RESEARCH

Emotional Regulation: Considerations for School-Based Group Interventions

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School-based professionals have entered the 21st century with a heightened call to address the emotional and behavioral concerns of youth. While cognitive-behavioral therapies and psychoeducational groups have demonstrated moderate effects with children and adolescents, there is little available research to assist clinicians in refining treatments specific to child characteristics. This research protocol was developed to serve as evidence of targeted efficacy of a popular school-based prosocial group intervention while simultaneously investigating the relationship between emotional regulation and multiple developmental aspects of at-risk youth including intrapsychic, behavioral, and social-cognitive variables. The findings provide valuable information for refining goals for similar programs.

Keywords: *emotional regulation; group intervention; school based*

INTRODUCTION

Assessing Youth Needs

In K–12 education, there is growing movement toward both empirically supported academic instruction and empirically supported interventions aimed at enhancing the personal, social, and behavioral development of at-risk students (Evensen & Hmelo, 2000; National

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Reading Panel, 2000; Reschly, 2000). In response to this trend, leaders in school counseling and school psychology have called for more research to increase accountability in school-based service delivery (Reschly, 2000; Whiston, 2002). Because the American School Counseling Association (ASCA) has purported that group work in schools is an effective means of service delivery (ASCA, 2005), group work has become an important component of school counseling programs (Akos, Goodenough, & Milsom, 2004). This study was intended to evaluate the efficacy of a popular school based group intervention while simultaneously exploring how examination of youth needs in emotional regulation might refine program goals.

There is ample research to suggest that both psychoeducational and psychotherapeutic group formats facilitate mastery of developmental skills and promote emotional coping among youth. Groups have been found to be effective in promoting adaptive lifestyle choices, improving relationships with parents and peers, managing stress related to parental divorce and reducing delinquent and deviant behaviors (Claypoole, Moody, & Pierce, 2000; DeLucia-Waack & Gerrity, 2001; Dinkmeyer & Speery, 2000; Gladding, 2003, Zinck & Littrell, 2000). Specific to school-based services, groups have been found to be effective in increasing prosocial behaviors (e.g., problem-solving, conflict resolution, anger management), improving student achievement, (Campbell & Brigman, 2005) attenuating school attrition (Praport, 1993), and addressing concerns related to abusive and violent dating relationships (Becky & Farren, 1997; Rosen & Bezold, 1996). Given the common limitations on resources in schools, Akos, Goodenough, and Milsom (2004) assert that group counseling is an efficient mechanism for reaching an increasing number of students in need of support. Nevertheless, the research base on empirically supported group interventions for youth has had a relatively short history (Oswald & Mazefsky, 2006). While cognitive-behavioral and psychoeducational groups have demonstrated moderate effects with children and adolescents (Kazdin & Weisz, 2003; Prout & Prout, 1998; Reinecke, Dattilio, & Freeman, 2006), there is little available research to assist clinicians in refining group treatments to address specific child characteristics and the extant research offers little guidance in conceptualizing factors critical to intervention planning in a thorough, systematic manner (Loeber & Stouthamer-Loeber, 1998). Further, ASCA's National Model for School Counseling emphasizes a) conducting a needs assessment to determine what types of groups are needed by students, b) screening students to make sure they are appropriate for a particular group, c) completing pre and posttests to evaluate group effectiveness, and d) following group ethics in the schools (ASCA, 2005).

Despite the call for specific data related to the planning and delivery of school based services, it appears that when children display characteristics or behaviors that are thought to be externalizing (i.e., aggressive), the interventions typically address conflict resolution, social skills training, and/or anger management strategies. When children present with what are thought to be primarily internalizing characteristics or behaviors (i.e., withdrawn), the interventions provided typically address assertiveness training, social information processing, and enhancement of self-concept (Burgess, Wojslawowicz, Rubin, Rose-Krasnor, & Booth-LaForce, 2006; Gansle, 2005). However, dichotomized intervention approaches (e.g., based on internalizing/externalizing status) or those based solely on diagnosis may be grossly insufficient for a large proportion of troubled youth. For example, it has long been asserted that one of the strongest predictors of a juvenile's risk to engage in violent or antisocial behavior is a past history of similar behavior (Loeber & Stouthamer-Loeber, 1998), ergo the expansive incorporation of violence prevention programs in schools. Indeed, a litany of studies supports the association between early involvement in aggressive behavior and later involvement in violent or criminal acts (Farrington, 1991, 1995, 1997; Huesmann, Eron, Lefkowitz, & Walder, 1984; Olweus, 1979). As suggested in Loeber and Stouthamer-Loeber's (1998) expansive literature review, however, these correlational studies offer little information about how to effectively intervene with these problems. In fact, the developmental psychopathology literature supports the concepts of "equifinality" (children share the same diagnosis, but not the same developmental risk history) and "multifinality" (children share the same developmental risk history, but not the same pathogenic trajectory) as the rules, rather than exceptions in explanatory models of a wide range of child psychopathologies (Holmbeck, Neff Greenley, & Franks, 2003). Therefore, overgeneralization of models driven by diagnostic status, regardless of the framework, may speciously limit the scope of intervention to observed behaviors with limited consideration of other factors that contribute to the persistence of maladaptive behaviors.

