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Clinical report

Trait anger, anger expression, and anger control in trichotillomania: Evidence for the emotion regulation model



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ABSTRACT

Researchers have proposed emotion regulation (ER) as one model of trichotillomania (TTM). This model suggests that hair pulling may function as a maladaptive coping mechanism given difficulty managing negative emotions such as anger. This study compared hair pullers versus the normative population on trait anger, anger expression, and anger control and explored whether there is a relationship between anger variables and hair pulling severity. 158 adult females with TTM or chronic hair pulling completed self-report measures of anger and hair pulling severity. Hair pullers reported significantly higher rates of inwardly directed anger and more difficulty controlling their inward anger. Frequency of inward directed anger was a significant predictor of hair pulling severity even after controlling for psychiatric illness, providing support for the ER model of TTM. These findings underscore the potential importance of understanding and addressing ER in TTM.

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1. Introduction

Despite a growing interest in trichotillomania (TTM) in recent years, little remains known about the etiology and maintenance of the disorder. Researchers have invoked emotion regulation (ER) as one explanatory model for TTM. This model posits that individuals with TTM may have difficulty managing certain negative emotions and engage in hair pulling behaviors as a coping mechanism, thus relieving the negative affective state and reinforcing the hair pulling behavior (see Roberts, O'Connor, & Bélanger, 2013 for recent review).

The link between negative emotional states and TTM has been clearly established in prior studies of TTM. One negative emotional state that has been shown to be associated with TTM is anger. In an early study of individuals with TTM (n=75), Christensot, Ristvedt, & MacKenzie (1993) found that feelings of anger and situations where negative affect is to be expected (i.e., arguments) served as cues for hair pulling behavior. These early findings have been corroborated in more recent research examining how emotional states change during the course of a pulling episode. In one study, hair pullers (n=34) reported more intense experiences of anger prior to both an experimental hair pulling task and a naturalistic pulling episode (i.e., hair pulling related to grooming for

the non-hair pullers) compared to non-hair pullers (n=32; Diefenbach, Tolin, Meuier, & Worhunsky, 2008). Furthermore, relative to the non-hair pulling control group, individuals with TTM also reported significantly larger decreases in anger while pulling. However, to date, no study has compared hair pullers to a normative population using a psychometrically validated measure of anger.

Although studies have shown that certain negative emotional correlates, such as anger, are associated with TTM and hair pulling behavior, little research has explored the ability to regulate or manage these negative emotions in TTM. In one recent internet study, researchers found that self-identified hair pullers (n=1162) had a harder time "snapping out" of negative emotional states, such as anger, than non-pullers (n=75; Shusterman, Feld, Baer, & Keuthen, 2009). Furthermore, they found that self-reported inability to control, or "snap out" of, negative emotions was positively correlated with hair pulling severity (Shusterman et al., 2009). Therefore, these findings suggest that individuals with TTM have a harder time controlling their emotions. Even fewer studies have investigated how the experience or expression of negative emotions, another crucial component of ER, influences TTM and hair pulling behaviors. Specifically, the association between the direction of anger expression and TTM has not been explored. Fukenstein, King, & Drolette (1954) first introduced the two forms of anger expression-anger-in and anger-out. Anger-in is generally characterized by the tendency to suppress angry feelings or direct them inward. Conversely, anger-out refers to anger directed outwards at other people or objects. Since Fukenstein and colleagues'

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seminal study, this conceptual difference in anger-expression has become widely accepted and tested in a variety of domains. However, the relationship between anger expression and TTM has yet to be examined.

In the current study we sought to provide evidence for the emotion regulation model of TTM by building upon and extending the previous literature documenting the relationships between negative affective states, emotional control, and TTM. First, since previous research has demonstrated that there is an association between anger and pulling episodes, we hypothesized that the hair pulling population would have greater trait anger than an age and gender matched normative population. Secondly, informed by the two conceptualizations of anger expression, we hypothesized that hair pullers would be more likely to suppress their anger and less likely to express their anger outward. Third, based on research showing that individuals with TTM have a harder time "snapping out" of angry affective states, we hypothesized that hair pullers would have greater difficulty controlling their anger. Finally, we predicted that trait anger, suppression of anger, and inability to control anger would be correlated with hair pulling severity and would be predictors of hair pulling severity, even after controlling for current psychiatric comorbidities.

2. Methods

2.1. Participants

One hundred and fifty-eight female hair pullers from two consecutive TTM studies at Massachusetts General Hospital between 2006 and 2014 participated in this study. All subjects were between 18 and 65 years of age and met diagnostic criteria for *DSM-IV-TR* (American Psychiatric Association, 2000) TTM or chronic hair pulling (met TTM diagnosis except for tension and/or relief criteria) at the time of the interview. Subjects were excluded if they met criteria for lifetime diagnoses of psychosis, autism, or mental retardation.

Mean (SD) age for the sample was 28.90 (10.70) years. The sample was predominately white/Caucasian (88.0%), but also included subjects who identified as Black/African American (3.2%), Hispanic/Latino (3.2%), Asian (1.3%), and multiracial (4.4%). The majority were single/never married (72.8%), while others were currently married (22.2%) or divorced (4.4%).

Individuals were recruited for the two studies from the Massachusetts General Hospital Trichotillomania Clinic and through the hospital intranet. Additionally, the study was advertised in the Trichotillomania Learning Center newsletter and in fliers posted at local businesses. All subjects gave informed consent prior to study participation and received financial remuneration. Partners HealthCare Institutional Review Board approval was obtained before initiation of both studies.

