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*Clinical Case Studies* 2007; 6; 64

DOI: 10.1177/1534650105275986

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# Application of Behavioral Activation Treatment for Depression to an Adolescent With a History of Child Maltreatment

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Behavioral Activation Treatment for Depression (BATD) is a promising new intervention that has received preliminary empirical support with adult samples. However, researchers have not yet examined the application of BATD to children and adolescents. The authors describe implementation of BATD with a 17-year-old girl in foster care who endorsed several symptoms of depression and reported a low rate of potentially reinforcing life events. Over the course of treatment, patient adherence to the BATD protocol was associated with an increased rate of reinforcing life events that coincided with decreased symptoms of depression. The authors discuss special considerations (e.g., parental involvement, supplemental activity selection methods) that are unique to the use of BATD with children and adolescents and offer recommendations for researchers and clinicians.

**Keywords:** *behavioral activation; treatment; depression; adolescent; child neglect*

## 1 Theoretical and Research Basis

Behavioral activation is a structured, therapeutic process that aims to increase healthy activities that yield reinforcing consequences and corresponding improvements in mood and quality of life (Hopko, Lejuez, Ruggiero, & Eifert, 2003). Activation-based interventions exist in several formats and have a lengthy history in the theoretical and research literatures. However, there is a paucity of research on efficacy and effectiveness of this approach with children and adolescents despite recent growth in popularity and empirical

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**Authors' Note:** Portions of this article were presented at the 27th annual meeting of the Association for Behavior Analysis. Correspondence concerning this article should be addressed to Kenneth J. Ruggiero, National Crime Victims Research and Treatment Center, Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina, P.O. Box 250852, 165 Cannon St., Charleston, SC 29425.

support. Information also is limited on use of behavioral activation strategies in the context of broader interventions that address comorbidity. In this article, we highlight some of the unique challenges that clinicians may face when utilizing activation-based interventions with adolescents and illustrate the integration of supplementary procedures to address secondary outcomes. Before presenting details of this case, we refer to the theoretical and empirical literatures that guided our case conceptualization and treatment planning.

## **Theoretical Foundations of Behavioral Activation Treatment for Depression (BATD)**

Contemporary activation-based interventions can be traced back to early behavioral models of depression. These models generally hypothesized that depressive affect may be caused by gradual or abrupt decreases in reinforcement for healthy (i.e., nondepressive) behavior (Ferster, 1973; Lewinsohn, 1974; Skinner, 1953). Other theorists expanded this model to consider behavioral skill deficits and/or punishing events as potentially causative in this process (Lewinsohn, 1974; Lewinsohn, Antonuccio, Breckenridge, & Teri, 1984). For example, a functional analytic view hypothesizes that depressed behavior is maintained via some combination of reinforcement for depressed behavior and punishment and/or a lack of reinforcement for healthy alternatives (Ferster, 1973; Kazdin, 1977). For comprehensive accounts of the historical roots of behavioral activation, refer to Hopko, Lejuez, Ruggiero, and Eifert (2003); Jacobson, Martell, and Dimidjian (2001); and Martell, Addis, and Jacobson (2001).

BATD (Lejuez, Hopko, & Hopko, 2001, 2003) is a contemporary activation-based intervention largely grounded in behavioral matching theory (Herrnstein, 1970; McDowell, 1982). Matching theory, applied to depression, predicts that the time and effort allocated by an individual to depressed behavior relative to nondepressed (i.e., healthy) behavior is proportional to the relative value of reinforcement obtained for each type of behavior (i.e., depressed vs. nondepressed). Thus, for some individuals, likelihood of depressed behavior may be increased when the value (e.g., accessibility, duration, immediacy) of reinforcement for depressed behavior is increased as a result of environmental change (e.g., increased reassurance and support provided by peers for depressed behavior). Similarly, likelihood of depressed behavior also may be increased when the value of reinforcement for healthy behavior is decreased as a result of environmental change (e.g., loss of a spouse with whom one regularly engaged in pleasant activities). This theoretical model, when applied to treatment, predicts that depressed mood can be treated effectively with interventions that increase the accessibility of reinforcement via healthy activities and/or facilitate decreases in reinforcement for depressed behavior.

## **Relevant Empirical Literature**

The empirical literature has supported a matching-theory model of behavior under a wide variety of conditions (see de Villiers, 1977; McDowell, 1982). Many laboratory-based studies have provided support for this model, as have several studies examining matching theory as applied to natural human environments (see McDowell, 1988). Other relevant

research has suggested further support for the utility of this model by documenting relations between pleasant activities and depressed mood. For example, Lewinsohn and Libet (1972) identified several activities on the Pleasant Events Schedule (PES; MacPhillamy & Lewinsohn, 1971) that had meaningful correlations with depressed mood. MacPhillamy and Lewinsohn (1974) reported that activity levels on the PES were lower for depressed than for nondepressed participants, as was reinforcement potential. Similarly, Lewinsohn and Amenson (1978) reported that depressed individuals, relative to nondepressed comparisons, endorsed a lower frequency of pleasant activities on the PES and a higher frequency of unpleasant events.

