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Review of Management Considerations for Excoriation Disorder in Older Adults

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NARRATIVE ABSTRACT

Excoriation disorder (ED) is defined as compulsive skin picking that results in skin damage and emotional distress. Optimal management of ED includes individualized treatment plans consisting of psychotherapies, behavioral and pharmacologic interventions. Compared with younger populations, older adults are at increased risk for poor outcomes, such as infection and hospitalization, and require unique management considerations. Risk factors that contribute to disease burden include age-related changes to the skin and underlying medical and psychiatric comorbidities. A literature review was conducted on ED yielding limited evidence exclusive to older adults. The authors suggest a therapeutic approach to ED in older adults based on available evidence and experience from inpatient and outpatient psychiatric settings. Finally, opportunities for future research are highlighted. (Am J Geriatr Psychiatry 2024; 32:879–894)

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Highlights

- **What is the primary question addressed by this study?**

  This article provides a therapeutic approach to the diagnosis and management of excoriation disorder in the older adult population based on experience and the available evidence.
- **What is the main finding of this study?**

  There is limited evidence exclusive to an older adult population regarding excoriation disorder. Older adults with excoriation disorder are at an increased risk of poor outcomes versus a younger cohort that require unique diagnostic and management considerations.
- **What is the meaning of this finding?**

  Older age is hypothesized to be a risk factor for morbidity and mortality, inviting more research in this population.

INTRODUCTION

Excoriation (skin picking) disorder is a psychocutaneous condition defined as repetitive picking that results in skin damage despite repeated attempts to reduce the behavior.[1] Afflicted individuals often spend hours per day picking at one or multiple locations of the body; this contributes to emotional distress, impairment in daily activities, utilization of healthcare resources, excess morbidity, and hospitalization in severe cases.[2] Skin picking behaviors typically develop in adolescence to early adulthood and present as episodes that wax and wane in response to one or multiple stressors. Excoriation disorder (ED) is identified as an obsessive-compulsive related disorder (OCRD) that was introduced with diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5) published in 2013. The incidence of ED varies across studies, but it is estimated to occur in approximately 2% of the population.[3] ED has a heterogenous presentation with several etiologies, complicating a standardized approach to recognition and treatment. The chronic nature of ED requires an awareness of specialized management considerations among those caring for older adults.

Age is an independent risk factor for the development of skin wounds, due to the physiologic changes that occur with aging skin; older adults with ED therefore experience a worse prognosis than younger individuals.[4,5] The higher incidence of skin wounds among older adults reflects delayed wound repair, impaired blood circulation, and increased concentrations of pro-inflammatory cytokines. Greater prevalence of underlying comorbidities, such as diabetes and renal insufficiency, predispose older adults to skin wounds, recurrent infections, and poor outcomes in ED.[6] Similar to pressure injury or decubitus ulcers, skin wounds stemming from abnormal skin picking may stagnate or worsen over time. In addition to increased susceptibility to complications, older adults have unique presentations of the disorder compared to younger individuals. This review provides an evidence-based approach to ED assessment and treatment in older adults and elucidates future research opportunities.

The Case of Mrs. B, An Example of Severe Excoriation Disorder in Late Life

Mrs. B is a 75-year-old widowed female with a past psychiatric history of generalized anxiety disorder and a medical history of diabetes mellitus (last A1C 9.5%), chronic obstructive pulmonary disease (on O2 supplementation), heart failure with reduced ejection fraction (last ejection fraction: 20% to 25%), obesity (BMI: 39 kg/m^2, weight 100 kg), and recurrent cellulitis in multiple body areas. Her most recent cellulitis was suspected to result from skin picking and was complicated by sepsis and a prolonged stay in the intensive care unit. She was referred to psychiatrist for evaluation of anxiety and skin picking behaviors.

On interview, she reports an upbeat mood of late. Any subjective "anxiety" is circumscribed to worry about another life-threatening medical event due to skin picking. In recent months, she began picking at her skin more frequently; barrier methods and moisturizing techniques had led to minimal improvement

in the picking frequency. She currently uses nystatin powder in select areas, and mupirocin ointment in others, and pays close attention to hand hygiene.

She describes a lifelong history of skin picking, beginning in childhood when her skin would peel after blistering sunburns. She reported always deriving satisfaction from skin picking, but the behavior did not become compulsive until adulthood. The body areas she picks most frequently are her abdominal pannus, and less often on her arms and upper back. She noted that she picks at certain areas only at night and when alone, and other areas at all times of day. She believes that she picks more frequently at her pannus when bored, and describes a dissociated mental experience in that she is not always aware that she is picking her skin during the behavior. She describes heightened shame around the behavior, and determination not to experience another medical setback due to infection. Barrier methods involving adhesives have been minimally effective around her pannus, due to their proximity to urinary incontinence supplies. In contrast to her abdominal pannus, the picking on her arms and back are triggered by dryness and a sensation of itching, and more often during the day while watching television, regardless of whether relatives were present with her. However, on the three days per week she attends Adult Day Health, she does not pick at her arms and back at all.

She denies excessive worry, fatigue, sleep disturbance, restlessness, or irritability. She denies any history of intrusive thoughts or fears experienced as egodystonic. She is hopeful, future-oriented, and has a good appetite. She was at some point in her adulthood started on citalopram for nonspecific anxiety symptoms, but did not appreciate any effect on her compulsive skin picking, and did not continue the medication long-term.

Initial recommendations were to optimize hand hygiene, keep nails short, and to work with her visiting nurses to find optimal barrier methods for areas of high excoriation. She also agreed to maintain a behavior log charting excoriation location, timing, frequency, and any associated environmental triggers. Generally, she was more amenable to behavioral and psychological treatment approaches versus psychopharmacologic, given her already extensive medication burden for chronic illnesses.

