

Review on Topical Steroid Withdrawal Syndrome: Prevalence, Risk Factors, and Management Strategies

By

Adrita Mahjabin
21346087

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Declaration

It is hereby declared that

1. The thesis submitted is my own original work while completing degree at BRAC University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

Student's Full Name & Signature:

Adrita Mahjabin
21346087

Approval

The thesis/project titled “Review on Topical Steroid Withdrawal Syndrome: Prevalence, Risk Factors, and Management Strategies.” Submitted by: Adrita Mahjabin (21346087) of Spring, 2025, has been accepted as satisfactory in partial fulfillment of the requirement for the Bachelor of Pharmacy degree.

Supervised By:

Luluel Maknun Fariha
Senior Lecturer
School of Pharmacy
BRAC University

Approved By:

Acting Chairperson:

Dr. Raushanara Akter
Acting Chairperson and Professor
School of Pharmacy
BRAC University

Dean:

A F M Yusuf Haider, PhD
Acting Dean, School of Pharmacy
Professor, Department of Mathematics and Natural Sciences
BRAC University

Ethical Statement

No participants were harmed and anonymity was maintained.

Abstract

Topical steroid withdrawal syndrome (TSWS) has become a recognized condition emerging from prolonged use of topical corticosteroids, and this condition is characterized by burning sensation, eczema, and severe itching. This review aimed to synthesize the information about the prevalence, risk factors, and management strategies of TSWS. A narrative review methodology was employed, and the information was synthesized from case reports, qualitative analysis, systematic review, and surveys which was published between 2000 and 2025. The major findings indicated increasing recognition of TSWS through the patient-reported experiences on social media platforms, yet remains underdiagnosed due to a lack of standard treatment strategies. This evidence highlighted the gaps in the diagnostic criteria, evidence-based treatment plans, and the pathophysiology of TSWS. Addressing these gaps may introduce advanced therapeutic care for the patients, which will enhance the quality of life, and strengthen the relationship between the doctor and patient.

Keywords:

TSWS, TCS cessation, steroid, treatment, corticosteroid addiction, Traditional Chinese Medicine (TCM)

Dedication

"To my ever-supportive parents, whose unconditional love, steadfast encouragement, and countless sacrifices have been the foundation of my journey."

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Table of Contents

Declaration	2
Approval	3
Ethical Statement.....	4
Abstract	5
Dedication	6
Acknowledgement.....	7
Table of Contents	8
List of Tables	9
List of Acronyms.....	10
Chapter 1 Introduction.....	11
Chapter 2 Methodology	18
Chapter 3 Result.....	20
Chapter 4 Discussion.....	28
Chapter 5 Future Directions	30
Chapter 6 Conclusion	31
References.....	32

List of Table

Table 1: Summary Table of Clinical Trials.....	22
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List of Acronyms

TSWS	Topical Steroid Withdrawal Syndrome
TCS	Topical Corticosteroids
AD	Atopic Dermatitis
TCM	Traditional Chinese Medicine
EASI	Eczema and Severity Index
ICD	International Classification of Disease

Chapter 1

Introduction

Topical corticosteroids (TCSs) are the medications that is commonly suggested in the treatment of various dermatological conditions like atopic dermatitis (AD), eczema, and psoriasis (Rapaport and Lebwohl, 2003; Rapaport and Rapaport, 2006; Sheary, 2018). Though these medications are used as the relief of symptoms, prolonged or inappropriate use can lead to a condition known as Topical Steroid Withdrawal Syndrome (TSWS), which is characterized by erythema, burning sensations, excessive skin shedding, and severe itching (Sheary, 2018; Tan, Chandran and Choi, 2021; Ahuja and Lio, 2023, 2024; Feschuk and Pratt, 2023; Hsu C, Lio PA and Friedman OH, 2025). TSWS is also known as “steroid addiction” or “red skin syndrome”, it has recently gained a significant attention in both clinical practice and public sphere through online communities, social media, raising concerns about its prevalence and clinical management (Sheary, 2018; Alsterholm *et al.*, 2025). Despite being known for decades, TSWS remains poorly understood and understudied, and diagnosing and treating it presents numerous clinical challenges (Rapaport and Rapaport, 2006; Tan, Chandran and Choi, 2021). As it is still controversial in the medical community, with many doctors either misdiagnosing it as a worsening of the underlying dermatological problem or questioning its existence (Feschuk and Pratt, 2023; Orr *et al.*, 2024).

Recently, the importance of this topic has grown because social media platforms highlighted the patient experiences with TSWS, which is creating awareness as well as confusion and “steroid phobia” among the people (Orr *et al.*, 2024). Due to the rise of online community and patient-driven research, people who are concerned about possible withdrawal symptoms have been more likely to self-diagnose and stop using TCSs (Sheary, 2018; Alsterholm *et al.*, 2025). Since there are no official diagnostic criteria for TSWS, many doctors remain hesitant to identify it as a distinct pathophysiological condition, which has led to ongoing discussions among healthcare

professionals (Ahuja and Lio, 2024). Additionally, the difficulty in diagnosing TSWS and the scarcity of high-quality research are factors that contribute to confusion and delays in receiving appropriate treatment (Sheary, 2018; Ahuja and Lio, 2024).