Early studies on relations between pleasant activities and depressed mood led to the development of several varieties of activation-based treatment, many of which have performed well in treatment-outcome investigations. Using a single-subject design, Harmon, Nelson, and Hayes (1980) found that depressed participants' activity levels (measured by the PES) improved by 120% relative to baseline levels when they were prompted intermittently via a portable timer (on a Variable-Interval 1-hour schedule) to record their current activity and experience of pleasure. Zeiss, Lewinsohn, and Muñoz (1979) found that significant improvements in depression occurred following a brief 12-session intervention designed to increase patients' frequencies of pleasant activities and enjoyment of potentially pleasant activities. Findings were maintained at 1- and 2-month follow-up and were statistically similar to two comparison interventions, one that targeted interpersonal skills and another that targeted cognitions. Jacobson et al. (1996) conducted a randomized controlled component analysis of cognitive-behavioral treatment for depression (Beck, Rush, Shaw, & Emery, 1979) and found that participants' symptom change in the behavioral activation condition (i.e., Beck Depression Inventory, BDI, scores of 29.3, 9.1, and 8.5 at pretreatment, posttreatment, and 6-month follow-up) was similar to symptom change in the full cognitive-behavioral intervention (BDI scores of 29.8, 10.1, and 10.3).

Outcome data specifically for the BATD protocol (Lejuez et al., 2003) also are promising. First, in a series of case studies on BATD conducted within a community-based mental health clinic, Lejuez, Hopko, LePage, Hopko, and McNeil (2001) reported clinically meaningful symptom change among adults as a function of treatment, with mean pretreatment to posttreatment BDI scores being 29.7 and 8.7, comparable to data reported by Jacobson et al. (1996). More recently, Hopko and colleagues documented successful implementation of BATD in treating coexisting anxiety and depressive symptoms (Hopko, Lejuez, & Hopko, 2004) and suicidal ideation in a patient with borderline personality disorder (Hopko, Sanchez, Hopko, Dvir, & Lejuez, 2003) as well as the utility of the intervention as an adjunct to pharmacotherapy (Hopko, Lejuez, McNeil, & Hopko, 1999) and as a primary-care intervention for depressed cancer patients (Hopko, Bell, Armento, Hunt, & Lejuez, in press). Finally, a recent randomized controlled pilot trial conducted in an inpatient psychiatric hospital revealed an effect size of .73 for BATD relative to a standard supportive intervention provided within the hospital (Hopko, Lejuez, LePage, McNeil, & Hopko, 2003). Clearly, initial data on BATD are promising, suggesting that a valuable next step is to examine its applicability to adolescents and in the context of broader treatment packages that address comorbidity. This case study permitted us to preliminarily address both of these issues.

## Alternative Approaches to Treatment

Although we chose to use BATD for this adolescent case, several alternative treatment approaches were available. A number of evidence-based interventions have been developed for use with maltreated children (e.g., Cohen, Deblinger, Mannarino, & Steer, 2004; Kolko, 1996; see Ruggiero, Morris, & Scotti, 2001). One of the major strengths of these interventions is the wide range of emotional and behavioral reactions that each is designed to address. For instance, the Trauma-Focused Cognitive Behavioral Therapy protocol developed by Cohen, Deblinger, Mannarino, and Steer (2004) includes components that are designed to target symptoms of posttraumatic stress and depressed mood, other forms of maltreatment-related anxiety and distress, and various forms of disruptive behavior. However, as in this particular case, children and adolescents who have a relatively narrow range of symptoms may proceed through treatment more rapidly if an idiographic approach is taken (i.e., with greater emphasis on procedures that directly target specific problem areas). A full case conceptualization (described below), which took into account the nature and range of presenting symptoms and corresponding environmental changes, led us to infer that a focus on depressive symptoms would best serve our patient.

Several alternative evidence-based cognitive and behavioral interventions also exist for adolescent depression (see Curry, 2001; Lewinsohn & Clarke, 1999; Reinecke, Ryan, & DuBois, 1998). These interventions have taken many different forms but are similar in a number of ways as well. For example, many include activation-based components as well as skills-oriented procedures (cf. Treatment for Adolescents with Depression Study, TADS, Team, 2004). For youth with significant skills deficits (e.g., problem solving, social skills), BATD may not have adequately addressed all needs relating to depressive symptoms, and an alternative intervention or supplementary intervention components may have been necessary. However, for the present case, skills deficits were not noted, and therefore we felt that an activation-based approach would be appropriate. In addition, we selected BATD specifically (rather than alternative activation-based approaches) because brevity of the BATD protocol allowed us sufficient opportunity to integrate secondary prevention components into a time-efficient treatment plan.

## 2 Case Presentation

Adrienne was a 17-year-old European American high school student referred for treatment to address symptoms of depression as well as difficulties in her relationship with her foster mother. She was socially pleasant and was of average intelligence. She lived with her foster mother and several younger children, all of whom were unrelated to Adrienne (two were foster children, two were the foster mother's biological children).

