137. Phillips KA, Dwight MM, McElroy SL. Efficacy and safety of fluvoxamine in body dysmorphic disorder. J Clin Psychiatry 1998;59:165–71.
138. Perugi G, Giannotti D, Di Vaio S, et al. Fluvoxamine in the treatment of body dysmorphic disorder (dysmorphophobia). Int Clin Psychopharmacol 1996;11: 247–54.
139. Phillips KA. Pharmacologic treatment of body dysmorphic disorder. Psychopharmacol Bull 1996;32:597–605.
140. Phillips KA, McElroy SL, Dwight MM, et al. Delusionality and response to open-label fluvoxamine in body dysmorphic disorder. J Clin Psychiatry 2001;62: 87–91.
141. Albertini RS, Phillips KA, Guevremont D. Body dysmorphic disorder in a young child [letter]. J Am Acad Child Adolesc Psychiatry 1996;35:1425–6.
142. el-Khatib HE, Dickey TO. Sertraline for body dysmorphic disorder. J Am Acad Child Adolesc Psychiatry 1995;34:1404–5.
143. Heimann SW. SSRI for body dysmorphic disorder. J Am Acad Child Adolesc Psychiatry 1997;36:868.
144. Sondheimer A. Clomipramine treatment of delusional disorder-somatic type. J Am Acad Child Adolesc Psychiatry 1988;27:188–92.
145. US Food and Drug Administration: antidepressant use in children, adolescents, and adults. 2010. Available at: http://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm096273.htm. Accessed January 6, 2011.
146. Phillips KA, Kelly MM. Suicidality in a placebo-controlled fluoxetine study of body dysmorphic disorder. Int Clin Psychopharmacol 2009;24:26–8.
147. Tignol J, Biraben-Gotzamanis L, Martin-Guehl C, et al. Body dysmorphic disorder and cosmetic surgery: evolution of 24 subjects with a minimal defect in appearance 5 years after their request for cosmetic surgery. Eur Psychiatry 2007;22:520–4.

Cognitive-Behavioral Therapy for Externalizing Disorders in Children and Adolescents

John E. Lochman, PhD, ABPP*, Nicole P. Powell, PhD, MPH, Caroline L. Boxmeyer, PhD, Luis Jimenez-Camargo, MA

KEYWORDS
• Cognitive-behavioral therapy • Oppositional defiant disorder
• Conduct disorder

This article describes the use of cognitive and behavioral therapy (CBT) strategies with children and adolescents with externalizing disorders. The externalizing disorders that are the focus of this article include conduct disorder (CD) and oppositional defiant disorder (ODD). CD is a repetitive and persistent pattern of behavior that violates societal norms or the basic rights of others,[1] covering 4 symptom areas: (1) aggressive behavior that threatens or causes physical harm to other people or animals (eg, bullies, threatens or intimidates others; this symptom area typically coincides with most forms of CD); (2) nonaggressive conduct that causes property loss or damage (eg, fire-setting); (3) deceitfulness or theft (eg, breaking into someone's house or car); and (4) serious violation of rules (eg, truancy). To be diagnosed, at least 3 of 15 possible symptoms must have been displayed during the previous 12 months. Childhood-onset CD is differentiated from adolescent-onset when at least one of the behavioral characteristics is evident before age 10. However, if criteria are met for CD and no symptoms are present before age 10, the child is classified adolescent-onset type.

ODD is defined as a recurrent pattern of negativistic, defiant, disobedient, and hostile behavior toward authority figures that persists for at least 6 months and is characterized by the frequent occurrence of at least 4 of the following behaviors: losing temper, arguing with adults, actively defying or refusing to comply with requests or rules of adults, deliberately doing things that will annoy other people, blaming others

Department of Psychology, Center for the Prevention of Youth Behavior Problems, The University of Alabama, 200 Hackberry Lane, 101 McMillan Building, PO Box 870348, Tuscaloosa, AL 35487-0348, USA
* Corresponding author.
E-mail address: jlochman@ua.edu

Child Adolesc Psychiatric Clin N Am 20 (2011) 305–318

for his or her own mistakes or misbehavior, being touchy or easily annoyed by others, being angry and resentful, or being spiteful or vindictive.

CONTEXTUAL SOCIAL-COGNITIVE MODEL

The contextual social-cognitive model that serves as the basis of our Anger Coping[2] and Coping Power[3] programs has been based on empirically identified risk factors that predict children's antisocial behavior.[4] As children develop, they can begin to display a progressively larger set of risk factors, increasing the probability that they will eventually display severe antisocial behavior. These risk factors can be conceptualized as falling within 5 categories: biologic and temperamental child factors, family context, neighborhood context, peer context, and later-emerging child factors involving their social cognitive processes and related emotional regulation abilities.