The research on TSWS mainly focus on adults with atopic dermatitis, and the condition of this population is well- documented (Tan, Chandran and Choi, 2021). On the other hand, there are limited data on the long-term effects of TCS cessation on pediatric population (Sheary, 2019). Though many clinical case studies on TSWS have performed but the actual prevalence is still unknown, as there is no appropriate diagnostic solution, making it difficult to determine the extent of this disease (Rapaport and Rapaport, 2006). The management of TSWS remains the controversial topic, with applying from the simple to complex treatment like phototherapy, antibiotics and psychological support (Hajar *et al.*, 2015; Sheary, 2018). Based on the evidences, the scope of this study is to review the prevalence, risk factors and management strategies of TSWS.

TSWS recognition is growing day by day but several key gaps in the knowledge are present, regarding its pathophysiology and development of effective treatment protocol (Orr *et al.*, 2024). Though the mechanism of TSWS is still under investigation, the existing study explains that it may be a result of both dependence on topical steroids and a rebound inflammatory response upon their cessation (Ahuja and Lio, 2023). By combining findings from different studies, this review will discuss management studies for healthcare providers, with the goal of improving patient outcomes and addressing overlooked concerns in clinical settings (Alsterholm *et al.*, 2025). Additionally, there is limited research on the effective therapeutic interventions, the treatments from systemic therapies like immunosuppressant to alternative treatments e.g. Traditional Chinese Medicine (Hsu C, Lio PA and Friedman OH, 2025) By further research the areas should be identified which gets overlooked, such as the impact of TSWS in pediatric population, its prevalence and severity (Sheary, 2018).

A major strength of the literature highlights increasing awareness of TSW as a distinct clinical syndrome that arises due to discontinuation of long-term topical corticosteroid (TCS) use (Hajar *et al.*, 2015; Maskey *et al.*, 2025). Recently, alternative treatments like Traditional Chinese Medicine are innovating to manage TSW, which is another strength (Hsu C, Lio PA and Friedman OH, 2025; Maskey *et al.*, 2025). Moreover, patient reported outcomes that gathered from questionnaire, social media contributes a better understanding of the physical state along with psychological situation of a patient (Orr *et al.*, 2024; Alsterholm *et al.*, 2025). Additionally, the research on pediatric population is increasing, as example Sheary (2018) provided a detailed information of 10 pediatric patients suspected with TSWS, and Ahuja and Lio (2024) discussed about the knowledge that occurs in pediatric population with TSWS.

The study has also observed some critical drawbacks within it that need to be addressed is the absence of standardized diagnostic criteria for TSW (Sheary, 2018, 2019; Tan, Chandran and Choi, 2021; Maskey *et al.*, 2025). Sheary (2019) highlighted that TSW diagnosis was retrospective and primarily based on exclusion, and access to diagnostic tools, such as patch testing, was limited. Similarly, the diagnosis was made based on clinician experience and literature, not formal criteria (Hsu C, Lio PA and Friedman OH, 2025). Additionally, the standardized International Classification of Disease (ICD) code for TSW is not available, and there is only an ICD code for the adverse effects of corticosteroids (Ahuja and Lio, 2023, 2024). Ahuja and Lio (2024) also mentioned that clinicians sometimes cannot identify TSW, and they diagnose it as atopic dermatitis, which can worsen the condition and lead patients to lose faith in their doctors. Additionally, as TSW continues for a long time and difficult to treat, patients get anxious, psychologically distressed and sometimes suicidal thoughts arise in mind so they need regular check-ins for supporting patients' emotional health (Maskey *et al.*, 2025). Another limitation of this study is the collection of data from patients via social media and questionnaires, which can introduce biases in reporting (Orr *et al.*, 2024; Alsterholm *et al.*, 2025). Finally, though alternative

treatments are introduced, such as Hsu C, Lio PA and Friedman OH (2025) explored TCM as a promising approach, concerns persist around toxicity, variability in formulations, and lack of controlled trials. Additionally, the use of Western therapies, such as dupilumab, gabapentin, phototherapy, or immunosuppressants, lacks robust trial-based evidence for their efficacy in TSW, especially in the long term (Sheary, 2018).

Incorporating feedback from patients affected by TSWS helps bridge the gap between clinical observations and real-world challenges by encouraging a more empathetic and responsive approach to treatment (Howells *et al.*, 2023; Orr *et al.*, 2024; Alsterholm *et al.*, 2025). The article by Ahuja and Lio (2023, 2024) explains a notable lack of current guidelines in the management of TSWS; it challenges the existing clinical approach and demands the development of diagnostic criteria. Moreover, Howells *et al.* (2023) explain that TSWS is still an underdefined condition, which also challenges the lack of diagnostic criteria and better treatment protocol. Additionally, the introduction of Traditional Chinese Medicine (TCM) challenges steroid-focused treatment strategies that dominate the current management of TSWS (Hsu C, Lio PA and Friedman OH, 2025).