## 3 Presenting Complaints

Adrienne reported that her symptoms had worsened gradually during the few months prior to entering treatment. She added that positive interactions with her foster mother had

become less frequent and that she was frustrated by the restrictions placed upon her in the home environment. Her frequency of negative interactions with her foster mother had reportedly recently increased from approximately once per month to multiple times per week. Her primary stated goals upon entering treatment were to reduce her symptoms of depression and to increase positive interactions with her foster mother. Adrienne had no prior history of treatment related to these concerns.

## 4 History

As a child, Adrienne lived in a highly impoverished home environment where she periodically witnessed domestic violence between her biological parents and was emotionally and physically neglected. The nature of her emotional and physical neglect was such that basic needs relating to food, parental supervision, and medical care were not being met. For these reasons, she was removed from her biological parents' home and placed in foster care. Although parental rights of her biological parents were never terminated, all parties agreed that reunification with the biological family would not occur. Thus, she continued to have infrequent contact with her biological parents with whom she maintained satisfactory relationships.

At the time that she sought treatment, Adrienne had been living in her foster home for approximately 4 years. Her relationship with her foster mother historically was good but recently had begun to deteriorate. These relationship problems coincided, in part, with the foster mother's decision to become considerably more active in her work for a local charitable organization. As a result of such increased commitment, Adrienne often was expected to assist with volunteer efforts, to baby-sit the children more frequently and for longer periods, and to perform several new household chores in addition to her usual responsibilities.

Adrienne's medical and psychiatric histories were unremarkable. Because her biological parents were unavailable, details of her developmental and family history were limited.

## 5 Assessment

Prior to beginning treatment, Adrienne attended an initial assessment session. Her caseworker brought her to the session because her foster mother was unable to attend. A semi-structured interview examined presenting concerns, explored potential comorbidity, and assessed antecedents and consequences relevant to presenting problems. During the interview, she reported several symptoms of depression and expressed concern about verbal conflicts with her foster mother that had been escalating in frequency. When asked for details about her daily routine, Adrienne described that she typically had minimal time to herself, rarely spent time with friends after school, and had numerous household and babysitting responsibilities. Because victimization-related fear, delinquency, substance abuse, and cigarette use are well-established correlates of child maltreatment (e.g., Kilpatrick et al., 2000, 2003; Kilpatrick, Saunders, & Smith, 2003), these clinical problems also were assessed directly. No significant problems associated with any of these symptom domains were endorsed, although future risk was not ruled out, and risk-reduction strategies were integrated into the intervention.

Semistructured functional assessments (i.e., assessment of antecedents and consequences associated with clinical problems) also guided treatment decisions. Functional assessment information is provided below in the context of our case conceptualization. Prior to initiating BATD, the patient also was asked to complete two self-report forms: the BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Daily Activity Log (DAL; Lejuez et al., 2003, form 1).

The BDI is a 21-item self-report scale of depression typically used with older adolescents and adults. Each item consists of four response options (0-3), with a possible range of scores from 0 to 63. The BDI is widely researched and has well-established psychometric properties (Beck, Steer, & Garbin, 1988) including good concurrent validity and adequate discriminant validity between clinical and nonclinical samples. Adrienne's pretreatment BDI score was 13, which fell in the mild depression range according to Beck, Steer, and Garbin's (1988) empirically informed system of categorization.

The DAL is a 24-hour daily monitoring form on which patients record events and activities for a period of 1 week. Adrienne was asked to complete the DAL at the end of each day for a period of 1 week immediately prior to the first BATD session. Consistent with interview data, DAL data suggested that Adrienne had little opportunity for rewarding activities during the week. The completed DAL covered 152 hours (6.3 days) during which her activities were allocated roughly as follows: 50 hours of sleep (about 8 hours per day), 35 hours in school, 24 hours of chores and responsibilities unrelated to school (e.g., cleaning the house, chores for her foster mother), 22 hours of school-related and miscellaneous activities (e.g., homework, preparation for school and church, meals), and 21 hours of discretionary time. Perhaps most striking, of her 21 hours of discretionary time, none were used to communicate and/or visit with similar-age peers and nearly all were spent watching television and using the Internet. One hour was used to interact with adult neighbors, and 2 to 3 hours were used to entertain young children.

## 6 Case Conceptualization

Orthodox principles of operant psychology guided case conceptualization and bridged assessment and treatment. Primary goals for treatment were to reduce frequency with which verbal conflicts occurred between Adrienne and her foster mother and to reduce Adrienne's symptoms of depression. To maximize the likelihood that these goals would be met, it was important to identify the function of problem behavior (i.e., antecedents and consequences maintaining symptoms) as well as barriers to healthy alternatives. To this end, a semistructured functional assessment was conducted to identify circumstances under which verbal conflict occurred between Adrienne and her foster mother and to assess antecedents and consequences governing her choices when managing discretionary time.