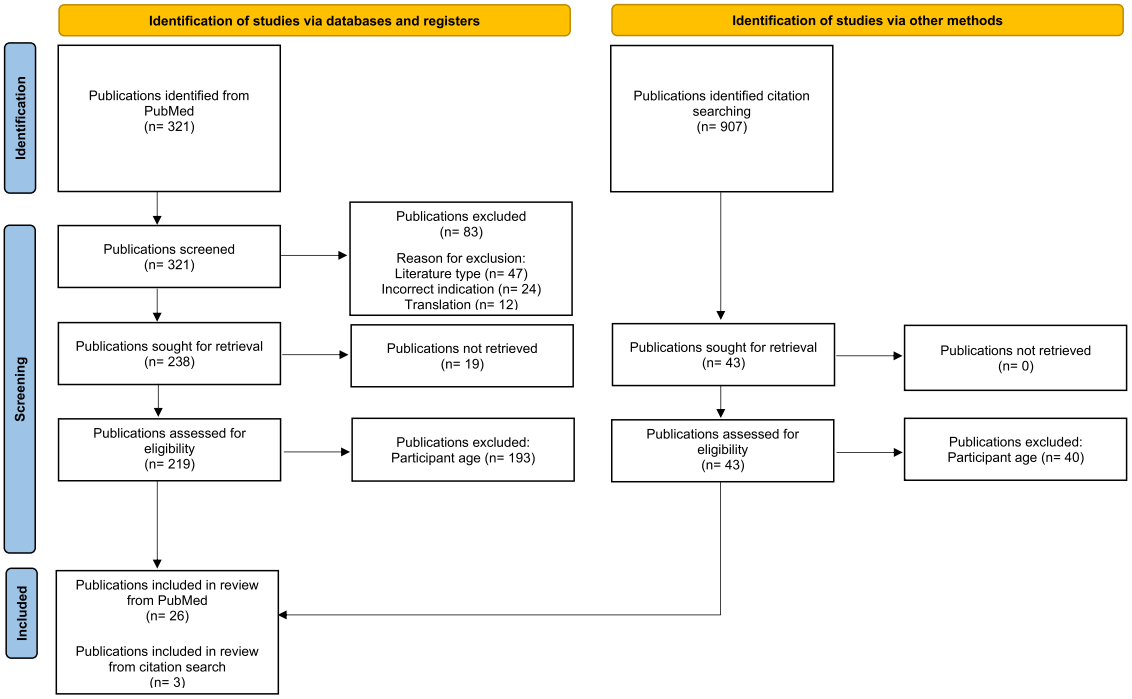
METHODS

A literature review was conducted on PubMed using key terms "excoriation," "skin picking," and "body focused repetitive behaviors" (BFRBs) until January 15th, 2024, to identify primary literature on individuals ages 65 years and older with diagnosed or self-reported or skin picking behaviors. Reasons for exclusion included subjects age less than 65 years old, literature type (i.e., not primary literature), availability via translation, incorrect indication, or irretrievable full text. A citation review was conducted on articles that met inclusion criteria and any systematic review or meta-analysis identified within the last five years of publication. Information pertaining to the management or prognosis of ED was collected for review.

RESULTS

Our literature review identified 321 articles of which 26 articles met study inclusion criteria. The most common reason for exclusion included participant age (n = 193 articles), literature type (n = 47 articles) and incorrect indication (n = 24 articles). Our literature review identified three meta-analyses and/or systematic reviews that met inclusion criteria for citation review. Our citation review of 26 articles resulted in an additional 907 articles of which 43 were sought for retrieval. Three articles from the citation review met study inclusion criteria with the only reason for exclusion including participant age (n =40 articles). Overall, a total of 29 articles met study inclusion criteria and are included for review. An overview of the literature review in PRISMA Flow Diagram format can be found in Figure 1. Only 8.09% (n = 26/321) of articles enrolled participants aged 65 years and older with two case report identified in older adult patients. Of the 29 articles that met study inclusion criteria, five articles used the DSM-5 diagnosis for enrollment. A summary of study key findings and age-related considerations can be found in Table 1.[7–11] For the remaining articles (n = 24), a variety of methods were used for enrollment that most commonly include survey responses and clinician assessment. A summary of study inclusion criteria, key findings, and age-related considerations can be found

FIGURE 1. PRISMA flow diagram of study identification and selection.



in Table 2.[12–35] Results from the literature review are discussed further with an emphasis on clinical considerations in older adults.

PATHOPHYSIOLOGY AND DIAGNOSIS OF EXCORIATION DISORDER

Abnormal skin picking behaviors were first described by Erasmus Wilson in 1875, but did not receive a formal set of diagnostic criteria until 2013.[36] Due to this, ED was described under a variety of names that commonly include, but are not limited to, neurotic excoriation, dermatillomania, pathological skin picking, psychogenic excoriation, and grooming disorders that all share the core feature of abnormal skin picking. These behaviors were first mentioned in the Impulse Control Disorders chapter of the DSM-IV, but Excoriation Disorder was later incorporated into the obsessive-compulsive and related disorders (OCRD) chapter of the DSM-5 as its own unique diagnosis. This classification stems from the shared feature of compulsive behavior with both ED and obsessive-compulsive disorder (OCD), as well as strong genetic correlation and shared features amongst first-degree relatives.[1] The diagnostic criteria for ED outlined by the DSM-5 can be found in Table 3. Despite these commonalities, neurobiological findings from functional magnetic resonance imaging (fMRI) and voxel-based morphometry (VBM) studies have identified abnormal signaling in the basal ganglia, prefrontal cortex, and insula that is distinct from structural abnormalities that are found in OCD.[9] Although some individuals with OCD may present with body-focused repetitive behaviors (BFRBs), both conditions exist independently and require distinct approaches to diagnosis and treatment. These differences may be explained by genetic mutations and the observed difference in effects from pharmacological agents in OCD compared to other OCRDs.[3,37]

Diagnostic Considerations

To meet the diagnostic criteria for ED, skin picking behaviors must be severe enough to cause physical skin damage and emotional distress. While skin

TABLE 1. Overview of Evidence for Older Adults Diagnosed with Excoriation Disorder per the DSM-5 Diagnostic Criteria

