

Habit Reversal Training for the Itch-Scratch Cycle Associated with Pruritic Skin Conditions

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Habit reversal therapy was originally developed by Azrin and Nunn in 1977 as a multi-component treatment for nervous tics and habits. Their premise for clinical intervention was that an old habit can be broken by replacing it with a new, more desirable habit. Dermatology nurses trained in habit reversal therapy can enhance system management and quality of life for patients. Recommendations for the evaluation of habit reversal in patients with eczema and prurigo nodularis are made.

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Objectives

This continuing nursing educational (CNE) activity is designed for nurses and other health care providers who care for and educate patients and their families regarding habit reversal training. For those wishing to obtain CNE credit, an evaluation follows. After studying the information presented in this article, the nurse will be able to:

1. Describe a "habit" and how it relates to the itch-scratch cycle.
2. Define a clinical intervention model for habit reversal/behavior modification therapy.
3. Explain key intervention strategies in habit reversal therapy.
4. Discuss implications for practice in using habit reversal therapy.

"The beginning of a habit is like an invisible thread, but every time we repeat the act we strengthen the strand, add to it another filament, until it becomes a great cable and binds us irrevocably in thought and act."

— Orison Swett Marden

A habit is a recurrent, often subconscious or automatic pattern of behavior that is acquired through frequent repetition. Habit reversal therapy targets and aims to modify these behaviors. The management of itch requires medical intervention. However, the management of the scratch behavior requires a psychological approach. Dermatology nurses who have been trained in habit reversal therapy can offer an additional dimension of care to their patients with chronic itch.

The most widely accepted definition of itch is that "of an unpleasant sensation which provokes the desire

to scratch" (Greaves, 1998). Itch is a common and often debilitating symptom experienced by people with dermatologic problems. It is also a symptom that is often not adequately treated (Rees & Laidlaw, 1999). Successful treatment of pruritus depends on making a correct diagnosis. The evaluation should include a detailed history, review of symptoms, complete physical examination, and appropriate laboratory tests (Bueller & Bernhard, 1998).

A natural response to an itch is to scratch. This action can be separated into at least three types:

1. A reflex functioning at a spinal level although modified greatly by higher centers (Greaves, 1998).

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2. A voluntary action.
3. A habit. A habit is a recurrent, often subconscious or automatic pattern of behavior that is acquired through frequent repetition. It is this type of scratching that habit reversal therapy targets and aims to modify.

Medical physiology supports that scratching also causes injury to the skin and direct release of inflammatory mediators that enhance or cause itching themselves (Ständer et al., 2003). Scratching damages the skin and may initiate a vicious *itch-scratch cycle*, leading to worsening of the lesions. "The itch-scratch cycle can also lead to secondary infection, pigmentation, damage, thickening, scarring of the skin and a prolonged healing process" (Eysenbach, Williams, & Diepgen, 2004, p. 1). The above clinical observations suggest that interventions designed to prevent scratching would be helpful in managing the skin problem.

The most commonly used intervention aimed at reducing scratching is habit reversal training. Habit reversal therapy was originally developed by Azrin and Nunn in 1977 as a multi-component treatment for nervous tics and habits. Their premise for clinical intervention was that an old habit can be broken by replacing it with a new, more desirable habit (Azrin & Nunn, 1977).

The purpose of this article is to describe and analyze the prevailing literature in relation to habit reversal training, describe an intervention strategy that could be integrated into the practice of the dermatology nurse, and make recommendations for the evaluation of habit reversal in patients with eczema and prurigo nodularis.

Literature Review

Itching is a predominant symptom of skin disease but it is not well understood. Due to a lack of satisfactory animal models there have been few attempts to study and characterize itching. Consequently there is no

specific treatment available for itch (Greaves & Wall 1996). Itch is a skin sensation leading to a desire to scratch and it is very different from the sensation of touch and pain in its nature, persistence, and localization (Greaves & Wall, 1996).

Habit reversal therapy can play a part in managing chronic itching and scratching. Our clinical experience has shown that patients are often frustrated by the request to "stop scratching!" There is often no advice given on how to control the urge to scratch and what to do with the hands. Habit reversal is a behavioral method for treating trichotillomania, nail biting, self-biting, tics, stuttering, nose picking, and thumb sucking and less frequently in chronic scratching and skin picking in dermatology patients (Noren, 1995). Studies by Noren (1995) using habit reversal therapy and topical therapy showed that the patients improved significantly compared to patients on topical treatment only. In eczema there is a physical stimulus to scratch in the form of itching, which differs from nail biting where there is the absence of this physical stimulus. Therefore, in order to increase the success of habit reversal therapy this physical stimulus (itching) must be addressed by topical therapy.