Although it was difficult to identify specific circumstances that reliably predicted parent-child conflict, functional assessment yielded several consistent and useful pieces of information. First, the increased frequency of parent-child conflict was temporally connected to the foster mother's abrupt rise in volunteer activities after school hours. The foster mother no longer was consistently available in the afternoons and evenings, and her expectation was for Adrienne to be available to baby-sit the four younger children. Further, the foster

mother often complained that her increased workload was tiresome and asked Adrienne to assume responsibility for several new daily household tasks. This significant change in responsibilities dramatically reduced Adrienne's opportunities to engage in pleasurable activities after school hours and appeared to increase her tendency to challenge her foster mother. Second, parent-child conflict was proximally linked to unpredictable, uncontrollable, and/or short-notice requests to baby-sit or perform household tasks. For example, Adrienne stated that it was difficult to make after-school plans with friends because it often was unclear when the foster mother would request that she complete additional chores and/or baby-sit. She voiced this frustration on some occasions, but meaningful changes did not ensue. Third, Adrienne's unproductive choices during her discretionary time appeared, in part, to be the product of a lack of obtained reinforcement for healthy behavior. Several months earlier, Adrienne's schedule had been sufficiently flexible to permit her to make plans with peers on short notice and of uncertain duration. For example, if she wanted to go to a movie, the shopping mall, or a friend's house for a few hours on short notice, she typically was granted permission. However, these opportunities were no longer as predictable or controllable. Instead, Adrienne would wait to contact her friends until she was certain that a few hours of discretionary time were available. If her friends happened to be unavailable during those particular windows, she tended to choose a less pleasurable alternative activity. Over time, Adrienne was unsuccessful in many of her attempts to spend time with her friends after school hours (i.e., lack of obtained reinforcement and perhaps in some instances punishment for attempts to engage in healthy activities). Eventually, she stopped contacting her friends altogether and significantly reduced other healthy activities that she found pleasurable such as exercising, reading, and taking pictures of birds and animals.

Based on these observations, matching theory predicted that increased variety and accessibility of healthy, pleasurable activities would reinforce attempts to engage in such activities (e.g., contact peers via phone) and reduce symptoms of depression over time. Thus, it was important to address barriers to the availability of such activities and to ensure that a variety of healthy activities were accessed (relating to multiple life-goal domains) to guard against the risk that further changes in her environment would interfere with progress in treatment.

It is notable that other competing interpretations of Adrienne's presenting concerns could not be ruled out. For example, escalation of negative interaction patterns in the caregiver-adolescent relationship may have introduced cues associated with Adrienne's earlier experiences of child maltreatment with her biological family. Maltreatment-related cues, in turn, may have occasioned depressive symptoms as well as retaliatory negative interactions toward her caregiver. Further, given the mild severity of Adrienne's depressive symptoms and our limited administrations of the BDI, we could not rule out the possibility that the BDI was simply detecting mood instability and that symptoms would remit without intervention.

## **7 Course of Treatment and Assessment of Progress**

Treatment was administered by the first author who, at the time of treatment, was a graduate student trained in the provision of cognitive-behavior therapy. The intervention consisted of two initial sessions that were focused on improving parent-adolescent communication

patterns, followed by eight sessions of BATD—which also incorporated brief secondary prevention strategies to minimize risk for substance use and delinquency as Adrienne began to engage in new social activities. The foster mother attended the second session on parent-adolescent communication patterns but was unavailable for future sessions. However, she often was accessible by phone and assisted somewhat with treatment progress. Briefly, the initial two sessions involved detailed discussion of the extent and nature of Adrienne's household and babysitting responsibilities and addressed issues concerning the flexibility, predictability, and controllability of her schedule. Adrienne and her foster mother also described the high value they placed on their relationship, and discussed strategies for reducing frequency and intensity of verbal conflicts.

Between sessions 2 and 3, Adrienne completed the DAL (described previously). BATD was initiated in session 3. In the first BATD session, we reviewed the activity log and discussed ways that Adrienne might approach her discretionary time differently. Following the initial two sessions, her foster mother also had become more attentive to Adrienne's need for additional discretionary time and flexibility and facilitated a move in this direction via decreased home responsibilities. This enhanced the feasibility of BATD, and we used the remainder of the first BATD session to assess short- and long-term life goals (form 3; Lejuez et al., 2003) and identify potentially reinforcing activities (form 4 and supplementary open-ended interview questions; refer to Lejuez et al., 2001, for a detailed description of these forms). Based on assessment using forms 3 and 4, three feasible and pleasurable activities were prescribed for the following week and monitored with the Weekly Behavior Checkout (form 8). The three activities were (a) to make at least one phone call to at least one friend on each of 5 days, (b) to exercise for at least 30 minutes on each of 3 different days, and (c) to take one or more pictures of animals or natural settings on at least 1 day. These activities were selected because they were identified by Adrienne as pleasurable, were related to multiple life-goal domains, and were all clearly within household rules. Also, they had all been activities in which she had engaged at least once during the prior month, suggesting that likelihood for success was satisfactory.

