Adolescents With Conduct Disorder Can Be Mindful of Their Aggressive Behavior

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Adolescents with conduct disorder frequently engage in aggressive and disruptive behaviors. Often these behaviors are controlled or managed through behavioral or other psychosocial interventions. However, such interventions do not always ensure lasting changes in an adolescent's response repertoire so that he or she does not engage in aggression when exposed to the same situations that gave rise to the behavior previously. Mindfulness training provides a treatment option that helps an individual focus and attend to conditions that give rise to maladaptive behavior. Using a multiple baseline design, we assessed the effectiveness of a mindfulness training procedure in modulating the aggressive behavior of three adolescents who were at risk of expulsion from school because of this behavior. The adolescents were able to learn the mindfulness procedure successfully and use it in situations that previously occasioned aggressive behavior. This led to large decreases in the aggression of all three individuals. Follow-up data showed that the adolescents were able to keep their aggressive behavior at socially acceptable levels in school through to graduation. Maladaptive behaviors, other than aggression, that the adolescents chose not to modify, showed no consistent change during mindfulness training, practice, and follow-up.

Adolescents with conduct disorder engage in "a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated" (American Psychiatric Association, 2000, p. 93). To be diagnosed with conduct disorder, children or adolescents must have displayed at least 3 of 15 criterion behaviors within the previous 12 months and at least 1 within the previous 6 months. In the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition–Text Revision*, the 15 criterion behaviors are divided into four groups: (a) aggressive conduct that causes or threatens physical harm to other people or animals (bullying, fighting, using a weapon, being physically cruel to others, being physically cruel to animals, stealing while confronting the victim, initiating forced sexual activity); (b) nonaggressive conduct that causes property loss or damage (fire setting, engaging in other destruction of property); (c) deceitfulness or theft (breaking and entering, lying for personal gain, stealing without confronting the victim); and (d) serious violations of rules (before age 13: running away from home and being truant). The diagnostic criteria clearly indicate that conduct disorder includes both overt and covert aggression.

Community-based studies indicate a high prevalence of conduct disorder, ranging from about 2% to more than 10% in the general population of children and adolescents (Lahey, Miller, Gordon, & Riley, 1999). Adjacent literature from systems of care suggests that there is a high rate of clinical referrals to community-based care (Landrum, Singh, Nemil, Ellis, & Best, 1995; Quinn & Epstein, 1998) and inpatient care (Singh, Landrum, Donatelli, Hampton, & Ellis, 1994) for children and adolescents with conduct disorder. Also, it is known that these children and adolescents tend to have negative long-term outcomes as adults, with about 80% of them likely to meet criteria for a psychiatric disorder (Kazdin, 2003). The problems for children and adolescents with conduct disorder are compounded by the co-occurrence of other childhood psychiatric disorders, such as attention-deficit/hyperactivity disorder (ADHD), oppo-

sitional defiant disorder, substance abuse and dependence disorders, depressive disorder, and anxiety disorders (Hinshaw & Lee, 2003).

There are no psychopharmacological treatments for conduct disorder approved by the Federal Drug Administration, although psychotropic drugs have proven beneficial in controlling some symptoms of the disorder. For example, biologically mediated aggression in children and adolescents in residential facilities is often treated with psychotropic drugs (Connor, Ozbayrak, Harrison, & Melloni, 1998; Connor, Ozbayrak, Kusiak, Caponi, & Melloni, 1997). Whether arising from conduct disorder or other childhood psychiatric disorders, aggression that is impulsive, explosive, hostile, or rageful appears to be medication responsive (Campbell, Gonzalez, & Silva, 1992). However, other forms of aggression in children and adolescents with conduct disorder are not responsive to psychiatric medication. For example, predatory or instrumental aggression that is associated with low levels of autonomic nervous system arousal typically does not respond to medication (Eichelman, 1988). Given the multifactorial nature of conduct disorder, psychopharmacological interventions are best used adjunctively with psychosocial interventions.

