

COGNITIVE BEHAVIORAL THERAPY AS AN ADJUNCTIVE TREATMENT FOR ANXIETY AND DEPRESSION IN PSORIASIS PATIENTS

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ABSTRACT

KEYWORDS

Cognitive Behavioral Therapy (CBT); psoriasis; anxiety; depression

Psoriasis is a skin disease associated with the body's immune system. Mental health is one of the accompanying diseases of psoriasis. The clinical manifestations of psoriasis allow sufferers to experience anxiety and depression. There is a significant correlation between anxiety and depression to psoriasis, therefore, an adjunctive therapy is needed in addition to pharmacological therapy. One of these is Cognitive Behavioral Therapy (CBT), which aims to overcome anxiety and depression. This literature review summarizes recent findings regarding the application of CBT in psoriasis patients. The aim of this review is to summarize the latest findings about CBT as an alternative therapy in psoriasis patients. The literature review method was carried out by conducting literature reviews from various online databases, namely NCBI, Science Direct, Elsevier, and Mendeley using predetermined criteria. The results of the literature review showed that psoriasis causes severe psychological suffering, sadness, stigmatization, and decreased health-related quality of life. Result of this review is psychotherapy can lead to positive results in the development of a patient's condition. When performed regularly, CBT can effectively treat a variety of mental health conditions in individuals experiencing mild to moderate anxiety. CBT includes psychological training, self-monitoring, cognitive reconstruction, the prevention of exposure to negative stimuli, and rigorous training. The implications of writing this review are, CBT can be included in the treatment of psoriasis to obtain faster healing results through therapy methods for anxiety and depression in psoriasis patients.

INTRODUCTION

Psoriasis is one of the most common chronic inflammatory skin diseases worldwide. The prevalence of psoriasis varies in each country, can affect individuals of various ages, and is influenced by ethnic factors, genetic background, and environment (Kamiya et al., 2019). Psoriasis is mediated by the immune system and can be accompanied by several comorbidities; including psoriatic arthritis, cardiometabolic diseases, and mental health conditions. Psoriasis and comorbidities can lead to a significant reduction in the quality of life and cause large social costs (Armstrong et al., 2021).

The estimated prevalence of psoriasis has not been accurately nor consistently established. In Western countries, 2-4% of the population is estimated to have psoriasis. While the prevalence on a global scale across countries varies between 0.09% and 11.4%, in most developed countries, it ranges from 1.5% to 5%. The existence of large geographical differences suggests an association with genetic susceptibility, and racial or environmental factors can influence disease expression. Other factors that affect prevalence estimates include differences in the definition of prevalence and research methodology (assessment tool used,

definition of clinical symptoms, sampling method, age group and sex) (Mehrmal et al., 2021; Papp et al., 2021).

There are various forms of psoriasis including plaque psoriasis, flexural psoriasis, guttate psoriasis, pustular psoriasis, and erythrodermic psoriasis. Plaque psoriasis is the most common type, manifesting as well-defined erythematous plaques covered by silvery-white scales, generally symmetrical, and frequently seen on extensor surfaces (especially elbows and knees), trunk, and scalp. Pinpoint bleeding occurs on the skin where the scales are peeled off (Auspitz sign) (Raharja et al., 2021). The clinical manifestations experienced by patients with psoriasis cause comorbidities, including mental health disorders. A previous research conducted in China has shown a significant relationship between psoriasis and anxiety. This study emphasizes that patients with psoriasis also need a treatment to maintain their mental health, beside the treatment related to psoriasis symptoms themselves (Jing et al., 2021).

In addition to physical symptoms such as itching and pain, psoriasis can also cause disability, which has an overall negative impact on the patient's quality of life. Psoriasis also increases the risk of other comorbidities such as cardiovascular and non-communicable diseases, including psychiatric diseases. Compared with the general population, patients with psoriasis have 40-90% more psychological comorbidities, which manifest as high levels of anxiety, pathological worrying, depression, and suicidal thoughts (Bukar et al., 2021).

The association between psoriasis and psychological, physiological, social, and other aspects indicates the need for psychological intervention as one of psoriasis treatments. Psychological interventions mostly include cognitive behavioral treatment, supportive psychotherapy, music therapy, relaxation training, interest therapy and motivational interviews. CBT is a process of improving the mood and behavior of patients by correcting their impaired cognition, demonstrating of persuasion, relaxation training, and so on. Several international studies have shown that CBT can reduce sadness, anxiety, and other negative emotions. However, this has not been proven through a comprehensive examination (Tan et al., 2021). The purpose of study are; (1) what are the other conditions related to psoriasis?, and (2) what are the advantages of CBT so that it can be considered as an adjunctive treatment to improve the quality of life of psoriasis patients?