At the beginning of the second BATD session, Adrienne reported that she had met all three prescribed goals. In addition, she described two meaningful conversations with friends with whom she did not typically contact outside of school. In subsequent sessions, we added new activities to the list based on prior assessment of pleasant activities (see Table 1). Brief secondary prevention strategies (described briefly below) also were integrated with activity planning to ensure that activities were consistent with life goals and did not significantly heighten vulnerability to substance use or delinquency (see Ruggiero, 2005), outcomes for which maltreated youth are at risk. Generally, Adrienne met most or all of her weekly activity goals. By the sixth BATD session, Adrienne had met 20 of her 23 weekly goals (87%), had regularly contacted at least three different friends, and, with her foster mother's permission, had the opportunity to periodically visit her closest friends. At the beginning of session 6, the BDI was readministered, and Adrienne's BDI score was 5 (pretreatment score was 13).

The final three BATD sessions (BATD sessions 6-8) focused on strengthening peer relationships by continuing to encourage after-school contact with a variety of similar-age peers. Emphasis on maintaining contacts with a variety of peers proved critical as halfway through treatment one of Adrienne's closest two peers became employed and began dating,

**Table 1**  
**Activity Log Through Week 4 of Behavioral Activation Treatment for Depression**

Activity	Week 1			Week 2			Week 3			Week 4				
	Ideal Goal	Goal	Goal	Goal	Goal	Goal	Goal	Goal	Goal	Goal	Goal			
	#	Time (minutes)	#	Time (minutes)	Do	#	Time (minutes)	Do	#	Time (minutes)	Do	#	Time (minutes)	Do
Exercise	3	30	3	30	3	3	30	0	3	30	6	3	30	2
Take pictures of animals or natural settings	1	UF	1	UF	1	1	UF	0	1	UF	2	1	UF	1
Phone a close friend	5	UF	5	UF	5	5	UF	7	5	UF	5	5	M	M
Read a book or magazine	2	15	2	15	5	2	15	5	2	15	3	2	15	6
Listen to music	5	60	5	60	7	5	60	7	5	60	5	5	60	5
Phone a similar-age peer who is not among your closest friends	3	UF										1	UF	2
Visit with a friend after school hours	2	UF										1	UF	3

Note: UF = until finished; M= mastery of activity, signaling patient's meeting of ideal activity goals on each of 3 consecutive weeks.

resulting in considerably decreased availability and social reinforcement. Had we limited social activity goals to the involvement of only one or two peers, the decreased availability of this particular peer might have been a significant setback. Instead, after this change in her friend's availability, Adrienne increased contact with other peers whom she had already been contacting regularly in line with her activity goals. On 26 of the final 28 days (93%) of activity monitoring, Adrienne contacted and/or visited peers who were not initially identified among her closest friends. Note that social skills training was not used to facilitate progress with social activities, whereas for some adolescents this may be necessary.

During the eighth and final session of BATD, Adrienne obtained a score of 2 on the BDI, meaningfully lower than her pretreatment score of 13 and slightly lower than her session 6 score. Further, she clearly recognized a connection between her depressive symptoms and daily routine, suggesting that her capacity to manage potential future instances of depressed mood might be meaningfully improved. For these reasons, we discontinued BATD after the eighth session. However, because Adrienne continued to have weekly contact with her caseworker in the building that housed the treatment facility, arrangements were made to monitor activities for 2 weeks after discontinuing BATD. Adrienne met 12 of 12 goals (exceeding 8 of them) during these final 2 weeks of monitoring, suggesting that gains were likely to be maintained without further clinician contact. Thus, we discontinued activity monitoring, and Adrienne's treatment file was closed soon thereafter.

As noted above, brief secondary prevention strategies also were integrated throughout the BATD protocol to minimize risk for substance use and delinquency. Child maltreatment is a risk factor for both of these outcomes (e.g., Kilpatrick et al., 2000, 2003), and peer delinquency and peer substance use are also strong risk factors for these outcomes (e.g., Dishion, Eddy, Haas, Li, & Spracklen, 1997; Dishion, Spracklen, Andrews, & Patterson, 1996; Wright & Pemberton, 2004). Therefore, it was important to be aware of such risks when setting activity goals, particularly goals for social activities that might bring the patient into contact with delinquent or substance-using peers (Ruggiero, 2005). For this case, psycho-education was used to address these risks in the context of life-goals assessment (during which Adrienne noted that it was important to her that she avoid circumstances that encourage substance use and delinquent behavior). Also, we explored potential risks for unhealthy or dangerous outcomes when new social goals were selected and role-played situations in which she might encounter unhealthy or dangerous circumstances. Throughout treatment, Adrienne noted that her social activities did not expose her to serious acts of delinquency or substance use.