Biologic and Temperament Factors

Aggression is often the result of interactions between child risk factors and environmental factors, in a diathesis-stress framework. Thus, risk factors such as birth complications, genetic loading, cortisol reactivity, testosterone, abnormal serotonin levels, and temperament all contribute to children's conduct problems, but often only when environmental factors such as harsh parenting, interparental violence, or low socioeconomic status are present. For example, some male children have been found to have a gene that expresses only low levels of MAOA (monoamine oxidase A) enzyme. MAOA metabolizes and gets rid of excess neurotransmitters, including serotonin, norepinephrine, epinephrine, and melatonin. Low MAOA leads to violent behavior, but only if children were maltreated—an indicator of diathesis-stress.[5]

Community and Neighborhood Contextual Factors

Neighborhood environments have also been found to be risk factors for aggression and delinquency, over and above the variance accounted for by family characteristics. High neighborhood crime rates, low social cohesion, and neighborhood disadvantage have been found to predict children's beliefs about aggression and their disruptive and aggressive behavior (eg, see Guerra and colleagues[6]), especially proactive aggressive behavior.[7] Neighborhood effects can begin to create heightened risk during middle childhood,[8] as children become more independent in moving around their community and become more directly exposed to community risks. Early onset of aggression and violence has been associated with neighborhood disorganization and poverty, partly because children who live in poor and disorganized neighborhoods are likely to have less supervision and engage in more risk-taking behaviors.

Family Contextual Factors

There are a wide array of factors in the family that can affect child aggression, ranging from poverty to more general stress and discord within the family. Children's aggression has been linked to family background factors such as parent criminality, substance use, depression, poverty, marital conflict, stressful life events, and single and teenage parenthood.[9,10] All of these family risk factors intercorrelate, especially with socioeconomic status,[9] and can influence child behavior through their effect on parenting processes. For example, aggressive marital conflict influences maternal harsh punishment, which in turn predicts children's aggressive-disruptive behavior.[11]

noncompliance, unclear directions and commands, lack of warmth and involvement, and lack of effective parental supervision and monitoring. The relation between parenting factors and childhood aggression is often bidirectional, as child temperament and behavior can affect parenting behaviors, and visa versa.[13]

Peer Contextual Factors

Children with disruptive behaviors are often rejected by their peers[14] and can often have inflated and inaccurate perceptions of their levels of peer acceptance.[15] Aggressive children who are also socially rejected exhibit more severe antisocial behavior than children who are either aggressive or rejected only.[16] As children with conduct problems enter adolescence, they tend to associate with deviant peers. Adolescents who are reactively aggressive and who have been rejected from more prosocial peer groups sometimes turn to antisocial cliques for social support. Other aggressive children who are more likely to display proactive (rather than reactive) aggressive behaviors also are at risk to enter into deviant peer groups, but not because they were rejected by the larger peer group. Aggressive children's movement into deviant peer groups increases the probability that they will begin to display increasingly severe antisocial behavior.[17]

Social Cognition

As children develop, they begin to form stable patterns of processing social information and regulating their emotions. The patterns of social information processing and emotional regulation that children develop are influenced by children's temperament and biologic dispositions as well as children's contextual experiences with their family, peers, and community. Aggressive children have cognitive distortions at the appraisal phases of social-cognitive processing because of difficulties in encoding incoming social information, partially because of neurocognitive difficulties in their executive functions,[18] and in accurately interpreting social events and others' intentions. In the appraisal phases of social information processing, aggressive children have been found to recall fewer relevant nonhostile cues about events.[19] Aggressive children also have cognitive deficiencies at the problem solution phases of social-cognitive processing. They have dominance and revenge-oriented social goals,[20] which guides the maladaptive action-oriented and nonverbal solutions they generate for perceived problems.[19] In addition, aggressive children evaluate aggressive behavior in a positive way and they expect that aggressive behavior will lead to positive outcomes for them.[19]

CBT STRATEGIES FOR CHILDREN AND ADOLESCENTS WITH EXTERNALIZING DISORDERS

Externalizing behavior problems are among the most commonly cited reasons for youth referrals to mental health clinics.[21] This is likely because of the substantial toll that youth conduct problems exact on those around them. Thus, it is important to intervene with children with externalizing disorders as early as possible, before their maladaptive behaviors become increasingly stable and impairing.[22] The ways in which children typically present conduct problems can vary from relatively minor oppositional behaviors, such as yelling or temper tantrums, to more serious antisocial behaviors such as aggression, physical destructiveness, and stealing.[23] Several programs using CBT techniques have been shown to be efficacious in reducing externalizing behavior problems in at-risk and clinic-referred youth, including the Coping Power

program. Youth-focused treatment components most common to these types of CBT-based programs include the following: Emotion Awareness, Perspective Taking, Anger Management, Social Problem Solving, and Goal Setting. For the purpose of this article, each of these components is described using the Coping Power Program as a model.[28]

Emotion Awareness

Before addressing problem behaviors, it is necessary for children to understand from where their behaviors stem. Emotion awareness strategies typically allow children to learn to recognize the emotions that lead them to engage in externalizing behaviors. Recognition of negative emotions, and the degree to which they are experienced, enables children to determine the conditions under which they are most prone to act out. CBT-oriented clinicians use a range of techniques to teach emotion awareness in children. In Coping Power, child clients first learn to describe their emotions in terms of physiologic sensations (eg, heart racing, tight muscles, face becomes flushed), behaviors (eg, raising your voice, making a threatening gesture, pushing or shoving), and cognitions (eg, I hate my mom; my teacher always picks on me; I am going to show that kid he can't mess with me). Using a thermometer analogy, children are taught to identify varying intensities of particular emotions. Situational triggers and thought patterns associated with varying levels of such emotions are then identified (eg, an extra homework assignment might make you a little bit upset, whereas someone making fun of a family member might make you enraged). Through in-session activities and self-monitoring homework assignments, children are taught to identify common situational triggers for their own anger arousal.

