Using Teacher Prompts and Habit Reversal to Reduce Fingernail Biting in a Student With Attention Deficit Hyperactivity Disorder and a Mild Intellectual Disability

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Abstract

Fingernail biting is a habit that is developed by numerous people, especially children and teenagers. Many clinicians believe that the habit of fingernail biting stems from nervousness or anxiety. Students, especially students with disabilities, can be easily distracted from instruction, can become the target of negative peer attention, and can get socially ostracized by habit problems such as fingernail biting. Although teachers often must prioritize severe behavioral problems that we see in the classroom, we think that teachers have dramatically improved the quality of life of some of our students by helping them to modify other, less severe behavioral issues like fingernail biting. This study investigated the effect of the simple, noninvasive, and nonpunitive approaches of using coded verbal prompts and habit reversal to reduce fingernail biting in a classroom setting. A significant reduction was observed.

Keywords

attention deficit disorders, fingernail biting, habit reversal, mild disabilities

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Fingernail biting, clinically known as chronic onychophagia (Krejci, 2000), is a common problem that is largely dismissed as a minor nuisance, but can be observed as anything from a bad habit to an outward symptom of a medical or emotional disorder. According to Gale Research (1998), fingernail biting is in most cases harmless and may be best ignored. These researchers stated that the most problematic side effect of fingernail biting is social ostracism, because the child may be teased by his or her peers, and adults observing a child who bites their nails may conclude that he or she is insecure or stressed. It is also noteworthy that others may perceive the sight of fingernails chewed to the ends of the fingers as unattractive, and additional negative attributions may be made about students who engage in this behavior as well (Long, Miltenberger, Ellingson, & Ott, 1999).

Estimates suggest that 1/3 of young children engage in fingernail biting (Veigle, 1999), and boys seem to engage in this behavior at a higher rate than girls after the age of 10. The causative agent in fingernail biting is often thought to be anxiety. Situations that cause fear, boredom, or pain are also correlated with fingernail biting (Doctor, 2000). Fingernail biting may give children a sense of relief in response to these types of internal emotional turmoil (Veigle). Some researchers believe that there is a slight hereditary tendency to biting fingernails, but recognize the difficulty in substantiating this theory because family members are prone to mimic each other's habits (Doctor). However, specific personality traits that are linked with fingernail biting have not been identified, and this behavior, like other behavioral issues that we may observe, falls along a continuum that ranges from a mild, occasional behavior that has minimal impact on appearance to a frequent, intense, and disfiguring clinical manifestation. For individuals affected by a high rate of fingernail biting, there can be additional impact on the student as well. For example, severe fingernail biting may produce root resorption of the teeth and lead to further dental problems or health complications.

Mild Intellectual Disabilities (MIID)

The most apparent educational issue associated with MIID is cognitive deficits, which we would observe as some level of lack of expected advancement in academic achievement (Beirne-Smith, Ittenbach, & Patton, 2006). We should not forget, though, that MIID is also indicative of deficits in adaptive behavioral functioning (Luckasson et al., 2002). Further, it is common to see behavioral issues in the classroom for students with this disability. These behavioral issues can occur on a continuum similar to that of fingernail biting, ranging from minimal or no classroom impact to severely distracting problems that can influence other areas, such as social and academic inclusion. Teachers serving students with MIID can expect to work with students with a variety of needs that are similar to (although often different in degree and frequency) teachers working with other students with high incidence disabilities - including academic, behavioral, social, and transitional needs (see Sabornie, Cullinan, Osborn, & Brock, 2005; Sabornie, Evans, & Cullinan, 2006).

Attention Deficit Hyperactivity Disorder

Students who are diagnosed as having attention deficit hyperactive disorder (ADHD) display many characteristics that make the sustaining of attention problematic (Reis, 2002). According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR), characteristics of ADHD may include, but are not limited to: (1) often hav-

ing difficulty sustaining attention in tasks or play activities; (2) often does not seem to listen or gets easily distracted; (3) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort, such as schoolwork or homework; and (4) is often easily distracted by extraneous stimuli (American Psychiatric Association, 2000). Approximately three to five percent of school children in the United States meet the diagnostic criteria for ADHD (Bicard, Endo, & Neef, 2001). These statistics are suggestive of the possibility of the placement of at least one child with ADHD in every classroom in America (Fabiano & Pelham, 2003). Stereotyped behaviors such as fingernail biting might serve as a distraction for students with ADHD, resulting in an exacerbation of attentional, academic, and behavioral problems.