## 8 Complicating Factors

Although this case was fairly straightforward, there were several complicating factors that needed to be addressed in treatment. First, parent involvement was suboptimal. Thus, activities periodically were selected before obtaining permission from Adrienne's foster mother (e.g., invite a friend over to the house). Such goals were contingent upon parent approval and were to be stricken from the list in the event Adrienne's foster mother disapproved. Fortunately, the foster mother approved all activities chosen in this manner. Thus, although this issue was somewhat distracting, it ultimately did not alter the course of treatment.

Second, because the PES and form 4 of the BATD manual were designed for adults, these measures do not include a sufficient range of developmentally appropriate activities for children and adolescents. To address this limitation with the present case, open-ended questions about hobbies, social activities, and other potentially pleasurable life events were incorporated into the interview assessment. This limitation also could have been addressed with the use of life activities questionnaires or reinforcer checklists designed specifically for children or adolescents (e.g., Adolescent Reinforcement Survey Schedule, Children's Reinforcement Survey Schedule, School Reinforcement Survey Schedule).

Third, in this case, transportation difficulties limited goal selection and likely would have been a limiting factor for many other children and adolescents. Because four additional children lived in this single-parent household, lack of transportation was a potential obstacle on several occasions. For example, during the course of treatment, there were some occasions on which Adrienne visited a friend's house when it was necessary for her foster mother to provide this transportation. Fortunately, there were several other occasions on which Adrienne's friends had their own transportation, thereby enhancing the feasibility of after-school social activities.

## 9 Managed Care Considerations

Although more data as to efficacy, effectiveness, and efficiency of BATD are needed, the time-efficient, flexible, and uncomplicated structure of BATD may make it an extremely practical intervention in the era of managed care.

## 10 Follow-Up

Shortly after treatment was terminated, the patient enlisted in the military, as she had been planning. For this reason, follow-up data were not obtained, with the exception of the two posttreatment weeks of activity monitoring described above.

## 11 Treatment Implications of the Case

Although this study was limited by our inability to rule out competing conceptualizations of etiology and treatment gains, as noted above, we also feel that it has several implications. Perhaps the most important implication of this case study is that activation-based interventions may be a viable treatment option for depressed adolescents, as the flexibility of the BATD protocol appeared to facilitate positive treatment outcome. Successful implementation occurred despite encountering several challenges that are relatively unique to adolescents (e.g., need for parental permission, lack of transportation, pleasant events checklist with inadequate range of developmentally appropriate activities). Emphasis on social activities was useful for this case and highlights the potential importance of considering peer relationships when implementing BATD with any adolescent case. An adolescent's social environment would seem to play a critical role in the maintenance of treatment

gains via social reinforcement for healthy (or unhealthy) activities. Thus, clinicians should strategically assist adolescents in choosing activities that utilize the peer network to maintain healthy behavior over time.

Only eight sessions were needed to fully implement the BATD protocol, suggesting that clinicians may be able to apply BATD with adolescents as efficiently as with adults. Future research is needed to examine efficacy, effectiveness, and efficiency of BATD with adolescents. In addition, future research is needed to examine the processes and mechanisms associated with symptom change in the context of BATD (cf. Doss, 2004). Finally, as demonstrated by Hopko and colleagues (Hopko, Bell, et al., 2004; Hopko, Lejuez, et al., 2004; Hopko, Lejuez, LePage, et al., 2003; Hopko, Lejuez, Ruggiero, et al., 2003; Hopko, Sanchez, et al., 2003) and as addressed elsewhere (Ruggiero, 2005), this case study illustrated that the structure of BATD permits the integration of secondary treatment components to address comorbidity at the level of intervention and/or secondary prevention. Importantly, rather than setting aside isolated sessions at the beginning or end of treatment to address risk for substance abuse and delinquency, for this case we were able to address these issues on an ongoing basis in the context of BATD.

## 12 Recommendations to Clinicians

In our experience, we have found the straightforward, brief structure of BATD to be particularly appealing to patients and to permit efficient dissemination and training to practitioners. Thus, if future research continues to support the use of BATD with depressed adults, it will be important to ensure that clinicians and students who work with this population have access to appropriate training in this treatment model via workshops, expert consultation, Web-based education and consultation, and other training opportunities. Similarly, if future research supports the use of BATD with depressed adolescents and in the context of broader treatment for comorbidity, it may offer a promising alternative to existing interventions with these populations. As noted above, several alternative evidence-based cognitive and behavioral interventions exist for adolescent depression (see Curry, 2001; Lewinsohn & Clarke, 1999; Reinecke et al., 1998), and clinicians should weigh the strengths and limitations of each when identifying the optimal approach for their patient.

Peer delinquency and peer substance use are among the strongest predictors of adolescents' own risk for delinquent behavior and substance abuse (e.g., Dishion et al., 1995, 1997; Wright & Pemberton, 2004). For this reason, it is critical that clinicians consider these issues when implementing BATD with adolescents, particularly when social activities are included in goal setting and/or when adolescents have a history of violent victimization (which also is associated with increased risk for delinquency and substance abuse). Clinicians can attempt to address this, in part, via psycho-education that aims to reduce risk for these outcomes. However, risk also should be considered and discussed during the goal selection process of BATD to ensure that adolescents are satisfactorily aware of the potential short- and long-term consequences of delinquency and substance use and that they have the skills to appropriately manage a situation in which they are pressured to use substances or commit a delinquent offense.