Perspective Taking

This component is designed to teach children the difficulty involved in accurately determining others' intentions. Children who exhibit externalizing behaviors tend to overly interpret others' intentions as hostile; thus, it is necessary to teach children about other more benign alternate explanations for others' behaviors.[19,29,30] To implement this component, the clinician can have children role-play different characters in an ambiguous situation. On completion of the role-play, children are encouraged to discuss the different viewpoints of each of the characters portrayed. Children are also asked to recall real-life incidents in which they later realized they had misinterpreted the reason for another person's actions in an overly hostile light. In school settings, clinicians may also wish to have children interview their teachers to allow children the opportunity to obtain a firsthand account of common student misconceptions regarding disciplinary procedures and classroom management.

Anger Management

Emotion regulation, specifically anger control, is key to the successful decrease of conduct problems. As previously noted, deficits in emotion regulation are thought to contribute to externalizing behaviors; thus, it is essential to incorporate anger management in any CBT-based intervention. Additionally, with a working knowledge of personal emotion awareness and perspective-taking skills, children are more likely to successfully implement anger management techniques before becoming inundated by an unmanageable level of anger. A number of strategies can be taught to children to help them manage their anger arousal, including distraction, relaxation, and coping self-statements. With regard to relaxation, guided imagery and progressive muscle relaxation techniques may be taught to prevent escalation of low levels of anger. In

attention away from the anger-provoking stimulus can be conducte
a group setting, a child may be given a set of letters or numbers to r en
rest of the group is instructed to taunt and disturb the child as m
focusing on the task at hand, the child learns that he or she c
anger from escalating by ignoring, or focusing attention away
evoking stimulus.

The use of coping self-statements can be taught through a series of gradec
sure role-plays. Initially, children can be provided with a list of coping self-statement
that they may find helpful to lower their anger (eg, "It's not worth it to get angry"; "He is
trying to make me mad, but I am not going to let him get to me"). Children are also
encouraged to generate their own coping statements, which may have a greater
impact on their anger management. Children are given time to become familiar with
the coping statements and choose the ones that they find the most helpful. Upon
selection of coping statements, children are first exposed to a situation in which
they practice using coping statements in a relatively benign and impersonal anger-
arousing scenario. For example, in a group setting, children can use puppets to tease
a specific child's puppet. The child controlling the puppet being teased can state
aloud the coping statements his puppet is using to avoid anger escalation. With
increasing proficiency in the use of coping statements, children can be progressively
challenged with more personal anger arousal scenarios until they get to the point at
which they can role-play and declare the coping statements used in a scenario in
which they are taunted verbally. With this type of technique, it is important to monitor
children closely to avoid situations in which the teasing gets out of hand.

Social Problem Solving

Children are encouraged to practice the anger-reducing techniques described in the previous section to allow them time to generate more adaptive solutions to anger-evoking problem situations. Variations on the Antecedents-Behavior-Consequences (ABC) model, in which children identify the antecedents to a particular problem and how different behaviors in response to those antecedents can result in different outcomes, can be used to demonstrate problem-solving techniques. The PICC (Problem Identification, Choices, Consequences) model used in Coping Power, for example, teaches children how to first identify a problem by defining it in objective and behavioral terms. The children are then encouraged to generate a variety of choices in response to the problem that lead to both positive and negative outcomes. The children are then asked to discuss the consequences of each choice, evaluate all choices in terms of their benefits and disadvantages, and choose the outcome with the most positive consequences. This model can be applied to a variety of child problems, including peer or sibling conflict, teacher-student relations, parental conflict, and neighborhood problems. Children can practice and consolidate their problem-solving skills using several methods, such as role-plays, creation of a video illustrating problem solving in action, and story writing. While learning these skills, children should be encouraged to apply them to their own daily problems and to share with the group successful applications of the PICC model.

Goal Setting

Throughout the implementation of the previously mentioned CBT components, clinicians can also help children learn to set personal goals. As a first step, clinicians can introduce the concept of personal goal setting and have each child identify 1 to 2 long-term goals that he or she would like to accomplish in the next 6 to 12 months.

into short-term goals that can be accomplished within a day or week. Before initiating the goal-setting process, it is beneficial for clinicians to consult with parents and teachers to elicit their input on goals that may improve the child's functioning in the school or home setting. The clinician's role is to synthesize the ideas for goals generated by the child, parent, and teacher, as well as the goals on the treatment plan, and to work collaboratively with the child to generate a list and hierarchy of goals that the child is motivated to work to reach. This process can be executed using a weekly goal sheet. For example, a child wishing to raise his or her grades to be eligible to play on the basketball team may work on short-term goals of completing homework every day, bringing books home, and paying attention in class. Each of these goals can be assigned on a weekly sheet and assessed by the child's parent or teacher. Upon mastering a goal, the child can move toward a more difficult goal. Throughout the goal-setting process, clinicians seek to incorporate goals that allow children opportunities to practice the skills they are learning in the program. For example, children who are consistently disrespectful toward their parents may be given the goal to follow parental directions every day. Parents are instructed to assess this goal daily, and upon the child's return (assuming successful completion), the clinician can inquire about the coping skills used to achieve the goal. If unsuccessful, the clinician can work with the child to remind him or her of skills that could improve goal achievement in the future. Goal setting works well when used in combination with a point-rewards system to motivate children to attain their goals.