Over the years, the understanding of TSWS has evolved as more cases have been reported, particularly through patient testimonials and social media platforms (Orr *et al.*, 2024; Alsterholm *et al.*, 2025). For the first time, in 1979, Klingman and Frosch described TSW as an “insidious” condition that both patients and clinicians might fail to recognize as steroid-induced (Juhász *et al.*, 2017). TCS was the safe and effective treatment for inflammatory skin conditions, but the recognition of TSWS raised significant concerns regarding its association with long-term, high-potency steroid use (Hajar *et al.*, 2015). On the other hand, a case series of children showed that TSW symptoms can emerge after relatively short durations (as little as two months) of TCS use, even in pediatric populations previously assumed to be at lower risk (Sheary, 2019). TSWS diagnostic challenges have also become more evident over time as there is still no accepted

diagnostic criteria, leading to delayed recognition and frequent misdiagnosis as AD or other dermatoses (Hsu C, Lio PA and Friedman OH, 2025). Studies in both adults and children highlight that symptom can spread beyond initial TCS-treated areas, with systemic manifestations like sleep disturbances, temperature dysregulation, and psychological distress often complicating the clinical picture (Sheary, 2019; Hsu C, Lio PA and Friedman OH, 2025; Maskey *et al.*, 2025). The prevalence of TSWS is not well-established, and while many patients experience recurring symptoms, the condition remains underreported in clinical settings (Alsterholm *et al.*, 2025). Although there is increasing patient awareness, a widely accepted consensus in the medical community is still lacking and some practitioners consider TSWS as an exacerbation of pre-existing dermatological disease rather than being its own syndrome (Orr *et al.*, 2024). There are still gaps in knowledge, such as longitudinal studies and pathophysiology of TSWS (Orr *et al.*, 2024).

The systematic review of Hajar *et al.* (2015) was crucial to identify TSWS as a syndrome in itself and described typical symptoms as well the entity being divided into two subtypes: papulopustular and erythematoedematous. (Juhász *et al.*, 2017) emphasized that further research is necessary to elucidate the long-term consequences of TCS use and discontinuation in childrens. Sheary (2019) documented 10 children in a case series and found that discontinuation of TCS resulted with topical withdrawal signs among pediatric patients. A qualitative study reported that the patients' experience with TCS were critical in shaping their attitudes, and online communities offered support (Tan *et al.*, 2022). The study by Howells *et al.* (2023) stressed the increasing identification of TSWS and requested higher level evidence, unambiguous diagnostic criteria as well as greater physician awareness. Ahuja and Lio (2023) greatly elaborated the knowledge on TSW in both adults and children. From the study by Alsterholm *et al.* (2025), on prevalence patterns and risk perception of the population who used TSW as a self-diagnosis. It also emphasizes the lack of

clarity in diagnostic criteria and overlap between TSW and features of atopic dermatitis which are key issues in TSWS recognition debate (Alsterholm *et al.*, 2025).

TSWS is a poorly understood condition that presents a significant clinical and psychological burden to patients with atopic dermatitis (Alsterholm *et al.*, 2025). Due to the increasing rate of patient-reported adverse effects of TCs, this review seeks to fulfill the urgent need for evidence-based clinical understanding of TSWS (Dhossche, Simpson and Hajar, 2017; Ahuja and Lio, 2024). This review is significant because it comprehensively addresses the current gaps in the literature by addressing the evidence-based gap map study (Orr *et al.*, 2024). This review also included the cross-sectional patient survey and observational study that reveals psychological effects among the sufferers of TSWS (Alsterholm *et al.*, 2025). It also included the pediatric cases, symptoms, and case studies on this population which are rarely discussed in the current literature (Dhossche, Simpson and Hajar, 2017; Juhász *et al.*, 2017; Sheary, 2019; Ahuja and Lio, 2024). This article also introduced the expected treatments for TSWS like Traditional Chinese Medicine, and Dupilumab, though these are not clinically established (Arnold, Treister and Lio, 2018; Hsu C, Lio PA and Friedman OH, 2025).

The primary objective of this article is to provide knowledge regarding TSWS to patients and clinicians, as it is a condition that is not well understood. As a result, of inadequate information regarding this condition, physicians mistreat this illness, which in turn weakens patient's confidence in their physicians. The knowledge discussed in this article might enable doctors to improve their understanding of TSWS, and the patients would get optimal treatment. This review will emphasize the importance of appropriate use of topical corticosteroids, which will provide information to general people about the risks of overusing topical steroids, helping to prevent the onset of TSWS through responsible use. By identifying gaps in existing research, this article has the potential to inspire future studies that further enhance the understanding and treatment of TSWS.