Classroom Intervention Planning

When designing interventions of any kind for students with a disability, diagnosis, label, or challenging behavior, it is particularly important to remember that each student is first and foremost an individual, with his or her own particular pattern of strengths and needs for improvement (Forness, Sweeney, & Wagner, 1998). Identifying effective interventions for behavior problems exhibited by students within school settings and within our classrooms continues to be a high priority for educators and other treatment providers, and classroom teachers are increasingly seen as supportive, if not indispensable, in identifying and addressing behavioral issues that have a negative impact on student quality of life.

Habit Reversal

Habit reversal training refers to a set of behavioral procedures used to eliminate habits such as fingernail biting (Christophersen, 1996). Habit reversal can consist of many complicated steps, but it can also be simplified to some simple, basic components:

- assessing the time, situations, and other issues associated with the occurrence of the habit,
- identifying a reasonable replacement behavior, and
- teaching the student to replace the habit with an incompatible response.

The effectiveness of habit reversal treatment for fingernail biting and other nervous habits has been demonstrated by numerous researchers (e.g. Long, Miltenberger, Ellingson, & Ott, 1999) and has been reported to be helpful in reducing many behavioral problems, including skin picking (Teng, Woods, & Twohig, 2006), compulsive hair pulling (Woods, Wetterneck, & Flessner, 2006), and even reducing the tics associated with Tourette Syndrome (Watson, Dufrene, Weaver, Butler, & Meeks, 2005). Several reports indicate that habit reversal techniques have been used effectively in the classroom setting (e. g. Gilman, Connor, & Haney, 2005; Watson et al.).

Teacher Prompts

We prompt students all the time. ‘Prompts’, used in this way, are no more complicated than reminders or suggestions. Teachers must be careful about using prompts excessively, because even when our intentions are good, overusing prompts can lead to worsening – and in some cases even *creating* – behavior problems. Another caution we should consider with the use of prompts is that they should not be something that will cause unwanted attention or shame to a student. However, used with some attention, reason, and systematic application, prompts can be an important, not to mention uncomplicated, component of an effective behavior intervention plan. In fact, prompts can be an

invaluable tool to the classroom teacher both for behavior management and for promotion of academic success (e.g. Brown, 2003; Shukla-Mehta & Albin, 2003).

Study purpose

We hypothesized that the implementation of coded teacher prompts and a simplified habit reversal procedure would decrease fingernail biting and related oral-digital habits exhibited by a student diagnosed with attention deficit hyperactivity disorder and a mild intellectual disability. These interventions were of particular interest to us because they were simple, easily managed within a classroom setting by teachers, and were relatively noninvasive (in the sense that they were considered highly unlikely to bring undue attention to the student), and did not involve the use of punishment. We chose to use a coded prompt, which in this case was a secret word agreed on by the student and classroom teacher, for a variety of reasons, including:

- to protect the student's privacy,
- because we are opposed to using punishment and causing emotional duress in students, and
- because, if fingernail biting is affected by stress, undesirable emotional stress could actually make the problem worse.

Method

Participant and target behavior

The participant in this study was a 14-year-old white male. For the purpose of this report, the participant will be referred to as Thomas. Thomas was in the eighth grade in a public middle school and was served in a self-contained classroom for students with MIID. Thomas was one of eight students in the classroom, which contained four males and four females. Two of the students were sixth-graders, three were seventh-graders, and three were eighth-graders. Recent educational testing indicated that Thomas was performing below grade level in all academic areas. At the time of the study, he was taking stimulant medication for ADHD, which was administered at home. He participated in two classes outside of the MIID class, a band class and a resource class for social studies. While in the MIID classroom, Thomas displayed no marked behavior problems and did not have a formal behavior intervention plan. Thomas did, however, have the habit of biting his fingernails and the skin around his fingernails, along with "flicking" his teeth with his fingers or fingernails. This fingernail biting was severe enough to frequently distract him from daily academic tasks, had a significant deleterious cosmetic effect on his hands, and attracted a great deal of unwanted negative attention from peers.