A wealth of literature reports benefits of habit reversal in behavior modification programs (Allen, 1998; Jones, Swearer, & Friman, 1997; Twohig, Woods, Marcks, & Teng, 2003). Very few clinical studies evaluating efficacy of habit reversal and chronic eczema exist, and none evaluating its use in prurigo nodularis (Ehlers, Stangier, & Gieler, 1995; Esser et al., 2003). Current measure of successful outcome ranges from a decrease in frequency of scratching (Ehlers et al., 1995), degree of excoriation (Ehlers et al., 1995), degree of self-injurious behavior (Jones et al., 1997), and increase in nail length (Twohig et al., 2003). A randomized controlled study conducted at the

department of psychology and dermatology, University of Marburg, Germany compared four group treatments for atopic eczema: dermatologic education program, autogenic training as a form of relaxation therapy, cognitive-behavioral treatment, and the combined education and behavioral therapy (Ehlers et al., 1995). Group treatments were also compared with standard medical care. Assessments at 1-year followup showed that the psychological treatments led to significant larger improvement in skin condition than standard medical treatment alone. The results of the study support the use of psychological interventions such as habit reversal therapy as adjuncts to dermatologic treatments in skin conditions aggravated by the itch-scratch cycle.

There are different approaches to the habit reversal process. For example, according to Buchanan (2001), a psycho-dermatologic approach in managing scratching in eczema uses a soft scratch pad as an alternative to scratching of the skin. However, it has been argued that scratching of the soft pad reinforces the habit rather than extinguishes it (Buchanan, 2001).

Skin damage due to scratching may lead to chronic lichenoid nodules of prurigo nodularis. This condition is associated with unbearable, severe itch and relieved only by scratching to the point of damaging the skin, inducing bleeding and often scarring (Dunford & Crutchfield, 2003).

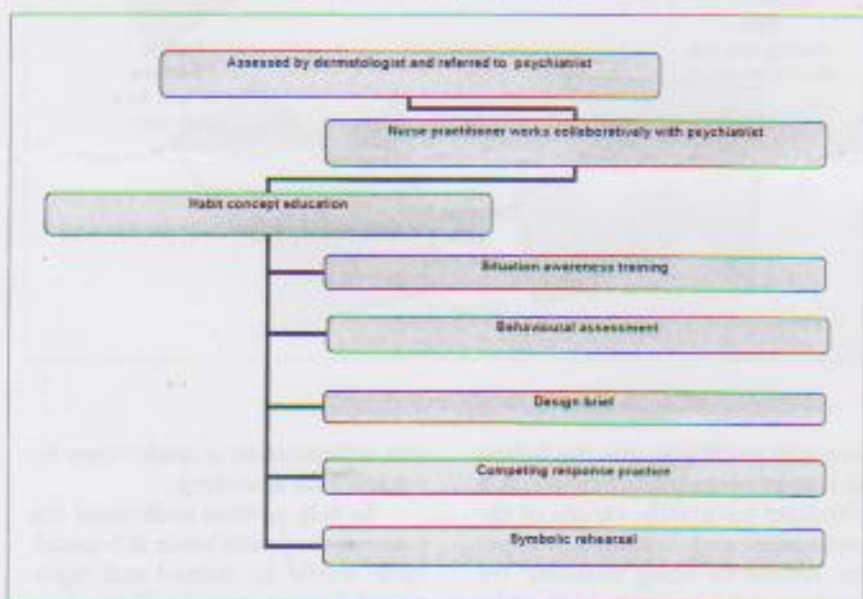
Treatment of pruritus is based on determining the etiology of the itch. However the etiology of prurigo nodularis is unknown. Scratching is a chronic response to the disease associated with further damage to the skin and prevents treatment from being effective due to this constant assault. Scratching rapidly becomes a habit and patients are often not aware that they are scratching or that they are scratching due to the itch.

Based upon the literature and our

Table 1.
**Habit Reversal Therapy Patients Including Dermatologic
Diagnosis and Gender**

Condition	Number of Patients	Gender
Atopic dermatitis	8	4 male 4 female
Prurigo nodularis	6	2 male 4 female
Psoriasis	2	1 male 1 female
Neurotic excoriations	1	1 female

Figure 1.
**A Habit Reversal Clinical Intervention Model for Use in the
Dermatology Clinical Area**



clinical experience, we believe that habit reversal therapy can play a part in managing chronic itching and scratching. Clearly, there is a need for comprehensive protocols to guide dermatology nurses in learning the habit reversal therapy. The steps involved in habit reversal therapy and the role that a dermatology nurse can play in incorporating habit reversal into current therapy regimens are described.

