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SPORT IMPACT ON PATIENTS WITH PSORIASIS AND PSYCHIATRIC PROBLEMS

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Abstract

Introduction: Psoriasis is a systemic inflammatory disease with an immunological basis. The estimated number of people suffering from psoriasis is 60 million. Despite the large number of patients with this diagnosis, the question of which mechanisms are mainly responsible for its development has not yet been answered. One theory is that a change in the patient's psychological state acts as a trigger for the manifestation and worsening of the disease. Another unresolved issue is the relationship between sports and psoriasis. While some studies suggest exercise might worsen symptoms, others highlight potential benefits like improved quality of life.

Aim of the study : The aim of our study is to present connection between mental state of patients and occurrence of psoriasis. Additionally, the study aims to elucidate the potential benefits of integrating psychological interventions and physical activity into psoriasis management strategies, with the goal of improving patient outcomes and enhancing overall quality of life.

Material and methods : We searched electronic databases, using keywords such as „Psoriasis”, „Depression” and „Psoriasis and sport ”.

Conclusions : Psoriasis stands as a profound example of the intricate interplay between physical health and mental well-being. The findings presented in this paper underscore the importance of a holistic approach to psoriasis management, integrating dermatological, psychological, and physical interventions. Psychodermatology emerges as a valuable framework for understanding the psychological impact of skin disorders and the bidirectional relationship between stress and disease exacerbation. Moreover, insights from the brain-skin

axis shed light on shared molecular pathways, emphasizing the role of stress-induced changes in immune cells and neurotransmitters in fueling inflammation in psoriasis. The prevalence of psychiatric disorders among psoriasis patients, both in adults and children, calls for comprehensive mental health screening and interventions as integral components of patient care. Furthermore, the potential benefits of physical activity in mitigating psoriasis symptoms and improving overall well-being highlight the importance of promoting healthy lifestyle interventions alongside traditional treatments. Ultimately, addressing the multifaceted nature of psoriasis necessitates collaborative efforts among dermatologists, psychiatrists, psychologists, and other healthcare professionals to optimize patient outcomes and enhance quality of life.

Key words: „ Sports activities” ; „Psoriasis”; „Psychodermatology” ; „Depression in patients with psoriasis”

Introduction

Psoriasis is a chronic, immune-mediated inflammatory skin disorder affecting approximately 2-3% of the global population. [1] This condition is characterized by well-defined, red, scaly plaques that can appear anywhere on the body but most likely on scalp, trunk, lumbosacral area, and extensor surfaces of the limbs. The pathogenesis of psoriasis involves a complex interplay of genetic, environmental, and immunological factors, leading to abnormal skin cell growth and inflammation. [2] The main symptom of psoriasis red, scaly plaques on the skin silvery scales on the plaques, nail changes, such as pitting or separation from the nail bed, joint pain and swelling in some cases. Skin lesions can cause burning and itching symptoms. [3] [4] Psoriasis is associated with several co-morbidities, including Psoriatic arthritis, Cardiovascular diseases, Metabolic syndrome, Depression and anxiety, Inflammatory bowel disease, Obesity, Diabetes. [5] Psoriasis, as a disease entity, is juxtaposed along with heart failure, cancer and obstructive pulmonary disease - diseases that most often lead to disability. [6] Over the years, clinicians have increasingly begun to recognize the link between depression, anxiety disorders and suicidal tendencies and having

psoriasis however, this link is underestimated. In this case, the presence of psychiatric disorders may be a trigger for psoriasis, rather than a consequence of the disease itself. [7] People with psoriasis are more likely to be overweight or obese compared to the general population, and the severity of psoriasis might be linked to body mass index (BMI). Joint problems like arthritis can worsen a patient's prognosis and limit daily activities. The relationship between psoriasis and exercise is complex. While some studies suggest exercise might worsen symptoms, others highlight potential benefits like improved quality of life. [28]

For the purpose of the paper, we have divided the article into the following sections.

1. Psychodermatology in psoriasis.
2. The brain-skin-axis.
3. Psoriasis in mental illness.
4. The impact of physical activity on patients with psoriasis.

1. Psychodermatology in psoriasis.

Psychodermatology is a scientific field that combines dermatology, psychiatry and psychology, it allows understanding the close bond that connects the skin to the patient's psyche. The first scientific papers in psychodermatology were written as early as the 19th century however, clinicians make little use of its resources. Studies show that only 42% of dermatologists and 22% of psychiatrists are able to diagnose psychodermatological diseases. [9] [10] While as many as one in three patients with dermatological problems suffer from psychiatric illnesses. [11] One of the more interesting studies reported in the literature is that conducted by Elisabeth W M Verhoeven and Floris W Kraaimaat on 62 patients from the Department of Dermatology. The patients were included in a continuous follow-up for a period of 6 months, during which daily stressors and severity of disease and pruritus were measured. The retrospective study showed conclusively that there was a significant increase in pruritus and disease worsening during periods of highest stress than during days when stressors were lowered. [12]