Several empirically tested psychosocial interventions exist for children and adolescent with conduct disorders (Kazdin, 1997). Most of these interventions focus primarily on overt, rather than covert, maladaptive behaviors. Given the central role of the family in the development and maintenance of overt conduct problems (Patterson, Reid, & Dishion, 1992), these interventions are delivered within the family context (McMahon & Kotler, 2006). Although effective to some extent, all family-based interventions have limitations, particularly in terms of the extensive parental effort requirement and the socioeconomic status of the parents (Kazdin, 1997).

Cognitive–behavioral skills training programs have also been shown to be effective with aggressive adolescents (McMahon & Kotler, 2006). For example, research shows that Problem-Solving Skills Training (Kazdin, 2003) is effective with children with serious aggressive conduct problems, in both inpatient and outpatient settings, and that the effects can be maintained over time. Cognitive–behavioral therapies enable children and adolescents to engage in and take control of their own behavior—two key concepts in mental health recovery (Davidson, O'Connell, Tondora, Lawless, & Evans, 2005). The most successful procedures have been multicomponent treatments. Many cognitive–behavioral approaches, however, are single-component programs (e.g., social skills training), which appear to be less robust and not long lasting, even if effective in the short term (McMahon & Wells, 1998). Further, there are issues of whether children and adolescents with conduct disorder will actually choose to learn a cognitive behavior procedure and then engage in it long enough to master their own behavior.

In this study, we were interested in assessing whether adolescents with conduct disorder would engage in a single-component therapy if there was a serious external contingency for not doing so (i.e., expulsion from school). The premise of the study was that the adolescents could be taught a simple self-regulatory technique that they could choose to use to control aggressive behavior that had led previously to multiple disciplinary actions against them. In accord with the principles of recovery, learning socially acceptable self-regulatory skills would enable the adolescents to assume primary responsibility for their lives and to manage their own behavior (Davidson et al., 2005; Deegan, 1996). We used *Meditation on the Soles of the Feet* (Singh, Wahler, Adkins, Myers, & the Mindfulness Research Group, 2003), a mindfulness technique that teaches a person to shift attention from an emotionally arousing thought, event, or situation to an emotionally neutral part of the body. This was used because it is simple to learn; can be used in all settings, including negative, high-arousal situations; and had been proven effective in the self-control of aggressive behavior (Singh et al., 2003, 2006).

Mindfulness has been defined in a number of ways. Nyanaponika Thera (1992) has described mindfulness as "the clear and single-minded awareness of what actually happens *to* us and *in* us, at successive moments of perception. It is called 'bare' because it attends just to the bare facts of a perception as presented either through the five physical senses or through the mind . . . without reacting to them by deed, speech or by mental comment which may be one of self-reference (like, dislike, etc.), judgment, or reflection" (p. 32). Thus, mindfulness is the awareness and nonjudgmental acceptance by a clear, calm mind of one's moment-to-moment experience without either pursuing the experience or pushing it away.

Mindfulness-based interventions have been used in empirically based treatments for a large number of diseases and disorders (see reviews by Baer, 2003; Campos, 2002; Lazar, 2005; Salmon et al., 2004). The best known interventions include dialectical behavior therapy for individuals with borderline personality disorder (Linehan, 1993), mindfulness-based stress reduction for physical and mental health (Kabat-Zinn, 1990), mindfulness-based cognitive therapy for depression (Segal, Williams, & Teasdale, 2002), acceptance and commitment therapy for various disorders (Hayes, Strosahl, & Wilson, 1999), and vipassana meditation for the treatment of alcohol and drug use disorders (Marlatt et al., 2004). Mindfulness has also been used in other areas including couples therapy and the treatment of generalized anxiety disorders, obsessive–compulsive disorders, substance abuse, eating disorders, mood disorders, and holistic health in individuals with HIV/AIDS.

