

REDUCING SKIN PICKING VIA COMPETING ACTIVITIES

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This study examined the outcomes of a competing activities intervention to decrease skin picking exhibited by a 9-year-old student with comorbid diagnoses. Results of an ABCBAB design revealed that the use of student-selected manipulatives resulted in reduced skin picking.

DESCRIPTORS: skin picking, function-based intervention

Skin picking, also referred to as neurotic excoriation, includes behaviors such as picking, scratching, and squeezing of the skin in a repetitive, ritualistic, or impulsive manner despite the absence of a dermatological condition (Deckersbach, Wilhelm, Keuthen, Baer, & Jenike, 2002). Chronic or self-injurious skin picking may lead to tissue damage, scarring, and infection, and is associated with substantial distress in daily functioning in adults.

Although lifetime prevalence rates range from 2% to 4% (Deckersbach et al., 2002), there are few treatment-outcome studies of skin picking, and all have focused on adults. Research conducted to date suggests that habit reversal has been effective in reducing skin picking exhibited by typically developing adults (Twohig & Woods, 2001). Further, in a series of case studies Deckersbach et al. used cognitive behavior therapy to produce lower levels of skin picking for 3 patients, 2 of whom had comorbid psychiatric disorders. The current study extends this line of inquiry by conducting a function-based intervention using competing activities to reduce skin picking in a 9-year-old with comorbid disorders.

METHOD

Participant and Setting

Jason was a 9-year-old boy with attention deficit hyperactivity disorder (ADHD), a learning disability, a speech-language impairment, and a full-scale IQ of 77, as diagnosed by a multidisciplinary team. He attended the fourth grade in a self-contained public school. He had been referred for participation by his teacher due to extensive skin picking, which was defined as using his hands or handheld objects (pencils, paper clips) to pick, scratch, or rub any part of his skin, including his scalp. School officials indicated that skin picking had occurred multiple times a day for several years and produced scratch marks, blood, and scars. Adderall® (10 mg/day) had been prescribed for ADHD, but was taken inconsistently. Therefore, medication was monitored during this study.

Data Collection

Two behaviors were recorded: *skin picking* (target behavior) and *occupied hands* (replacement behavior). Skin picking was defined above. Onset of skin picking occurred when Jason placed his hand or an object on his skin (e.g., arms, legs, face, or scalp) and began to scratch, pick, or rub. Offset occurred when he removed his hand or the object from the specific location. *Occupied hands* referred to Jason having any object, either a self-selected object or one specific to an activity, and using it to occupy his hands so that skin picking was not

We thank the student and teacher for their participation. This research was supported, in part, by NICHD Grant P30HD15052 to Vanderbilt University.

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doi: 10.1901/jaba.2006.62-05

possible (e.g., holding the object in one hand or contact between one hand and the object). Data were collected in 10-min probes using duration recording. The percentage of time engaged in skin picking was calculated for each probe. Research staff were trained in data collection for 3 hr to a 95% criterion. Interobserver agreement was assessed for 25% of the sessions and was computed by dividing the shorter duration by the longer duration and multiplying by 100%. Mean agreement was 96% for skin picking and 83% for occupied hands.

Social validity was assessed by the teacher and student before and after the intervention using the Intervention Rating Profile-15 (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985) and a modified version of the Child Intervention Rating Profile (CIRP; Witt & Elliott, 1985). IRP-15 scores ranged from 15 to 90, and CIRP scores ranged from 7 to 42, with higher scores indicating higher treatment acceptability. Internal consistency reliability coefficients were 0.88 to 0.98 for the IRP-15 and were 0.75 to 0.89 for the CIRP. Items from the CIRP were read aloud by the research assistant to Jason, and Jason circled his response on the rating profile.