The topic TSWS was selected because this condition still remains under-recognized. Recently, this condition is clinically recognized and patient-reported symptoms associated with prolonged TCs use are discussed. This study addresses critical gap in literature by analyzing the information on TSWS. There is poor knowledge among healthcare professionals about the relevance, unique risk factors and comprehensive management strategies for TSWS. Additionally, this disease is mainly focused on adult women whereas pediatric patients are ignored. This review synthesizes the existing evidence, to provide clarity, assist patient management and inform of clinical practice guidelines.

Chapter 2

Methodology

This review used a narrative review method, which combined all the known research on Topical Steroid Withdrawal Syndrome (TSWS). The information is compiled from a variety of sources, such as questionnaire from social media (Alsterholm *et al.*, 2025), case reports (Dhossche, Simpson and Hajar, 2017; Arnold, Treister and Lio, 2018; Sheary, 2019; Matejek *et al.*, 2022; Feschuk and Pratt, 2023; Hsu C, Lio PA and Friedman OH, 2025), and methods for both systematic (Hajar *et al.*, 2015; Juhász *et al.*, 2017; Shi *et al.*, 2017) and qualitative (Tan *et al.*, 2022) analysis. The data collected is focused mainly on TSWS experiences, symptoms, risk factors and management strategies (Kawakami *et al.*, 2001; Arnold, Treister and Lio, 2018; Hsu C, Lio PA and Friedman OH, 2025). This review discusses specifically published literature from the years 2000- 2025 and thus reflects on the most recent knowledge, management and controversies regarding this condition.

A systematic search of multiple reputable medical and scientific databases, including PubMed, Google Scholar, ScienceDirect, and Medline, was conducted to identify relevant studies. For the search, keywords used were different combinations of “Topical Steroid Withdrawal Syndrome”, “TSWS”, “Red Skin Syndrome”, “steroid addiction”, corticosteroid rebound and topical corticosteroids adverse effects. This approach sought to capture the full range of studies available in order to provide a comprehensive description of TSWS and its patients, both children and adults; pathophysiology, clinical features and treatment. The review also included both qualitative and quantitative studies, which suggested a balanced overview. The findings of these analyses provided a better understanding of patients’ experiences, the treatments they receive and the barriers that HCPs encounter in their efforts to diagnose and manage TSWS.

The criteria for inclusion were studies published from 2000 to 2025 in English, focusing on Topical Steroid Withdrawal Syndrome (TSWS) and providing data regarding clinically pertinent aspects

of the disease, prevalence rates, diagnostic dilemma and therapeutic options. Adult and pediatric population studies were considered. The trials reporting the psychological effect of TSWS (Ahuja and Lio, 2024; Maskey *et al.*, 2025) and giving an introduction about treatment strategies such as systemic treatments, phototherapy or other unconventional methods like Traditional Chinese Medicine (TCM) were also incorporated. In contrast, the exclusion criteria were articles where TSWS and steroid phobia was not addressed. In addition, those that present abstract, irrelevant content about TSWS and do not have data were excluded. Data presented in this article were obtained from relevant sources including type of study design, sample size and specific symptoms reported by patients as well therapeutic approaches applied. Questionnaire-based studies and patient-reported outcomes (i.e., information gathered through online surveys or social media) data are provided to explain the impact of TSWS on patients' psychological state. The data extracted were analysed and synthesised in order to give an overview of TSWS. In order that the current state of knowledge could be presented clearly, key findings were grouped by themes. These themes included the pathophysiology of TSWS, diagnostic difficulties, types and incidence rates, and the management strategies. Relevant research into the physiological implications of TSWS and on patient-reported outcomes were also among those considered as to provide a comprehensive understanding of how living with TSWS can affect an individual's life. The review critically analyzed the drawbacks of current studies that need more investigation such as non-standard diagnostic criteria and databases used.

Chapter 3

Result

The significant findings of this review include a summary of information about Topical Steroid Withdrawal Syndrome (TSWS). Firstly, TSWS is becoming more well-known to people as it is discussed more. Notably, the review highlights the growing awareness of TSWS, especially through patient-reported experiences from online communities (Orr *et al.*, 2024; Alsterholm *et al.*, 2025). Previously, research on children patient was little but recently new case studies show how it affects children (Juhász *et al.*, 2017; Sheary, 2019). The researchers are finding management strategies of this disease like duplimab, tacrolimus, tetracyclines, tapering topical steroids, and non-pharmacological treatments also used (Kawakami *et al.*, 2001; Dhossche, Simpson and Hajar, 2017; Juhász *et al.*, 2017; Arnold, Treister and Lio, 2018; Hsu C, Lio PA and Friedman OH, 2025). Along with these treatments, TCM can be an option to treat TSW though it has been used for the treatment of AD (Hsu C, Lio PA and Friedman OH, 2025). TCM can be the best treatment option for TSW because not only treats the visible conditions but also fixes the patient's psychological and emotional imbalances (Hsu C, Lio PA and Friedman OH, 2025).