Emotional Regulation as a Mediating Variable

Little is known about the intrapsychic and behavioral characteristics of youth who are successful in overcoming earlier behavior difficulties compared with those who are not (Loeber & Stouthamer-Loeber, 1998). However, the National Institute of Mental Health (NIMH, 2006) has recently asserted that self-regulation of emotion serves as a powerful social mediator between environmental factors and risk for psychopathology among preadolescent children. Further,

the NIMH has called for the integration of basic research on the role of emotion with clinical research on affective disorders among children and adolescents and has highlighted the importance of developing interventions, beyond typical cognitive-behavioral/psychoeducational models, with attention to the emotional regulatory process. Moreover, the ASCA (2005) model categorizes the responsibilities of the school counselor across three domains: a) academic, b) career, and c) personal/social. Interventions which aim to refine emotional regulation address the personal/social category. Holmbeck, Neff Greenley, and Franks (2003) concur that developmentally sensitive treatments should consider the effects of mediator variables known to have causal connection to treatment outcomes or pathogenic symptoms. Some of the more robust mediator variables have been identified as intellectual development, moral reasoning, problem-solving skills, socio-economic status (SES), perspective-taking skills, attributional biases, and emotional regulation (Kazdin & Weisz, 2003; NIMH, 2006; Reinecke, Dattilio, & Freeman, 2006). While some of these variables are a challenge to assess in a cost-effective manner (e.g., intellectual development) and others are difficult to alter (e.g., SES level), others are more amenable to integration in treatment programming (e.g., emotional regulation).

Specifically, the mediational role of emotional regulation which has been broadly defined as "the ability to inhibit, subdue, minimize, maintain, accentuate, or prolong a particular emotional state" (MHS, 2003, p. 1), has been viewed as a key factor in determining how children and adolescents are affected by negative emotionality (e.g., Arsenio, Cooperman, & Lover, 2000; Eisenberg & Fabes, 1992). While many researchers have attempted to refine the definition of emotional regulation, all conceptualizations have at least one factor in common: emotional regulation not only encompasses affective experiences, but also cognitive, behavioral, and physiological processes. There is growing evidence to suggest that emotional regulation may be an important factor in children's and adolescents' ability to foster prosocial and pro-academic behaviors (Pekrun, Goetz, Titz, & Perry, 2002). Fabes and Eisenberg (1992) have determined that children's negative emotionality is reflected in adult and peer ratings of social competence. Additionally, Thomas (1984) found that children with difficult temperament tend to exhibit such characteristics as low adaptability, a high level of negative emotion, a high activity level, and poor emotional regulation. Further, it has been found that ability to cope with emotion is more important than temperament alone in the development of prosocial behaviors (Blair, Denham, Kochanoff, & Whipple, 2004). In fact, emotional dysregulatory characteristics have been associated with increased risk for various clinical and personality disorders (Cole, Michel, & O'Donnell-Teti, 1994; Mervielde, De Clercq, De Fruyt, & Van Leeuwen, 2005).

Research suggests that emotional regulation ability is a product of two concepts: reactivity of behavioral, emotional, and physiological systems and control of reactivity to meet goals (Derryberry & Rothbart, 1997; Posner & Rothbart, 2000). When emotional regulation occurs effectively, prosocial behaviors are more likely to follow. Further, prosocial behavior has been shown to be stable from early childhood to young adulthood (Eisenberg et al., 1999). Therefore, it is postulated that understanding emotional regulation may be a critical component in developing effective interventions for youth. Moreover, interventions that focus on self-regulation strategies may be vital to minimizing problem behaviors and maximizing prosocial behaviors. This research protocol was developed to evaluate the efficacy of a popular school-based group curriculum as well as to gain further insight into the role of emotional regulation as a variable in youth behavioral problems. Pre and posttest data were utilized to evaluate the efficacy of a popular school based prosocial group intervention in addressing emotional regulation and behavioral problems. Data were further analyzed to determine how consideration of emotional regulation needs in youth might positively effect treatment outcomes of traditional prosocial group curricula.

METHOD

Participants

Participants and controls were elementary, middle, and high school students attending thirteen public schools in Western New York. Pretest and posttest data were collected for 110 child/adolescent participants. Seventy-three child/adolescent participants were in the treatment group (39 males, 34 females), and 37 control (20 males, 17 females). Student participants were ages 8–17, control were ages 9–17. Of the treatment group, 30 students were in the age range of 8 to 11; 43 students were in the age range of 12–17. Of the control group, 16 students were in the age range of 9 to 11; 21 students were in the age range of 12–17. Seventy-three parent participants comprised the treatment group and 37 parent participants comprised the control group. Parent groups were well matched on education level (e.g., college completed or some college (C (control) = 68%, T (treatment) = 67%) versus high school (C = 27%, T = 25%) versus high school not completed (C = 5%, T = 8%)). However, there were notable differences in household constellation with 38 percent of the control group and 61 percent of the treatment group residing in single parent/guardian homes.

Group Facilitators

A total of 14 group facilitators (2 males, 12 females) were oriented to conduct ten groups in ten school districts. Four of the ten groups were co-facilitated. Six group facilitators worked individually. Three of the group facilitators co-facilitated their group with a colleague. One group facilitator was a school counseling graduate student working on advanced certification, who ran the group conjointly with her field supervisor. With the exception of the supervised graduate student, each of the group facilitators had 5 or more years professional experience. School based treatment and control group facilitators were professional school counselors and school psychologists, and the advanced practicum school counseling student. Three school psychology interns, under supervision of certified school psychologists, collected control group data only.

Measures

Three measures were utilized to represent common dimensional conceptualizations of childhood psychopathology, as previously described. The Adolescent Psychopathology Scales (APS) represents categorical conceptualizations of Axis I psychopathology and Axis II personality disorders as adopted by the DSM–IV–TR (American Psychiatric Association, 2001). The Behavioral Assessment System for Children (BASC) (C. R. Reynolds & Kamphaus, 1992), a widely utilized model school-based assessment, represents a two dimensional model based on the broadband factors of internalizing and externalizing behaviors. The Emotional Regulation Scales–Youth Version (ERS–Y), which is currently under development with MultiHealth Systems, was selected as a representational model of the temperament and self-regulation literature.