To better understand the relationship between psychodermatological disorders and skin diseases, appropriate classifications have been developed over the years. The classification presented in 2001 by Koo and Lebwohl divides psychodermatological disorders into three categories. [8]

1. Psychophysiological disorders e.g. psoriasis, alopecia areata

2. Primary psychiatric disorders e.g. trichotillomania, body dysmorphic disorder
3. Secondary psychiatric disorders e.g. severe acne, psoriasis

Psychophysiologic disorders are primary skin conditions that can be worsened by emotional states like stress. Primary psychiatric disorders is mental health conditions with self-inflicted skin manifestations: Secondary psychiatric disorders are associated with skin disorders that deform patient body. According to the classification, psoriasis can be classified into the first and third groups. [6] Placing psoriasis in the first category, we must emphasize the strength with which stress negatively affects the dermatological patient. Described in the work of the authors of the above classification, the "itch-scratch cycle" is as follows. Itch causing the patient to rub the affected skin, causes mechanical damage to the skin and the formation of inflammation which leads to exacerbation of the disease. The prevalence of pruritus in psoriasis is estimated to be around 70%. A 2021 study of 25 psoriasis patients and 11 family members identified five triggers of pruritus formation including mental and behavioral triggers. Emotional stress both caused and exacerbated itching and contributed to psoriasis exacerbations. In an effort to alleviate the discomfort, patients often exacerbated it by falling into successive itch-scratch cycles. Bleeding, peeling skin and the formation of open wounds as a consequence of mechanical self-injury led to deterioration of the patients' mental state. Stains on clothes, fragments of exfoliated epidermis and the need to constantly scratch in public places negatively affected the patients' social life and self-esteem ultimately leading to isolation and avoidance of entering into closer interpersonal relationships. The third category in the classification describes diseases that deform the patient's body. Patients with psoriatic lesions covering large portions of the skin are socially discriminated against for aesthetic reasons as well as society's unfounded fear that these lesions may be contagious.[13] The psychological profile of patients with psoriasis is complicated and affects the quality of their treatment. They are characterized by Type D personality which means they are socially withdrawn and tend to have negative emotions such as, anxiety and aggression. They are distinguished by a pessimistic approach to life and a greater tendency to develop alcohol dependence syndrome. When treating psoriasis, it's important to consider a personality type. People with Type D personality may benefit from psychotherapy alongside traditional treatments. Psychotherapy can help reduce flare-ups of psoriasis. [21] [29]

2. The brain-skin axis.

Both the skin and nervous system arise in embryogenesis from the same embryonic leaf - the ectoderm. This relationship has been exploited in studies of common molecular

pathways in psoriasis and depressive and anxiety disorders. It turns out that the skin responds to stress by producing a cascade of changes in immune cells, hormonal pathways and neurotransmitters. Cells of the immune system, in response to increased tension on the sympathetic nervous system, stimulate tissues to produce inflammation. [20] Interleukins IL-1 IL-6, interferon- γ (IL- γ), CRH, ACTH, corticosteroids and MSH are involved in the response. By producing inflammatory mediators, the nervous system contributes directly to psoriasis. Serotonin produced in the skin is the link between the skin immune system and the nervous system. [14] Studies presented in recent years have shown that there is an increased expression of CRH receptors in the skin of psoriasis patients. Cutaneous peripheral corticotropin-releasing hormone (CRH) is a well-known stress hormone, long-term exposure to increased levels of this hormone in the bloodstream leads to insomnia, anxiety and depression in the exposed person. [10]

3. Psoriasis in mental illness.

The literature mentions 4 psychiatric disorders most strongly associated with skin diseases including psoriasis. These include anxiety disorders, depression, suicidal thoughts and obsessive-compulsive disorder. The correlations are presented below with a breakdown of the adult and child populations.

Depression, anxiety and suicidality in adults patients.

Psoriasis and depression are like two sides of the same coin, often appearing together at significantly higher rates than would be expected by chance. Studies reveal that depending on how depression is assessed, it might affect anywhere from 9% to a staggering 55% of people with psoriasis. [17] The presence of psoriatic arthritis (joint inflammation linked to psoriasis) adds another layer of complexity. People with both psoriasis and psoriatic arthritis face an even greater risk of developing depression. This heightened risk likely stems from the additional challenges psoriatic arthritis brings, including disrupted sleep, difficulties working, and strained social interactions. Unfortunately, depression doesn't simply coexist with psoriasis; it can worsen its symptoms. Depression can lead to increased stress and anxiety, both of which can trigger flare-ups of psoriasis. Additionally, the emotional toll of depression might make it harder for individuals to stick to their psoriasis treatment plans, leading to uncontrolled symptoms and further perpetuating the cycle. [18] One study published over a couple of years was conducted on 1,356 patients in 13 European countries. This research explores the co-occurrence of depression, anxiety, and suicidal ideation in individuals with

diverse skin diseases. Among the surveyed patients, 626 (17.4%) had psoriasis. Among these 626 patients, 84 met criteria for depression, and 139 manifested anxiety (anxiety). As for suicidal thoughts - a significantly higher percentage (12.7%) of patients with skin conditions reported suicidal thoughts compared to the control group (8.3%). Notably, only psoriasis showed a statistically significant association with suicidal thoughts (OR 1.94, confidence interval: 1.33 – 2.82). This suggests a stronger link between psoriasis specifically and suicidal ideation compared to other skin conditions. Interestingly, over half (53.6%) of patients who reported suicidal thoughts attributed them to their skin condition. This association was even stronger for patients with psoriasis, with 67.6% reporting their skin condition as the reason for suicidal ideation.[15] [16]