Operationalization

Thomas was observed throughout the school day in settings that involved a range of activities including academic studies, computer projects, social enhancement periods, lunch, and free time with classmates in the school courtyard area. The target behavior identified for intervention was fingernail biting. Fingernail biting was defined as placing one or more fingers into the mouth for the purpose of biting the fingernails or chewing on the skin around the fingernails. The definition also included "flicking" teeth with any part of the finger or fingernail, operationalized as thumping, tapping, or drumming the teeth with fingers with sufficient force to produce a sound audible to other people in the classroom.

Procedure and Experimental Design

An ABAB reversal design was used for this study. With this type of single case research, the A phases represent a baseline period, which is observation without intervention. The B phases represent intervention periods, and can also be thought of as the experimental time frames that the independent variable(s) are being implemented. The independent variable we used in this study was a coded teacher prompt combined with habit reversal, and the hypothesis being tested was that a combination of these two strategies would result in a measurable decrease in the target behavior. Baseline data were collected by the classroom teacher and paraprofessional over two five-day school weeks to determine the number of times that Thomas bit his fingernails. Baseline data consisted of tally marks made on an index card by each of the two adults in the classroom independently. The teacher and paraprofessional conferred regularly to compare the data, and reliability was consistently found to exceed 95%. The adults collected data relative to specific academic periods to determine if a particular subject or time of the day was associated with increases in the target behavior. No effect was identified, and it was determined that fingernail biting occurred at a consistent rate throughout the school day.

Thomas was asked about his fingernail biting. He relayed that it was a habit that caused him embarrassment and distress, that he would like to stop, and indicated that he would welcome help if it didn't result in other students teasing him more than they already were. He was given a stress ball to squeeze as a replacement for fingernail biting or "flicking." A coded prompt was agreed upon by Thomas and his teacher that would serve as a cue from the teacher that he should use the stress ball. Thomas was instructed any time he heard the coded prompt that the stress ball should be used, and it was said any time that the teacher observed his fingers in proximity to his mouth or whenever Thomas was observed biting his fingernails or "flicking" his teeth. Upon hearing the prompt, Thomas was taught to pick up the stress ball and begin squeezing it as a replacement behavior for fingernail biting. Further, Thomas was told that he was free to squeeze the stress ball at any time that he felt nervous or anxious, as a replacement for fingernail biting or "flicking" with the hopes that the intervention, if effective, may become self-managed with time and practice.

The intervention was monitored for two five-day school weeks. After the first intervention period, the stress ball was removed to determine if Thomas would revert to fingernail biting and "flicking." The second baseline data phase lasted for a five-day school week and then a second intervention phase using the stress ball was implemented for a second five-day school week.

Results

During the first baseline phase, Thomas was biting his fingernails or "flicking" on an average of 11.9 times per day. With the first intervention phase, the occurrences dropped to an average of 2.5 times per day. After this intervention period, the stress ball was removed, with Thomas' permission, so that we could better assess if it was the intervention that had prompted the decrease in fingernail biting. Although fingernail biting did not return to levels that were observed during the 1st baseline, the occurrences of fingernail biting and "flicking" began to increase to an average of 3.2 times per day when the stress ball was removed. In addition, a trend could be seen that indicated that this behavior was increasing. During the second interven-

tion phase, when the stress ball was returned, the occurrences of fingernail biting and "flicking" dropped to an average of 2.8 times per day, and a trend could be seen that indicated that the behavior was decreasing. Over a 30-day study period, the number of occurrences of fingernail biting and "flicking" decreased from an average of 11.9 times per day to 2.8 times per day. The highest occurrence of target behavior for one day was 30 and the lowest occurrence for five separate days was 1. These data are shown in figure 1.