Publication Title (first author, year of print)	Reported Age of Patient Population (years)	Key Findings and Age-Related Considerations
Diagnostic Studies		
Clinical characteristics and comorbidities of patients with trichotillomania and skin picking disorder who admitted to a psychodermatology outpatient clinic: A comparative study (*Pirdoğan Aydın, 2021*)	Age (mean; SD): 33.8 ± 15 Age (range): 18−70	Participants with ED who presented to the outpatient dermatology clinic when compared to TTM were of older age (33.8 vs 25.4 years old, respectively), reported symptoms during a wider age range (10% of SPD diagnosed after 42 years old), and more likely to be of the focused subtype. The majority of participants reported at least one DSM-IV Axis I diagnosis with increased disease severity in the presence of comorbid conditions.
Obsessive-compulsive or addiction? Categorical diagnostic analysis of excoriation disorder compared to obsessive-compulsive disorder and gambling disorder (*Oliveirra, 2019*)	Age (mean): 38.5 Age (range): 21−79	Participants with ED were found to have more addictive behaviors compared to OCD with similar frequencies of other BFRBs. When compared to participants with GD, ED was associated with similar rates of addictive behaviors with increased frequencies of other BFRBs. ED is an OCRD that can be impulsive-compulsive in nature.
Voxel-based morphometry analysis of structural brain scans in skin-picking disorder (*Schienle, 2018*)	Age (mean; SD) 36.9 ± 15.9	VBM was used to assess brain-structural changes in males and females with ED compared to healthy controls. ED was found to be associated with less GMV in the insula and OFC, but was not found to be influenced by changes in basal ganglia volume as identified by research in OCD. This study supports brain-structural changes that occur in the insula and OFC that result in ED.
Interventional Studies		
Skin picking treatment with the Rothbaum cognitive behavioral therapy protocol: a randomized clinical trial (*Xavier, 2020*)	Age (mean; SD): 43.6 ± 17.72	The use of the adapted Rothbaun cognitive behavioral therapy protocol was associated with improvements in skin picking behaviors, skin lesion severity, and symptoms of comorbid conditions. Individual and weekly sessions were associated with remission of ED for the majority of participants (63% vs 52%, respectively).
Resolution of pathological skin picking with fluvoxamine in a 74-year-old dementia patient (*Hafeez, 2016*)	1 participant	A case report of a 74-year-old female with a history of dementia and depression that presented with skin picking behaviors and experienced symptom resolution with the addition of fluvoxamine 75 mg twice daily (a dose dependent response was observed during the titration period of 25 to 75 mg twice daily).

Key: skin-picking disorder (SPD); trichotillomania (TTM); excoriation disorder (ED); obsessive-compulsive disorder (OCD); gambling disorder (GD); body-focused repetitive behaviors (BFRBs); obsessive-compulsive related disorder (OCRD); voxel-based morphometry (VBM); gray matter volume (GMV); orbitofrontal cortex (OFC).

picking is a common behavior in the general population, only a small percentage of individuals will have clinically significant symptoms. A prevalence study published in 2009 screened 222 participants and identified skin picking behaviors in 62.7% of the patient population with only 5.4% reporting symptoms consistent with the diagnosis of ED.[28] The overall incidence of ED varies in trials and has been reported to impact between 2% to 9% of the population.[3] Studies that utilized survey responses for ED identification reported higher incidence which may reflect lack of provider and patient awareness in clinical settings, further emphasizing the need for appropriate screening for skin picking behaviors. Clinicians should also be aware of exclusion criteria outlined by the DSM-5, i.e., delusions of parasitosis, body dysmorphic disorder, stereotypic behaviors associated with neurodevelopmental conditions, and non-suicidal self-injury. Additionally, clinicians should screen for other medical conditions and medication-induced causes of skin picking behaviors specifically excluded from a diagnosis of ED. In our literature review, numerous articles described participants who would not meet ED diagnostic criteria due to psychiatric comorbidities or medication-induced symptoms. This emphasizes the need for further research, especially in the older adult population, with the DSM-5 criteria for ED as inclusion criteria.

Presentation in Older Adults

The overall incidence of ED in older adults is estimated to be lower when compared to younger individuals, though no literature specifically evaluates rates of diagnosis exclusive to an older population.[18,22] Additionally, older adults may be

TABLE 2. Overview of Evidence for Older Adults with Reported Skin Picking Behaviors