Over a period of 3 years, we have treated 17 patients with atopic dermatitis, prurigo nodularis, psoriasis, and neurotic excoriations with habit reversal therapy (see Table 1). Their ages range from 30 years to late 70 years of age. We have not treated any pediatric patients with habit reversal therapy, but we have used the principles involved to make them more aware of their scratching behavior.

A Clinical Intervention Model

Clinical intervention strategies described in this article are based upon the work of Azrin and Nunn (1977) in habit reversal therapy. The habit reversal therapy process was developed by the second author for use in the dermatology clinical area based upon our clinical experience (see Figure 1).

Habit reversal therapy or behavior modification therapy is used as an adjunct to medical treatment. A description of the treatment totaling four sessions, 1 week apart and a followup 1 to 2 months later as well as the need for patient motivation and perseverance with the techniques was described to the patients initially. The four-session outpatient treatment program incorporates psychiatric assessment, psycho education about the itch-scratch cycle, behavioral analysis, habit reversal techniques, and between session tasks for the patient to complete. The patient continues with all dermatologic therapies prescribed by the dermatologist while undergoing habit reversal therapy.

Prior to commencement of habit reversal therapy, patients are assessed by the dermatologist and then by the psychiatrist for differential diagnoses and co-morbidities, such as major depression, obsessive compulsive disorders, delusions of parasitosis, substance abuse, and infestations.

It is an important part of the therapy to acknowledge the patient's affect, feelings of frustration, review of chronic illness factors, current medications, possible drug interactions, compliance, attitudes toward dermatologists, and treatments provided. It is also important that all patients be assured that they are not considered "mad," but that habit reversal therapy is a complementary treatment to be used with dermatologic therapies.

Dermatology patients with a habit causing damage to their skin are referred by their dermatologist to a psychiatrist with a special interest in psychodermatology. Initially the der-

matology nurse learns the habit reversal process by acting as co-therapist (with the patient's permission) with the psychiatrist and then, teaching the habit reversal to another patient with the psychiatrist acting as co-therapist. In this way, the nurse learns the techniques and the psychiatrist is able to assess the nurse's habit reversal technique.

The habit reversal therapy process can be subdivided into the following key intervention strategies. These strategies provide an organization framework for presentation of the habit reversal process.

Habit Concept Education

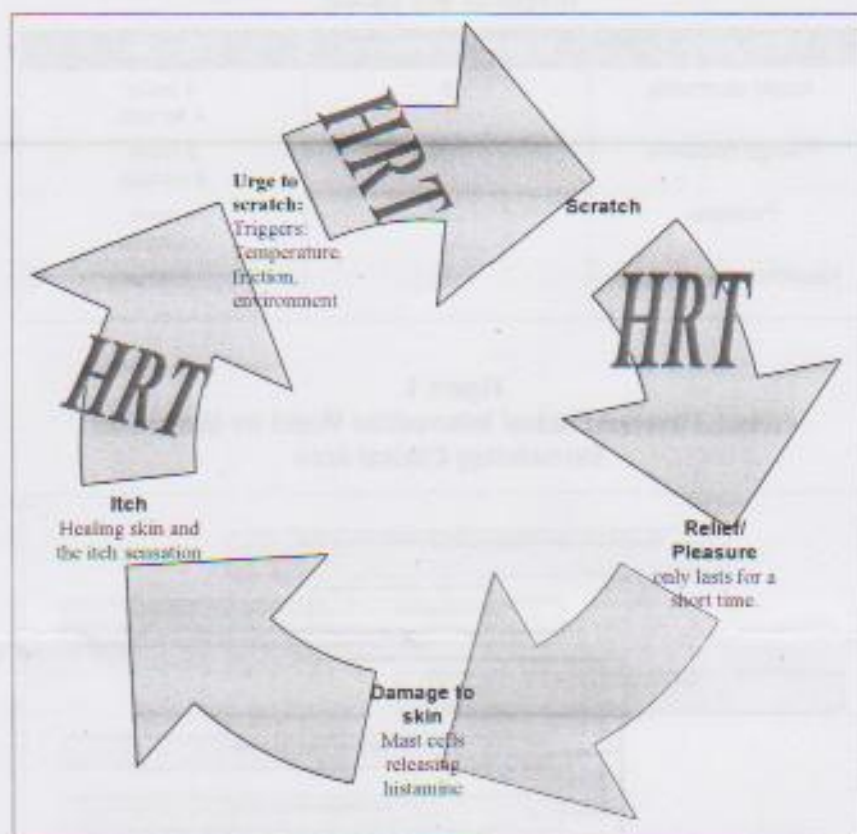
As mentioned previously, a habit is a recurrent, often subconscious or automatic pattern of behavior that is acquired through frequent repetition. In our clinical unit, we developed a simplified and highly stylized explanation for patients, demonstrated in the following exemplar.