The internal consistency of the ERS–Y was determined via Cronbach's alpha which yielded an index of .819, suggesting that the instrument is a reliable measure of the latent construct of emotional regulation. Because the ERS–Y assesses skills that youths utilize to cope with stressors, it was hypothesized that this model would be utilitarian in assessing more specific psychological needs in referred youth and be more sensitive to the treatment goals of cognitive behavioral interventions.

Adolescent Psychopathology Scales (APS)

Select subscales of the APS (W. M. Reynolds, 1998) were used as a multidimensional self-report measure of a wide range of psychopathology, personality, and social-emotional problems and competencies in adolescent participants ages 12–19 years. In its original format, the

APS is comprised of 346 items which measure four broad content domains: Clinical Disorders, Personality Disorders, Psychosocial Problem Content, and Response Style Indicator, and three factor scales: Internalizing, Externalizing, and Clinical/Personality Disorder. In addition, critical items provide information on problems related to alienation, anger, substance use, and other high-risk behaviors relevant to intervention planning. Due to limited administration time and the specific purview of this study, only select subscales were administered to participants ages 12–19 (treatment group = 43, control group = 21). Two hundred- eight of the original 346 items were selected for use. The APS protocol was modified, reformatted, and submitted to the publisher, Psychological Assessment Resources, for review/approval and a licensure fee was submitted. Copyright permission and limited licensure for the adapted form was obtained. Because the shortened version left the scales of interest wholly intact, the potential effects of significantly altering the reliability and validity of the scales was attenuated. The Clinical Scales included were: Attention Deficit Hyperactivity Disorder, Conduct Disorder, Oppositional Defiant Disorder, Adjustment Disorder, Substance Abuse Disorder, Somatization Disorder, Generalized Anxiety Disorder, Social Phobia, Post Traumatic Stress Disorder, Major Depression, Dysthymic Disorder, and Mania. Avoidant Personality Disorder was the only scale selected from the Personality Disorders Scales. Psychosocial Problem Content Scales included were: Self-Concept, Psychosocial Substance Use Difficulties, Introversion, Alienation–Boredom, Anger, Aggression, Interpersonal Problems, Emotional Lability, and Social Adaptation.

Behavioral Assessment Systems for Children (BASC)

The BASC (C. R. Reynolds & Kamphaus, 1992) is a multiple respondent behavioral rating system which evaluates behavior problems and adaptive skills in children ages 2.5 through 18. Three main composite scores (Externalizing Problems, Internalizing Problems, and Adaptive Skills) are derived from 14 subscales relevant to treatment and intervention planning, including Adaptability, Aggression, Anxiety, Conduct Problems, Depression, Hyperactivity, Learning Problems, and Social Skills. Parent forms were collected for all control and treatment participants. Self-report forms were administered for participants under age 12 (treatment group = 30, control group = 16), as these ages are not included in the APS. Though the BASC offers teacher report forms which have been strongly correlated to both BASC parent and student reports, there were no congruent teacher response formats available related to the domains measured by the other instruments used in this study. Therefore, teacher reports were not included in this study.

Emotional Regulation Scales–Youth Version (ERS–Y)

As there is currently no published measure of emotional regulation, the ERS–Y (Kovacs, in press), a new instrument currently under development with MultiHealth Systems, was selected on the basis of construct validity. Congruent with conceptual/developmental perspectives on emotional regulation (NIMH, 2006), the ERS–Y is designed to measure four domains of emotional regulation: biologic, behavioral, interpersonal, and cognitive. It is intended to assess the types of strategies used to regulate emotional arousal. Parent and self-report forms were used for youth ages 7–17. The Physical/Biologic ologic Domain is comprised of Likert scaled questions associated with the youth's arousability, parasympathetic nervous response, and ability to ameliorate and/or manage physical symptoms of stress. The Cognitive Domain is comprised of questions associated with styles of "self-talk," problem-solving skills, and proclivity towards rumination, denial, and distraction. The Behavioral Domain assesses the youth's patterns of engaging in maladaptive/adaptive volitional activity in response to an emotional trigger. The Social Domain assesses the youth's approach or avoidance of physical contact, comfort, protection, or support from other people when under stress.

Procedure

After receiving approval from the university Institutional Review Board for the Protection of Human Subjects, participants were sought from elementary, middle, and high school students attending schools in Western New York. Researchers canvassed local school based mental health professionals for interest in participating in the study. Interested sites proceeded with approval for human subjects research in accordance with individual school district policy. Once school district approval was attained, the lead researchers conducted on-site training sessions to orient a total of 14 group facilitators in ten Western New York school districts in data collection procedures and in adherence to the manualized treatment approach. Three other sites collected control group data only. Eligible participants were described to group facilitators in accordance with the widely accepted internalizing versus externalizing behavioral dichotomy discussed previously and selected based on the ASCA model. According to ASCA (2005), referrals for assistance with problems may be generated by faculty, parents, or students. Referrals are to be made to other mental health professionals when long term therapy is deemed necessary by the school counselor. As such, participants for the group intervention were referred by self, parents, and/or school personnel. Since the intervention

curriculum was designed for youth who are evidencing mild to moderate deficiency or delay in prosocial competencies, the facilitators were asked to identify the eligible pool of students (n = 110). Referred students exhibiting more severe needs (n = 6) were considered ineligible and subsequently referred to appropriate resources.

Because the skills taught in the chosen treatment, The *Prepare Curriculum* (Goldstein, 2004), are equally relevant to both internalizing and externalizing behavioral concerns, group facilitators were asked to consider both types of behavioral issues when determining group membership. Youth showing social maladjustment problems marked by moderate aggressiveness, low frustration tolerance, and proneness to conflicts with adults/peers were selected. Conversely, youth who manifested problems on the other end of the behavioral spectrum and were described as withdrawn, isolated, shy, unpopular or rejected were also selected. Once eligible students were identified, parental consent was obtained and parents/guardians were asked to complete pretest and posttest measures. Students were randomly assigned to the participant groups (limited to 8–10 participants in each group) and the remainder to control groups. Control group participants received no intervention during the course of this study. Pretest and posttest data from the control group were collected at the same 10 week interval as in the treatment group. In lieu of receiving program services, each child and each parent participating in the control group was offered a choice of $10 gift certificates from various area retail stores. Parents of the control group participants were also offered the option of enlisting their child on a wait-list for similar services to be delivered within approximately one academic year.