Publication Title (first author, year of print)	Reported Age of Patient Population (years)	Study Inclusion Criteria	Key Findings and Age-Related Considerations
Diagnostic Studies			
Appearance-related concerns in individuals with pathological skin picking—a comparison with individuals with dermatological conditions and healthy-skin controls (Schmidt, 2023)	Age (mean; SD): 30.2 ± 10.54 Age (range): 18 to 68 years	Online questionnaire	Appearance-related concerns were observed in the presence or absence of pathological skin picking. Age was shown to not impact statistical study findings when used as a covariate.
Characteristics of trichotillomania and excoriation disorder across the lifespan (*Linn, 2022*)	Age (mean; SD): 32 Age (range): 4 to 67 years	TLC Foundation Annual meetings and online recruitment	Abnormal picking behaviors peaked during transition from adolescence to adulthood with behavior styles changing over the course of life (shift from focused to automatic skin picking).
Prevalence of pathological skin-picking in dermatological patients (*Spitzer, 2022*)	Age (mean; SD): 52.8 ± 18.4 Age (range): 18 to 91 years	Dermatologist assessment	Skin picking was more commonly observed with atopic dermatitis and psoriasis when compared to malignant epithelial skin tumors. There were no gender or age correlations observed amongst participants.
Chronic Skin Picking: Trigeminal Trophic Syndrome in the Setting of Meningioma (*Trischman, 2022*)	1 participant Age: 79	Dermatologist assessment	Patient was found to have trigeminal tropic syndrome and basal cell carcinoma of the of the left ala and nasal tip, respectively, in the setting of chronic skin picking and chronic topical corticosteroid use.
Prevalence and clinical characteristics of skin picking among adults with skin disease symptoms (*Dixon, 2019*)	Age (mean; SD): 34.18 ± 9.57 Age (range): 20 to 67 years	5-item health screener assessing for skin disease symptoms	Skin picking was found to correlate with younger age compared to older participants. Number of dermatologic conditions, skin picking severity, and underlying psychiatric symptoms were associated with skin picking behaviors.
Epidemiology and Comorbidities of Excoriation Disorder: A Retrospective Case-Control Study (*Kwon, 2021*)	Age (mean; SD): 49 ± 16	ICD-9/10 code for L98.1 (factitial dermatitis) plus key term "neurotic excoriation", "skin picking", or "excoriation disorder"	This study identified 250 participants who were 49 years old on average at the time of SPD diagnosis and found to have increased frequencies of psychiatric comorbidities, infection with Hepatitis C, and type 2 diabetes mellitus compared to healthy controls matched based on age, race, and sex. Psychiatric referrals were provided to 42% of participants with most lost to follow-up. Only 21% of participants reported improvements in skin-picking symptoms with treatment.
Prevalence of skin picking (excoriation) disorder (*Grant, 2020*)	Age (mean; SD): 38.8 ± 13.8	Self-reported to have skin picking disorder	Out of 10,169 survey respondents, 2.1% (n=213) participants identified as having a current skin-picking disorder and 3.1% (n=318) reported a lifetime history with the condition. The prevalence of SPD was more common in participants ages 18 to 29 years old (2.82%) compared to 50 to 69 years old (1.38%).
Early maladaptive schemas as common and specific predictors of skin picking subtypes (*Pozza, 2020*)	Age (mean; SD): 35.23 ± 13.79 Age (range): 18−76	Self-reported to have skin picking disorder	Early maladaptive schemas were reported to have common and distinct correlations with autonomic, focused, or mixed SPD subtypes. Schema therapy with additional research could possibly be beneficial to predict SPD subtypes and tailor treatment plans.
Skin picking heralding Parkinson's Disease (*Chee, 2016*)	Age (mean): 71	Scratching in response to impulsive thoughts and itching	This case series describes four participants who developed skin-picking behaviors prior to PD diagnosis and treatment. Late onset affective symptoms with skin-picking behaviors may represent a prodromal symptom in PD.
Borderline, avoidant, sadistic personality traits and emotion dysregulation predict different pathological skin picking subtypes in a community sample (*Pozza, 2016*)	Age (mean; SD): 34.98 ± 15.91 Age (range): 18−84	Self-reported to have skin picking disorder	BPD and DERS difficulties engaging in goal-directed behavior were associated with all three SPD subtypes. The autonomic subtype was associated with avoidance personality traits and the focused subtype was associated with DERS limited access to emotion regulation strategies. Age was negatively correlated with all three SPD subtypes. Personality traits may predict subtypes and help tailor treatment plans.

(*continued*)

TABLE 2. (*continued*)

Publication Title (first author, year of print)	Reported Age of Patient Population (years)	Study Inclusion Criteria	Key Findings and Age-Related Considerations
Excoriation (skin-picking) disorder in adults: a cross-cultural survey of Israeli Jewish and Arab samples (*Leibovici, 2015*)	Age (mean; SD): 33.1 ± 15.6 Age (range): 18–81	Self-reported to have skin picking disorder	Out of 2,145 survey respondents, 5.4% of participants (n=116) were identified as having a history of a SPD in the Israeli adult population and was frequently reported to occur in combination with other mental health conditions. SPD was more common in participants ages 30 years and younger when compared to ages 31 years and older.
Prevalence and heritability of skin picking in an adult community sample: a twin study (*Monzani, 2012*)	Age (mean; SD): 53.8 ± 13.4	Self-reported to have skin picking disorder based on Skin-Picking Scale	Skin-picking behaviors were assessed in 2,418 twins (n=4836 participants) and found to occur in 1.2% of the population. These behaviors were correlated with monozygotic twins and female gender that supports the idea of genetic factors in SPD, especially in female patients.
Psychogenic skin excoriations: Diagnostic criteria, semiological analysis and psychiatric profiles (*Misery, 2012*)	Age (mean): 62.6 Age (range): 42–80	Diagnostic criteria for French Psychodermatology Group for psychogenic excoriations	This study reviewed ten participants who were diagnosed with PE per the French Psychodermatology Group criteria. Skin-picking behaviors were more frequently reported with anxiety or depression, and for four cases developed after a traumatic event.
The Skin Picking Impact Project: phenomenology, interference, and treatment utilization of pathological skin picking in a population-based sample (*Tucker, 2011*)	Age (mean; SD): 34 ± 11.9 Age (range): 18–69	Self-reported to have skin picking disorder based on study questionnaire	Out of 1,663 respondents, 45.7% of participants (n=760) were identified as having a history of PSP with severity of symptoms consistent with TTM and OCD. PSP is associated with overall functional impairment that is independent of other conditions or symptoms with available treatments perceived as in-effective.
A clinical comparison of pathologic skin picking and obsessive-compulsive disorder (*Grant, 2010*)	Age (mean; SD): 35.3 ± 12.4 Age (range): 18–67	Self-reported to have skin picking disorder	Participants with PSP were more likely to be female, other BFRBs, and familial history when compared to participants with OCD. Participants with OCD were reported to spend more time on thoughts and behaviors and were more likely to have BDD compared to participants with PSP. PSP and OCD share core features but may differ in biological and phenomenological characteristics.
The psychiatric profile of patients with psychogenic excoriation (*Mutasim, 2009*)	Age (mean): 41 Age (range): 17–73	Diagnosed with "psychogenic excoriation" but did not specify diagnostic criteria	Participants with PE were more likely to have a diagnosis of depression or bipolar disorder when compared to healthy controls. Dermatologists can help recognize individuals with PE by obtaining a full psychiatric history.
Skin picking behaviors: An examination of the prevalence and severity in a community sample (*Hayes, 2009*)	Age (mean; SD): 32.3 ± 15 Age (range): 18–84	Self reported to have manipulation of regular or irregular skin that results in damage	This study screened 354 participants and identified a 5.4% (n=19) incidence of clinically significant skin-picking behaviors that occurred more commonly with symptoms of anxiety, depression, or OCD.
Skin picking phenomenology and severity comparison (*Neziroglu, 2008*)	Age (mean; SD): 38.26 ± 14.64 Age (range): 18–77	Self-reported skin picking symptoms to psychiatrist	This study identified that SPD symptom severity is associated with a greater degree of distress and the amount of damage caused to the skin by the behavior. There were no reported differences in emotional response before and after the skin-picking behavior for participants with mild or severe SPD symptoms. Clinicians should screen patients for skin-picking behaviors since these symptoms are not reported until they become problematic in the future
Interventional Studies			
A Randomized controlled trial on a novel behavioral treatment for individuals with skin picking and other body-focused repetitive behaviors (*Maritz, 2022*)	Age (mean; SD): 32.9 ± 11.53 Age (range): 18 to 75	Recruitment via social media	Bundled intervention of HRT, decoupling and decoupling in sensu provided to participants with various BFRBs compared to wait list controls was associated with improvements in repetitive behaviors.

