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Behavioral therapy is a viable treatment option for children and adolescents with trichotillomania

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ABSTRACT A clinical decision report appraising Franklin ME, Edson AL, Ledley DA, Cahill SP. Behavior therapy for pediatric trichotillomania: a randomized controlled trial. *J Am Acad Child Adolesc Psychiatry*. 2011;50(8):763-771. <https://doi.org/10.1016/j.jaac.2011.05.0091> for a patient with trichotillomania.

Keywords: *hair pulling, non-invasive therapy, behavioral therapy, trichotillomania*

Clinical Context

Lily Evans [pseudonym] is a 13-year-old Caucasian female who presented to the child and adolescent psychiatry clinic with her mother with a complaint of hair pulling. Both Miss Evans and her mother state that Miss Evans has been increasingly pulling her eyebrow hairs over the past year; they state that it has occasionally waxed/waned, but ultimately Miss Evans has not had eyebrows for the better part of a year. Past history is significant for a stuffed animal as a child that Miss Evans would consistently “worry” the fur off to the point that the stuffed animal had bald spots and has needed to be repaired several times. Miss Evans reports that the feeling of fur or hairs under her nails and on the tips of her fingers is “comforting”; however she denies increased anxiety if she is unable to find a way to comfort herself (if, for example, the stuffed animal was not around or there were no eyebrow hairs to pull). She and her mother deny any other sites of hair pulling, including hair on the head, eyelashes, arm hairs, genital hairs, leg hairs, or axillary hairs. Miss Evans does not report significant anxiety at home or at school; she states she has several close friends at school, but no one has commented on her lack of eyebrows this school year. Miss Evans describes her grades as “good”, to which her mother agreed. Miss Evans is an only child, living in a home with her mother and father, who are currently married. Miss Evans and her mother are hopeful to address the eyebrow pulling and are open to education and further discussion of treatment management. The mother stated she preferred less invasive therapies to be tried initially.

Clinical Question

Is behavioral therapy (BT) an effective treatment modality for pediatric and adolescent patients with trichotillomania (TTM)?

Research Article

Franklin ME, Edson AL, Ledley DA, Cahill SP. Behavior therapy for pediatric trichotillomania: a randomized controlled trial. *J Am Acad Child Adolesc Psychiatry*. 2011;50(8):763-771. <https://doi.org/10.1016/j.jaac.2011.05.0091>.¹

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Related Literature

The literature review was initiated by searching PubMed for key terms “pediatric” “trichotillomania” and “treatment”, with an additional limitation for articles within the last 10 years. This search yielded 71 results, which were sorted by best match. Twenty of the results were review articles, several of which were perused for background information and possible support of any one of the seven clinical trials that were also found in the same search. The primary focus was given to the clinical trials, given the clinical question in mind and applicability to the clinical case.

Three clinical trials focused on pharmacotherapeutic approaches to treatment, including N-Acetylcysteine² and methylphenidate.³ The methylphenidate trial was excluded due to its focus on comorbid pediatric trichotillomania and ADHD, although there was notably no reported improvement in hair pulling, depression, or anxiety symptoms despite significant improvement of ADHD symptoms.³ The N-Acetylcysteine trials were excluded as a brief read of both articles found no efficacy in the proposed treatment modality. One of the seven clinical trials was aimed at examining the long-term outcomes of pediatric trichotillomania.⁴ While interesting for the purpose of background research on pediatric trichotillomania, this study primarily aligned with what many introduction and discussion sections of review papers stated: that is, that pediatric trichotillomania is a particularly complex and difficult subset of obsessive compulsive disorders to adequately treat, and that many pediatric patients experience less than optimal success with current treatment strategies.⁴ One of the clinical trials was excluded because it did not focus on pediatric trichotillomania, but instead on pediatric anxiety disorders more generally.⁵ However, this study did have interesting results regarding pill-placebo response in anxiety disorders in children, notably that there is a placebo response within the first four weeks of treatment, after which placebo did not appear to have long term effects, whereas active treatment continued to show improvement with time.⁵