Meditation on the Soles of the Feet is a mindfulness-based intervention that has been used as a self-management technique to control aggression. In one study, we taught this technique to a young man with mental retardation and mental illness whose aggression had precluded successful community placement (Singh et al., 2003). By using this technique, this young man was able to divert attention from an emotionally arousing thought, event, or situation to an emotionally neutral part of his body, the soles of the feet. He was able to pause, attend to the soles of his feet, calm down, and then consciously choose how to react to the thought, event, or situation that triggered the

arousal response. Results showed that the young man was able to control his anger and was discharged to community living after he did not engage in aggression for 6 consecutive months in the facility. No aggressive behavior was observed during the 1-year follow-up after his community placement. In another study, we assessed the effects of long-term use of the *Meditation on the Soles of the Feet* as a mindfulness technique to self-regulate verbal and physical aggression by three individuals with mental illness (Singh et al., in press). The initial training was provided in an inpatient psychiatric hospital, with follow-up in the community over a 4-year period. Results showed that the three individuals were able to master the mindfulness-based technique and used it successfully to control their anger. Physical aggression did not occur at all and verbal aggression occurred at very low rates during 4 years of follow-up in the community.

The present study was an attempt to add to this research by using the same mindfulness-based intervention with adolescents diagnosed with conduct disorder.

Method

Participants

Three seventh-grade adolescents were referred for therapy from their school. All of them had received multiple disciplinary actions and were at risk of expulsion for multiple instances of aggressive behavior at school. Each had a diagnosis of conduct disorder and had minimally passing grades at school.

Ricky was 14 years old and Caucasian, had an IQ of 105, and had comorbid learning disabilities. He was known as a "big bully" who terrorized other students, and he also engaged in fire setting. He had received seven inpatient psychiatric treatments, with two psychiatric admissions in a child and adolescent psychiatric hospital within the past year. For his diagnosis of conduct disorder, he exhibited 10 of 15 behaviors on Criterion A; he met Criterion B for significant impairment in social and academic functioning. Kent was 13 years old and Caucasian, had an IQ of 110, and was in his fourth foster placement. He was aggressive to peers and cruel to animals; he had been seen torturing cats and dogs in the neighborhood. For his diagnosis of conduct disorder, he exhibited 8 of 15 behaviors on Criterion A; he met Criterion B for significant impairment in social and academic functioning. Libby was 13 years old and Caucasian, had an IQ of 115, and had been physically abused as a child. She was aggressive toward other children and was highly noncompliant. She had a history of running away from school and had stayed away from home and school for several days at a time. She had five acute admissions to a child and adolescent psychiatric hospital within the previous 2 years. For her diagnosis of conduct disorder, she exhibited 7 of 15 behaviors on Criterion A; she met Criterion B for significant impairment in social and academic functioning.

Response Definitions, Measurement, and Reliability

Aggression was defined as any hitting, pinching, or shoving of peers. *Bullying* was defined as verbal aggression or physical posturing, intended to intimidate peers. *Fire setting* was defined as the unauthorized setting on fire of another's property. *Cruelty to animals* was defined as any aggressive act directed at an animal. *Noncompliance* was defined as not responding appropriately, or at all, to teacher instructions or requests.

Initially, data on two key variables were collected retrospectively for each adolescent: bullying and fire setting by Ricky, aggression and cruelty to animals by Kent, and aggression and noncompliance by Libby. Retrospective data were collected from the adolescents' school records to provide baseline data. The data were collected by two experienced data collectors. The reliability of their data collection from school records had been established previously at 96% for data collected across six children from the same school but unrelated to this study. Their reliability on the data collected for this study averaged 94.4% across the three adolescents. Prospective data were collected by teachers during school hours on instances of aggressive/bullying acts by each adolescent and of noncompliance by Libby and through self-reports on incidents of fire setting (Ricky) and cruelty to animals (Kent). Once a week, during the training and practice phases, a student teacher collected data for two class periods to check the reliability of the teacher-reported data. The teachers and the student teacher were trained in observational data collection prior to the study. The student teacher collected reliability data for 58 class periods for each of the adolescents. The data from the student teacher were compared event by event with the teachers' data for corresponding class periods. The overall reliability across the adolescents' behaviors (aggression, bullying, and noncompliance) ranged from 92% to 100%, with a mean of 98%. No reliability checks were made of the adolescents' self-reports on collateral behaviors.

Experimental Design and Procedure

We used a multiple baseline across subjects design, with four phases: baseline, training in mindfulness, mindfulness practice, and follow-up.