RESEARCH METHOD

This Literature Review was synthesized using the literature review method obtained from various databases, namely NCBI, Science Direct, Elsevier, and Mendeley. The keywords used in the literature search were 'Correlation Between Psoriasis and Anxiety', 'Correlation Between Psoriasis and Depression', 'Therapy for Psoriasis', 'Cognitive Behavioral Therapy' and 'Cognitive Behavioral Therapy for Psoriasis'. Scientific articles were selected based on the following inclusion criteria: (1) the journal can be freely accessed in full; (2) the year of publication of the journal is not less than 2019; and (3) according to the material raised in this literature review. All selected studies were analyzed, and the material was combined into a logical flow of ideas.

RESULTS AND DISCUSSION

Etiopathogenesis of Psoriasis

Psoriasis is a chronic inflammatory skin disease with a strong genetic predisposition and an autoimmune pathogenic nature. The worldwide prevalence is around 2% and varies by region. The prevalence in Asian populations and some African countries is lower than those in Caucasian and Scandinavian populations, reaching up to 11%. In addition to the skin, psoriasis can also affect the joints, and various other disorders (Rendon & Schäkel, 2019).

Comorbidities that may coexist with psoriasis include psychosocial disorders, psoriatic arthritis, and cardiometabolic syndrome. Patients with psoriasis on their skin are believed to have an impact on their psychosocial well-being, such as low self-esteem, shame, sexual dysfunction, and even suicidal ideation (Jing et al., 2021).

Both intrinsic and extrinsic factors play an important role in the development of psoriasis. Genetic predisposition is thought to be a major contributor, especially in individuals with early onset of disease (under 40 years of age) (O'Rielly et al., 2019; Dand et al., 2020). Other extrinsic factors that exacerbate our behavior and the environment. Minor local traumas, stress, drugs, infections, smoking and obesity are known to exacerbate psoriasis. Generally, climate change and sun exposure are also recognized as triggers that exacerbate psoriasis (Branisteanu et al., 2022).

As antigen presenters, dendritic cells play a major role in the early stages of psoriasis pathogenesis. However, its activation process in psoriasis remains unclear. One mechanism involves the introduction of antimicrobial peptides (AMP), which are secreted by keratinocytes in response to injury and are characteristically overexpressed in psoriatic skin. Among the most studied psoriasis-associated AMPs are LL37, β -defensins, and S100 proteins. LL37, also known as cathelicidin, plays a pathogenic role in psoriasis. LL37 is released by damaged keratinocytes and forms a complex with self-genetic material from other damaged cells. LL37 binds to DNA stimulating toll-like receptors (TLR) in plasmacytoid dendritic cell (pDC). pDC activation is the key mechanism in initiating psoriatic plaque development, and is characterized by the production of type I interferons (IFN- α and IFN- β). Type I IFN signalling promotes the maturation of the myeloid dendritic cell (mDC) phenotype and is involved in Th1 and Th17 differentiation and function, including the production of IFN- γ and interleukin (IL)-17, respectively (Rendon & Schäkel, 2019).

Anxiety and Depression in Psoriasis Patients

From many previous studies, psoriasis has been associated with pain, pruritus, disability, inflammation, and impaired quality of life. Compared to the general population, patients with moderate-to-severe psoriasis are at a high risk of depression and anxiety. The burden of mental health disorders among patients with moderate-to-severe psoriasis is substantial (Milan et al., 2022).

Psoriasis significantly impairs a patient's psychosocial functioning and may become a serious psychosomatic illness. According to a cross-sectional multicenter study, suicidal ideation is higher in patients with psoriasis than in the general population. Episodes of exacerbation of psoriasis are often preceded by episodes of a stressful life. The relationship between psychiatric disorders and psoriasis is based on the psychoneuroimmunology science (Marek-Jozefowicz et al., 2022).

There is a significant correlation between psoriasis, anxiety and depression. These variables influence one another. Therefore, clinicians must pay attention to the emotions of patients with psoriasis, and screening for psychological disorders must be performed during routine examinations. (Jing et al., 2021; Marek-Jozefowicz et al., 2022).

Psoriasis Therapy

Currently, many treatment options are available for psoriasis including topical steroidal and non-steroidal agents, phototherapy, systemic oral, and biologics, and more therapeutic agents are under development. With the increasing number of available therapies, there are many opportunities to combine different therapies. Two or more agents with different mechanisms of action and safety profiles can be used to achieve adequate disease control. Another benefit of combination therapy is that it allows the use of lower doses of each agent to

minimize toxicity, especially when the agents are used in the long term (Nakamura & Koo, 2020).