(*continued*)

TABLE 2. (*continued*)

Publication Title (first author, year of print)	Reported Age of Patient Population (years)	Study Inclusion Criteria	Key Findings and Age-Related Considerations
Evidence of N-acetylcysteine efficacy for skin picking disorder: A retrospective cohort study (*Hwang, 2021*)	Age (mean; SD): 57.2 ± 19.8	Chart review for terms "acetylcysteine", "picking", "acne excoriee", and "neurodermatitis"	This study identified 28 participants who were prescribed NAC 600 to 2400 mg per day with a positive response observed in 61.5% of participants (n=8/13) who completed an adequate 12 week trial. Lack of short-term efficacy was the most common reason for NAC discontinuation. Gastrointestinal symptoms were reported in 7% of the sample. The average age of participants who responded to NAC was 68.5 years old compared to 50.9 years old in non-responders.
N-acetylcysteine for managing neurotic excoriation: encouraging results in two patients (*Özcan, 2021*)	75 years old	5-year history of itching and urge to scratch wound on legs	A case report of a female patient who was prescribed NAC 1200 mg per day. The patient was treated for 12 weeks and reported no adverse effects. Clinical findings improved after 2 weeks with no relapse symptoms observed six months after medication discontinuation.
Acceptance-enhanced behavior therapy for trichotillomania and chronic skin picking: exploring the effects of component sequencing (*Flessner, 2008*)	Age (mean): 35.8	Massachusetts General Hospital - Skin Picking Scale (SPS) ≥12	This is the first study to demonstrate benefits of AEBT to reduce skin-picking behaviors in five participants with chronic skin picking (CSP). There was no difference observed between participants who received HRT or ACT first. One participant was 69 years old and reported 50% improvement on the MGH-SPS scale.
An open clinical trial of fluvoxamine treatment of psychogenic excoriation (*Arnold, 1999*)	Age (mean; SD): 45.9 ± 17.8 Age (range): 19–82	Diagnosed in outpatient dermatology clinic (no criteria listed)	Fourteen participants were included in the study and prescribed fluvoxamine 25 to 300 mg per day in a 12-week open label trial. Fluvoxamine was associated with significant improvement in NE-YBOCS that was independent of improvements in HAM-D scores in the 7 participants who completed the study. The mean age of participants at time of symptom onset was 39.8 years old.
Dynamically-oriented brief psychotherapy: psychocutaneous excoriation syndromes; an experiment (*Seitz, 1953*)	Age (mean) 41	Article did not specify as to why patients included in the study	This study describes the use of dynamically-oriented brief psychotherapy in 25 participants with presumed psychocutaneous excoriation syndromes. This intervention was associated with symptom improvement in 11 out of 12 participants who completed the 12 weekly therapy sessions. Both participants over the age of 65 were females and reported symptoms in response to anxiety or internal stress.

Key: skin-picking disorder (SPD); Parkinson's Disease (PD); borderline personality disorder (BPD); difficulty in emotion regulation strategy scale (DERS); psychogenic excoriation (PE); pathological skin picking (PSP); trichotillomania (TTM); obsessive-compulsive disorder (OCD); body dysmorphic disorder (BDD); N-Acetylcysteine (NAC); habit reversal training (HRT); acceptance and commitment therapy (ACT); acceptance-enhanced behavior therapy (AEBT); Massachusetts General Hospital Skin Picking Scale (MGH-SPS); Yale-Brown Obsessive-Compulsive scales modified for neurotic excoriations (NE-YBOCS); Hamilton Rating Scale for Depression (HAM-D).

TABLE 3. Excoriation (Skin Picking) Disorder DSM-5 Diagnostic Criteria (698.4 [L98.1])

A. Recurrent skin picking resulting in skin lesions.
B. Repeated attempts to decrease or stop skin picking.
C. The skin picking causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
D. The skin picking is not attributable to the physiological effects of a substance (e.g., cocaine) or another medical condition (e.g., scabies).
E. The skin picking is not better explained by symptoms of another mental disorder (e.g., delusions or tactile hallucinations in a psychotic disorder, attempts to improve a perceived defect or flaw in appearance in body dysmorphic disorder, stereotypes in stereotypic movement disorder, or intention to harm oneself in nonsuicidal self-injury).

less informed about voluntary electronic-based surveys available for research. Many studies report an average age of diagnosis around 35 years old which often trails symptom onset by several years and reflects a more severe presentation. ED has been reported to occur in female patients more commonly although recent evidence suggests a higher frequency in male patients than previously described.[18] Individuals may use their fingers or other objects to pick at the skin and the most reported triggers are itching sensation, anxiety, stress and boredom.[1] The identified triggers, intensity of skin picking behaviors, and the site implicated may change with time, complicating treatment for individuals with ED. There are two recognized subtypes of ED in the literature: focused and automatic presentations.[3] Individuals with skin picking behaviors in the focused subtype will report symptoms resulting from negative emotion, whereas in the automatic subtype, symptoms occur outside of the individual's awareness. A lifespan prevalence study found that as individuals transition from adolescence to adulthood there is a shift from more focused presentations to automatic with advancing age.[13] A recent study of adult patients with a DSM-5 diagnosis of ED showed that most participants pick at multiple locations, with the face, arms, and fingers more commonly involved.[38] Older adults may present with skin wounds in more atypical locations such as the abdomen and groin compared to younger individuals. This presentation may occur in the context of underlying comorbidities and may not be visible to mental health professionals during clinical practice unless specifically screened. The wounds inflicted may present similarly to bed sores and should be thoroughly assessed for etiology when there is a suspicion for abnormal skin picking behaviors. Dermatologists, family medicine, and inpatient hospital providers can assist with the recognition of ED in older adults. Individuals presenting for wound care with chronic wounds or prolonged recovery time should be screened for abnormal skin picking behaviors, with referrals made to mental health professionals or Consultation-Liaison services as appropriate, highlighting a team-based approach for optimal management.[27]