Baseline. Retrospective data were used for most of the baseline because the severity of the problems, and imminent expulsion of the students from school, precluded collecting prospective data over an extended period. Prospective baseline data were collected with each adolescent, however, for the 2 weeks immediately prior to intervention and throughout the two intervention phases.

Training. During the training phase, a therapist with training and experience in mindfulness, as well as extensive experience working with children and adolescents, met with each adolescent separately for about 15 min, three times a week for

4 weeks. In the first session, the therapist discussed with each student how motivated the student was to take control of his or her life and whether the adolescent wanted to learn a simple way of self-regulating his or her aggressive behavior. All students said that they were not very interested in learning anything new because they were already in control of their lives. However, after discussion, they agreed that they needed to behave somewhat differently if they were to stay in school, as their parents wished. They agreed to meet with the therapist for a session on Monday, Wednesday, and Friday each week for 4 weeks to learn and practice a mindfulness technique. Further, they agreed to use this technique to control their aggressive behavior in school to not be expelled before they completed middle school (grade 8). The adolescents were neither asked nor did they volunteer to use the mindfulness technique to control any of their other maladaptive behaviors.

In the second session, the therapist taught each adolescent the *Meditation on the Soles of the Feet* mindfulness technique, using the standard training procedure outlined by Singh et al. (2003, p. 163). *Meditation on the Soles of the Feet* is a simple technique for achieving mindfulness by focusing on the present moment as opposed to the distal or proximal past. Through practice, it enables the practitioner to take his or her mind from an emotionally arousing or anxiety-provoking situation to a neutral part of his body that evokes calmness. By bringing the mind back to that part of the body, an individual can effectively change, at will, the setting event for his or her thoughts, feelings, emotion, and so on. By dropping the mind to the soles of the feet, the individual is able to anchor the mind on a neutral setting event and be in the present moment.

Meditation on the Soles of the Feet training involved the therapist (a) providing a rationale for the training—to help the adolescent control his or her emotion (e.g., anger) before it was expressed as a socially maladaptive behavior (e.g., aggression) and (b) taking the adolescent through the steps of acquiring the new skill. The steps were as follows:

1. If you are standing, stand in a natural rather than an aggressive posture.
2. If you are sitting, sit comfortably with the soles of your feet flat on the floor.
3. Breathe naturally, and do nothing.
4. Cast your mind back to an incident that made you very angry. Stay with the anger.
5. You are feeling angry, and angry thoughts are flowing through your mind. Let them flow naturally, without restriction. Stay with the anger. Your body may show signs of anger (e.g., rapid breathing).
6. Now, shift all your attention to the soles of your feet.
7. Slowly, move your toes, feel your shoes covering your feet, feel the texture of your socks or hose, the curve of your arch, and the heels of your feet against the back of your shoes. If you do not have shoes on, feel the floor or carpet with the soles of your feet.
8. Keep breathing naturally and focus on the soles of your feet until you feel calm.
9. Meditate on the soles of your feet for about 10 to 15 min.
10. Slowly come out of your meditation, sit quietly for a few moments, and then resume your daily activities.

The therapist urged the adolescent to practice this mindfulness exercise until he or she could use it automatically whenever an incident occurred that typically would lead the person to physical or verbal aggression. For the next 10 sessions, the therapist met with each adolescent, discussed the adolescent's practice of the *Meditation on the Soles of the Feet*, collected the self-reported data on collateral behaviors (fire setting and cruelty to animals), had each adolescent behaviorally rehearse the procedure, and went through the training steps, if necessary.

Mindfulness Practice. The adolescents then continued to practice and use the *Meditation on the Soles of the Feet* but with no further training. They met with the therapist once a month for about 15 min to have a general discussion about their practice of mindfulness and behavior at school and to provide the therapist with their self-reported data. This phase lasted 25 weeks.

Follow-up. During the subsequent follow-up over 1 school year, school records were accessed for data in terms of expulsions, or threats of expulsion, the variables that initiated the adolescents' referral for therapy.