The components described are central to many CBT-based interventions for children with externalizing behavior problems. The Coping Power program has additional treatment components for coexisting problems and developmental concerns. For example, given the high rate of attention problems in children with ODD and CD and the important role of academic achievement, additional sessions focus on teaching children organization and study skills. Other sessions focus on peer relationships and seek to teach children how to identify and establish friendships with prosocial peers rather than deviant peers. Children are also taught specific skills to resist peer pressure and to handle problems faced in the family and neighborhood contexts. See Lochman and colleagues[28] for greater detail about how each of these intervention components is implemented in the Coping Power Program.

CBT STRATEGIES FOR PARENTS OF CHILDREN WITH EXTERNALIZING DISORDERS

The Coping Power parent program[31] will also be described to illustrate the use of CBT strategies with parents of children with externalizing disorders. Many elements of the Coping Power parent sessions derive from well-established behavioral parent training programs[32,33] and focus on improving the parent-child bond and helping parents use positive parenting skills. Additional sessions that are more specific to Coping Power focus on stress management, building family cohesion and communication, and family problem solving. The Coping Power parent component includes content for 16 intervention sessions for the primary caregivers of children simultaneously participating in the child component. An important objective of each parent session is to inform parents about what their children are learning in the child group and to discuss ways that the parents can reinforce their children's use of these skills at home. A small group format has been used most often in outcome studies of the Coping Power parent component; however, the intervention materials have also been adapted for use with individual parents and families.[34]

develop group cohesion and supportive relationships among the group members. The session then opens with a review of prior content, including discussion of parents' use of new parenting strategies at home and the observed impact on their relationships with their child and on the child's behavior. New discussion topics are then introduced and group activities are used to facilitate skill acquisition (eg, interactive worksheets, role-plays). Homework assignments are given at the end of each session to facilitate generalization of parenting skills outside of the intervention setting. Clinicians deliver the intervention content in a flexible manner, with a goal of adapting session activities to best address the specific problems and issues of the group members.

The following Coping Power parent component sections are reflective of the skills taught in a number of well-established parent training programs for child disruptive behavior problems.

Basic Social Learning Theory, Praise, and Improving the Parent-Child Relationship

In the beginning of the program, the clinician seeks to present the basic social learning model using the concepts of antecedents (A), behavior (B), and consequences (C). The clinician teaches parents how they can modify their own patterns of responding to their child's behavior to increase desirable behaviors (eg, following directions, sharing, compromising) and decrease undesirable behaviors (eg, noncompliance, aggression). The clinician introduces a monitoring system to help parents become more aware of their child's positive and negative behaviors. The clinician also helps parents identify positive consequences (eg, increased parental attention, a favorite dessert, labeled praise) that they can provide to increase their child's desirable behavior. To reestablish positive parent-child bonds, the clinician also emphasizes the importance of "special time" between parents and children, helps parents set goals for having regular "special time" with their child, and provides tips for how to minimize conflict during special time.

Ignoring Minor Disruptive Behavior

Parents are then taught to manage and reduce children's minor disruptive behaviors through ignoring. Minor disruptive behaviors that might be appropriate to ignore are first identified (eg, changing the television channel repeatedly, fussing after the child does not get his or her way) and distinguished from more serious behaviors that cannot be ignored (eg, beating up a sibling, overt defiance). Interactive role-plays are then used to model effective ignoring, which includes removing eye contact and verbal interaction with the child until the minor disruptive behavior ceases. Common challenges in the use of ignoring (eg, how to handle it when the child escalates his or her disruptive behavior to try to get the parent's attention) are also discussed and acted out.

Antecedent Control: Giving Effective Instructions and Establishing Rules and Expectations

Next, clinicians seek to teach parents how their own actions can serve as helpful/unhelpful antecedents to children's compliant or noncompliant behaviors. In particular, parents' use of clear instructions is illustrated as an important aspect of antecedent control. Ineffective instructions often precede child noncompliance, whereas clear instructions often precede child compliance. Through discussion and role play, the clinician seeks to identify and model the qualities of "good" and "bad" instructions (eg, obtain child's eye contact first, state request clearly, give one instruction at a time, avoid lengthy or overly complicated instructions, only make a request if

instructions in session, parents are encouraged to make an effort to give more clear instructions at home and to monitor the differential impact on child compliance.

Parents' use of household rules and expectations is described as another important aspect of antecedent control. Behavior rules establish the behaviors that children should decrease (eg, hitting, noncompliance), whereas behavior expectations establish the behaviors that children should increase (eg, making the bed, talking nicely to family members). In discussing rules and expectations with parents, clinicians emphasize the importance of labeling rule violations (eg, "Lamar, you just hit your sister and that is against the rules we set for our family") so that children are made more aware of the rules. Clinicians also emphasize the importance of keeping expectations age-appropriate. Parents are coached in how to establish behavior rules and expectations at home and are encouraged to track their child's compliance, their own positive reinforcement of compliance, and their labeling of noncompliance.