Psychotherapy has been studied in a number of clinical trials and individual case reports, with encouraging results. Although the mechanism by which stress causes or aggravates psoriasis is not clearly known, psychotherapy has been shown to significantly improve clinical conditions in several studies. A randomized controlled trial comparing phototherapy with and without mindfulness-based stress reduction during treatment sessions found that the meditation group experienced significantly faster clinical improvement. The effect of hypnosis on psoriasis was studied in 11 randomized controlled patients and it was found that individuals who could be hypnotized showed increased recovery (Timis et al., 2021).

Table 1 shows the review results of various psoriasis studies according to the established methods. All selected literature was analyzed and the material was combined into a logical flow of ideas.

Table 1. List of Selected Studies for Literature Review

No.	Author, Year	Title	Method	Main Findings
1.	(Rendon & Schäkel, 2019)	Psoriasis Pathogenesis and Treatment	Systematic review	Psoriasis is a chronic inflammatory skin disease whose prevalence is related to the region and can cause various other disorders.
2.	(Jing et al., 2021)	Association of Psoriasis With Anxiety and Depression: A Case–Control Study in Chinese Patients	Case-Control study	Several comorbidities associated with psoriasis include psychosocial disorders, psoriatic arthritis, and cardiometabolic syndrome.
3.	(O’Rielly et al., 2019)	The Genetics of Psoriasis and Psoriatic Arthritis	Systematic review	Psoriasis is a multifactorial disease with genetics being the main contributor.
4.	(Branisteanu et al., 2022)	Update on the etiopathogenesis of psoriasis	Systematic review	In addition to genetic factors, psoriasis triggers also involve behavioral and environmental factors.
5.	(Milan et al., 2022)	Trajectories of systemic agent use and associated depression and anxiety-related healthcare costs among patients with psoriasis.	Retrospective cohort study	Psoriasis is associated with pain, pruritus, disability, inflammation, and impaired quality of life. Compared with the general population, patients with moderate to severe psoriasis are at increased risk of depression and anxiety.
6.	(Marek-Jozefowicz et al., 2022)	The Brain–Skin Axis in Psoriasis—Psychological, Psychiatric, Hormonal, and Dermatological Aspects	Systematic Review	Distress associated with psoriasis can cause a significant reduction in quality of life, and in extreme cases can lead to depression or even suicide.
7.	(Nakamura & Koo, 2020)	Safety considerations with combination therapies for psoriasis	Systematic review	Many treatment options available for psoriasis, including topical steroidal and non-steroidal agents, phototherapy, oral systemic agents, and biologics, offer the potential for combination therapy to improve treatment outcomes.

No.	Author, Year	Title	Method	Main Findings
8.	(Timis et al., 2021)	Mind-body interventions as alternative and complementary therapies for psoriasis: A systematic review of the English literature	Systematic review	Psoriasis causes severe psychological suffering, grief, feelings of stigmatization, and reduced health-related quality of life. The results showed that psychotherapy can improve the condition of psoriasis.
9.	(Surmai & Duff, 2022)	Cognitive Behavioral Therapy: A Strategy to Address Pandemic-Induced Anxiety	Systematic review	CBT effectively treats a variety of mental health conditions and is routinely performed on individuals experiencing mild to moderate anxiety to build and restore personal resilience.
10.	(Khamseh et al., 2020)	The effectiveness of cognitive behavioral therapy based on the cash eight-sep model in the body image of women with psoriasis	Semi-experimental with pre-test and post-test design	CBT methods for body image disturbance include psychological training, self-monitoring, cognitive reconstruction, prevention of exposure to negative stimuli, and rigorous training.
11.	(Xiao et al., 2019)	The efficacy of psychological interventions on psoriasis treatment: A systematic review and meta-analysis of randomized controlled trials	Systematic review and meta-analysis	The results showed that CBT is an effective treatment for psoriasis in reducing its severity compared to non-CBT psychological interventions.

Cognitive Behavioral Therapy (CBT)

CBT is a research-based therapy that aims to increase an individual's awareness of their thoughts, feelings, and experiences. The goal of CBT is to treat individuals' anxiety and depression, while preventing other mental conditions. CBT is a strategy used to recognize and challenge distorted thinking patterns using constructive and functional cognitive models (Surmai & Duff, 2022).

