-dependent neurogenic inflammation in mice. *J Invest Dermatol.* 2008; 128:434–446. [PubMed]
- [18] Ohmura T, Hayashi T, Satoh Y, Konomi A, Jung B, Satoh H. Involvement of substance P in scratching behaviour in an atopic dermatitis model. *Eur J Pharmacol.* 2004; 491:191–194. [PubMed]
- [19] Ehlers A, Stangier U, Gieler U. Treatment of atopic dermatitis: a comparison of psychological and dermatological approaches to relapse prevention. *J Consult Clin Psychol.* 1995; 63:624–635. [PubMed]
- [20] Melin L, Frederiksen T, Noren P, Swebilius BG. Behavioural treatment of scratching in patients with atopic dermatitis. *Br J Dermatol.* 1986; 115:467–474. [PubMed]
- [21] Tausk FA, Nousari H. Stress and the skin. *Arch Dermatol.* 2001; 137:78–82.
- [22] Garg A, Chren MM, Sands LP, Matsui MS, Marenus KD, Feingold KR, et al. Psychological stress perturbs epidermal permeability barrier homeostasis: implications for the pathogenesis of stress-associated skin disorders. *Arch Dermatol.* 2001; 137:53–59. [PubMed]
- [23] Elias PM. Therapeutic implications of a barrier-based pathogenesis of atopic dermatitis. *Ann Dermatol.* 2010; 22:245–254. [PMC free article] [PubMed]4
- [24] Yamamoto Y, Yamazaki S, Hayashino Y, Takahashi O, Tokuda Y, Shimbo T, et al. Association between frequency of pruritic symptoms and perceived psychological stress: a Japanese population-based study. *Arch Dermatol.* 2009; 145:1384–1388. [PubMed]
- [25] Mozaffari H, Pourpak Z, Pourseyed S, et al.: Quality of life in atopic dermatitis patients. *J Microbiol Immunol Infect* 2007, 40:260–264.