It is common for individuals with ED to present with skin picking symptoms in response to an underlying medical or psychiatric comorbid condition. Since ED has a lifelong presentation, it is important to ask older adults with suspected ED to recall any abnormal skin picking during adolescence in response to common dermatologic conditions such as acne or sunburns. Also essential is screening for medical comorbidities known to exacerbate skin wounds, itching of the skin, and recurrent infections, which can increase the prevalence of ED diagnosis.[6,16,17] Psychiatric comorbidities also contribute to the presentation of skin picking behaviors, most commonly anxiety and depression. It is a misconception in clinical practice that ED most often occurs with a diagnosis of OCD due to the classification as an OCRD. Psychiatric comorbidities also correlated with a diagnosis of ED include personality disorders, attention deficit and hyperactivity disorders, substance use disorders, trichotillomania, body dysmorphic disorder, and gambling disorders.[38] The close connection between ED and its comorbidities highlights the importance of appropriate recognition and treatment of associated conditions to improving outcomes relating to abnormal skin picking behaviors.

Severity Assessment

The DSM-5 does not provide any disease specifiers or suggested tools to assess severity of ED. Phenomenologically, the distress observed in ED is directly caused by skin picking behaviors and wounds, and not by comorbid psychiatric disorders.[29] The distress within ED can be further divided into dermatologic and psychiatric symptoms and requires thorough assessment. A variety of rating scales assess dermatologic and psychiatric endpoints of skin picking behaviors. Common patient-reported measures include the Skin Picking Scale-Revised (SPS-R), the Milwaukee Inventory for the Dimensions of Adult Skin Picking (MIDAS), and the Skin Picking Impact Scale (SPIS). The most common clinician-administered measure is the modified Yale-Brown Obsessive Compulsive Scale for Neurotic Excoriations (NE-YBOCS). When used for diagnosis, rating scales with psychiatric endpoints may be preferred for older adults when compared to dermatologic endpoints, given the high preponderance of chronic wounds with aging skin. However, more frequent, and prolonged skin wounds should be viewed as a prognostic factor for poor outcomes with ED among older adults.

Management of Excoriation Disorder

Interventions that have been studied in ED include psychotherapy, behavioral and pharmacological treatment. Cognitive-behavioral therapy (CBT) approaches such as habit reversal training (HRT) with or without acceptance and commitment therapy (ACT) have shown promise in addition to behavioral interventions such as barrier methods, harm reduction strategies, and lifestyle modifications. Pharmacological interventions such as N-acetylcysteine, antidepressants, memantine and antipsychotics have been evaluated for ED and other BFRBs. Treatment plans should be tailored based on patient presentation and comorbid conditions to ensure optimal outcomes for older adults with ED.

Psychotherapy

One older study suggests that psychodynamic brief therapy could be effective.[35] More recent research suggests that cognitive-behavioral approaches are the most effective treatment for younger and older adults with ED.[39] Specifically, HRT is accepted as a therapeutic intervention with ACT studied as an additional intervention. There are three general components to the former approach: awareness, competing response, and social support. The competing response entails replacing BFRBs with healthier behaviors. A common competing response used to replace BFRBs is asking patients to make a fist with both hands and maintain it for up to 90 seconds, to prevent them from picking their skin. Stimulus control is usually included as part of HRT, but can also be used separately. This involves identifying antecedents and modifying the patient's environment to reduce triggers or create barriers to triggers to facilitate redirecting behaviors.[39] Research suggests that CBT may need to be modified for older adults with cognitive impairment. This can include use of strategies for managing cognition like memory aids (e.g., of notes), utilizing more behavioral interventions and having a caregiver present or having home visits.[40,41] More research is needed regarding HRT in older adults with BFRBs and cognitive impairment.

There is also evidence that augmenting coping skills from CBT approaches, like Dialectical Behavioral Therapy (DBT) and ACT, can be effective when negative emotions and lack of emotion regulation contribute to BFRBs.[42,43] For instance, some patients may use BFRBs to cope with uncomfortable emotions in which case they can benefit from mindfulness, emotion regulation and distress tolerance skills in addition to HRT/stimulus control.[39] There is insufficient evidence to establish whether ACT and DBT alone could treat BFRBs as they have been mostly studied in combination with HRT and stimulus control.[44] There is some evidence to suggest that CBT approaches are superior to medication, but these studies are older, and more research is needed. Findings suggest that a combination of psychotherapy and psychopharmacological approaches is best. Finally, findings suggest that CBT-based interventions in group format are just as effective as individual therapy for ED in younger adults.[39]

A key limitation of these studies examining psychotherapy approaches for ED is their focus on younger rather than older adults. There is evidence that HRT for younger and older adults with ED was both efficacious and feasible.[10] However, one case report on an older adult with ED using HRT treatment via telehealth did not find it to be effective, the patient was frustrated with the online modality, stopped attending after 3 sessions, and a year later had no improvement in symptoms.[45] A limitation of this report could be the delivery platform compared to the studied intervention. More research is needed to determine whether adaptation of these approaches for an older adult population would improve their effectiveness.

Behavioral Interventions

Behavioral interventions should include barrier methods, harm reduction strategies and lifestyle modifications. Barrier methods include the use of clothing, gloves, and bandages, and should be reinforced to help prevent episodes of skin picking. Patients should be educated on the importance of hand hygiene, signs and symptoms of infection, and when to seek medical attention for ED. Patients can use fidget toys and can keep fingernails short to help reduce harm associated with chronic scratching and picking. Ointments should be used for dry skin in older adults to keep the skin moisturized and are preferred to cream-based products as they add an extra protective barrier to the skin. This is an important consideration for

topical pharmacologic agents, such as steroids and antibiotics, that are prescribed regularly for wound care. The role of nutrition has been evaluated in adults with ED and found that lower saturated fat and glucose intake is associated with reduced frequency of impulsive behaviors.[46] Poor diet and substance use are associated with numerous deficiencies including glutathione and can further contribute to impulsive behaviors. Exercise has been shown to improve wound healing in older adults due to reduction in inflammatory cytokines.[47] It is recommended individuals eat a healthy diet and exercise to help improve poor outcomes associated with ED. Finally, sunblock should be considered when spending an extended amount of time outside with consistent sun exposure.