Of the ten treatment groups, nine were initiated in the winter semester, one in the spring. Each group met for ten weekly sessions which were consecutive with the exception of school holidays. Of the ten school districts hosting treatment groups, one was urban, one rural, and eight were suburban. Among the three additional sites that collected control group data only, one was urban and two were suburban. All dependent measures were collected on two occasions, once at baseline prior to program entry and once again at program completion. Protocols were numerically coded and no identifying information was included in the database.

Treatment

The prepare curriculum. The Prepare Curriculum (Goldstein, 2004) was selected as a representative model of group intervention commonly imparted in schools. It utilizes an integrated cognitive-behavioral/interpersonal skills approach in a weekly psychoeducational group format. School based behavior modification and cognitive

behavioral approaches, such as "catching" maladaptive thoughts/ behaviors and replacing them with more socially desirable ones, involve a wide variety of psychoeducational training and counseling strategies (Crick & Dodge, 1994). The task of the group facilitators was not interpretation of underlying motives or predisposing conditions, but active and deliberate teaching of desirable behaviors. Such psychoeducational group approaches are often utilized in schools, clinics, and residential treatment centers to address conduct disorder, oppositional defiant disorder, and a number of other social or behavioral problems (e.g., social skills deficits, disruptive behavior) (Kazdin & Weisz, 2003). Though the component skills included in *The Prepare Curriculum* have been well researched (see Goldstein, 1981 for a comprehensive review), the empirical support for the effects of such programs on both conventional measures of youth psychopathology and behavioral disturbance and on more innovative conceptualizations of emotional regulation is lacking (Oswald & Mazefsky, 2006), and therefore a primary aim of this research model.

All group facilitators received a copy of *The Prepare Curriculum* which is comprised of ten freestanding courses: Skillstreaming, Situational Perception Training, Anger Control, Moral Reasoning Training, Recruiting Supportive Models, Stress Management Training, Problem Solving Training, Cooperation Training, Empathy Training, and Understanding Groups. However, no fixed sequence is recommended in *The Prepare Curriculum*. Instead, the course sequence is designed to be prescriptive based on the qualities of the participants and flexible with respect to length and intensity. Because *The Prepare Curriculum* includes alternate exercises and curriculum for various age groups (e.g., ages 8–12 and adolescents) course content was predetermined for each developmental level and provided to clinicians employed in participating schools. Though in clinical settings, the curriculum can be applied in a time range of several days to 2 years, this research protocol is based on a 10 week period (30–40 minute weekly sessions) to be conducive to a school setting. Meta-analytic research has suggested a slightly stronger effect size for psychoeducational group treatments incorporating a higher ratio of social-focused treatment than self-focused treatments, though both groups of skills have important implications for adaptive functioning. Social focused treatments are described as problem solving steps such as problem identification, response generation, evaluation, and other cognitive and behavioral skills exercised in social settings. Self-focused treatments are described as arousal reduction strategies such as labeling emotions, identifying emotional triggers, evaluating and inhibiting cognitions, and relaxation techniques which are often employed privately by the individual (Gansle, 2005). The 8-week Problem Solving Training

curriculum was selected from *The Prepare Curriculum* (Goldstein, 2004) as it was most congruent with Gansle's description of effective social focused treatments. The Problem Solving Training curriculum is specifically described on pages 507 to 581 of *The Prepare Curriculum*. Self-focused treatments, as described by Gansle, were represented by select portions Stress Management Training which represented anger/arousal reduction strategies, which are specifically described on pages 459 to 505 of *The Prepare Curriculum*. In whole, the selected treatment addressed the four domains of emotional regulation as defined by the ERS–Y (Kovacs, in press): biologic, behavioral, interpersonal, and cognitive. Specifically, the ten session group format was based on the 8-week Problem Solving Training and was supplemented with 2 weeks of "Prepare" training in anger/arousal reduction. All groups covered the objectives of the ten sessions (see Appendix for group curriculum outline).

The central goal of group facilitators was to facilitate high levels of competence in problem solving among group participants (Goldstein, 2004, p. 507). In addition to the benefits afforded by the aforementioned group structure, this was achieved in part by utilizing relevant examples of when group members confronted conflict, interpersonal confusion, difficult choices, and stressful situations in their daily lives. Group members were expected to keep track of problems (as defined in sessions 1–3) encountered outside the group using "Problem Logs" (Goldstein, 2004, p. 520) distributed to them in session 1. During group sessions, appropriate ways of dealing with problems and making decisions were described and demonstrated by the group leaders and practiced by each group member. Issues from the "Problem Logs" were used in role plays to encourage group members to reflect on their behavior and its consequences and how they might act in the future. Treatment integrity specific to treatment timeline and application of curriculum and exercises was monitored via periodic follow-up by the lead researchers and was deemed to be excellent.