The gender and age matched normative sample used in the analyses is a subset of a sample of 1644 healthy adults who had completed the STAXI-2 (Spielberger, 1999). The sample included undergraduate and graduate students, professional, managerial, technical, and clerical personnel, and participants in stress management programs. The subset used in these analyses included only women and ages ranged from 20 to 29 years.

2.2. Assessment materials

2.2.1. Clinician-administered assessments

Structured Clinical Interview for DSM-IV-TR Axis I Disorders Non-Patient Edition (SCID-I/NP). The SCID-I/NP (First, Spitzer, & Gibbon, 2002) is a semi-structured interview widely used for psychiatric diagnostics. It contains individual modules corresponding to the different DSM-IV Axis I diagnoses. The SCID-I/NP was used to assign comorbid DSM-IV-TR diagnoses and to confirm the absence of exclusionary diagnoses.

Trichotillomania Diagnostic Interview-Revised (TDI-R). The TDI-R is a revised version of the TDI (Rothbaum, & Ninan, 1994) updated to be in accordance with the DSM-IV-TR criteria. The TDI-R was used to assess for DSM-IV-TR TTM and chronic LDD

The Skin Picking Diagnostic Inventory (SPDI, Keuthen & Stewart, unpublished). The SPDI is a clinician-administered interview based on the TDI-R. The diagnostic criteria for SPD and chronic skin picking used in the SPDI are modeled after DSM-IV criteria for TTM and chronic hair pulling. The SPDI consists of 3-point ratings of responses to six items assessing these diagnostic criteria. The SPDI was used to assess for the presence of SPD and chronic skin picking.

2.2.2. Self-report instruments

State-Trait Anger Expression Inventory-2 (STAXI-2). The STAXI-2 (Spielberger, 1999) is a self-report instrument that contains 57 items rated on a 4-point Likert scale which measure the experience, expression, and control of anger. The STAXI-2 includes six scales: state anger (i.e., intensity of angry feelings and extent of anger expression at a particular time), trait anger (i.e., frequency of angry feelings over time), anger expression-out (i.e., outward expression of anger), anger expression-in (i.e., suppression of anger), anger control-out (i.e., control over outward expression), and anger control-in (i.e., inner management of anger). The state anger scale contains three subscales (feeling angry, feeling like expressing anger verbally, feeling like expressing anger physically). The trait anger scale contains two subscales (angry temperament, angry reaction). Higher scores indicate greater intensity, frequency, expression and/or suppression, and control of angry feelings. The scale has adequate internal consistency, with alpha coefficients for the various scales and subscales ranging from 0.74 to 0.95 (Spielberger, 1999). The STAXI-2 was used to assess trait anger, anger expression, and anger control.

Massachusetts General Hospital Hair Pulling Scale (MGH-HPS). The MGH-HPS (Keuthen et al., 1995) is a self-report scale that contains seven items rated on a scale from 0 to 4. Four items comprise the hair pulling severity subscale and three items comprise the hair pulling control subscale. Higher scores on each of the subscales indicate more severe hair pulling or less control over hair pulling. The MGH-HPS has demonstrated good internal consistency, with alpha coefficients of 0.846, 0.832, and 0.804 for the total scale, severity subscale, and control subscales, respectively (Keuthen et al., 2007). The MGH-HPS was used to measure hair pulling severity.

2.3. Data Analytic Plan

The five variables selected for analysis were: trait anger, anger expression (anger expression-in and anger expression-out), and anger control (anger controlin and anger control-out). As an initial analysis, one-sample Z-tests were conducted to compare the hair pulling sample on these variables to an age and gender matched normative population (Spielberger, 1999). Pearson product-moment correlation coefficients were then calculated between MGH-HPS hair pulling severity scores and each of the five variables of interest. The STAXI anger variables that were significantly correlated with MGH-HPS hair pulling severity were then chosen as potential predictors of MGH-HPS hair pulling severity. Hierarchical multiple regression analyses were conducted with the potential predictors, controlling for current psychiatric comorbidities. Results are reported both with and without correction due to multiple comparisons; however only the conservative, Bonferroni adjusted results are discussed. All statistical analyses were conducted using PASW SPSS 18.0 for Windows (SPSS Inc., 2009).

3. Results

3.1. Sample description

See Table 1 for the mean (SD) scores for STAXI trait anger, anger expression-out, anger expression-in, anger control-out, and anger control-in for both the hair pulling and normative populations.

Among the hair pullers, the mean (SD) for the MGH-HPS hair pulling severity subscale was 8.01 (2.75). The mean (SD) DASS depression and DASS anxiety subscale scores were 7.83 (8.69) and 5.39 (6.40), respectively, within the hair pulling sample. The psychiatric comorbidities for participants in the hair pulling sample can be seen in Table 2.

3.2. One-sample Z-tests

Initial one-sample Z-tests demonstrated that current hair pullers differ from the normative population on the STAXI-2 scales (see Table 1). Prior to Bonferroni correction, compared to the age and gender matched normative population, current hair pullers had less trait anger (p=0.015), greater anger expression-in (p<0.001), less anger expression-out (p=0.039), less anger control-in (p<0.001), and greater anger control-out (p=0.032). However, after Bonferroni correction was applied only anger expression-in and anger control-in remained significant at the adjusted alpha level (p=0.01).

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