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Notes and Observations

Stress Management and Gilles de la Tourette's Syndrome

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Tourette's syndrome is a lifelong disorder characterized by multiple motor and verbal tics. The present study examined relaxation training and desensitization training as a method of reducing the frequency and intensity of tics and the distress they caused in a young adult diagnosed with Tourette's syndrome. After a period of symptom monitoring the subject underwent 3 weeks of intensive training in relaxation skills and 5 weeks of desensitization training with situational cues previously identified as eliciting Tourette's symptoms. According to self-report monitoring, the experience of symptoms was decreased across 3 global dimensions: distress (48%), frequency (48%), and intensity (50%), and an hourly symptom count (50%). Collateral parental symptom report agreed with an observed decrease across distress (40%), frequency (41%), and intensity (40%). Inspection of data suggests that both components of stress management added to total treatment efficacy.

Descriptor Key Words: stress management; Tourette's syndrome; relaxation; desensitization.

Gilles de la Tourette's syndrome is a relatively rare childhood disorder involving recurrent, rapid, repetitive involuntary motor behavior, commonly accompanied by vocal tics such as grunting and snorting (DSM-III-R; American Psychiatric Association, 1987). Coprolalia, the uncontrollable performance of obscene gestures and vocalisms, is reported in 50% of cases. The

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symptoms appear by age 11 in 95% of cases. The course of the disorder is fluctuating symptoms that wax and wane with maturity, physical state, and situation. There does appear to be a general progression in the intensity and complexity of symptoms with age and duration of disorder. Although Tourette's syndrome was described and identified as early as 1825 (Shapiro, Shapiro, Brunn, & Sweet, 1978), examination of it has been scarce and treatment strategies therefore limited.

The most popular models for explaining Tourette's syndrome have been biologically based. It has been hypothesized that the symptoms of Tourette's are the result of a dysfunction in the dopaminergic and serotinergic systems of the individual. Glaze, Frost, and Jankovic (1983) and Barabas, Matthews, and Ferrari (1984) substantiated this position by examining sleep patterns in individuals displaying Tourette's symptoms. They both found a preponderance of sleep disturbances (e.g., somnambulism, night terrors) as well as atypical sleep-wave patterns (e.g., lowered REM) in children with Tourette's. The most compelling biological evidence stems from the successful pharmacological treatments for Tourette's syndrome. Devinsky (1983) found that dopamine receptor-blockers relieve symptoms while dopamine agonists exacerbate them. Treatments based on this knowledge have been highly successful. Haloperidol, the agent of choice, has been shown to eliminate symptoms in 60 to 90% of individuals displaying Tourette's syndrome (Shapiro & Shapiro, 1981).

Despite the apparent biological basis of this disorder, there are several reasons for seeking nonpharmacological alternative treatment for Tourette's syndrome: There are serious side effects of prolonged haloperidol use, including rebound symptoms when medication is terminated, the blunted affect and functioning of clients while on medication, and the potential for developing tardive dyskinesia (Storms, 1985). Results of twin concordance studies (Price, Kidd, Cohen, Pauls, & Leckman, 1985) show differences in rates of Tourette's syndrome between mono- and dizygotic twins, suggesting substantial genetic contribution to etiology. However, the concordance rate for Tourette's in monozygotic twins is only 53%; this points to the need for a more interactive model of Tourette's syndrome that could incorporate specific and cumulative effects of environmental stimuli as well as the genetic factors.

Behaviorists have used Tourette's syndrome as an arena for displaying the efficacy of several models and specific interventions for human behavior. For example, Bliss (1980) described tics as intentional behavior to relieve a sensation such as an "itch." He proposed that the sensation was due to a hypersensitivity to stimuli linked to a complex reflex time. Following this hypothesis, Bullen and Hemsley (1983) used exposure and response prevention to increase tolerance of sensations and reduce symptomatology of an individual with Tourette's syndrome with equivocal results.