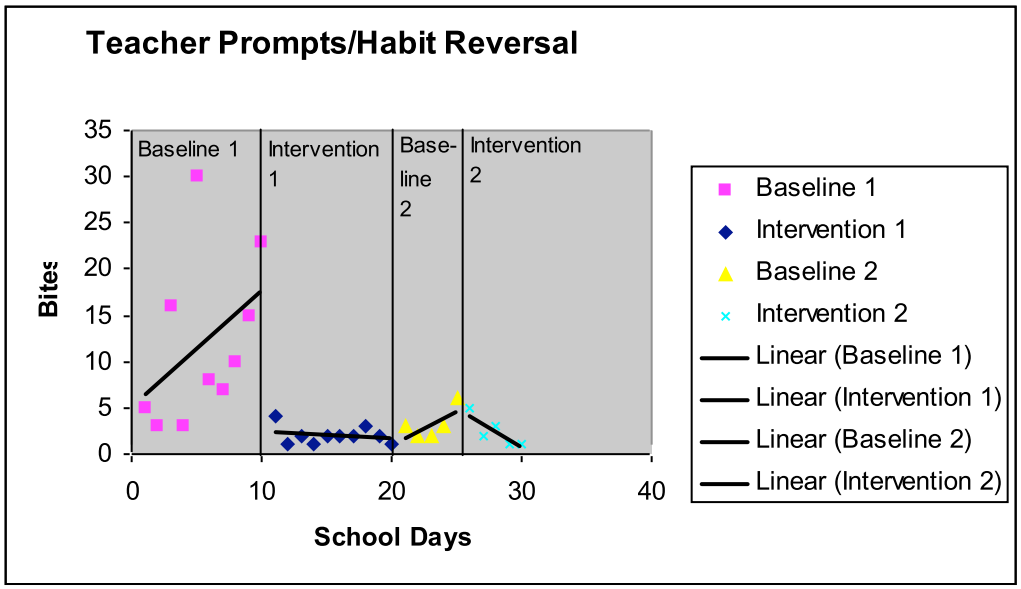
Discussion

Students can exhibit many behaviors that may negatively impact their quality of life and/or their academic achievement. These behaviors can be as simple as a nervous habit, considered meaningless by some educators, especially when compared to severe disruptive or self-injurious behaviors that we sometimes see. Though easy to overlook, nervous habits like fingernail biting can be indicative of inner turmoil and emotional duress that can lead to additional problems in the physical, social, and academic realms. Problems in these areas often translate into a decrease in the students' quality of life.

We were quite interested to see another behavior emerge during the second baseline that we had not observed in Thomas previously. The new behavior was that of exhibiting verbal aggression and rudeness toward classmates. Verbal aggression and rudeness were hypothesized to serve as a mechanism to assuage anxiety in the absence of the stress ball. These behaviors could be interpreted to be suggestive evidence that supports the theory that fingernail biting, at least in some people, is a behavioral coping mechanism to alleviate anxiety.

Many habits displayed by students with intellectual disabilities or other disabilities further serve to alienate the students with disabilities from peers and give or may encourage the impression that students with disabilities cannot function adequately in social situations. Though habit behaviors should not

Figure 1.



be considered to have the same priority for intervention as many of the behaviors that we may confront in the classroom, we contend that assisting students to change lower intensity behaviors that are distressing, distracting, or that negatively impact the students' quality of life is a valuable endeavor.

This study provides evidence that stereotyped habit behaviors can be amenable to change using simple assistive strategies that are manageable within the instructional setting and are noninvasive. The teacher was surprised that the participant was so willing to cooperate with the attempt to change his behavior and actually desired to discontinue the habit of fingernail biting. If fact, he went as far as expressing appreciation for her concern and desire to help. During the first intervention phase, he remarked that he actually had a fingernail growing on one finger.

Obviously, this study has methodological weaknesses. Thomas' strong desire to stop his habit could have influenced the decrease in fingernail biting, as could other factors. One obvious weakness is that both interventions, using coded teacher prompts and habit reversal, were implemented at once, making it impossible to determine the relative effect of each intervention individually. However, the goal of this study was to determine whether the type of supportive strategies we described could assist Thomas in a noninvasive, nonthreatening manner, rather than to test the relative effects of habit reversal versus teacher prompts. In this, we felt that the goal of the project was successful and provides additional support to educators that they can help students with stereotyped behaviors.

We must be alert to the needs of each student. Increasingly, educators and mental health professionals are acknowledging the importance of the role that teachers play in promoting children's mental health and including teachers as key participants in the intervention process (see Waller, 2006). This is particularly important as concerns among many professionals about issues like medication use for behavioral problems with children are growing (e.g. Waller, Lewellen, & Bresson, 2005). Habits should not intimidate teachers or be ignored as immaterial, especially if it is possible that they could lead to or further a social, physical, or academic problem. Previous studies have shown noninvasive behavioral strategies to be successful in reversing negative habits, both in students with disabilities and in students without disabilities. In fact, teachers may be the only help that is realistically available for some children with habit problems. It should further be considered that these types of problems tend to worsen and become more difficult to change the longer they occur. You may find that you and your student are the right treatment team at the right time to have even more of an impact in the lives of students than the immeasurable impact that you already exert.

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