Exemplar 1. The primitive (back) part of the brain controls scratching much like other activities, such as breathing. You breathe without noticing it, but if your attention is drawn to it you can do it voluntarily. This is in contrast to the advanced (front - frontal lobes) part of the brain responsible for advanced reasoning, philosophy, poetry, etc. Reason through talking can change a function of the advanced part of the brain, such as convince someone of an argument. However, the primitive part of the brain does not understand reasoning or communication and to change its function requires training by doing things over and over again. This is the basis of habit reversal therapy. It can be compared to training a dog. To teach him to do a trick you need to get him to practice it over and over again.

Itch-Scratch Cycle Education

Scratching is an action while itch is a sensation (Greaves & Wall, 1996). Our clinical experience has shown that although scratching begins as a

Figure 2.
The Itch-Scratch Cycle and When HRT Should Be Practiced



conscious reaction to itch, the behavior later becomes subconscious and is stimulated by a wide variety of circumstances and situations without itch necessarily being involved. For example, patients with prurigo nodularis may think they have eczema alone. If the dermatologist has diagnosed the patient with prurigo nodularis then this needs to be discussed with the patient explaining the central etiology of skin trauma by scratching and the link: itch leads to scratch which results in a new itchy nodule. Patients with eczema need to understand that scratching is causing damage in its own right and the role of this damage in making itching worse. One key concept important to the development of intervention protocols and for patients to understand is

that inflammation is made worse by trauma from scratching.

To help patients understand this concept, the patient's own itch-scratch cycle should be defined and represented diagrammatically. This is done by questioning the patient based on a detailed behavioral profile. It is best to always include the patient's own words and descriptions in the diagram. An example of a diagrammatic representation developed with a patient is shown in Figure 2.

Concepts to convey to patients to facilitate an understanding of the self-perpetuating nature of the cycle include:

- Mast cells releasing histamine in response to skin damage from scratching and the resultant increased itching.

- Healing skin and the itch sensation (discuss how cuts itch as they heal).
- Friction as a source of heat. Heat is often a trigger of itching and if it is noted as being caused by scratching it can be seen as an exacerbating factor.
- The observation that parts of skin not reached by scratching (for example, on the back) or scratched less are not as severe despite skin being similar all over the body (evidence for scratching etiology).
- Pleasure and relief should be acknowledged but also note that this only lasts for a short time.

Situation Awareness Training

The first step to habit reversal is making the person more aware of the behavior. Many people scratch without being fully aware of it. This step makes the "advanced part" of the brain aware of what the "primitive" part is making the person do. As a secondary result these tasks will decrease scratching due to increased awareness. This is done in a number of different ways:

- Setting the task at home of counting the number of times they scratch in a set period, keeping a scratch diary.
- Recognition of early warning detection; recognize early moves to scratch (for example, moving the arm).
- Behavioral assessment.

Behavioral Assessment

Behavioral assessment includes defining the difference between *itch* and *scratch* as some patients use these words interchangeably. The behavioral profile for itch-scratch habit reversal should include how the patient actually scratches (with what, where, when, the frequency, the intensity, the duration, and bouts of scratching).

- Consider the itch and also triggers for the itch (temperature,

friction, atmosphere, etc.).

- Define the thoughts after the itch ("I must scratch...", "I need to stop the itch...").
- Define the scratching behavior.
- Define the movements to position for scratching.
- Look at the consequences. Short term there was relief of itching; however, physically there was skin damage, erythema, bleeding.
- What makes the problem worse (for example, temperature, clothing) and what makes it better (for example, medication, temperature, clothing).
- What does the problem prevent the patient from doing?
- List a number of detailed goals the patient wishes to achieve (for example, stop scratching, allow my skin to heal).