This initial review of the seven clinical trials reduced the number of prospective studies to two. One of the studies was a preliminary result.⁶ While interesting and likely relevant once the final data are published, there was insufficient data for a true clinical analysis at this point in time. Notably, the study did focus on habit reversal training⁶, one of several forms of psychotherapy frequently referenced by review articles on the general treatment and management of pediatric trichotillomania.^{7,8} The preliminary results were promising, and demonstrated that habit reversal training was an effective treatment for pediatric TTM up to a three month follow up.⁶

The remaining trial was a randomized control trial of pediatric patients diagnosed with trichotillomania who were treated with behavioral therapy (BT) or minimal attention control (MAC) for 8 weeks. The data at 8 weeks indicated such a significant improvement in symptoms (based on the NIMH Trichotillomania Severity Scale, NIMH-TSS) that the MAC arm of the trial was discontinued for ethical reasons and all MAC patients were offered BT.¹ The primary result of the article in demonstrating that BT can be an effective treatment for pediatric TTM is consistent with other studies in the field.^{9,7} The patients included in this final study were in the same age range (7-17) as the patient presented in this case (age 13). Moreover, many of the inclusion and exclusion criteria apply very aptly to the Miss Evans, given that she has no other psychiatric condition, does not currently receive other psychiatric care or therapy, and is a new diagnosis of trichotillomania. The trial is also focused on behavioral therapy – which the patient and her mother seemed most amenable to at the first visit – rather than pharmacotherapeutic approaches, which have previously shown minimal success in pediatric populations.² These promising factors warranted further evaluation of the study to better address Miss Evans’ question. Using the SORT criteria, the Strength of Recommendation is C—expert opinion.

Critical Appraisal

The study by Franklin et al. was a randomized control trial with two study arms. The control arm utilized minimal attention control (MAC), while the treatment arm utilized behavioral therapy (BT). As was justified in the study report, the control arm was designed to account for minimal therapist contact as well as the passage of time so that beginning (week 0) and end (week 8) point data could be collected and compared for the two groups. As is the case for the majority of therapy interventions, it was not possible to blind or double blind patients and clinicians in this trial. To attempt to control for therapeutic differences and potential biases given the lack of double-blinding, independent evaluators who were blinded to treatment group conducted the NIMH-TSS interviews at the beginning (week 0), middle (week 4), and end (week 8) of the acute treatment phase. This would appear to be sufficient blinding to effectively evaluate improvement for patients while excluding potential treatment biases.



Patients were enrolled in the study through the University of Pennsylvania School of Medicine. Originally, 80 potential participants were identified for the study. Inclusion criteria included age (7-17), primary diagnosis of trichotillomania, a minimum IQ, and symptoms lasting for >6months. Exclusion criteria included a primary diagnosis besides trichotillomania, developmental or thought disorders, and current psychotherapy or psychotropic medication. Of note, the patients meeting inclusion and exclusion criteria are similar to our patient population, strengthening the use of this paper in a clinical context. Ultimately, 24 participants were selected for the study and were randomly assigned by computer model to one of the two treatment arms. The study provided sufficient justification for the sample size, including results of power calculations. With 12 patients in each arm of the study, the power was determined to be 91% in detecting a difference between CBT and MAC. The number needed to treat (NNT) was calculated to be 1.3, based on the number of patients who responded to treatment at the 8-week mark (75% of BT patients responded at 8 weeks, 0% of MAC patients responded at 8 weeks). It was not possible to assess the NNT at the 16 week mark due to the discontinuation of the MAC arm. The authors repeatedly noted that this study was designed to be a preliminary study within a pediatric population, and that the protocols were adjusted from a previously completed behavioral therapy trial in adults with trichotillomania. The level of evidence, as determined by SORT criteria⁹, is determined to be 2. The study is based on patient-oriented evidence, but is not a case series or clinical experience. However, it cannot be classified with a level of evidence of 1. Although it is a RCT, it was not possible to blind; although there was adequate size of the study arms, the long term follow up was <80% (67%).

