Conduct Problems and Peer Rejection in Childhood: A Randomized Trial of the Making Choices and Strong Families Programs

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This article discusses the effectiveness of a multicomponent intervention designed to disrupt developmental processes associated with conduct problems and peer rejection in childhood. Compared with 41 children randomized to a wait list control condition, 45 children in an intervention condition received a social skills training program. At the same time, their parents participated in an in-home family intervention. Compared with control group children, intervention children demonstrated significant improvements on five of six outcome measures. Differences between the experimental and control groups suggest the programs strengthen children's prosocial behavior, promote their ability to regulate emotions, and increase social contact with peers. Intervention also was associated with significant improvements in classroom comportment and decreases in relational aggression, a measure of coercion in peer relationships. The findings are consistent with those of other programs effective in interrupting risk processes associated with conduct problems in childhood and early adolescence.

Keywords: *conduct problems; peer rejection; intervention; experiment; children*

Although there is no single pathway leading to conduct problems in childhood, a number of studies have implicated the early onset of stubborn, defiant, and aggressive behavior as a precursor of later fighting, violence, and drug involvement (Loeber & Farrington, 2001; Patterson, 2002). Children who use force to solve social problems often come from families where parent-child exchanges are physically and verbally coercive (Henry, Tolan, & Gorman-Smith, 2001). As a consequence of poor social skills, these children demonstrate poor school adjustment, and because of their aggressive interpersonal styles, they are likely to be rejected by their peers (Hanish & Guerra, 2002). A sequence of risk factors—beginning with a coercive home life and later involving rejection by peers—is emerging as a critical pathway in what is sometimes called the "early start" model of delinquency (Nagin & Tremblay, 2001; Reid, Patterson, & Snyder, 2002; U.S. Department of Health and Human Services, 2001). The purpose of this article is to describe the results of a study of a multielement intervention designed to interrupt early start processes by improving children's social skills and reducing peer rejection.

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Parenting and Family Stress: A Coercion Theory Perspective

Perhaps more than other influences in childhood, experiences in the family shape the behavior of children. Research suggests that children in some homes are literally but unintentionally trained to respond to authority with hostility (Reid et al., 2002). Inconsistent parental supervision of children, use of harsh punishment, failure to set limits, neglect in rewarding prosocial behavior, and a coercive style of parent-child interaction are correlated

highly with antisocial, aggressive behavior in children from many different cultural and ethnic backgrounds (Bird et al., 2001; Henry et al., 2001). When an oppositional child engages in an aggressive behavior, most parents will intervene. Research shows, however, that some parents do not intervene consistently. Moreover, when they intervene, they employ excessive force and negative affect to induce compliance (Stormshak, Bierman, McMahon, Lengua, & Conduct Problem Prevention Research Group, 2000).

Although families that use this style of coercive child management often have strengths, children in these homes learn poor problem-solving skills (Patterson, 2002). When faced with an undesired request, they tend to respond mimetically with yelling, threatening, hitting, and otherwise escalated behavior to achieve a desired goal. At such a point, more skillful parents will take decisive and preemptive action such as a timeout, loss of a privilege, or curtailment of an activity. But parents who employ a coercive style of discipline are more likely to withdraw, passively granting consent. Parental acquiescence rewards the child's aversive behavior, exacerbates parental frustration, and disrupts parent-child attachment (Patterson, Dishion, & Yoerger, 2000; Patterson, Forgatch, Yoerger, & Stoolmiller, 1998). Aggressive behavior becomes rewarding for children in families when parents employ a coercion-acquiescence style of child management (Eddy, Leve, & Fagot, 2001). For children who have high biological risk (e.g., as a result of exposure to environmental toxins such as lead) or who are unusually provocative (e.g., as a result of hyperactivity and poor impulse control, which may also have biological roots), this pattern of parent-child interaction may increase conduct problems (Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998; Wasserman & Seracini, 2001).