Discipline and Punishment

Next, clinicians introduce the concept of punishment and define punishment as any response to problem behavior that results in a decrease in the behavior. Clinicians elicit parents' current punishment strategies and their perceived effectiveness. The clinician seeks to expand parents' "tool box" in terms of the range of punishment strategies they use. Parents are also taught a specific sequence of steps for responding systematically to punish noncompliance and other forms of misbehavior.

The specific punishment techniques taught include "time out" (using a specific series of steps), the removal of privileges, and the assignment of additional work chores. The parents are taught to follow a sequence in which they (1) give their child a clear instruction, (2) assess for compliance, (3) praise compliance or provide a warning describing the punishment that will be instituted if the child does not comply, and (4) institute the punishment if the instruction is not followed. This sequence is continued, adding additional punishments as needed, until the child complies with the initial instruction. The parents and clinician role-play this sequence in a variety of parent-child scenarios to practice adhering to the above steps, even in the face of significant child escalation. The clinician also engages parents in a discussion about appropriate punishment for major misbehavior, with an aim of helping parents find alternatives to physical punishment and lengthy, unspecified grounding.

The following Coping Power parent component sections describe additional topics and skills covered with parents.

Family Cohesion Building, Family Problem Solving, and Family Communication

During these sessions, the clinician seeks to elicit and discuss parents' hopes and concerns for their children as they mature. The clinician emphasizes that having a positive, healthy parent-child relationship will become increasingly important as the child grows older and more independent. The group brainstorms strategies for how families can build their cohesion both in the home (eg, family game nights) and outside of the home (eg, going to a park). Parents are encouraged to follow-through with family cohesion-building activities on a consistent basis.

Parents are also taught the PICC problem-solving model that the children are learning and discuss ways they can use this model to resolve family conflicts at home. For example, if the family members get into arguments nearly every morning as they rush to get ready for school and work, they can work together to brainstorm choices for solving this problem (eg, wake up 15 minutes earlier, create a schedule

your clothes the night before) and the likely consequences of each choice. The family can then decide together which choice(s) they are going to implement.

The clinician also leads parents in a discussion about their ongoing family communication patterns. Questions the clinician might ask include the following: Does your family have a way of talking with each other about their concerns? How do they set family rules, or negotiate desired changes to family rules? Are all of the family members satisfied with the way they communicate? The clinician then introduces the notion of holding regular family meetings as one way to preserve positive parent involvement in children's lives and tackle potential problems before they arise. The clinician guides parents in a discussion about how they might establish family meetings at home and how to make them desirable to all family members. Another important topic the clinician addresses with parents is the importance of continuing to monitor children's involvement with peers and in the community as they become more independent. A specific communication system is described for helping parents monitor who their child spends time with, what activities they engage in, and what types of supervision and rules are in place.

Academic Support in the Home

Parents are also given strategies for supporting their child's academic work at home. Parents are taught to use a "homework completion system" (eg, a school-to-home assignment notebook) that allows for increased parent-teacher communication about homework assignments and parental monitoring of homework completion. Parents are also encouraged to proactively schedule a parent-teacher conference, rather than waiting until problems arise. Parents are provided with potential questions and topics for the parent-teacher conference, and role-play this interaction in the therapeutic setting.

Stress Management

One of the intervention topics rated most favorably by parents is stress management. In this portion of the intervention, the fact that parenting can be very stressful is normalized and discussed. The clinician seeks to describe how stress can undermine positive parenting behaviors and negatively impact the parent-child relationship. Role-plays are used to illustrate how parents' own stress can lead to overreaction to their children's behavior. Parents are encouraged to find ways to take part in enjoyable, stress-reducing activities and to schedule this time for themselves regularly. The clinician also leads parents in specific relaxation techniques, including guided imagery, deep breathing, and progressive muscle relaxation. Parents are also taught to monitor how their own thoughts ("my child is driving me crazy" vs "he is irritable today because he did not sleep well last night") and feelings affect their parenting behaviors. Parents who have marked difficulty modulating their own emotions are advised to seek adjunctive individual therapy for themselves.

EFFECTIVENESS OF CBT STRATEGIES FOR EXTERNALIZING DISORDERS

This section summarizes the evidence for the effectiveness of CBT strategies for externalizing disorders and presents specific outcome research on several programs that include CBT techniques, including the Coping Power Program. Results of several meta-analyses have provided support for CBT interventions in the prevention and remediation of aggressive and disruptive behaviors. Sukhodolsky and colleagues[35] conducted a meta-analytical study of 40 treatment outcome evaluations of CBT

to 17.2 years (with a mean of 12.5 years) and included a total of 1953 children, most of whom received a group form of therapy. Most treatments were considered short-term, with a treatment length of 8 to 18 hours. Across all studies, the mean effect size was 0.67, in the medium range, with larger effect size values for youth in the moderate range of problem severity (0.80) as compared with children with severe (0.59) or mild (0.57) levels. Differences in effectiveness were also found for 4 categories of CBT, including skills development (0.79), multimodal treatment (0.74), problem solving (0.67), and affective education (0.36), suggesting that a focus on actual behavioral change is important in the reduction of aggressive behavior.