CBT can change a person's inappropriate cognition which causes negative thoughts to arise (Khamseh et al., 2020). The effect of CBT is stronger in patients with moderate-to-severe psoriasis than in those with mild psoriasis (Xiao et al., 2019). Table 2 shows the different effects of CBT on the 3 types of psoriasis.

Table 2. Effect of CBT on psoriasis vulgaris, psoriasis pustular and erythrodermic psoriasis patients

No.	Aspect	Psoriasis Vulgaris	Pustular Psoriasis	Erythrodermic Psoriasis
1	Definition of disease	Skin lesions are found on several parts of the outside of the body, from elbows, waist, to the navel (Khamseh et al., 2020). The cause: stress, infection,	A type of psoriasis characterized by sterile pustules on an erythematous base accompanied by neutrophil infiltration,	Characterized by erythematous and thick scales throughout (Sinaga, 2013) more than 90% of the body surface area. Generally caused by pre-existing skin

No.	Aspect	Psoriasis Vulgaris	Pustular Psoriasis	Erythrodermic Psoriasis
		or therapeutic error (Rahmayanti et al., 2020).	especially in the epidermis (Jephtha et al., 2023).	diseases, such as psoriasis, dermatitis and various other diseases that can potentially cause serious complications (Waspo & Amalia, 2019).
2	Mechanism of CBT therapy	The six sessions consist of session 1: self-introduction, self-assessment, session 2: problem introduction and training. 3-6 sessions of training therapy through various activities accompanied by a review of each session as an evaluation (Khamseh et al., 2020)	For 6 weeks with the intervention of various teams such as psychologists and nurses. Patients were divided into groups with variations in age and gender. Medicines are still being used (Fortune et al., 2002)	Providing information and a variety of personal therapy (Qubro et al., 2020). Session 1: observation and identification of lifestyle. Session 2: residential visits and interventions through education and counselling.
3	Results	The Cash 8-Steps model: positive body image for patients, improved mental health and self-confidence, increased satisfaction and quality of social relationships, and a better/enjoyable life (Khamseh et al., 2020)	Supports the effectiveness of therapies that help speed the healing of psoriasis (Xiao et al., 2022)	Patients care more about their disease, thereby lowering the risk of severity. Intervention is carried out with family assistance (Qubro et al., 2020).

CONCLUSION

Psoriasis is a chronic disease with several of comorbidities, one of which is related to mental health. There are various types of psoriasis, including Psoriasis Vulgaris, Psoriasis Pustulosa, and Erythrodermic Psoriasis; which have various impacts on depression and anxiety. Psoriasis and all of its accompanying diseases can cause severe psychological suffering, grief, and reduced quality of life. For the treatment of depression and anxiety, CBT is best used in the form of psoriasis vulgaris. This is reasonable because psoriasis vulgaris has depressive and anxiety effects at moderate to high levels. The results of the literature review showed that CBT is effective as an alternative treatment for psoriasis; and can treat a variety of mental health conditions that result in mild-to-moderate anxiety to restore mental health. The general mechanisms of CBT are psychological training, self-monitoring, cognitive reconstruction, prevention of exposure to negative stimuli, and rigorous training. CBT should be adapted to the patient's condition. This is in line with comprehensive psoriasis therapy in various aspects of the patient's life; such as psychological, social, and physical life. Combination therapy between pharmacological and psychological therapy can be used to treat psoriasis.

REFERENCES

- Armstrong, A. et al. 2021. Psoriasis Prevalence in Adults in the United States. *JAMA Dermatology*. Volume 157(8). pp. 940–946. Available at: <https://doi.org/10.1001/jamadermatol.2021.2007>.
- Bakar, R.S. et al. 2021. Depression and anxiety among patients with psoriasis: A correlation with quality of life and associated factors. *Journal of Taibah University Medical Sciences*. Volume 16(4). pp. 491–496. Available at: <https://doi.org/10.1016/j.jtumed.2021.02.008>.