DATA ANALYSES AND RESULTS

Efficacy of Group Intervention

The first purpose of this study was to assess the efficacy of *The Prepare Curriculum* as an intervention for these referred students and for students typically referred for school-based prosocial interventions. Single sample *t*-tests were employed to compare pretest measures of both the treatment and control groups with national norms. Based on comparison of the sample child/adolescent self-reports

with the national norms of the APS and BASC, no significant differences were found. On parent reports, however, significant elevations were evidenced on numerous BASC scales. It should be noted that all of these elevations fell within the 95% confidence intervals. Where the national norm T-score is 50, parent pretests revealed the following significant ($^{**} = .001$, $^{*} = .05$) mean elevations on BASC subscales: Aggression (54.55*), Conduct Disorder (59.35**), Anxiety (52.54*), Depression (54.44*), Attention Problems (56.75**). Significant depressions were evidenced on the scales of Adaptability (age 8–11 only, 42.44**), Social Skills (43.84**), and Leadership Skills (43.94*). All of these depressions fell within the 95% confidence intervals as well. Composite scales did not indicate significant elevation in Externalizing Problems or in Internalizing Problems overall. No significant differences were found in comparison between treatment and control participants on post-treatment parent reports.

Neither gender nor ethnicity was a significant mediator of treatment response, a finding which has been repeatedly supported in the literature on treatment outcomes of manualized therapies for youth (Kendall, Aschenbrand, & Hudson, 2003). As illustrated in Table 1a, paired samples t-tests were used to compare pre-treatment and post-treatment mean scores of the treatment group. The chance of Type I error was reduced by setting a more conservative alpha of .01. Further, 95% confidence intervals, rather than the more traditional point estimation, were also employed when examining mean difference. The use of confidence intervals serves as a reminder that the population estimate contains a certain level of error and they convey a likely range of the real value (Brace, Kemp, & Sneglar, 2006). Confidence intervals also play a critical role in determining whether or not the null hypothesis is a possibility as is the case when the range of values includes zero.

In contrast to parent report measures, these findings yielded a significant decrease in BASC Youth self-report of internalized distress, specifically in the BASC categories of Locus of Control, Social Stress, Anxiety, Clinical Maladjustment, and Global Emotional Symptoms. The results may be considered positive in that participating in the group was the only difference between the treatment and control groups, suggesting that the aforementioned decreases in youth self-reports of internalized distress can be attributed to group participation. No significant differences were evidenced between pre-treatment and post-treatment mean scores of youth self-reports on the ERS–Y or APS, or on BASC parent reports for the treatment group. Additionally, no significant differences were noted between pretest and posttest mean scores for the control group on any measure. Assuming the desire to reduce externalizing behaviors as reported

Table 1a Paired Sample t Tests on Treatment Group

				95% Confidence Interval of the Difference				
	Mean	*Std. Deviation*	*Std. Error Mean*	*Upper*	*Lower*	*t*	*df*	*Sig. (2-tailed)*
Locus of Control	4.66	9.03	1.68	1.22	8.09	2.78	28	.010
Social Stress	4.45	7.24	1.34	1.69	7.20	3.31	28	.003
Anxiety	5.03	7.80	1.45	2.07	8.00	3.47	28	.002
Clinical Maladjustment	4.76	7.31	1.36	1.98	7.54	3.51	28	.002
Emotional Symptoms Index	4.82	6.82	1.29	2.18	7.46	3.74	27	.001

Table 1b Corresponding Effect Sizes for Paired Sample t Tests

	Mean	*N*	*Std. Deviation*	*Std. Error Mean*	*Cohen's d*	*Average Std. Deviation*
Locus of Control Pretest	52.62	29	8.21	1.53	−0.54	8.55
Locus of Control Posttest	47.97	29	8.89	1.65		
Social Stress Pretest	50.03	29	7.59	1.41	−0.56	7.95
Social Stress Posttest	45.59	29	8.32	1.55		
Anxiety Pretest	48.55	29	8.95	1.66	−0.59	8.47
Anxiety Posttest	43.52	29	7.98	1.48		
Clinical Maladjustment Pretest	50.62	29	8.56	1.59	−0.54	8.79
Clinical Maladjustment Posttest	45.86	29	9.01	1.67		
Emotional Symptoms Index Pretest	51.25	28	9.61	1.82	−0.54	8.90
Emotional Symptoms Index Posttest	46.43	28	8.18	1.55		

by parents and school personnel, these outcomes are limited. Effect sizes were calculated for each paired sample using Cohen's d (1969). As indicated in Table 1b, small to moderate differences were found for each.

Validity of Addressing Emotional Regulation in Treatment

The second purpose of the study is to examine the validity of emotional regulation as a mediating factor for child and adolescent pathology and as a treatment consideration. As illustrated in Table 2, most of the child reported ERS–Y Cognitive, Behavioral, and Social Skills scales correlated significantly and moderately with previously validated clinical measures (.32 to .78). Physical Skills, however, did not significantly correlate with virtually any of the clinical measures. Of 38 possible correlations, Physical Skills significantly correlated with only one, the APS Social Adaptation scale (.33, at level .05 significance). Given that many school based interventions include a component of physical skills training to attenuate children's subjective experience of stress (i.e., arousal reduction, relaxation techniques), this is a particularly compelling finding. Consistent with previous research (Kazdin & Weisz, 2003; Prout & Prout, 1998; Reinecke, Dattilio, & Freeman, 2006) among the four emotional regulation factors examined, cognitive self-regulation had the most robust relationship with almost all adjustment outcome measures, especially for the younger subjects. Conversely, the parent reported ERS–Y Cognitive, Behavioral, and Social Skills scales did not correlate significantly with any previously validated clinical measures. Therefore, while both

Table 2 Pearson Correlation Between BASC/APS Youth Self-reports and ERS Scales at Pre-test