Robinson and colleagues[36] found similar results in their meta-analysis of 23 studies investigating CBT effects on externalizing behavior symptoms. Across studies specifically targeting aggression, the mean effect size was 0.64, with 88% of studies reporting positive results. McCart and colleagues[37] found an effect size in the small range (0.35), and noted that CBT had a stronger effect for adolescents than for younger children, possibly as a result of adolescents' more advanced cognitive development.

As demonstrated by meta-analytic results, treatment outcome studies indicate that CBT can produce significant reductions in children's and adolescents' externalizing behavior problems. For both intervention research and clinical application, manualized interventions have been developed to apply CBT to disruptive behaviors in youth. Several such programs can be considered empirically supported or evidence-based treatments (EBTs) based on positive effects of well-conducted outcome research. Eyberg and colleagues[38] provide a review of EBTs for youth with externalizing behavior problems, identifying programs at several levels of efficacy. Examples of several EBTs incorporating CBT principles and techniques for externalizing problems in youth are provided as follows.

In Kazdin's Problem-Solving Skills Training (PSST),[39] children attend 12 weekly core sessions in which they learn a sequence of problem-solving steps to apply when faced with interpersonal conflicts. Homework assignments, called "supersolvers," help children generalize the application of PSST to everyday life. Several treatment outcome studies support the effectiveness of PSST, both as a stand-alone intervention and in combination with Parent Management Training (PMT), a manualized behavioral program delivered to parents. Alone and with PMT, PSST has been shown to reduce externalizing behavior problems in the home and school settings and to increase prosocial behaviors; however, the combined PSST and PMT treatment results in greater improvements. Gains have been found immediately following intervention and up to 1 year later. See Kazdin[39] for a review of outcome research results.

Another EBT incorporating CBT elements is the Incredible Years (IY),[40] a multimodal program that includes parent training and teacher training curricula in addition to the cognitive-behavioral intervention for 3- to 8-year-olds (IY-CT). Delivery of IY-CT takes place over 22 weeks and is based on a series of DVDs that illustrate problem-solving and social skills. Although the child and parent programs are typically delivered together, IY-CT alone has been shown to effectively reduce children's aggression, to increase positive social skills, and to improve children's problem-solving and conflict management skills. Stronger effects are found when the parent and child components are delivered together. A review of outcome research results is available in Webster-Stratton and Reid.[40]

The Anger Coping Program,[41] an 18-session intervention targeting children in the fourth through sixth grades, uses CBT to help children develop skills in emotion recognition and awareness, anger coping through self-talk and distraction, perspective taking, goal setting, and social problem solving. In outcome research studies,[42,43]

ratings of disruptive classroom behavior, reductions in teacher-rated aggression, and improvements in self-esteem and perceived social competence. Follow-up research indicates maintenance of improvements in classroom behavior after 7 months and lower levels of substance use after 3 years.[42]

The Coping Power Program was developed to extend and expand on Anger Coping, with the goal of strengthening outcome effects, particularly in the area of delinquency prevention. Coping Power's extended length allows for more in-depth coverage of core topic areas, as well as additional sessions on study skills, social skills, and peer pressure resistance. As described previously, Coping Power also includes a companion parenting component.

Several randomized controlled trials have supported Coping Power's efficacy and effectiveness. In the first study,[25] boys whose teachers rated them as aggressive were randomly assigned to 1 of 3 groups: Coping Power child component only, Coping Power child and parent components, or an untreated control condition. Results indicated that, compared with the control group, both Coping Power conditions demonstrated lower rates of delinquency and parent-rated substance use, and greater teacher-rated behavioral improvements at a 1-year follow-up. The first 2 intervention effects were enhanced for the combined treatment condition. Additional analyses indicated that outcomes were mediated by changes in the targets of the intervention, including children's social cognitive processes, schemas, and parenting processes.[3] Another study evaluated the addition of a universal intervention to the full Coping Power Program.[24] The universal intervention consisted of 5 in-service training sessions for teachers, which focused on strategies for improving children's academic, social, and emotional skills and increasing parents' school involvement. The universal intervention also included 4 large-scale parent meetings for all parents of children in universal intervention classrooms and included discussion of strategies for improving children's academic, social, and emotional skills, and preparing children for the middle-school transition. Compared with an untreated control group, children who received both Coping Power and the universal intervention had lower rates of self-reported substance use and teacher-rated aggression, higher perceived social competence, and greater teacher-reported improvement in classroom behavior. At a 1-year follow-up, children who received Coping Power, the universal program, or both programs all demonstrated lower rates of delinquency and substance use than controls.

Coping Power has also yielded positive outcomes effects in evaluations involving clinic populations. Dutch children diagnosed with disruptive behavior disorders were randomly assigned to receive an abbreviated version of Coping Power or to clinic treatment as usual. Although both groups demonstrated improvements in disruptive behaviors at posttreatment, the Coping Power group's reductions in overt aggression were significantly greater.[44] Reductions in disruptive behaviors were maintained for both groups at a 6-month follow-up. At a 4-year follow-up, the Coping Power children had significantly lower rates of tobacco and marijuana use than the treatment as usual condition, although rates of alcohol use were similar for both groups.[45]

SUMMARY AND IMPLICATIONS

This article has sought to describe the contextual, social, and cognitive risk factors for children's development of externalizing disorders, the types of cognitive and behavioral treatment strategies that can be used to address these risk factors, and the evidence base for CBT-based interventions for externalizing behavior disorders.

strategies can produce significant reductions in children's externalizing behavior problems, particularly when interventions are multimodal (ie, incorporate parents, children, and other key stakeholders in treatment) and focus on development of specific skills, such as those described in this article.