For future research with this population, we recommend use of more rigorously controlled single-case design studies as well as randomized controlled trials that examine efficacy,

effectiveness, efficiency, and cost-effectiveness as well as processes and mechanisms associated with symptom change (Doss, 2004). It will also be important for future work to determine the appropriateness of activation-based interventions for younger adolescents, preadolescent children, and adolescents with more severe levels of depressive symptoms. Pleasant events or reinforcement measures should be developed or adapted from studies with youth to ensure that a sufficiently wide range of developmentally appropriate activities is discussed when delivering BATD to adolescents and children. Also, with younger adolescents and preadolescent children, it likely will be necessary for parents to assume greater involvement in goal selection than that which occurred for the present case. For preadolescent children, pleasurable joint parent-child activities may receive greater emphasis in goal selection. Finally, for reasons described earlier, we recommend use of functional assessment to determine the appropriateness of BATD (or other intervention) before implementing it with any adult, adolescent, or child.

## References

- Beck, A. T., Rush, A. J., Shaw, B. J., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford.
- Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*, 77-100.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.
- Cohen, J. A., Deblinger, E., Mannarino, A. P., & Steer, R. (2004). A multisite, randomized controlled trial for sexually abused children with PTSD symptoms. *Journal of the American Academy of Child & Adolescent Psychiatry, 39*, 437-444.
- Curry, J. F. (2001). Specific psychotherapies for childhood and adolescent depression. *Biological Psychiatry, 49*, 1091-1100.
- de Villiers, P. (1977). Choice in concurrent schedules and a quantitative formulation of the law of effect. In W. K. Honig & J. E. R. Staddon (Eds.), *Handbook of operant behavior* (pp. 233-287). Englewood Cliffs, NJ: Prentice Hall.
- Dishion, T. J., Eddy, J. M., Haas, E., Li, F., & Spracklen, K. (1997). Friendships and violent behavior during adolescence. *Social Development, 6*, 207-223.
- Dishion, T. J., Spracklen, K. M., Andrews, D. W., & Patterson, G. R. (1996). Deviancy training in male adolescent friendships. *Behavior Therapy, 27*, 373-390.
- Doss, B. D. (2004). Changing the way we study change in psychotherapy. *Clinical Psychology: Science and Practice, 11*, 368-386.
- Ferster, C. B. (1973). A functional analysis of depression. *American Psychologist, 28*, 857-870.
- Harmon, T. M., Nelson, R. O., & Hayes, S. C. (1980). Self-monitoring of mood versus activity by depressed clients. *Journal of Consulting and Clinical Psychology, 48*, 30-38.
- Herrnstein, R. J. (1970). On the law of effect. *Journal of the Experimental Analysis of Behavior, 13*, 243-266.
- Hopko, D. R., Bell, J. L., Armento, M. E. A., Hunt, M. K., & Lejuez, C. W. (in press). *Behavior therapy for depressed cancer patients in primary care*. Psychotherapy: Theory, Research, Practice, Training.
- Hopko, D. R., Lejuez, C. W., & Hopko, S. D. (2004). Behavioral activation as an intervention for co-existent depressive and anxiety symptoms. *Clinical Case Studies, 3*, 37-48.
- Hopko, D. R., Lejuez, C. W., LePage, J., McNeil, D. W., & Hopko, S. D. (2003). A brief behavioral activation treatment for depression: A randomized pilot trial within an inpatient psychiatric hospital. *Behavior Modification, 27*, 458-469.
- Hopko, D. R., Lejuez, C. W., McNeil, D. W., & Hopko, S. D. (1999, June). *A brief behavioral activation treatment for depression: An adjunct to pharmacotherapy*. Poster presented at the 3rd International Conference on Bipolar Disorder, Pittsburgh, PA.

