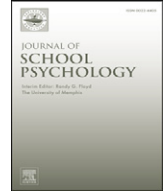




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# Reducing developmental risk for emotional/behavioral problems: A randomized controlled trial examining the Tools for Getting Along curriculum

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### ABSTRACT

Researchers have demonstrated that cognitive-behavioral intervention strategies – such as social problem solving – provided in school settings can help ameliorate the developmental risk for emotional and behavioral difficulties. In this study, we report the results of a randomized controlled trial of Tools for Getting Along (TFGA), a social problem-solving universally delivered curriculum designed to reduce the developmental risk for serious emotional or behavioral problems among upper elementary grade students. We analyzed pre-intervention and post-intervention teacher-report and student self-report data from 14 schools, 87 classrooms, and a total of 1296 students using multilevel modeling. Results (effect sizes calculated using Hedges'  $g$ ) indicated that students who were taught TFGA had a more positive approach to problem solving ( $g = .11$ ) and a more rational problem-solving style ( $g = .16$ ). Treated students with relatively poor baseline scores benefited from TFGA on (a) problem-solving knowledge ( $g = 1.54$ ); (b) teacher-rated executive functioning ( $g = .35$  for Behavior Regulation and  $.32$  for Metacognition), and proactive aggression ( $g = .20$ ); and (c) self-reported trait anger ( $g = .17$ ) and anger expression ( $g = .21$ ). Thus, TFGA may reduce risk for emotional and behavioral difficulties by improving students' cognitive and emotional self-regulation and increasing their pro-social choices.

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## 1. Introduction

A significant number of students in today's schools exhibit problematic behaviors, such as disruption, defiance, and aggression, that can be severe and pervasive (Connor & Barkley, 2002; Morrison & Skiba, 2001; Rappaport & Thomas, 2004; Tulley & Chiu, 1995). Students with or at risk of developing these behaviors often experience difficulty in meeting academic and social demands (Lochman, Dunn, & Klimes-Dougan, 1993), frequently are rejected by peers (Coie, Dodge, & Kupersmidt, 1990; Coie, Underwood, & Lochman, 1991), and often are referred for special education services (Kauffman, 2009). Moreover, researchers cite longitudinal evidence that links early maladaptive behaviors with later life difficulties that include delinquency, substance abuse, and school dropout (Giancola & Tarter, 1999; Moffitt, 1990; Moffitt & Lynam, 1994). For decades, studies have consistently indicated that 20% to 25% of students in school settings may be considered at risk for developing some kind of behavioral difficulty (e.g., Duchnowski, Kutash, & Friedman, 2002; Rubin & Balow, 1978). Given that schools are a primary environment for students' social and emotional development, such estimates highlight the importance of early school-based identification and preventive intervention.

Years of research have supported the use of applied behavioral strategies, including stimulus control, contingent reinforcement, and behavior reduction procedures, to reduce problematic behavior and strengthen prosocial behavior among school-aged children and youth (e.g., Alberto & Troutman, 2008; Cooper, Heron, & Heward, 2007). Although many behavioral strategies are empirically validated, they may not adequately foster the development of self-regulatory processes if used as the primary mechanism for behavior change (Polsgrove & Smith, 2004). Wehmeyer, Agran, and Hughes (2000) suggested that the practice of teaching students to control their own behavior to facilitate their success in educational settings is largely underutilized. Thus, researchers have investigated the use of cognitive-behavioral interventions (CBI) to supplement behavioral approaches and counter the development of emotional and behavioral difficulties that include aggression and disruption (Conduct Problems Prevention Research Group [CPPRG], 1999; Daunic, Smith, Brank, & Penfield, 2006; Frey, Hirschstein, & Guzzo, 2000; Lochman & Wells, 2004). Based on the work of cognitive theorists from the early 1970s through the present (e.g., Kendall & Braswell, 1985; Lochman, Whidby, & Fitzgerald, 2000; Mayer, Lochman, & Van Acker, 2005; Robinson, Smith, Miller, & Brownell, 1999), cognitive-behavioral therapies rest on the premise that social cognitions, in conjunction with and influenced by reinforcement history, play a critical role in determining behavior (Meichenbaum, 1977; Vygotsky, 1962). Consequently, maladaptive social cognitions are hypothesized to contribute significantly to emotional and behavioral problems (Dodge, Laird, Lochman, Zelli, & the Conduct Problems Prevention Research Group, 2002; Smith, Graber, & Daunic, 2009).

Consistent with social-cognitive theory, emerging studies of children's executive function (EF; Graziano, Reavis, Keane, & Calkins, 2007; Hughes, Dunn, & White, 1998; Rueda, Posner, & Rothbart, 2005) provide a constructive framework for understanding the connections among cognitions, emotions, and behavior. Although researchers have debated the specific skills involved (Barkley, 1997; Carlson, 2005; Garon, Bryson, & Smith, 2008; Gioia, Isquith, Retzlaff, & Espy, 2002), most agree that EF comprises a collection of interrelated cognitive processes that include inhibition, attentional flexibility, emotion control, working memory, planning, and monitoring (Blair, Zelazo, & Greenberg, 2005; Carlson, 2005; Gioia, Isquith, Retzlaff, & Espy, 2002). As such, EF has been linked to children's ability to (a) attend to relevant emotion-laden language and environmental stimuli, (b) identify one's own and others' experiences and expressed emotions, (c) distinguish context-appropriateness, and (d) recognize interpersonal causes and consequences (e.g., Eisenberg, Hofer, & Vaughan, 2007; Saarni et al., 1998; Vohs & Ciarocco, 2004), all of which are consistent with components of social information processing. Further, EF skills are integral to successful goal-pursuit, emotion regulation, and problem solving processes and critical to establishing and maintaining positive social relations through effective self-regulation (Karlovy, 1993; Rueda et al., 2005; Vaughn & Hogan, 1990; Vohs & Baumeister, 2004). Conversely, deficiencies in EF are hypothesized to contribute to emotional and behavioral difficulties (Hughes, 2002; Olson, Sameroff, Kerr, Lopez, & Wellman, 2005). Aggression, for example, has been associated with deficiencies in response inhibition and planning (Ellis, Weiss, & Lochman, 2009).

### 1.1. Evidence for effectiveness of school-based CBIs

Historically, CBIs have been used to intervene with various emotional and behavioral problems, such as anxiety, fears, phobias, aggression, and conduct disorder (Mayer et al., 2005). As cognitive-

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