Negative practice, a form of habit reversal, has also been utilized with limited success across a variety of individuals with Tourette's syndrome (Storms, 1985). The method was proposed by Azrin, Nunn, and Frantz (1980), who found that by training people in an incompatible response to the tic (generally an opposite behavior), one could reduce tic behavior by 97%. However, studies examining this procedure have been limited and not well controlled.

Unfortunately, despite these studies and a plethora of other behavioral interventions being applied to this disorder, Shapiro and Shapiro (1981) claim behavioral treatment to have an overall success rate of 20% for the symptoms of the individual with Tourette's syndrome.

Recently, a different behavioral approach has been suggested for intervention in Tourette's syndrome. Clinical lore and limited studies (Benditsky, 1978) have suggested that the symptoms of Tourette's syndrome are exacerbated by stress and ameliorated by relaxation. Canavan and Powell (1981) assessed relaxation training in comparison with massed practice in an individual with Tourette's symptoms. They found that, although symptoms ceased during relaxation, the effect did not generalize to any other situation. Brudny et al. (1974) used EMG biofeedback with some success in patients with various disturbances of neuromotor control. Brudny hypothesized that the effect was due to a gain in the individuals' knowledge of biological feedback loops and the subsequent transfer of motor control. Finally, Turpin and Powell (1984) utilized cue-controlled relaxation and reported both direct and general reductions in symptoms in two of three Tourette's patients.

The above studies suggest a dual-component stress management program to affect the symptoms of Tourette's syndrome. On a global level, it may be important to decrease individuals' general level of tension and arousal by teaching them the procedures of progressive relaxation and muscle tension discrimination. This method could then also be integrated into a more specific intervention by training the relaxation behavior as an incompatible response to be used in situations that trigger Tourette's symptoms. The present study sought to examine a two-facet treatment program in a young adult with Tourette's disorder.

METHOD

Subject

The subject was a 19-year-old white male who was currently a college freshman and residing at home with parents and siblings. The subject's symptoms began at age 9 with both vocal and motor tics, and he was diagnosed as having Tourette's syndrome within 1 year of that time by a pediatric neu-

rologist (E.L.R.). Pharmacological intervention with haloperidol (with varying doses from 5 to 3 mg daily) was begun immediately and has continued throughout the past 10 years. During the time of the study, the subject remained on the stable dose of 3 mg daily that he had been taking for the previous 2 years. The general frequency of symptoms decreased with age; however, frequency, intensity, and distress caused by symptoms varied across situations. The tic behaviors had increased in motor complexity with maturity, from simple fliches to more elaborate chains of movement. At the time of the pretreatment evaluation there were problematic symptoms despite the daily 3-mg dose of haloperidol. The most distressing was a neck jerk (which impaired the subject's ability to drive) and a set of twitches through his extremities when he began a difficult or stressful task (such as exams). The subject felt that the symptoms created more "stress" in his life and reported avoiding several situations that were associated with increased symptomatology. Mental status and other psychological functioning appeared to be within the normal range.

Procedure

Pretreatment Assessment. The pretreatment assessment included presenting an introduction and preliminary rationale for the program, and conducting a clinical interview that evaluated the course of the disorder, the psychological functioning of the subject, and psychosocial factors that might influence treatment. A psychophysiological exam, which consisted of the monitoring of frontalus muscle tension, heart rate, and fingertip temperature, was conducted as well.

At the end of the initial interview both the subject and his mother were instructed in the use of the Symptom Monitoring Form, which included daily ratings of distress, intensity, and frequency of symptoms on a 5-point scale (1 = much less than normal, 3 = average, 5 = much more than normal). The form also required a report distinguishing which symptoms were apparent and how often they occurred during 1 hour. (The subject and his mother were asked to randomly chose an hour per day and record frequency of each symptom.) The subject and his mother were instructed not to discuss or collaborate on the data collection in order to enhance the social validation potential of having two independent raters. Monitoring continued for the next 5 weeks with no experimenter contact.