Functional Assessment: Procedure and Outcomes

The teacher participated in a functional assessment interview, and research staff collected ABC data for 2 hr. Results of the interview indicated that Jason engaged in skin picking during the majority of instructional time. The teacher also stated that skin picking was less likely to occur when Jason was engaged in writing activities or when the instructional task required use of manipulatives. ABC data collection was conducted initially in multiple settings (e.g., reading, math, transitions, and physical education), and skin picking was observed in all settings. However, skin picking occurred most often during reading instruction. Direct observations conducted during math instruction indicated decreased levels of skin picking when Jason's hands were occupied (e.g., counters, pencil). Collectively, results of the

interview and direct observation indicated that skin picking (a) occurred most often during reading instruction when Jason's hands were idle and (b) was not followed by a consistent consequence, suggesting that skin picking may have been maintained by a sensory function. Therefore, it was hypothesized that using manipulatives during reading instruction would result in decreased skin picking.

Function-Based Intervention

The competing activities intervention focused on replacing the target behavior with competing behavior to meet Jason's sensory needs. The teacher met with Jason individually during the school day to explain the intervention's purpose and procedure. She indicated that skin picking was a problematic behavior that could potentially cause harm to Jason's body. She explained that at the beginning of each day Jason would be handed a box containing three objects (e.g., three malleable plastic balls with different textures), and he would select one to touch or hold during reading instruction. Jason was informed that the purpose of having the object was to keep his hands occupied so as to avoid skin picking. He was told that the object should remain on his desk and should neither be shared with other students nor used to rub his skin. The next day, prior to reading instruction (which was a teacher-led instructional block conducted each morning that required students to listen to the teacher and respond verbally when prompted), an assistant presented Jason with the box. Jason chose one ball to hold. The assistant reminded Jason that if he used the ball inappropriately (e.g., tossing it to a peer), he would be given one redirection and then the ball would be removed. Once the reading period ended, the ball was returned to the box. Treatment integrity data were collected weekly using component checklists. There were no incidences of inappropriate use of the balls over the course of the study; as a result, Jason was never prompted to use the ball appropriately.

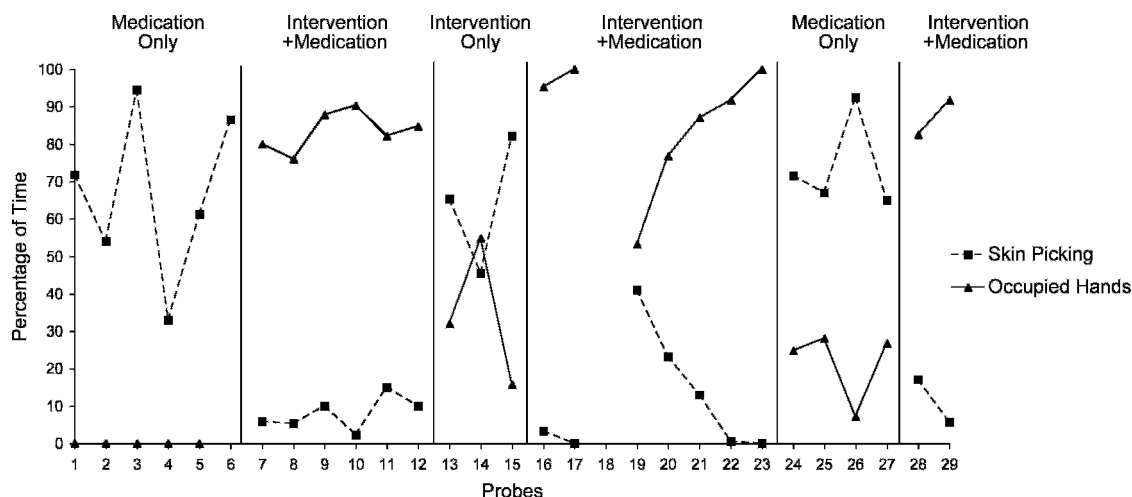


Figure 1. Percentage of time Jason exhibited skin picking and occupied hands.