REFERENCES

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th edition. Washington, DC: American Psychiatric Association; 1994. DSM-IV.
2. Lochman JE, Nelson WM III, Sims JP. A cognitive behavioral program for use with aggressive children. J Clin Child Psychol 1981;10:146–8.
3. Lochman JE, Wells KC. Contextual social-cognitive mediators and child outcome: a test of the theoretical model in the coping power program. Dev Psychopathol 2002;14:971–93.
4. Matthys W, Lochman JE. Oppositional defiant disorder and conduct disorder in childhood. Oxford (England): Wiley-Blackwell; 2010.
5. Caspi A, McClay J, Moffitt T, et al. Role of genotype in the cycle of violence in maltreated children. Science 2002;297:851–4.
6. Guerra NG, Huesmann LR, Spindler A. Community violence exposure, social cognition, and aggression among urban elementary school children. Child Dev 2003;74:1561–76.
7. Fite PJ, Wynn P, Lochman JE, et al. The effect of neighborhood disadvantage on proactive and reactive aggression. J Community Psychol 2009;37:542–6.
8. Ingoldsby EM, Shaw DS. Neighborhood contextual factors and early starting antisocial pathways. Clin Child Fam Psychol Rev 2002;5:21–55.
9. Luthar SS. Children in poverty: risk and protective factors in adjustment. Thousand Oaks (CA): Sage; 1999.
10. Odgers CL, Milne BJ, Caspi A, et al. Predicting prognosis for the conduct-problem boy: can family history help? J Am Acad Child Adolesc Psychiatry 2007;46:1240–9.
11. Erath SA, Bierman KL, the Conduct Problems Prevention Research Group. Aggressive marital conflict, maternal harsh punishment, and child aggressive-disruptive behavior: evidence for direct and indirect relations. J Fam Psychol 2006;20:217–26.
12. Jaffee SR, Caspi A, Moffitt TE, et al. Physical maltreatment victim to antisocial child: evidence of an environmentally mediated process. J Abnorm Psychol 2004;113:44–55.
13. Fite PJ, Colder CR, Lochman JE, et al. The mutual influence of parenting and boys' externalizing behavior problems. J Appl Dev Psychol 2006;27:151–64.
14. Cillessen AH, Van Ijzendoorn HW, Van Lieshout CF, et al. Heterogeneity among peer-rejected boys: subtypes and stabilities. Child Dev 1992;63:893–905.
15. Pardini DA, Barry TD, Barth JM, et al. Self-perceived social acceptance and peer social standing in children with aggressive-disruptive behaviors. Soc Dev 2006; 15:46–64.
16. Lochman JE, Wayland KK. Aggression, social acceptance and race as predictors of negative adolescent outcomes. J Am Acad Child Adolesc Psychiatry 1994;33:1026–35.
17. Fite PJ, Colder CR, Lochman JE, et al. Pathways from proactive and reactive

18. Ellis ML, Weiss B, Lochman JE. Executive functions in children: associations with aggressive behavior and social appraisal processing. J Abnorm Child Psychol 2009;37:945–56.
19. Lochman JE, Dodge KA. Social-cognitive processes of severely violent, moderately aggressive and nonaggressive boys. J Consult Clin Psychol 1994;62: 366–74.
20. Lochman JE, Wayland KK, White KJ. Social goals: relationship to adolescent adjustment and to social problem solving. J Abnorm Child Psychol 1993;21: 135–51.
21. Steiner H, Remsing L. Practice parameter for the assessment and treatment of children and adolescents with oppositional defiant disorder. J Am Acad Child Adolesc Psychiatry 2007;46(1):126–41.
22. Frick PJ, Silverthorn P. Psychopathology in children. In: Sutker PB, Adams HE, editors. Comprehensive handbook of psychopathology. 3rd edition. New York (NY): Kluwer Academic; 2001. p. 881–920.
23. McMahon R, Frick P. Conduct and oppositional disorders. Assessment of childhood disorders. 4th edition. New York: Guilford Press; 2007. p. 132–83.
24. Lochman JE, Wells KC. Effectiveness study of coping power and classroom intention with aggressive children: outcomes at a one-year follow-up. Behav Ther 2003;34:493–515.
25. Lochman JE, Wells KC. The coping power program for preadolescent aggressive boys and their parents: outcome effects at the 1-year follow-up. J Consult Clin Psychol 2004;72:571–8.
26. Botvin GJ, Griffin KW. Life skills training: empirical findings and future directions. J Prim Prev 2004;25:211–32.
27. Feindler EL, Ecton RB. Adolescent anger control: cognitive-behavior techniques. New York: Pergamon Books; 1986.
28. Lochman JE, Wells KC, Lenhart LA. Coping Power child group program: facilitator guide. New York: Oxford; 2008.
29. Lansford J, Malone P, Dodge K, et al. A 12-year prospective study of patterns of social information processing problems and externalizing behaviors. J Abnorm Child Psychol 2006;34:715–24.
30. Dodge KA, Lochman JE, Harnish JD, et al. Reactive and proactive aggression in school children and psychiatrically impaired chronically assaultive youth. J Abnorm Psychol 1997;106:37–51.
31. Wells KC, Lochman JE, Lenhart LA. Coping Power parent group program: facilitator guide. New York: Oxford; 2008.
32. Forehand R, Sturgis ET, McMahon RJ, et al. Parent behavioral training to modify child noncompliance: treatment generalization across time and from home to school. Behav Modif 1979;3:3–25.
33. Patterson GR, Reid JB, Jones RR, et al. A social learning approach: families with aggressive children. vol. I. Eugene (OR): Castalia; 1975.
34. Wells K, Lochman J, Goldman E. The integrated psychotherapy consortium. In: Project liberty enhanced services program: disruptive behavior symptoms intervention manual. New York (NY): Columbia University; 2007.
35. Sukhodolsky DG, Kassinove H, Gorman BS. Cognitive-behavioral therapy for anger in children and adolescents: a meta-analysis. Aggress Violent Behav 2004;9:247–69.
36. Robinson TR, Smith SW, Miller MD, et al. Cognitive behavior modification of hyperactivity-impulsivity and aggression: a meta-analysis of school- based