Results

Figure 1 presents weekly data on bullying or aggression and the collateral behavior for each of the three adolescents across baseline, mindfulness training, and mindfulness practice. Table 1 presents the phase means for each of these behaviors. For all three adolescents, the data show that aggressive behavior or bullying decreased minimally during the mindfulness training and substantially during the 25 weeks of practice that followed training. Although the behaviors were not eliminated, they were reduced to a level that was tolerated at their school. For Ricky, fire setting did not decrease at all during the training period but was reduced by 52% during the practice period. For Kent, there was a small reduction (18%) in the frequency of his cruelty to animals during the study period. For Libby, there was a minimal reduction (4%) in her noncompliance during the study period.

Follow-up data, accessed through school records, showed that all three adolescents graduated from middle school without any further threat of expulsion due to their aggressive behavior. This suggests that Ricky, Kent, and Libby were able to self-regulate their aggression well enough to avoid school sanctions for at least a year after completing the practice phase.

Self-reports by the adolescents to the therapist showed that (a) at first they practiced mindfulness only sporadically until some of its benefits started emerging, and then they practiced it

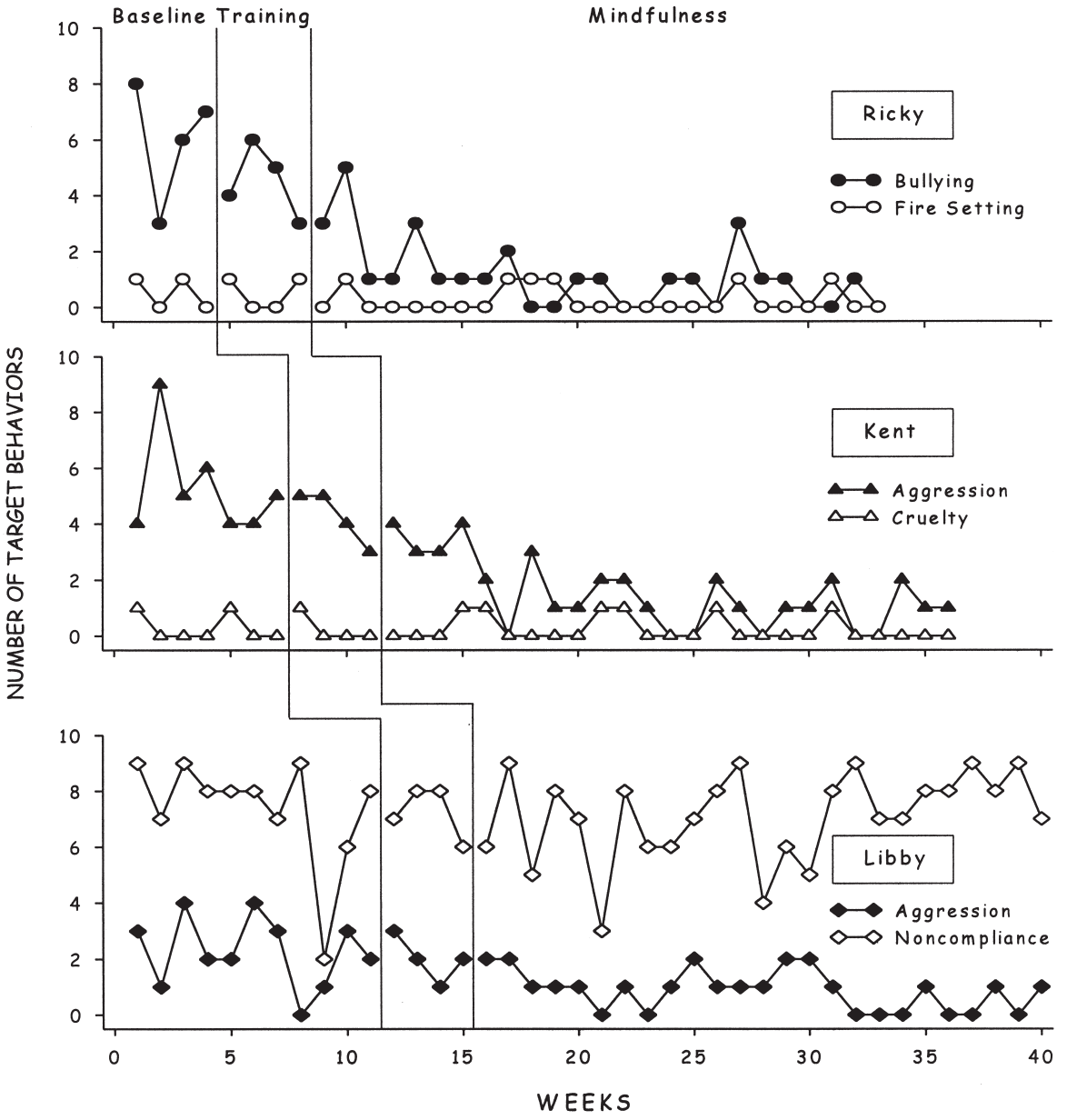

FIGURE 1. Mean weekly occurrences of aggression or bullying and the target collateral behavior for each individual during baseline, mindfulness training, and mindfulness practice.

more consistently; (b) they experienced a number of collateral benefits of using mindfulness (e.g., relaxing, reducing impulsive behavior, being in better control of their own behavior, being focused on what they were doing, and sleeping better); and (c) they could continue using the intervention in the absence of formal training or retraining by the therapist.

DISCUSSION

Children and adolescents with conduct disorders present enormous therapeutic challenges because they manifest diverse maladaptive behaviors that have multifactorial etiologies. Further, the trajectory of overt and covert manifestation of conduct problems varies with changing risk and protective factors, developmental pathway, parental psychopathology, maternal parenting, and ongoing biological and social transactions (McMahon & Frick, 2005; Sameroff, 1995, 2004). Even though a plethora of interventions have been developed, little in the research literature enables therapists to predict which intervention will work with a specific adolescent. The chance of successfully intervening with adolescents with conduct disorder is increased severalfold by using multifactorial and multisystem interventions