Treatment. Treatment consisted of a dual-component stress management program. In the first phase, after the baseline period, the subject underwent six sessions (3 weeks) of progressive muscle relaxation procedures as outlined in Blanchard and Andrasik (1985). The emphasis was on an application of the procedures in the client's life through the use of home prac-

tice, antistress imagery, muscle discrimination (body scanning throughout the day for tension), and cue-controlled relaxation procedures. He was encouraged to use these methods to control life stress throughout treatment.

In phase two, desensitization was used in order to utilize the relaxation behavior as a conditioned response, incompatible with symptoms, in situations that had a previous history of triggering or exacerbating symptoms. Thus, in session 7, after the subject's ability to achieve a relaxed state had been established, a hierarchy of situations most often associated with an increase in symptoms was created. The 10 separate situations involved scenes ranging from shopping in a mall to taking a final exam.

Systematic desensitization training (Wolpe, 1958) was conducted one session per week for 6 weeks. The subject would first imagine a scene and relate to the therapist the personally salient cues in the situation. He would then rate his anxiety while imagining the scene with the therapist's guidance on a 1-to-10 scale (from "not anxious" to "the most anxious I can imagine"). Last, the subject would engage in muscle relaxation by recall and then imagine the scene again with the therapist's direction. The relaxation/imagery cycle would be repeated until the subject could remain at an anxiety level of 1 during the scene. This usually occurred within two trials. An average of two scenes were mastered per week. During this time the subject was instructed to practice the relaxation/imagery cycle at home daily to strengthen the response. Finally, ratings of relaxation prior to imagery were obtained in order to document that the subject was, in fact, relaxed at the time of the training.

Posttreatment Evaluation. The posttreatment evaluation consisted of monitoring of Tourette's symptoms by the subject and his mother in a form that was identical to the pretreatment assessment. In addition, the subject recorded and rated degree of relaxation during home practice sessions. Monitoring continued for 4 weeks after the last treatment session and involved no experimenter contact, although the subject was encouraged to continue practicing treatment techniques. In order to further evaluate the program, an interview with the client was conducted concerning the intervention, perceived effects of symptoms, and general impressions at 4 weeks and 10 months posttreatment.

RESULTS

The primary goal of this study was to assess the effect of a dual-component stress management program on symptoms of Gilles de la Tourette's syndrome. During the time the subject was engaged in specific relaxation procedures and in the therapy setting, no symptoms of Tourette's

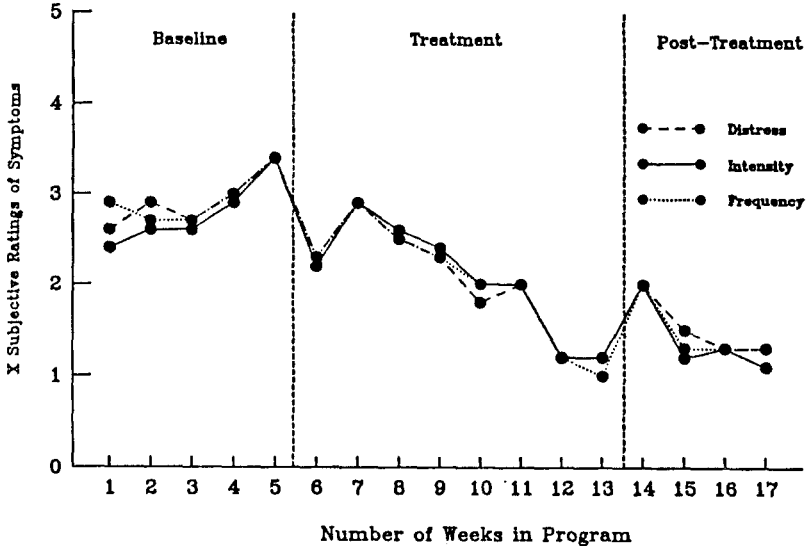

Fig. 1. Averaged Daily Subjective Symptom Ratings across weeks of treatment phases.

syndrome emerged, indicating that the relaxation response was in fact incompatible, or at least competing, with the subject's symptoms.

In trying to assess a more general improvement in symptoms, the daily subject ratings of symptom intensity and frequency, and associated distress from the symptoms, were averaged weekly and graphed throughout the treatment phases in Figure 1.