The findings support the idea that TSWS is an inadequately understood or acknowledged illness, particularly due to the absence of established diagnostic criteria. The review also backs up the hypothesis that social media can make people more aware of their health, which can lead to self-diagnosis and discontinuing TCSs, which can make withdrawal symptoms worse (Sheary, 2018; Alsterholm *et al.*, 2025). The findings validate the hypothesis on the deficiency in treatment alternatives and the ongoing challenge of identifying successful therapies, particularly concerning systemic treatments and alternative therapies lacking empirical (Hsu C, Lio PA and Friedman OH, 2025).

There is an increasing acknowledgment of TSWS as a unique illness, however the issue continues to be underreported, with numerous instances misdiagnosed as exacerbations of preexisting

dermatological disorders (Alsterholm *et al.*, 2025). The prevalence is not well-defined, but patient-reported data indicates that the symptoms might endure for prolonged durations, impacting patients' physical and emotional health (Maskey *et al.*, 2025). Social media and questionnaire-based surveys underscore considerable worry, anguish, and, in certain instances, suicidal ideation resulting from the chronic and frequently unmanaged characteristics of the syndrome (Orr *et al.*, 2024; Alsterholm *et al.*, 2025). The absence of established diagnosis criteria and dependence on exclusion diagnoses prevent timely treatment (Sheary, 2018; Tan *et al.*, 2022). This has been especially problematic in children, where the condition is commonly missed (Sheary, 2019). The investigation of alternative medicines, including Traditional Chinese Medicine, signifies a tendency towards broadening treatment techniques beyond standard corticosteroid discontinuation (Hsu C, Lio PA and Friedman OH, 2025). These findings jointly emphasize the pressing necessity for uniform diagnostic criteria, enhanced clinical trials, and a more compassionate approach to the management of this disorder.

Summary Table of Clinical Trials

Study ID	Author(s)	Year	Study type	Sample size	Population details	Duration of Steroid Use	Key Symptoms of TSW	Management Strategies	Outcome Measures
1	Kawakami et al.	2001	Clinical Trial	47	Adults aged 18 to 63 with refractory facial atopic dermatitis	At least 4 weeks for group 1 (prior steroid use), not applicable for group 2	Facial erythema, edema, pruritus, with a rebound phenomenon in steroid-using patients	Topical tacrolimus 0.1% ointment applied twice daily for 2 weeks	Significant reduction in erythema and pruritus, no rebound phenomenon
2	Rapaport and Lebwohl	2003	Case series	10	Patients with corticosteroid addiction	6 weeks – 25 years	Eczema, asthma, hay fever, winter itch, soap or wool, urticaria, intolerance to cosmetics, and history of nonspecific eczematous pruritus and rashes.	Complete TCS cessation	Patients get recovered after TCS cessation
3	Rapaport and Rapaport	2006	Observational study	About 1500	Patients with AD, steroid addiction	1 – 18 years	Red skin, burning, edema, vesiculation, erythema	Total steroid cessation, supportive care, ice compresses, tacrolimus/pimecrolimus, Burow's compresses, analgesics (when pain & burning severe)	No relapse, complete symptom resolution after 1–2 years

4	Hajar et al.	2015	Systematic Review	34 studies	Adult patients with TCS addiction/withdrawal	Long-term (months to years)	Erythema, swelling, burning pain, skin sensitivity, papules, pustules	TCS cessation, antibiotics, moisturizers, antihistamines	Symptom improvement post-TCS cessation
5	Dhossche et al.	2017	Case report	1	Pediatric patient (14 years old)	2 years	Pustules, erythema, edema, pustular eruption	TCS tapering, oral doxycycline, supportive care	Rapid improvement with resumption of TCS and oral doxycycline
6	Juhász et al.	2017	Systematic Review	27	Children (Caucasian, 51.8% male)	2 months–12 years	Erythema, dryness, peeling, "red sleeves", growth delay, swelling	TCS cessation, non-pharmaceutical treatments	9 subjects full resolution, 54% continued symptoms at 20 months

7	Shi et al.	2017	Meta-analysis	1,618	Patients with AD	Varies	Eczema, pruritus, dryness, papules, erythema	TCM (herbal treatments, acupuncture)	Improvement in EASI (Eczema and Severity Index), but no overall clinical superiority
8	Sheary B.	2018	Retrospective Cohort Study	55	Adults (20–66 years), 56% female, TCS overuse	6 months–40 years	Erythema, burning pain, skin shedding, red skin, elephant wrinkles, "red sleeve"	TCS cessation, topical calcineurin inhibitors, phototherapy	Symptom resolution, recurrence (22% resumed TCS)
9	Arnold, Treister and Lio	2018	Case Series	5	Adults (22 to 35 years), 3 females and 2 males with atopic dermatitis	Mostly greater than 6 months	Erythematous eczematous plaques, burning, pruritus, desquamation, pustules	Discontinuation of TCS, dupilumab (600 mg loading, then 300 mg biweekly), prior trials with cyclosporine, tacrolimus etc.	Improvement in signs and symptoms