37. McCart MR, Priester PE, Davies WH, et al. Differential effectiveness of behavioral parent training and cognitive-behavioral therapy for antisocial youth: a meta-analysis. J Abnorm Child Psychol 2006;34(4):527–43.
38. Eyberg SM, Nelson MM, Boggs SR. Evidence-based psychosocial treatments for children and adolescents with disruptive behavior. J Clin Child Adolesc Psychol 2008;37(1):215–37.
39. Kazdin AE. Problem-solving skills training and parent management training for oppositional defiant disorder and conduct disorder. In: Weisz JR, Kazdin AE, editors. Evidence-based psychotherapies for children and adolescents. 2nd edition. New York: Guilford; 2010. p. 211–26.
40. Webster-Stratton C, Reid JM. The Incredible Years parents, teachers, and children training series. In: Weisz JR, Kazdin AE, editors. Evidence-based psychotherapies for children and adolescents. 2nd edition. New York: Guilford; 2010. p. 194–210.
41. Larson J, Lochman JE. Helping schoolchildren cope with anger: a cognitive-behavioral intervention. New York: Guilford; 2002.
42. Lochman JE. Cognitive-behavioral interventions with aggressive boys: three-year follow-up and preventive effects. J Consult Clin Psychol 1992;60:426–32.
43. Lochman JE, Burch PP, Curry JF, et al. Treatment and generalization effects of cognitive-behavioral and goal setting interventions with aggressive boys. J Consult Clin Psychol 1984;52:915–6.
44. van de Weil NMH, Matthys W, Cohen-Kettenis PT, et al. The effectiveness of an experimental treatment when compared with care as usual depends on the type of care as usual. Behav Modif 2007;31:298–312.
45. Zonnevylle-Bender MJS, Matthys W, van de Wiel NMH, et al. Preventive effects of treatment of disruptive behavior disorder in middle childhood on substance use and delinquent behavior. J Am Acad Child Adolesc Psychiatry 2007;46:33–9.

Cognitive-Behavioral Therapy for Childhood Repetitive Behavior Disorders: Tic Disorders and Trichotillomania

Christopher A. Flessner, PhD[a,b,*]

KEYWORDS
• Children • CBT • Tic disorders
• Trichotillomania • Habit reversal

This brief review provides an overview of cognitive-behavioral therapy (CBT) for repetitive behavior disorders. The term repetitive behavior disorder encompasses a variety of conditions, including tic disorders (ie, Tourette syndrome [TS], chronic tic disorders, transient tic disorder), trichotillomania (TTM), skin picking, nail-biting, and bruxism (teeth grinding). In an effort to avoid repetition, no pun intended, the focus of this discussion is centered on the most often studied and most debilitating of these conditions: tic disorders and TTM. After an introduction to each disorder, an overview of CBT for children presenting with these concerns is provided. In particular, the article focuses on a therapeutic technique called habit reversal training (HRT) that is at the core of most CBT-based interventions. Two recent empirical studies on the immense potential of CBT for the treatment of childhood repetitive behavior disorders and some future areas of research are also discussed. First, a disclaimer is necessary.

Tic disorders and TTM are the focus of this review. However, CBT (broadly defined) and the unique therapeutic techniques described herein demonstrate similar benefit across most repetitive behavior disorders. The author hopes that with this brief review, readers will get a better understanding of these child-onset disorders, the

This work was supported by grant No. R01 DA023134 01A2 from the National Institutes of Health.
[a] Division of Child and Family Psychiatry, Rhode Island Hospital, Warren Alpert School of Medicine at Brown University, Providence, RI 02903, USA
[b] Bradley Hasbro Children's Research Center, 1 Hoppin Street, Suite 204, Coro West, Providence, RI 02903, USA
* Bradley Hasbro Children's Research Center, 1 Hoppin Street, Suite 204, Coro West, Providence, RI 02903.
E-mail address: cflessner@lifespan.org

Child Adolesc Psychiatric Clin N Am 20 (2011) 319–328
doi:10.1016/j.chc.2011.01.007 childpsych.theclinics.com