TABLE 1
Phase Mean Responses for Each Participant Behavior

	Ricky		Kent		Libby	
Phase	**Bullying**	**Fire setting**	**Aggression**	**Cruelty**	**Aggression**	**Noncompliance**
Baseline	6.00	0.50	5.29	0.29	2.27	7.36
Training	4.50	0.50	4.25	0.25	2.00	7.25
Practice	1.12	0.24	1.48	0.24	0.88	7.08

(Henggeler, Schoenwald, Rowland & Cunningham, 2002; McMahon & Kotler, 2006). However, not all families and their children with conduct disorders have access to these therapies.

Therefore, there is a continuing need to develop and evaluate single-component self-management strategies that the adolescents can use to control specific aspects of their behavior. Cognitive–behavioral approaches, especially skills training programs, have provided the best example of this kind of approach, although in most studies a group training format has been used (Bennett & Gibbons, 2000; Nangle, Erdley, Carpenter, & Newman, 2002). Although they may be very effective in the short term, these approaches have not demonstrated a lasting effect on the behavior of children and adolescents with conduct problems. One way of improving the long-term effectiveness of cognitive–behavioral strategies may be to teach children with conduct disorders a specific skill that can enable them to self-regulate a single or a small number of particular behaviors in specific settings. The onus of change is then on the adolescent rather than on an external agency, such as parents, teachers, or therapists. How to motivate an adolescent with conduct problems to self-regulate his or her behavior is, of course, an entirely different matter.

The data from our study suggest that when adolescents choose to change their behavior, whether reluctantly or otherwise, they can indeed self-regulate specific behaviors in settings of their choice, and for as long as they wish. The adolescents in our study chose to engage in mindfulness training and practice because they did not want to be expelled from school, thereby further aggravating their already troubled relationship with their parents. Although they were reluctant to engage in any therapy, when given different options they chose to learn mindfulness as a self-regulatory strategy to control their aggressive behavior. Furthermore, they chose not to use the same or different methods to self-control other behaviors that are deemed unacceptable in the community but that were not seen to increase the risk of expulsion from school (e.g., fire setting, cruelty to animals).