With regards to the interventions studied, the BT arm of the study included weekly therapy sessions for 8 weeks, which focused on topics such as psychoeducation, awareness training, stimulus control, competing response training, and a number of ancillary strategies. Each week, clinicians met as a group to discuss outcomes and encourage consistency between providers. The MAC group was treated with a therapist appointment (30min) at the beginning, middle, and end of the trial, in addition to weekly short phone conversations on other weeks. Of note, the therapist sessions were focused on trichotillomania symptoms and overall functioning, but providers were not supposed to provide any active intervention. The authors noted that efforts to prevent “bleeding” from one arm to the other was encouraged via weekly meetings. This may present a weakness of the study, in that the same therapists were providing treatment to patients in the BT and MAC arms of the study. However, if therapists had been regulated to either one or the other treatment arm, there would be more likelihood of clinician bias between the two arms. Overall, the authors attempted to mitigate as many sources of bias as can be reasonably expected in a therapy-based interventional study. Using the SORT criteria, this is Level of Evidence 2.

The results of the study are striking and warrant future larger-scale investigations (as the authors noted in their discussion). The acute outcomes measured at week 8 found a significant drop in NIMH-TSS scales for BT patients, although the NIMH-TSS scores for both groups were not significantly different at week 0. The acute results were strong enough that the MAC study arm was discontinued at week 8 for ethical reasons, and all MAC study arm participants were offered BT treatment. The authors designed this study as something of a translational trial between adult treatment of trichotillomania and pediatric management of the condition. Unfortunately, there remain significant gaps in knowledge of the treatment for adults, and pediatric patients often respond in different ways than adults. As such, future studies would benefit from larger sample sizes in addition to long term effects of BT for patients with trichotillomania.

Clinical Application

Miss Evans’ primary concern was management of consistent eyebrow pulling for the past year, secondary to pediatric trichotillomania. The study by Franklin et al. is highly relevant, and presents a compelling argument for the use of behavioral therapy (BT) as a primary intervention in trichotillomania treatment in children.

When comparing Miss Evans to the study participants, she is of the same age (13) as the study primarily examined (ages 7-17). Miss Evans is also newly diagnosed with trichotillomania and is also treatment-naive, which was inclusion criteria for the study. Although the study was relatively small, the study was designed to be something of a pilot with future studies in mind. Though any potential studies mentioned in the conclusion have yet to be published, the moderate size of the study combined with the strong explanation for the N>20 being sufficiently powerful means that the results of this study can be reasonably applied, with caution, to clinical cases with similar backgrounds and presentations. Miss Evans most certainly fits that requirement. The most notable divergence of Miss Evans from the study population is that the study population consisted overwhelmingly of patients who primarily pulled at hairs on their head, versus Miss Evans primary site of hair pulling being her eyebrows. While the



BT arm of the study was noted to have more clinical face-to-face time than the control arm of MAC, Miss Evans' mother expressed willingness to commit the time and has adequate resources and access to transportation to ensure that Miss Evans would be able to attend clinic on a weekly basis.

Most importantly, the potential harms of BT are relatively minimal. The most significant risk would be not responding to treatment or not seeing lasting effects of the intervention. Unlike pharmacotherapeutic interventions, there is essentially no risk of side effects. Further, an honest attempt at BT would not preclude any subsequent therapeutic or medical approaches to future management of trichotillomania for Miss Evans.

New Knowledge Related to Clinical Decision Science

Miss Evans' would likely benefit from behavioral therapy. Family support, particularly by her mother, is encouraging for the success of BT. Miss Evans' and her mother both expressed interest in therapy, somewhat more so than pharmacotherapy, which is likely to increase the likelihood of success. Miss Evans' social support, with a close-knit network of friends, supportive school environment, and access to transportation are all social factors that work in Miss Evans' favor. Were she to not have family support and/or access to transportation (such as getting to/from BT appointments), the results of this study would be less likely to apply given that there would be significant barriers to successful interventions. Clinical Decision Science, which incorporates the social context of the patient allows a clinical decision to be made despite the SORT Strength of Recommendation C evidence.

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