	ERS Behavioral Skills	*ERS Cognitive Skills*	*ERS Social Skills*	*ERS Physical Skills*
BASC Attitude to School	−.42*	−.61**	−.42*	−.00
BASC Attitude to Teachers	−.46*	−.67**	−.48*	−.13
BASC Atypicality	−.32	−.778**	−.46*	−.02
BASC Locus of Control	−.55**	−.72**	−.42*	−.09
BASC Social Stress	−.43*	−.65**	−.22	.14
BASC Anxiety	−.36*	−.50**	−.08	.23
BASC Depression	−.52**	−.75**	−.44*	−.10
BASC Sense of Inadequacy	−.49*	−.64**	−.40*	−.08
BASC Relation with Parents	.23	.46*	.47*	.09
BASC Interpersonal Relations	.60**	.65**	.29	−.01
BASC Self-Esteem	.15	.54**	.21	−.09
BASC Self-Reliance	.41*	.53**	.29	.08
BASC School Maladjustment	−.49*	−.72**	−.51**	−.07
BASC Clinical Maladjustment	−.48*	−.77**	−.35*	.06
BASC Personal Maladjustment	.50*	.73**	.41*	.02
BASC Emotional Symptoms	−.53**	−.77**	−.33*	.06
APS ADHD	−.41*	−.19	−.38*	−.26
APS Conduct Disorder	.30	.25	.23	.23
APS Opp. Defiant Disorder	−.49**	−.44*	−.45*	−.22
APS Adjustment Disorder	−.41*	−.44*	−.289	−.19
APS Substance Abuse Disorder	−.29	−.15	−.03	−.00
APS Somatization Disorder	−.25	−.17	−.09	−.14
APS Gen. Anxiety Disorder	−.55**	−.47*	−.45*	−.11
APS Social Phobia	−.27	−.32*	−.23	.13
APS PTSD	−.56**	−.39*	−.47*	−.05
APS Major Depression	−.54**	−.51**	−.44*	.04
APS Dysthymic Disorder	−.45*	−.39*	−.26	.06
APS Mania	−.36*	−.31*	−.27	−.06
APS Avoidant Personality Disorder	−.40*	−.41*	−.39	−.01
APS Self-Concept	−.20	−.19	.13	.27
APS Psychosocial Substance Use	−.04	−.17	−.04	.02
APS Introversion	−.28	−.37*	−.07	.13
APS Alienation- Boredom	−.41*	−.44*	−.28	.09
APS Anger	−.48*	−.48**	−.55**	−.17
APS Aggression	.27	.17	.22	.18
APS Interpersonal Problems	−.64**	−.53**	−.54**	−.21
APS Emotional Lability	−.53**	−.55**	−.52**	−.02
APS Social Adaptation	.36*	.23	.49*	.33*

Note. **correlations are significant at $p < .01$ (2-tailed), *correlations are significant at $p < .05$ (2-tailed).

parent and child self-reports of emotional regulation were examined, the self-reports of emotional regulation appear to have greater concurrent validity in relation to measures of clinical maladjustment.

The unique contributions and interactive effects of each domain of the ERS–Y were examined in relation to the internalizing/externalizing domains of the APS and BASC via AMOS–4 structural equation modeling. The predictor variables of internalizing versus externalizing and clinical versus personality disorder were each complexly determined by a combination of the ERS–Y domains. The variance accounted for ranged from .30 to .55 (Anxiety = .30, Social Stress = .42, Depression = .53, School Maladjustment = .53, Clinical Maladjustment = .55) (see example Figure 1).

A stepwise multiple regression analysis was performed to assess the extent of the relationship between the domains of emotional regulation and measures of youth maladjustment. The findings, as illustrated in Table 3, suggest that cognitive skills have a significant and substantial impact on almost all measures of subjective distress as self-reported by youth on the BASC, our chosen self-report measure for pre-adolescent participants. In conjunction with the data illustrated in Tables 1 and 2, this finding contradicts the literature base on the effectiveness of cognitive-behavioral therapy (CBT) with children and adolescents which has suggested that CBT is substantially more effective with adolescents than with younger children (Holmbeck, Neff Greenley, & Franks, 2003). These findings, instead, suggest that cognitive self-regulation is a potent factor in moderating adjustment, even for younger children.

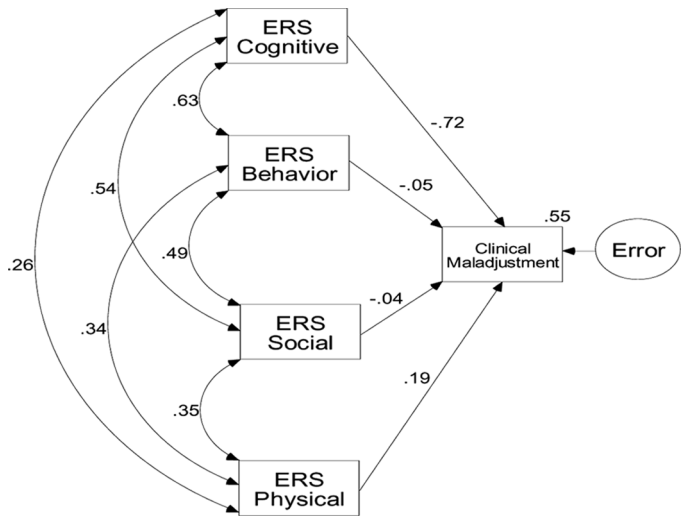

Figure 1 AMOS–4 Structural Equation Model: ERS Scales and BASC Clinical Maladjustment. Unique and interactive contributions of ERS domains to the prediction of BASC Clinical Maladjustment scale.