Experimental Design and Data Analysis

An ABCBAB design was used to evaluate intervention outcomes. The target and replacement behaviors were assessed daily in 10-min probes during reading instruction. After collecting baseline (A), the intervention was implemented for 6 consecutive days (B). On Days 13, 14, and 15, Jason did not receive his medication (C). This was an unplanned phase change. The intervention phase (B2) continued for Days 16 through 23, with Jason taking his regularly scheduled medication. Then, the box of balls was removed from the classroom for 4 days during the first withdrawal phase (A2). Following the 4-day withdrawal phase, the intervention was reinstated during reading instruction for 2 days (B3). Data were analyzed via visual inspection and descriptive statistics.

RESULTS AND DISCUSSION

Results are presented in Figure 1. Skin picking during baseline showed a slightly positive trend with a high level ($M = 67\%$) and a high degree of variability ($SD = 22.4$) and no instances of occupied hands. During the initial intervention phase, although there was still a slightly positive trend for skin picking, there was an immediate, substantial decrease (M

$= 8\%$) with diminished variability. The mean level of occupied hands was high, with a positive trend.

During the C phase, data indicated an increasing trend for skin picking and a decreasing trend for occupied hands. Further, the percentage of skin picking returned to baseline levels. Once Jason's medication was resumed, skin picking decreased and occupied hands increased. On Day 18 the intervention was breached when a substitute teacher reprimanded Jason for using the ball and removed it from him. Therefore, the data point for Day 18 is not reported. From Day 19 to 23, the intervention was implemented as planned, and resulted in an increase in occupied hands and a decrease in skin picking.

During the withdrawal phase, there was an increased level of skin picking that exceeded the baseline mean ($M = 74\%$). The mean level for occupied hands decreased to 22%. When the intervention was reintroduced, there was an immediate increase in occupied hands and an immediate decrease in skin picking. The intervention ended prematurely when Jason changed schools. This also prevented the collection of maintenance and generalization data.

The teacher and assistant rated the intervention procedures and outcomes favorably prior to

treatment (IRP-15: 74 and 80, respectively), with slightly increased ratings (75 and 86, respectively) after intervention. Jason also rated the intervention favorably (CIRP: 38 at both times; Witt & Elliott, 1985). Mean treatment integrity scores were 3.36, 3.11, and 3.83 for B, B2, and B3, respectively. A score of 3 indicates that components were present 51% to 75% of the time, and a 4 indicates 76% to 100% presence.

In sum, the use of student-selected manipulatives to occupy Jason's hands was an effective strategy to reduce skin picking. Performance during the C phase suggests that the intervention was most effective in conjunction with medication. Ethical considerations did not permit the reintroduction of the intervention without medication.

Although not specifically tested in this study, it is possible that allowing the student, rather than the investigator, to select the manipulative influenced the intervention's success. Further, the external validity of the findings is limited due to the lack of generalization and maintenance data. We recommend that future studies explore the efficacy of student- versus investigator-selected manipulatives to elucidate the influence of choice. Even more important, we

recommend that future investigations explore issues of external validity by determining if the use of a competing activity can be faded in such a manner that allows skin picking to terminate and does not result in the student being dependent on an object to control skin picking. Finally, additional studies are recommended to study the efficacy of self-control procedures with respect to psychiatric medications.

REFERENCES

- Deckersbach, T., Wilhelm, S., Keuthen, N. J., Baer, L., & Jenike, M. A. (2002). Cognitive-behavior therapy for self-injurious skin picking. *Behavior Modification, 26*, 361-377.
- Martens, B. K., Witt, J. C., Elliott, S. N., & Darveaux, D. (1985). Teacher judgments concerning the acceptability of school based interventions. *Professional Psychology: Research and Practice, 16*, 191-198.
- Twohig, M. P., & Woods, D. W. (2001). Habit reversal as a treatment for chronic skin picking in typically developing adult male siblings. *Journal of Applied Behavior Analysis, 34*, 217-220.
- Witt, J. C., & Elliott, S. N. (1985). Acceptability of classroom intervention strategies. In T. R. Kratochwill (Ed.), *Advances in school psychology*. (Vol. 4, pp. 251-288). Mahwah, NJ: Erlbaum.

Received May 13, 2005

Final acceptance December 13, 2005

Action Editor, Douglas W. Woods