Pretreatment and posttreatment monitoring of symptom characteristics were compared using the following formula to calculate percent change.

$$\frac{\text{Pretreatment measure (Intensity/Frequency/Distress)} - \text{Posttreatment measure}}{\text{Pretreatment measure}} \times 100$$

According to self-report monitoring, symptoms decreased across three global measures: distress (48%), frequency (48%), and intensity (50%). These reports were substantiated by parent monitoring, which also indicated a substantial decrease across the factors: distress (40%), frequency, (41%) and intensity (40%).

Daily self-report hour symptom count was also averaged per week and graphed throughout treatment, as in Figure 2.

Using the above formula, the hourly symptom count decreased by 50%. Parent data with this measure were incomplete and therefore not analyzed.

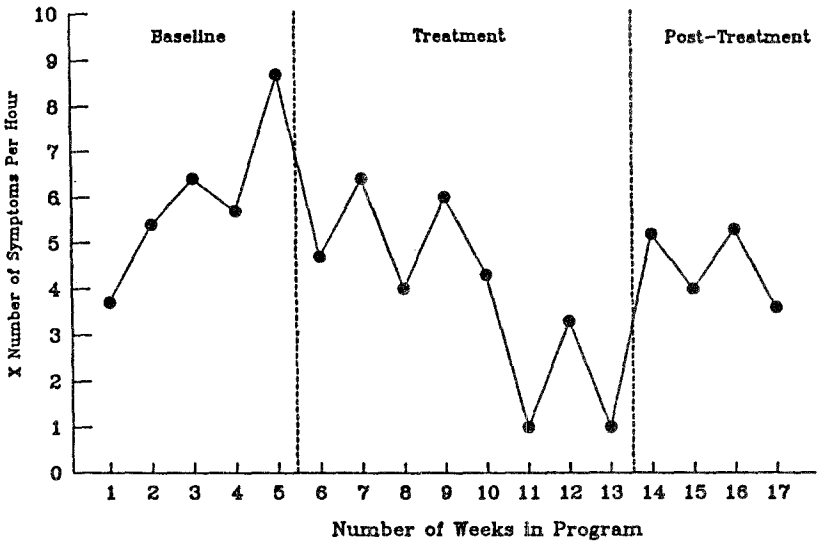

Fig. 2. Average Daily Symptom Frequency across weeks of treatment phases.

By visual inspection, both sets of measures, global symptom ratings and symptom frequency, showed progressive declines across the treatment phase. During the 4-week posttreatment phase, the global ratings appeared to remain stable, whereas there was some loss of improvement in symptom frequency.

DISCUSSION

The present study was undertaken to examine the effects of a dual-component stress management program on the subjective experience and frequency of the symptoms of Tourette's syndrome in a young adult with this disorder. Quantitative analysis demonstrated a decrease in measures of symptom frequency, intensity, and distress, as well as decreases in hourly symptom counts.

In order to establish a clear idea of the clinical relevance of the program, an extensive posttreatment interview was conducted concerning the subject's impression of the program, perceived effects on symptoms, and overall satisfaction rating. The subject reported that both treatment components were helpful, although desensitization appeared to have more of a direct effect on the symptoms. The subject reported that in addition to symptom reduction, his feelings of well-being and control of symptoms were greatly enhanced by participation in the program. In a telephone interview 10 months

after treatment, the subject reported a continuing decline in symptoms and that he was still utilizing relaxation techniques daily.

The generalizability of these findings may be limited by the unique qualities of the subject. First, the Tourette's symptoms were relatively mild at this stage in his life. This subject was also very motivated, intelligent, and verbal throughout treatment. Application of these methods to individuals with more severe symptoms and less ideal characteristics is encouraged to evaluate its potential usefulness.

These data suggest that a program that includes an emphasis on both global and specific stress management procedures is capable of reducing symptoms in Gilles de la Tourette's syndrome. Further investigation is needed to assess the limitations and mechanisms of action for this type of program, reducing symptoms of Tourette's syndrome.

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