10	Sheary B.	2019	Case Series	10	Children with AD, chronic TCS use	18 months–4 years	Red skin, swelling, burning, erythema, "red sleeve", sleep disturbance, pain	TCS cessation, supportive care, psychological support	Resolution of symptoms (4 cleared skin, 4 AD-like symptoms)
11	Matejek et al.	2022	Case report	2	Young infants, iatrogenic Cushing's syndrome	Variable (long-term use)	Cushingoid face, growth retardation, adrenal insufficiency	Dexamethasone reduction, hydrocortisone treatment	Complete recovery of cortisol secretion in 4–12 weeks
12	Feschuk and Pratt	2023	Case Report	2	Mother (42) and son (10), both with AD	5 years of TCS use	Erythema, burning, widespread red skin, pruritus	TCS cessation, psychological support	Recovery in 2 years, symptoms resolved
13	Ahuja and Lio	2023	Retrospective Chart Review	69	Predominantly female, age 35 years on average, severe AD	6 months–5 years	Erythema, burning, itching, pruritus, skin dryness	TCS cessation, emollients, psychological support	Symptom resolution, 43% severe AD cases

14	Ahuja and Lio	2024	Pediatric Review	21	Pediatric patients (age 3–16), 62% female	3 months–5 years	Erythema, burning, severe itching, dry skin, "red sleeve"	TCS cessation, Pimecrolimus 1% cream, Corticosteroid sparing	Recovery in 12–18 months, skin symptom improvement
15	Orr et al.	2024	Evidence Gap Map	304	Patients with self-reported TSWs, mixed age groups	Up to 10 years (variable)	Erythema, scaling, burning, itching, edema, pustulation	TCS cessation, Tapering, Psychological therapy, NSAIDs	Symptom persistence, Social impact, Treatment response
16	Alsterholm et al.	2025	Cross-sectional	82	Mostly female, aged 18-39, self-diagnosed TSW	Variable (long-term)	Erythema, peeling skin, dryness, oozing, pruritus, sleep disturbance	TCS cessation, systemic therapy, phototherapy, psychological support	Recurrence rate (60% experienced multiple episodes), quality of life impacts (sleep, anxiety, depression)

17	Hsu et al.	2025	Case series	5	Adults with TSW	9 months to 13 months	Erythema, thermos-dysregulation, oozing, pain, disturbed sleep	Traditional Chinese Medicine (Herbal treatments, dietary changes)	Resolution of acute symptoms, improvement in quality of life
18	Maskey et al.	2025	Review	82	Predominant ly female, 18–39 years, self-diagnosed TSWS	Variable (long-term)	Erythema, burning, stinging, pruritus, scaling, oozing, pain	TCS cessation, Oral steroids, Emollients, Psychological support	Recurrence rate, Quality of life impact, Symptom resolution

Table 1: Summary Table of Clinical Trial

Chapter 4

Discussion

To perform the review, 24 articles were reviewed, but only 18 articles were included, and others were excluded due to the absence of appropriate population details, sample size, management strategies, and effective outcomes. These findings merged the information of previous studies and highlighted the growing awareness about TSWS, primarily through social media platforms, patient-reported experience (Orr *et al.*, 2024; Alsterholm *et al.*, 2025). Moreover, in this review, information on both adults and children was included. The findings also aligned with the management strategy of TSW for different types of patients. Rapaport and Rapaport (2006) explained that after TCS cessation, most of the adult patients showed complete resolution within one to two years, and no relapse was reported. Similarly, Sheary (2018) found that 55 adult patients experienced resolution after cessation of TCS and other therapies like phototherapy, but a small portion of patients relapsed. In most of the studies, TCS cessation was chosen to treat most of the patients, and other treatments were also introduced, like phototherapy, dupilumab, and tacrolimus. Arnold, Treister and Lio (2018) mentioned the use of Dupilumab in some patients as the effective treatment of TSW. Hsu C, Lio PA and Friedman OH (2025) introduced a new treatment option TCM which improves the acute symptoms of TSWS and helps to improve the quality of life. TCM was researched on a small number of patients but not referred to as an established treatment option due to controversy about potency and efficacy (Hsu C, Lio PA and Friedman OH, 2025).

Over the period, TSWS is increasingly known to the people via social media (Orr *et al.*, 2024; Alsterholm *et al.*, 2025; Miao, Yen and Luu, 2025). Recently, research on pediatric patients is increasing, whereas this population was ignored before. As an example, Sheary (2018) excluded 14 patients because the patients' age was below 18, and the research was conducted only with patients aged between 20 to 66 years. Though the research on pediatric patients is increasing but

the treatment process is still rarely reported. U.K.-based multidisciplinary service conducted a retrospective chart review that from January 2019 to June 2021, only two pediatric cases and 19 physician-diagnosed adult cases were identified over this period (Miao, Yen and Luu, 2025).

The strength of this article lies in its comprehensive review of clinical data, patient-reported outcomes, and novel treatments, including dupilumab and traditional Chinese medicine (TCM). This review also highlighted the potential recovery of patients after TCS cessation. Additionally, the psychological impacts of TSWS patients discussed in this review are an essential consideration for overall recovery. On the other hand, some limitations are still visible in the studies. Firstly, the reliance on patient-reported data collected from social media introduces bias. Furthermore, the absence of established diagnostic criteria hinders precise diagnosis and treatment. The pediatric patient groups are excluded in some studies, as the treatment guidelines remain underdeveloped for this group.