Design Brief

Based on the situation awareness exercises and behavioral assessment a design brief for the competing response exercise was developed. Often scratch counting and diaries can be used to identify important time and locations where the habit reversal exercise must be used. These should include factors such as:

- Exercise busy hands.
- The exercise can be done in bed.
- It can be done in public.
- It is incompatible with scratching.
- Lasts at least 1 minute.
- It is anatomically opposite to scratching.
- Compatible with normal activity.

Competing Response Practice

The exercise is designed by the clinician based on the above criteria and examining each joint position involved in the scratching behavior and ensuring that it is the anatomical opposite of the scratching posture. The posture designed is often one of outstretched arms, wrists, and fingers held comfortably at the patient's side

when sitting or standing. It needs to be practiced with the clinician. This is the key exercise that attempts to teach the patient a competing nondestructive behavior to replace the scratching behavior which, in time, will extinguish the scratching behavior. All the other sessions and exercises leading up to this have been to motivate the patient to performing this one very important competing response exercise.

The patient needs to perform this exercise in two sets of circumstances:

1. *Practice sessions.* The patient should practice at least three times a day for a 10-minute period. During this time at least 10 habit reversal postures should be held for 1 minute followed by a short rest in between. If the patient scratches, the position should be returned to with no resetting of time.
2. *Stimulus response.* The patient should do the exercise when antecedents/triggers to scratch occur, especially the itch or urge to scratch occurs or if scratching occurs.

It is important that patients realize that this behavior modification will not work 100% of the time; however, a 100% success rate is not necessary for a positive outcome. Each time a person scratches he/she should return to the competing response position for 1 minute. If the patient breaks the position to scratch he/she should return to the competing response position for another minute. It is important that the patient understands that any reduction in scratching is helping the skin to heal.

This exercise works by extinguishing the habitual scratching. A new nondestructive response to itching serves to break the automatic scratch response. Our clinical experience has shown that this process could take many weeks, possibly months, to achieve and it is important to continue to monitor and encourage patients as they need the motivation to persevere.

Symbolic Rehearsal

The last step in habit concept education is symbolic rehearsal where the patient is asked to describe the itching and scratching in detail while performing the competing response. The description should include key sensations, emotions, and thoughts associated with the behavior.

At the final meeting with the patient prior to discharge, discuss the use of competing response when the antecedents to scratch occurs, and reinforce that it is possible to perform competing response in every day life without attracting attention. Motivate patient to persevere with habit reversal therapy and review the itch-scratch cycle and the damaging aspects of scratching. Finally, reinforce that the success of habit reversal relies upon practice. Even if the itch settles and the skin condition settles, the exercise should be practiced regularly.

Implications for Clinical Practice

Anecdotal evidence arising from our clinical experience suggests that habit reversal therapy is an effective method of reducing skin trauma in patients with chronic eczema and prurigo nodularis. However, the intervention warrants rigorous evaluation. We suggest that an area of future research could include a randomized control trial evaluating the effectiveness of habit reversal therapy among patients with chronic itching conditions such as eczema and prurigo nodularis.

Our clinical experience shows us that it is possible to diminish the scratch habit with habit reversal therapy, but long-term followup might be necessary to evaluate the effectiveness as motivation and practice plays a large part in the success of this treatment. It is difficult to remain motivated to practice this therapy without continued support from an interested health professional.

Conclusion

Pruritus is clearly one of the most

distressing symptoms reported by dermatology patients, particularly in eczema and prurigo nodularis. Scratching is a normal response to an itch. However, unlike spontaneous itch, which is easily relieved by scratching, the itch experienced by patients with dermatologic problems is unremitting and not relieved by scratching. A psychological approach such as habit reversal therapy may provide an additional dimension to care which further enhances the quality of life for the patient. Further research is warranted to rigorously examine the relationship between habit reversal therapy and clinical outcomes. Our clinical experience shows us that it is possible to diminish the scratch habit with habit reversal therapy but long-term followup might be necessary to evaluate the effectiveness as motivation and practice plays a large part in treatment success. It is difficult to remain motivated to practice this therapy without continued support from an interested health professional.

The management of itch requires medical intervention. However, the management of the scratch behavior requires a psychological approach. Dermatology nurses who have been trained in the habit reversal therapy can offer an additional dimension of care to their patients with chronic itch. By introducing a competing behavior incompatible to scratching, the anticipated consequence is skin healing. It may be impossible to avoid the scratching behavior completely but the main goal is to reduce scratching to such a level that it does not cause trauma to the skin. This psychological therapy is best conducted by a therapist with an interest in dermatology or a nurse practitioner in dermatology in collaboration with the dermatologist, psychiatrist, and the patient. □

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