Pharmacological Treatment

N-acetylcysteine (NAC), antidepressants, memantine, and antipsychotics have been evaluated as pharmacotherapies for ED and other BFRBs.[3] There is literature available that supports the use of NAC and antidepressants for the treatment of skin picking behaviors in older adults. Memantine and antipsychotics have been studied in younger participants or in other BFRBs, but require more research in older adults with ED. Pharmacologic agents have been studied in short-term trials, with limited evidence available for long-term remission or relapse-related outcomes and in combination with other studied interventions.

N-Acetylcysteine (NAC)

N-acetylcysteine (NAC) is FDA-approved for the treatment of acetaminophen toxicity and as a mucolytic agent for respiratory conditions. The use of NAC has been explored in the field of psychiatry for its anti-inflammatory properties and regulation of glutamatergic and dopaminergic pathways.[48] The mechanism of action for NAC in BFRBs is complex and likely multifactorial.[49] NAC has poor oral absorption with an estimated bioavailability of 9.1% when compared to intravenous formulations.[50] Intracellular cysteine that is absorbed is rapidly metabolized to the anti-oxidant glutathione, whose deficiency is thought to contribute to the pathophysiology of several psychiatric conditions. Additionally, cysteine administration is associated with impaired synaptic release of glutamate in the prefrontal cortex and has been reported to improve compulsive behaviors. NAC must be titrated to higher doses due to fast-pass metabolism and low bioavailability to ensure adequate CNS concentrations are achieved. The anti-inflammatory effects of NAC secondarily improve wound repair and may possibly improve dermatologic outcomes related to ED as an additional benefit.[51]

Our literature review identified one retrospective observational study and one case report of the use of NAC for ED in the older adult population. A positive response to NAC was reported in older adults from both studies with more information found in Table 2. The highest quality of evidence for NAC in ED comes from a phase III randomized controlled trial in adult participants aged 65 or less.[52] Participants were aged 18 to 64 years old with a DSM-5 diagnosis of ED and reported at least six months of skin picking symptoms prior to study enrollment. Sixty-six participants were randomized to receive either NAC 1200 to 3000 mg per day or placebo with the primary outcome of improvement in the modified Neurotic Excoriation Yale-Brown Obsessive Compulsive Scale (NE-YBOCS). NAC administration was associated with a 38.3% reduction in symptoms with an average decrease of 7.4 points on the NE-YBOCS (baseline: 18.9 points) compared to a decrease of 3.8 points in the placebo group (baseline: 17.9 points) after 12 weeks of treatment. Differences in total NE-YBOCS scores and Clinical Global Impression—Severity Scale (CGI-S) were observed between the treatment and placebo groups at weeks 6, 9, and 12 that achieved statistical significance. No serious adverse events were reported with nausea (14%), dry mouth (3%), constipation (2%), and dizziness (3%) as common adverse effects.

NAC may be considered for older adults with ED based on the available evidence. NAC is initiated at 600 mg by mouth twice daily with 12 weeks considered an adequate medication trial. NAC should be titrated by 600 mg to 1200 mg every three weeks based on tolerability. Doses more than 3000 mg per day have not been evaluated in clinical trials and should be used with caution. NAC is considered well tolerated with gastrointestinal symptoms reported as the most common adverse reactions. More research is required to establish the safety and efficacy of NAC

for the acute and maintenance treatment of ED in the older adult population.

Antidepressants

Our literature review identified three studies that described the use of antidepressants for abnormal skin picking behaviors with fluvoxamine as the most studied agent. A positive response was observed in these studies with more information found in Tables 1 and 2. The decision to use antidepressants for ED should be guided by the presence of other psychiatric or neurologic comorbidities that benefit from treatment. It is worth noting that some participants in trials reported improvements in skin picking with antidepressants despite improvement in mood or anxiety. A case series published in 2016 described four participants with a diagnosis of Parkinson's disease which was preceded by affective symptoms and skin picking behaviors.[20] Skin picking behaviors can result from neurodegenerative processes with this unique pathophysiology requiring additional management considerations for older adults compared to other studied populations. Antidepressants should be monitored closely as some adverse effects, such as activation, may exacerbate picking behaviors. More research is needed for SSRI antidepressants besides fluvoxamine that are used for the treatment of anxiety and depression. Clomipramine has been studied for trichotillomania and may provide additional benefits to SSRI antidepressants. We identified no literature for clomipramine or tricyclic antidepressants in older adults with ED representing an area for future research. Mirtazapine has antihistamine properties (as does the commonly prescribed hydroxyzine for non-depressive indications) which may help ameliorate itch-related sensations. Both medications require more research in older adults.

Memantine

Memantine, a N-methyl-D-aspartate (NMDA) receptor antagonist, is FDA approved for the treatment of moderate to severe Alzheimer's disease. Memantine has been explored as a treatment option for BFRBs due to its therapeutic effects on the glutamate system. Our literature review identified no evidence that supports memantine for older adults with BFRBs. The highest quality of evidence for memantine in BFRBs comes from a phase III RCT in adult patients aged 65 years or younger.[53] Participants were aged 18 to 44 years old and reported abnormal picking or pulling behaviors for 15 minutes per day. One hundred participants were randomized to receive memantine 10 mg to 20 mg per day or placebo with the primary outcome a reduction on the NIMH Trichotillomania Rating Scale (adapted for skin picking). Memantine was associated with an average decrease of -6.98 points (baseline: 12.67 points) when compared to -1.19 points (baseline: 12.02 points) in the placebo group after 8 weeks of treatment. Memantine was well tolerated with fatigue, gastrointestinal distress, and dizziness reported as common adverse reactions that did not differ significantly from placebo. More research is required for memantine in BFRBs in older adults, especially with comorbid cognitive impairment and in combination with other studied interventions.