Table 3 Regression Analysis of BASC and ERS scales (n = 33)

Dependent Variables: BASC Scales	*Significant Predictor Variable(s): ERS*	*df*	*F*	*Sig.*	*R Square*	*Beta*	*t*	*Sig.*
Anxiety	Cognitive	32	10.44	.003	.23	−.50	−3.20	.003
Attitude to School	Cognitive	32	22.10	.000	.40	−.65	−4.70	.000
Attitude to Teachers	Cognitive	32	25.81	.000	.44	−.67	−5.10	.000
Atypicality	Cognitive & Behavioral	32	28.17	.000	.63	−.77	−6.80	.000
Clinical Maladjustment	Cognitive	32	41.63	.000	.56	−.76	−6.45	.000
Depression	Cognitive	32	45.52	.000	.58	−.77	−6.75	.000
Emotional Symptoms	Cognitive	32	50.45	.000	.61	−.79	−7.10	.000
Esteem	Cognitive & Behavioral	32	11.81	.000	.40	.57	3.82	.001
Inadequacy	Cognitive	32	25.42	.000	.43	−.67	−5.04	.000
Interpersonal Relationships	Cognitive	32	25.98	.000	.44	.68	5.10	.000
Locus of Control	Cognitive	32	30.32	.000	.48	−.70	−5.51	.000
School Maladjustment	Cognitive	32	35.17	.000	.53	−.73	−5.93	.000
Social Stress	Cognitive	32	21.21	.000	.41	−.64	−4.61	.000
Personal Maladjustment	Cognitive	32	41.03	.000	.57	.76	6.41	.000
Self-Reliance	Cognitive	32	11.05	.002	.26	.51	3.32	.002

DISCUSSION

K–12 schools, residential psychiatric settings, and restrictive environments such as prisons often utilize a group counseling format because positive and critical feedback from group members can be more therapeutically effective than individual counseling. Further, provided that goals can be met effectively, a group format allows for optimal use of limited school resources. The results of this study are of significance in youth group counseling practice because they illustrate that specific domains of emotional regulation have a strong relationship to measures of clinical maladjustment and therefore, may be an important treatment consideration. Moreover, these results suggest that emotional regulation in youth can be positively affected in a peer group treatment format.

The lack of consistency between parent and child reports on the clinical maladjustment measures both pre and post-treatment is somewhat undesirable but not unexpected. These results are consistent with the meta-analysis on the efficacy of school-based group counseling and psychotherapy by Prout and Prout (1998), who noted that the greatest impact was on self-report variables (as opposed to adult reports) and variables reflective of more internal states (as opposed to overt behavioral changes). Moreover, children and adolescents often do not share the perspective of their parents when judging the impact of their behavior on their daily functioning or the level of disturbance experienced by others.

Similarily, the parent reported ERS–Y scales did not correlate significantly with any previously validated clinical maladjustment measures, while the youth self-reports on the ERS–Y Cognitive, Behavioral, and Social Skills scales correlated strongly with the majority of clinical maladjustment measures. In addition to the meta-analytic findings of Prout and Prout (1998), who noted that the greatest impact of school-based interventions was on youth self-report variables, there is evidence to suggest that while parents accurately identify some of the stressors and coping behaviors that children report, children are able to understand and describe their emotional reactions to life events and thus are credible sources of information about their own stress levels and coping skills (Bagdi & Pfister, 2006). Therefore, while both parent and child self-reports of emotional regulation were examined, only the child self-reports appear to have a robust relationship with validated measures of clinical maladjustment of the youths assessed in this study and may be considered to have a legitimate role in treatment considerations. Clearly, reducing an individual's emotional distress is a positive achievement in itself, and one which may in turn moderate more positive behavioral outcomes in the

future. This speculation is based on the aforementioned premises of "mediating" treatment variables (i.e., cognitions and self-regulation) and must be supported by additional research.

Equally notable, consideration of emotional regulation deficits among group members and their relationship to behavioral outcomes appears to be an important element in refining group treatment approaches. Group counseling may play a vital role in the treatment of emotional regulation because feedback from peers is likely more impactful on behavior than from a counselor in individual therapy (DiGiuseppe, 1999; Goldstein, 2004). Due to the influence of multiple viewpoints, the group experience may stimulate new perspectives among children and adolescents on strategies for self-regulation and ways of coping that individual counseling may miss (Reinecke, Dattilio, & Freeman, 2006).

While this study helps to clarify some important considerations in improving the efficacy of prosocial behavior intervention in schools, it is subject to some limitations that preclude the generalizability of its findings. First, the student participants referred for participation in this study largely presented with externalizing problems, thus the data do not inform us of specific treatment implications for students primarily presenting with internalizing problems. It is our assertion that this assessment profile is typical of the majority of youth referred for prosocial interventions at school. As Kazdin and Weisz (2003) assert, youth with externalizing behavior problems (i.e., "disturbing" youth) are more likely to be referred by caregivers and teachers for such programs than are youth with internalizing symptoms (i.e., "disturbed" youth). The results of this study do suggest, however, that students presenting primarily with internalized emotional symptoms may be neglected in common methods of selection of candidates for group intervention programs. Because these findings illustrate a fundamental relationship between cognitive regulation and both internalizing and externalizing behaviors, assessments of cognitive regulation skills may cast a wider net in identifying students in need of service then standard referral processes which appear to skew toward identification of students with externalizing problems. Paradoxically, this study also suggests that, in comparison with externalized conduct problems, internalized symptoms may respond better to the group-based interventions similar to that which we formulated from *The Prepare Curriculum*.

Another limitation was the treatment program itself. While a manualized treatment approach was selected to ensure a reasonable degree of treatment integrity, the nuances attributable to different group facilitators and/or school settings was not controlled for. Moreover, though the treatment program incorporated a multi-dimensional

format common to many school based interventions, only a circumscribed range of interventions was utilized. Ultimately, the treatment outcomes among our participants were rather restricted. Our assertion is that one path to improved program efficacy may be to identify mediating variables, such as emotional regulation, that can inform therapeutic approaches beyond the one-size-fits-most model of manualized treatments so often used in schools.

Our findings suggest that behavioral and social skills, while less ubiquitous than cognitive skills in their contributions to measured clinical maladjustment and adaptive skills, still have moderate influence. To maximize intervention efficacy, goals and objectives designed to target and improve specific behavioral and social skills should be determined via systematic evaluation (e.g., valid and reliable assessment instruments, functional behavioral assessment, applied behavioral analysis) and be used judiciously. Further research may examine the nuances of behavioral and social skills training more closely since they seemed to have marginal influence on emotional regulation.