In accord with the principles of recovery in mental health, the therapist enabled the adolescents to take control of their recovery by assuming responsibility for all their behaviors, both adaptive and maladaptive. Instead of adopting a "victim mentality"—that they were not understood by their parents, peers, and teachers—they assumed control of their situation and learned to self-regulate their aggression enough to complete middle school. The adolescents' self-reports about the positive collateral effects of practicing mindfulness meditation is in accord with previous research findings with children with ADHD (e.g., Harrison, Manocha, & Rubia, 2004).

This study adds to the growing literature on mindfulness as a therapeutic modality (Baer, 2003; Germer, Siegel & Fulton, 2005; Hayes, Follette, & Linehan, 2004; Singh, Winton, et al., 2006). In particular, our study provides further evidence for the utility of *Meditation on the Soles of the Feet* as a simple mindfulness technique that can be used to self-regulate one's behavior in highly negative arousal situations (Singh et al., 2003, in press). This technique teaches an individual to swiftly change the focus of attention from an emotionally arousing thought, event, or situation to an emotionally neutral part of the body, the soles of the feet. It enables the individual to stop, focus the mind on the body, calm down, and then make a choice about how to react to the thought, event, or situation that triggered the arousal response. Once the procedure is mastered to the point of automaticity, the individual can use it in multiple contexts without further training.

Our study provides initial data on the use of mindfulness by adolescents with conduct disorders, but it is not without limitations. First, the adolescents were referred for intervention because they were likely to be expelled if they could not control some of their maladaptive behaviors (e.g., aggression, bullying). The threat of expulsion may have served as a powerful incentive for them to exercise self-control. Although such a response is not a finding common to adolescents with conduct disorder (Kazdin, 1997), it must be considered a possibility and thus a limitation in generalizing from this study. Second, because of the nature of the intervention, treatment fidelity data are necessarily based on the adolescents' self-reports and can be correlated only to the outcomes. Objective treatment fidelity data are an unresolved issue in the self-management research literature. However, parallel literature with children strongly indicates that children with ADHD can use mindfulness meditation to improve their ADHD behavior, self-esteem, and relationship quality (Harrison et al., 2004). Third, the nonrandom participant sample used within the context of a multiple-

baseline design was small. Future research, using a randomized group design with adequate control conditions, is needed to determine whether the effects found in this study are robust and can be replicated.

The mechanism by which mindfulness acts to change an individual's behavior has been explained mainly in wisdom texts (e.g., Easwaran, 2005; Gunaratana, 2002), but there is an emergent scientific literature suggesting that the changes could be linked to brain functioning and neural plasticity (Davidson, Jackson, & Kalin, 2000). In a recent study, for example, Davidson et al. (2003) reported both immediate and long-term effects of training in mindfulness meditation techniques on brain and immune function, suggesting demonstrable impact of mindfulness training on brain functioning. However, given the early stage of research in this area, we must be cautious in extrapolating from changes in discrete, narrowly defined behaviors associated with mindfulness interventions to impute changes in the organism at the biological or brain level.

Mindfulness is not a magic bullet therapy; it does not provide the solution for all conditions of all people. Like all therapies, it will be effective with only some individuals. Although a mindfulness procedure may appear relatively easy to master, its practice takes sustained and disciplined effort. In addition, the individual needs to be motivated to learn and practice mindfulness in a manner that is not perfunctory. Further, the therapist is an important variable in outcomes for the individual seeking mindfulness training (Segal, Williams, & Teasdale, 2002). In our own work, we have anecdotal evidence that therapists inexperienced in mindfulness meditation are not as effective as experienced therapists. This comports with similar findings from the parent training literature attesting to the fact that experienced therapists are better than inexperienced therapists at maintaining parents in parent management training programs (Frankel & Simmons, 1992).

In summary, our data show that a mindfulness training procedure, *Meditation on the Soles of the Feet*, was effective in assisting three adolescents with conduct disorder to self-regulate their aggressive behavior and maintain a greatly reduced frequency of aggression at school for more than 1 year, until they graduated from middle school. *Meditation on the Soles of the Feet* appears to allow individuals to rapidly shift the focus of their attention from an emotionally charged situation to a neutral part of their body, thus providing greater awareness of the present moment and allowing them to avoid a verbally or physically aggressive response.

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