Antipsychotics

Our literature review identified no studies of antipsychotics for ED in older adults. The highest quality of evidence for antipsychotics in BFRBs comes from a phase III randomized controlled trial that studied olanzapine for the treatment of trichotillomania in adult patients.[54] Participants aged 18 to 64 years old with a DSM-IV diagnosis of trichotillomania were randomized to receive olanzapine 2.5 mg to 20 mg per day or placebo with the primary outcome being a Clinical Global Impression-Improvement (CGI-I) score of 2 or less. The primary outcome was achieved in 85% (n = 11/13) participants who received olanzapine compared to 17% (n = 2/12) who received placebo that achieved statistical significance. More research is required for antipsychotics in ED, especially in older adults, based on the reported benefits in other BFRBs.

Antipsychotics may provide a faster onset of action compared to other interventions and should be considered for severe cases. The selection of antipsychotic should be driven based on psychiatric comorbidities, receptor affinity, and adverse effect profiles. The most common psychiatric comorbid condition with ED is Major Depressive Disorder; currently olanzapine, quetiapine, aripiprazole, brexpiprazole, and cariprazine carry an FDA-approval for this indication.

Olanzapine has a strong affinity for the histamine receptor and may be preferred for the management of BFRBs.

Older adults should be educated on possible adverse reactions with antipsychotic medications. Antipsychotics can be associated with extrapyramidal symptoms and tardive dyskinesia, all of which are increased in the older adult population.[1] Akathisia has been reported with dopamine partial agonists and newer antipsychotic agents and could possibly exacerbate skin picking behaviors.[55] Atypical antipsychotics are associated with metabolic syndrome and may worsen medical comorbidities such as diabetes and other cardiometabolic conditions.[56] Antipsychotics pose a fall risk due from differing adverse effect profiles which requires additional education for older adults predisposed to falls.[57] Antipsychotics with potent serotonin antagonism such as clozapine may contribute or worsen obsessive-compulsive symptoms and should be a consideration if abnormal skin picking behaviors present after starting treatment.[58]

Other Interventions With Minimal or Negative Results

Lamotrigine and dronabinol were studied in randomized controlled trials for ED in adults and showed no response compared to placebo.[59,60] The use of lamotrigine should be used cautiously due to concerns for rash and the ability to monitor for this adverse reaction with chronic skin picking. Other interventions, such as naltrexone, have been studied in trichotillomania and may benefit those with reward sensations associated with skin picking behaviors and with concurrent substance use disorders.[61] More research is required before naltrexone can be recommended for older adults with ED.

Prognosis With Considerations for Future Directions

The overall prognosis for ED is guarded, with most individuals never formally diagnosed nor referred for psychiatric care. For those that do seek help, many may still not report significant benefits with currently recommended interventions.[17,18] This emphasizes the need for clinicians to understand ED and relevant considerations in the older adult population who may present with symptoms later in life with increased risk of poor outcomes. Older adults with under-recognized or partially treated symptoms are at risk of infection and hospitalization that require anti-infectives or surgical interventions, with implications for mortality.[15,25] Many studies have identified that individuals of all ages report a poor response to recommended interventions with considerable losses to follow-up due to the delayed benefits of standard first-line treatments.[17,25,31] Individuals should be counseled that interventions and wound repair take time and that meaningful benefit may require treatment duration of 8 to 12 weeks. More research is required to ensure sustained benefits with continued treatment and risk of symptom recurrence. Interventional studies do not report substantial improvements for all participants, suggesting there may be opportunities for novel/combination treatments with better outcomes for older adults with ED. Based on the large portion of patients who report skin picking behaviors, there is a growing need for research and awareness about interventions for BFRBs and other impulse control disorders, particularly in older adults predisposed to worse clinical outcomes and higher rates of mortality.

Case Revisited

Our case of Mrs. B describes a long-life history of ED that most recently resulted in a hospitalization for cellulitis and sepsis treatment. She reports various triggers for her abnormal skin picking that occurs both within and outside of her consciousness. Mrs. B picks wounds at multiple locations of her body, including those in atypical locations, resulting in avoidant behaviors and severe medical complications. Behavioral strategies were implemented, such as topical adhesives and hand hygiene, that produced mixed results and persistent symptoms. She reports improvement in her skin picking behaviors while in group settings and maintains a behavioral log to monitor her skin picking behaviors. Mrs. B was referred for habit reversal training as an outpatient to use with her behavioral interventions. She was educated about medication options for ED with plans to revisit these at future appointments after a trial of psychotherapy.

CONCLUSIONS

ED is reported in approximately 2% of the population and commonly occurs in the presence of psychiatric and medical comorbidities. Older adults are predisposed to poor outcomes of ED such as recurrent infection and hospitalization due to age-related changes that occur to the skin and increased prevalence of underlying comorbidities. ED can be managed with individualized treatment plans that consist of psychotherapy, behavioral, and pharmacologic interventions. The paucity of existing literature suggests that more research is needed regarding appropriate management of ED and abnormal skin picking behaviors in older adults.

AUTHOR CONTRIBUTIONS

Mandarino M, Stummer L, Yepez Trueba A, Vahia I, and Freedberg A all made substantial contributions to the conception and design of this manuscript and/or the acquisition, analysis, or interpretation of data. Available data from literature review can be found within tables in text. In addition, all authors contributed by drafting and revising the intellectual content of the manuscript and provided final approval for this version to be published. All authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

DATA STATEMENT

The data has not been previously presented orally or by poster at a scientific meeting.

DISCLOSURES

Mandarino M: The author reports no conflicts with any product mentioned or concept discussed in this article.

Stummer L: The author reports no conflicts with any product mentioned or concept discussed in this article.

Yepez Trueba A: The author reports no conflicts with any product mentioned or concept discussed in this article.

Vahia I: The author reports no conflicts with any product mentioned or concept discussed in this article.

Freedberg A: The author reports no conflicts with any product mentioned or concept discussed in this article.

SUPPLEMENTARY MATERIALS

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