- Branisteanu, D. et al. 2022. Update on the etiopathogenesis of psoriasis. *Experimental and Therapeutic Medicine*. Volume 23(3). pp. 1–13. Available at: <https://doi.org/10.3892/etm.2022.11124>.
- Dand, N. et al. 2020. Psoriasis and Genetics. *Acta Derm Venereo* [Preprint].
- Jing, D. et al. 2021. Association of Psoriasis With Anxiety and Depression: A Case–Control Study in Chinese Patients. *Frontiers in Medicine*. Volume 8(December). pp. 1–7. Available at: <https://doi.org/10.3389/fmed.2021.771645>.
- Kamiya, K. et al. 2019. Risk factors for the development of psoriasis. *International Journal of Molecular Sciences*. Volume 20(18). pp. 1–14. Available at: <https://doi.org/10.3390/ijms20184347>.
- Khamseh, L., Mofarah, M. & Toorani, S. 2020. The effectiveness of cognitive behavioral therapy based on cash eight-sep model in body image of women with psoriasis. *Iran J Dermatol*. Volume 23(1). pp. 1–8.
- Marek-Jozefowicz, L. et al. 2022. The Brain–Skin Axis in Psoriasis—Psychological, Psychiatric, Hormonal, and Dermatological Aspects. *International Journal of Molecular Sciences*. Volume 23(2). Available at: <https://doi.org/10.3390/ijms23020669>.
- Mehrmal, S. et al. 2021. The global, regional, and national burden of psoriasis in 195 countries and territories, 1990 to 2017: A systematic analysis from the Global Burden of Disease Study 2017. *Journal of the American Academy of Dermatology*. Volume 84(1). pp. 46–52. Available at: <https://doi.org/10.1016/j.jaad.2020.04.139>.
- Milan, R. et al. 2022. Trajectories of systemic agent use and associated depression and anxiety-related healthcare costs among patients with psoriasis. *JAAD International* [Preprint]. Available at: <https://doi.org/10.1016/j.jdin.2022.06.018>.
- Nakamura, M. & Koo, J. 2020. Safety considerations with combination therapies for psoriasis. *Expert Opinion on Drug Safety*. Volume 19(4). pp. 489–498. Available at: <https://doi.org/10.1080/14740338.2020.1722640>.
- O’Rielly, D.D. et al. 2019. The Genetics of Psoriasis and Psoriatic Arthritis. *J Rheumatol*. Volume 95. pp. 46–50.
- Papp, K. et al. 2021. Psoriasis Prevalence and Severity by Expert Elicitation. *Dermatology and Therapy*. Volume 11(3). pp. 1053–1064. Available at: <https://doi.org/10.1007/s13555-021-00518-8>.
- Raharja, A., Mahil, S. & Barker, J. 2021. Psoriasis: A brief overview. *Clinical Medicine, Journal of the Royal College of Physicians of London*. Volume 21(3). pp. 170–173. Available at: <https://doi.org/10.7861/CLINMED.2021-0257>.
- Rendon, A. & Schäkel, K. 2019. Psoriasis pathogenesis and treatment. *International Journal of Molecular Sciences*. Volume 20 (6). pp. 1–28. Available at: <https://doi.org/10.3390/ijms20061475>.
- Surmai, M. & Duff, E. 2022. Cognitive Behavioral Therapy: A Strategy to Address Pandemic-Induced Anxiety. *Journal for Nurse Practitioners*. Volume 18(1). pp. 36–39. Available at: <https://doi.org/10.1016/j.nurpra.2021.10.013>.
- Tan, C. et al. 2021. Effect of cognitive behavioral therapy on anxiety and depression in patients with psoriasis: A protocol for systematic review and meta-analysis. *Medicine*. Volume 100(46). p. e27720. Available at: <https://doi.org/10.1097/MD.00000000000027720>.
- Timis, T. et al. 2021. Mind-body interventions as alternative and complementary therapies for psoriasis: A systematic review of the English literature. *Medicina (Lithuania)*. Volume 57(5). Available at: <https://doi.org/10.3390/medicina57050410>.
- Waspodo, N. N., & Amalia, H. (2019). Eritroderma et causa Psoriasis Vulgaris. *UMI Medical Journal*, 2(1), 57–66. <https://doi.org/10.33096/umj.v2i1.16>
- Wijayanti, W., Hashfi, A. F., Wardhani, I. A. P., & Irawanto, M. E. (2022). The Role of

- Psychological Stress in Psoriasis: A Narrative Literature Review. *Bioscientia Medicina : Journal of Biomedicine and Translational Research*, 6(13), 2548–2558. <https://doi.org/10.37275/bsm.v6i13.641>
- Xiao, Y. et al. 2019. The efficacy of psychological interventions on psoriasis treatment: A systematic review and meta-analysis of randomized controlled trials. *Psychology Research and Behavior Management*. Volume 12. pp. 97–106. Available at: <https://doi.org/10.2147/PRBM.S195181>.
- Yefta, Winarni, D. R. A., & Wirohadidjojo, Y. W. (2023). Manajemen Psoriasis Pustulosa Infeksi Dengue Sekunder : Patofisiologi , Diagnosis , dan Implikasi Klinis. *Cermin Dunia Kedokteran*, 50(3), 151–156.

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