- Hopko, D. R., Lejuez, C. W., Ruggiero, K. J., & Eifert, G. (2003). Contemporary behavioral activation treatments for depression: Procedures, principles, and progress. *Clinical Psychology Review, 23*, 699-717.
- Hopko, D. R., Sanchez, L., Hopko, S. D., Dvir, S., & Lejuez, C. W. (2003). Behavioral activation and the prevention of suicidal behaviors in patients with borderline personality disorder. *Journal of Personality Disorders, 17*, 460-478.
- Jacobson, N. S., Dobson, K. S., Truax, P. A., Addis, M. E., Koerner, K., Gollan, J. K., et al. (1996). A component analysis of cognitive-behavioral treatment for depression. *Journal of Consulting and Clinical Psychology, 64*, 294-304.
- Jacobson, N. S., Martell, C. R., & Dimidjian, S. (2001). Behavioral activation treatment for depression: Returning to contextual roots. *Clinical Psychology: Science and Practice, 8*, 255-270.
- Kazdin, A. E. (1977). Assessing the clinical or applied importance of behavior change through social validation. *Behavior Modification, 1*, 427-452.
- Kilpatrick, D. G., Acierno, R., Saunders, B., Resnick, H. S., Best, C. L., & Schnurr, P. P. (2000). Risk factors for adolescent substance abuse and dependence: Data from a national sample. *Journal of Consulting and Clinical Psychology, 68*, 19-30.
- Kilpatrick, D. G., Ruggiero, K. J., Acierno, R. E., Saunders, B. E., Resnick, H. S., & Best, C. L. (2003). Violence and risk of PTSD, major depression, substance abuse/dependence, and comorbidity: Results from the National Survey of Adolescents. *Journal of Consulting and Clinical Psychology, 71*, 692-700.
- Kilpatrick, D. G., Saunders, B. E., & Smith, D. W. (2003). *Research in brief: Prevalence and consequences of child victimization: Results from the National Survey of Adolescents*. Washington, DC: National Institute of Justice.
- Kolko, D. (1996). Individual cognitive behavioral treatment and family therapy for physically abused children and their offending parents: A comparison of clinical outcomes. *Child Maltreatment, 1*, 322-342.
- Lejuez, C. W., Hopko, D. R., & Hopko, S. D. (2001). A brief behavioral activation treatment for depression: Treatment manual. *Behavior Modification, 25*, 255-286.
- Lejuez, C. W., Hopko, D. R., & Hopko, S. D. (2003). *The brief behavioral activation treatment for depression (BATD): A comprehensive patient guide*. Boston: Pearson Custom Publishing.
- Lejuez, C. W., Hopko, D. R., LePage, J. P., Hopko, S. D., & McNeil, D. W. (2001). A brief behavioral activation treatment for depression. *Cognitive and Behavioral Practice, 8*, 164-175.
- Lewinsohn, P. M. (1974). A behavioral approach to depression. In R. M. Friedman & M. M. Katz (Eds.), *The psychology of depression: Contemporary theory and research* (pp. 157-185). New York: John Wiley.
- Lewinsohn, P. M., & Amenson, C. S. (1978). Some relations between pleasant and unpleasant mood-related events and depression. *Journal of Abnormal Psychology, 87*, 644-654.
- Lewinsohn, P. M., Antonuccio, D. O., Breckenridge, J. S., & Teri, L. (1984). *The "coping with depression" course*. Eugene, OR: Castalia.
- Lewinsohn, P. M., & Clarke, G. N. (1999). Psychosocial treatments for adolescent depression. *Clinical Psychology Review, 19*, 329-342.
- Lewinsohn, P. M., & Libet, J. (1972). Pleasant events, activity schedules, and depressions. *Journal of Abnormal Psychology, 79*, 291-295.
- MacPhillamy, D. J., & Lewinsohn, P. M. (1971). *Pleasant events schedule*. Eugene, OR: University of Oregon.
- MacPhillamy, D. J., & Lewinsohn, P. M. (1974). Depression as a function of levels of desired and obtained pleasure. *Journal of Abnormal Psychology, 83*, 651-657.
- Martell, C. R., Addis, M. E., & Jacobson, N. S. (2001). *Depression in context: Strategies for guided action*. New York: Norton.
- McDowell, J. J. (1982). The importance of Herrnstein's mathematical statement of the law of effect for behavior therapy. *American Psychologist, 37*, 771-779.
- McDowell, J. J. (1988). Matching theory in natural human environments. *The Behavior Analyst, 11*, 95-109.
- Reinecke, M. A., Ryan, N. E., & DuBois, D. L. (1998). Cognitive-behavioral therapy of depression and depressive symptoms during adolescence: A review and meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry, 37*, 26-34.
- Ruggiero, K. J. (2005). *Behavioral Treatment for Trauma-Exposed Adolescents (BT-TEA): Treatment manual*. Charleston, SC: Medical University of South Carolina, National Crime Victims Research and Treatment Center.

- Ruggiero, K. J., Morris, T. L., & Scotti, J. R. (2001). Treatment for children with posttraumatic stress disorder: Current status and future directions. *Clinical Psychology: Science and Practice*, 8, 210-227.
- Skinner, B. F. (1953). *Science and human behavior*. New York: Free Press.
- Treatment for Adolescents with Depression Study (TADS) Team. (2004). Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: Treatment for Adolescents with Depression Study (TADS) randomized controlled trial. *Journal of the American Medical Association*, 292, 807-820.
- Wright, D., & Pemberton, M. (2004). *Risk and protective factors for adolescent drug use: Findings from the 1999 National Household Survey on Drug Abuse* (DHHS Pub. No. SMA 04-3874, Analytic Series A-19). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies.
- Zeiss, A. M., Lewinsohn, P. M., & Muñoz, R. F. (1979). Nonspecific improvement effects in depression using interpersonal skills training, pleasant activity schedules, or cognitive training. *Journal of Consulting and Clinical Psychology*, 47, 427-439.

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