The unexpected finding in this study is the increasing discussion of TSWS in social media, which has both positive and negative effects on patients and the general public. The positive impact is that the debate increases awareness among people. This awareness sometimes leads to self-diagnosis and misconception among the patients, which worsens the symptoms further. Additionally, individuals who rely solely on social media information will avoid TS to prevent withdrawal symptoms.

Chapter 5

Future Directions

Future research on TSWS is needed to establish standardized diagnostic criteria. To improve its clinical recognition, establishing an official International Classification of Disease (ICD) code is necessary. High quality studies are needed to elucidate the pathophysiology, outcomes of different type of patients. Exploring a standard novel therapy are essential beyond ceasing topical corticosteroids. Newly invented treatment options like dupilumab, tacrolimus, phototherapy, TCM needs more investigation into the safety and efficacy to establish evidence- based management protocols. Additionally, more research needs to be conducted on the mental health of the TSWS patients, as the emotional distress and quality of life impairment associated with TSWS. The focus on emotional side of the patients will improve the treatment process of this disease, the physicians will focus on both physical and mental health of the patient.

The appropriate use of TCs should be ensured otherwise people will stop using it due to its risk factors. As the pediatric patients are more susceptible to TSWS, parents will not allow to use the topical corticosteroids. To clear out the misconception, it is necessary to identify the actual reason behind TSWS. Due to the lack of knowledge, the relationship between the patient and doctors are getting hampered. Further research will improve the patient- doctor communication, burden of the individuals with TSWS, optimize personalized treatment and refine the prevention strategies.

Chapter 6

Conclusion

TSWS is a challenging condition, as sometimes it is poorly understood. This disease not only affects the skin but also the mental health and quality of life of the patients. The lack of proper knowledge about these conditions' pathophysiology and the invention of effective treatment strategies are becoming increasingly challenging. There is substantial evidence that cessation of TCS helps many patients recover from TSWS. The healing process is still different for each person, with some people having symptoms that last longer or come back.

This review highlighted the importance of incorporating both clinical and physiological aspects of TSWS management. Patient-reported outcomes gathered via online communities and surveys provided essential insights into the physiological discomfort frequently accompanying TSWS. These results show that a comprehensive treatment strategy should not only focus on the physical symptoms of TSWS but also the emotional and psychological health of patients.

This review also finds out about the promising role of alternative medications, including traditional Chinese medicine (TCM), which provides potential benefits beyond standard corticosteroid-based treatment approaches. Yet, further research or investigation is required to confirm these methods through controlled studies and find out their safety and efficacy in the long term.

This study enhances the scientific area by consolidating current research on TSWS, pinpointing significant deficiencies, and advocating for more investigations into the long-term impacts of TCS usage, especially among pediatric populations. It underscores the necessity for uniform diagnostic criteria and evidence-based management methods. The results may inform future studies, refine therapeutic practice, and eventually improve patient outcomes for individuals affected by TSWS.

References

Ahuja, K. and Lio, P. (2023) *Topical Steroid Withdrawal Syndrome: A Retrospective Chart Review in a Specialty Center*.

Ahuja, K. and Lio, P. (2024) “Pediatric Topical Steroid Withdrawal Syndrome: What Is Known, What Is Unknown,” *Pediatric Dermatology*, 42(2). Available at:
<https://doi.org/10.1111/PDE.15799>,.

Alsterholm, M. *et al.* (2025) “Topical Steroid Withdrawal in Atopic Dermatitis: Patient-reported Characterization from a Swedish Social Media Questionnaire,” *Acta dermato-venereologica*, 105, p. adv40187. Available at: <https://doi.org/10.2340/actadv.v105.40187>.

Arnold, K.A., Treister, A.D. and Lio, P.A. (2018) “Dupilumab in the management of topical corticosteroid withdrawal in atopic dermatitis: A retrospective case series,” *JAAD Case Reports*, 4(9), pp. 860–862. Available at: <https://doi.org/10.1016/j.jdc.2018.06.012>.

Dhossche, J., Simpson, E. and Hajar, T. (2017) “Topical corticosteroid withdrawal in a pediatric patient,” *JAAD Case Reports*, 3(5), pp. 420–421. Available at:
<https://doi.org/10.1016/j.jdc.2017.06.006>.

Feschuk, A.M. and Pratt, M.E. (2023) “Topical steroid withdrawal syndrome in a mother and son: A case report,” *SAGE Open Medical Case Reports*, 11. Available at:
<https://doi.org/10.1177/2050313X231164268>.

Hajar, T. *et al.* (2015) “A systematic review of topical corticosteroid withdrawal (‘steroid addiction’) in patients with atopic dermatitis and other dermatoses,” *Journal of the American Academy of Dermatology*. Mosby Inc., pp. 541-549.e2. Available at:
<https://doi.org/10.1016/j.jaad.2014.11.024>.