Examining factors contributing to mental illness in patients with psoriasis and eczema, one paper focused on summarizing 21 publications on these diseases. Women and those with psoriatic arthritis were more likely to develop depression and anxiety, as were those getting placebos instead of targeted skin therapies. [24]

Depression, anxiety disorders and psoriasis in pediatric population

The relationship between skin diseases and psychiatric disorders is also being studied in the pediatric population. Psoriasis manifests itself at 33% at an early age, and pediatric patients suffer just as much as adults. [19] Children with psoriasis are at a much higher risk for developing depression (23% increase), anxiety (32% increase), and even bipolar disorder (55% increase) compared to healthy controls. Among anxiety disorders, social anxiety disorder and GAD (Generalized Anxiety Disorder) are the most commonly observed in pediatric patients. In one meta-analysis, Generalized Anxiety Disorder occurred 2-3 times more often compared to the general population. [23] Psoriasis significantly lowers a child's quality of life, as measured by standardized scales. While disease severity does influence mental health and quality of life, it doesn't fully explain the impact. Studies suggest social stigma and the stress of anticipating others' reactions might be key factors. Overall, psoriasis in children appears to be a double whammy, affecting both mental health and quality of life. Further research is needed to understand the complex interplay between disease severity, social factors, and well-being in this population.[25] [26]

4. The impact of physical activity on patients with psoriasis.

Psoriasis is a disease identified with the skin despite the fact that it also affects the patient's musculoskeletal system and metabolism. It can develop insulin resistance, obesity, hyperlipidemia and many other disease entities. Patients with psoriasis are less likely to engage in physical activity compared to healthy individuals and are less satisfied with their lives. [32] Some studies suggested exercise might worsen psoriasis, while others hinted at potential benefits. One study looked more broadly at the topic of sports participation by patients with psoriasis focused on the positive aspects of physical activity and is as follows. This observational study observed a significantly lower prevalence of psoriasis in physically active individuals compared to controls. Additionally, a sizeable portion of psoriasis patients reported exercise positively impacted their condition.

The study proposes several mechanisms by which exercise might lower psoriasis. [30]

- Exercise might influence gene expression through epigenetic modifications, potentially impacting psoriasis development.
- Regular exercise can decrease chronic inflammation, which plays a role in psoriasis.
- Exercise may lower levels of pro-inflammatory cytokines and elevate anti-inflammatory ones, both relevant to psoriasis.
- Exercise helps manage metabolic syndrome, a risk factor for psoriasis.
- Exercise can improve mood and reduce stress, potentially beneficial for psoriasis patients who often experience anxiety and depression.

Moreover, regular moderate-intensity exercise helps regulate reactive oxygen species (ROS) and reactive nitrogen species (RNS) levels in cells. ROS/RNS are molecules involved in cellular processes, but high levels can damage cells. Exercise helps cells adapt to ROS by increasing antioxidant enzymes, offering protection against cell damage. [31] Despite the benefits of moderate exercise, only two-thirds of adults globally meet the World Health Organization's recommendations for physical activity. Public health efforts are crucial to encourage people to adopt healthy exercise habits. [31]

Summary

Psoriasis is strongly associated with psychiatric disorders, including depression, anxiety, and suicidal ideation. Studies indicate significantly higher prevalence rates of these

conditions among psoriasis patients compared to the general population. Moreover, the impact extends to pediatric patients, who face increased risks of developing depression and anxiety, affecting their quality of life. Despite challenges, interventions such as psychotherapy alongside traditional treatments show promise in managing psoriasis. Additionally, the role of physical activity in mitigating psoriasis symptoms and improving overall well-being is recognized. While some studies suggest potential exacerbation of symptoms with exercise, others highlight its benefits in reducing inflammation, managing comorbidities, and improving mood. In conclusion, understanding the multifaceted nature of psoriasis, encompassing both physical and psychological aspects, is crucial for comprehensive patient care. Integrated approaches that address these aspects holistically are essential for effective psoriasis management. By addressing both psoriasis and depression, healthcare professionals can help individuals experience significant improvement in their overall well-being. This might involve a team approach, with dermatologists working alongside therapists or psychiatrists to develop a comprehensive treatment plan. While the relationship between psoriasis and depression can seem daunting, there is hope. European studies suggest that roughly 10% of patients with psoriasis meet clinical criteria for depression, meaning it's a treatable condition.

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