Despite the popularity of utilizing relaxation techniques in group interventions, it appears that physical skills training may have limited efficacy in group primary or secondary intervention programs. Clinicians should consider that somatic arousal patterns can vary widely and are specific to a child's unique response to psychological stress. It may be that children who require such intervention are likely to have a better chance of mastering and generalizing coping techniques if given individualized intervention.

Among the four emotional regulation factors examined, cognitive regulation had a robust relationship with almost all adjustment outcome measures and stands as the most prominent factor supported in treatment planning per youth self-reports across age groups. This finding contradicts the literature suggesting that cognitive-behavioral therapy (CBT) is substantially more effective with adolescents than with younger children. Presumably this has been asserted because older children and adolescents, who are in the formal operational stage of Piagetian development, are more adept at symbolic processing which fosters self-reflection, metacognition, and consequential thinking. Taken at face value, that conceptualization suggests that therapeutic interventions for younger children should be weighted less heavily with cognitive strategies than behavioral strategies (Holmbeck, Neff Greenley, & Franks, 2003). Conversely, our findings suggest that cognitive self-regulation is of utmost importance in moderating outcomes for an expansive range of social and emotional maladjustment, even for younger children. A reasonable hypothesis based on these findings suggests that programs aimed at reducing

internalized and externalized emotional symptoms must duly and primarily address specific goals and objectives for targeted cognitive regulation skills. A clear limitation of these findings is a lack of comparison outcome data on groups targeting primarily cognitive skills. Nevertheless, these findings strongly support that the key to improved treatment efficacy is, in part, assessing specific needs in cognitive self-regulation. The group facilitator is then challenged to select from the vast array of cognitive techniques and deliver them in developmentally appropriate ways. For example, in a 10 week program, 8 weeks of the curriculum could focus on cognitive goals and objectives. Additionally, activities focusing on cognitive skills, such as Hassle or Problem Logs (Goldstein, 2004, pp. 259, 521) could be infused throughout the 8 weeks. For younger children, this likely means less emphasis on symbolic language in favor of more concrete techniques designed to identify and challenge maladaptive "self-talk" and faulty attributions (e.g., puppet play, modeling, role-plays, story telling). Additionally, clinicians may consider which types of faulty or maladaptive cognitions are more likely to surface among certain ages. For example, younger children may be more prone to "magical thinking" and may benefit from examination of cause-and-effect relationships. Older children and adolescents, with their characteristic egocentrism plus their newly found powers of logical thought are more likely to be searching for absolute truths, and thus, may be more prone to cognitive errors in overgeneralizations (e.g., "black and white thinking").

This study focused specifically on the relationship between emotional self-regulation (in the cognitive, behavioral, physical, and social domains) and behavioral/emotional adjustment. The robust findings in this area support that examining emotional self-regulatory deficits can inform treatment options and that a brief measure of emotional self-regulation can be an effective tool in school-based needs assessment. However, published, norm referenced instruments are currently lacking in availability. The instrument utilized for this study, the ERS–Y (Kovacs, in press), is not yet available for purchase and evidence of its reliability and validity must be more fully supported. Another limitation of the study is that the findings are confined to those specific self-regulatory variables as measured by the ERS–Y and do not address all practical needs in treatment planning. Along with intra-child variables such as cognitive development, physiological and psychiatric conditions, clinicians must also be mindful of the systemic and ecological profile of the child in determining other mediating variables which may inform treatment. Efforts to refine direct treatment of the child ideally should be enhanced by involving parents and other significant adults/youths in strategies to augment and generalize treatment effects.

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APPENDIX

Group Curriculum Outline

Session 1: Introduction: Rationale. Rules and regulations. Overview of problem-solving steps. Problem log and review of session 1.

Session 2: "Stop and think": Rationale. Review session 1. "Stop and think." "Be a detective." Role-play: "Stop and think." Review session 2.

Session 3: "Problem identification": Rationale. Review session 2. Learn to define. What's the problem? Ways to define a problem. Role-play: "Stop and think" plus "Problem identification." Review session 3.

Session 4: "Gathering information/own perspective": Rationale. Review session 3. "Fact or opinion: What do I see? What are the facts?

Information: What do I see? What do I need to know?" Role-Play: "Stop and think" plus "Problem identification" plus "Gathering information/own perspective." Review session 4.

Session 5: "Gathering Information/Others' Perspectives": Review session 4. "Others' views: What do others see? What do others think? Others' emotions: What do others feel?" Role-Play: "Stop and think," "Problem identification," and "Gathering information/own and others' perspectives." Review session 5.

Session 6: "Alternatives": Rationale. Review session 5. "Options: What can I say of do? Brainstorming: What are my choices?" Role-Play: "Stop and think," "Problem identification," "Gathering information/own and others perspectives," and "Alternatives." Review session 6.

Session 7: "Evaluating Consequences and Outcomes": Rationale. Review session 6. "Consequences: What will happen if I do or say that? Choices: How do I decide what to do?" Role-play: "Stop and think," "Problem identification," "Gathering information/own and others' perspectives," "Alternatives," and "Evaluating consequences and outcomes." Review session 7.

Session 8: Practice: Rationale. Review session 7. Role-Play: "Stop and think," "Problem identification," "Gathering information/own and others' perspectives," "Alternatives," and "Evaluating consequences and outcomes." Reinforcement. (Goldstein, 2004, pp. 507–581).

Sessions 9 & 10: Identifying individual stressors and practicing arousal reduction via positive coping statements, guided imagery, relaxation, and diaphragmatic breathing (Goldstein, 2004, pp. 459–505).