Howells, L. *et al.* (2023) “Topical corticosteroid withdrawal syndrome: the patient community call for high-quality research, clear definitions and diagnostic criteria,” *British Journal of Dermatology*. Oxford University Press, pp. 288–289. Available at:

<https://doi.org/10.1093/bjd/ljac067>.

Hsu C, Lio PA and Friedman OH (2025) “Treatment of Topical Steroid Withdrawal Syndrome with Traditional Chinese Medicine: A Case Series of 5 Adults | Published in Journal of Integrative Dermatology,” *Journal of Integrative Dermatology* [Preprint]. Available at: <https://www.jintegrativederm.org/article/127170-treatment-of-topical-steroid-withdrawal-syndrome-with-traditional-chinese-medicine-a-case-series-of-5-adults> (Accessed: June 9, 2025).

Juhász, M.L.W. *et al.* (2017) “Systematic Review of the Topical Steroid Addiction and Topical Steroid Withdrawal Phenomenon in Children Diagnosed with Atopic Dermatitis and Treated with Topical Corticosteroids,” *Journal of the Dermatology Nurses’ Association*. Lippincott Williams and Wilkins, pp. 233–240. Available at: <https://doi.org/10.1097/JDN.0000000000000331>.

Kawakami, T., Soma, Y., Morita, E., Koro, O., Yamamoto, S., Nakamura, K., ... & Mizoguchi, M. (2001). *Safe and effective treatment of refractory facial lesions in atopic dermatitis using topical tacrolimus following corticosteroid discontinuation*. *Dermatology*, 203(1), 32-37. Available at: <https://doi.org/10.1159/000051700>

Maskey, A.R. *et al.* (2025) “Breaking the cycle: a comprehensive exploration of topical steroid addiction and withdrawal,” *Frontiers in Allergy*. Frontiers Media SA. Available at: <https://doi.org/10.3389/falgy.2025.1547923>.

Matejek, N. *et al.* (2022) “Topical glucocorticoid application causing iatrogenic Cushing’s syndrome followed by secondary adrenal insufficiency in infants: two case reports,” *Journal of Medical Case Reports*, 16(1). Available at: <https://doi.org/10.1186/s13256-022-03659-2>.

Miao, K.L., Yen, H. and Luu, M. (2025) “Pediatric topical steroid withdrawal syndrome: Facts, misconceptions and communicating with patients and families,” *Current Opinion in Pediatrics* [Preprint]. Available at: <https://doi.org/10.1097/MOP.0000000000001479>.

Orr, N. *et al.* (2024) “Reviewing the Evidence Base for Topical Steroid Withdrawal Syndrome in the Research Literature and Social Media Platforms: An Evidence Gap Map,” *Journal of*

Medical Internet Research. JMIR Publications Inc. Available at: <https://doi.org/10.2196/57687>.

Rapaport, M.J. and Lebwohl, M. (2003) "Corticosteroid addiction and withdrawal in the atopic: The red burning skin syndrome," *Clinics in Dermatology*, 21(3), pp. 201–214. Available at: [https://doi.org/10.1016/S0738-081X\(02\)00365-6](https://doi.org/10.1016/S0738-081X(02)00365-6).

Rapaport, M.J. and Rapaport, V. (2006) "The red skin syndromes: Corticosteroid addiction and withdrawal," *Expert Review of Dermatology*, 1(4), pp. 547–561. Available at: <https://doi.org/10.1586/17469872.1.4.547>.

Sheary, B. (2018) "Steroid Withdrawal Effects Following Long-term Topical Corticosteroid Use," *Dermatitis*, 29(4), pp. 213–218. Available at: <https://doi.org/10.1097/DER.0000000000000387>.

Sheary, B. (2019) "Topical steroid withdrawal: A case series of 10 children," *Acta Dermato-Venereologica*, 99(6), pp. 551–556. Available at: <https://doi.org/10.2340/00015555-3144>.

Shi, Z.F. *et al.* (2017) "The Traditional Chinese Medicine and Relevant Treatment for the Efficacy and Safety of Atopic Dermatitis: A Systematic Review and Meta-Analysis of Randomized Controlled Trials," *Evidence-based Complementary and Alternative Medicine*. Hindawi Limited. Available at: <https://doi.org/10.1155/2017/6026434>.

Tan, S. *et al.* (2022) "Qualitative analysis of topical corticosteroid concerns, topical steroid addiction and withdrawal in dermatological patients," *BMJ Open*, 12(3). Available at: <https://doi.org/10.1136/bmjopen-2022-060867>.

Tan, S.Y., Chandran, N.S. and Choi, E.C.E. (2021) "Steroid Phobia: Is There a Basis? A Review of Topical Steroid Safety, Addiction and Withdrawal," *Clinical Drug Investigation*. Adis, pp. 835–842. Available at: <https://doi.org/10.1007/s40261-021-01072-z>.

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