The conditions that give rise to coercive parenting are not clear; however, social isolation and other environmental stresses—poverty, poor housing, inadequate health care, and neighborhood violence—are known to complicate parenting (Capaldi, DeGarmo, Patterson, & Forgatch, 2002). These conditions directly affect the resources available to children, and they indirectly affect the character of family life. Indeed, the association between family factors and conduct problems is stronger in low-income, highly stressed neighborhoods than it is in middle-income, more resource-rich neighborhoods (Beyers, Loeber, Wikstrom, & Stouthamer-Loeber, 2001; Henry et al., 2001). Because socioeconomic stress is related both to family processes and to the health and well-being of children, addressing it is a crucial element of family interventions.

Peer Rejection

As suggested previously, many children who are disruptive have histories of coercive, intimidating social relations that begin in early childhood (Miller-Johnson, Coie, Maumary-Gremaud, Lochman, & Terry, 1999; Olson, Bates, Sandy, & Lanthier, 2000). To be sure, use of force is part and parcel of establishing a social order in childhood (Bierman, Smoot, & Aumiller, 1993), but by the start of elementary school, children demand more social competence of their friends (Patterson & Yoerger, 2002). Among socially accepted children, problem solving with less resort to coercion is expected.

For some aggressive girls and boys, the result is increasing rejection by other children (Hektner, August, & Realmuto, 2000). Because they may be outside the influence of prosocial peer groups, these isolated children are at increased risk for associating with delinquent peers and of experiencing a variety of other problems in the school and community (Fergusson, Swain-Campbell, & Horwood, 2002; Lonczak et al., 2001). A less skilled, relationally coercive style of interaction adds a significant increment of risk to early aggressive behavior because it heightens peer rejection, constrains opportunities, and alters environmental contingencies.

Elements of Social Competence: Social Information Processing (SIP) and Emotional Regulation

Research shows that developmental deficits in children's cognitive processes and social skills, such as the capacity to regulate arousal, are associated with early aggressive behavior (Lengua, 2002; Wasserman et al., 2003). Although emotional regulation is a foundational aspect of social competence, children's cognitions, especially their interpretations of social information and decisions regarding alternative responses to problem situations, also define social competence. Responses to social circumstances follow a sequence of information-processing steps that underpin social exchange (Crick & Dodge, 1994; Pakaslahti, 2000). Mastery of these processing skills plus the ability to modulate affective intensity and control the valence of emotion (negative to positive) are thought to potentiate a child's ability to navigate social situations (Leve, Pears, & Fisher, 2002). Whether learned through familial and peer processes or via professional intervention, these skills influence a child's social

adjustment and life course (Coy, Speltz, DeKlyen, & Jones, 2001).

MULTIELEMENT PROGRAMS TO PREVENT CONDUCT PROBLEMS

Studies focusing on strengthening the social problem-solving skills of aggressive children have demonstrated significant improvements in children's social competence, school comportment, self-esteem, and conduct (Battistich, Solomon, Watson, & Solomon, 1989; Burns et al. 2003; Gottfredson, 1998; Grossman et al., 1997; Kazdin, Esveldt-Dawson, French, & Unis, 1987a, 1987b; Lochman, Coie, Underwood, & Terry, 1993; Rathvon, 1999). Additionally, parenting training and in-home family interventions have proven to be effective treatment for conduct problems (Brestan & Eyberg, 1998; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Spoth, Redmond, & Shin, 2000). In recent prevention projects, school- and family-related interventions have been combined with child skills training to promote home-school collaboration. For example, Dishion and Andrews (1995) partitioned the effects of four intervention conditions: parenting skills training, teen skills training, parent and teen skills training, and a materials-only comparison group. Combined parent and teen interventions resulted in beneficial effects in observed and reported family conflict. The parenting intervention also decreased teen behavioral problems at school and teen tobacco use. However, aggregating high-risk youth into the skills training groups resulted in postprogram problem escalation (Dishion, Poulin, & Burraston, 2001).

In an elementary school study, first-grade classrooms in nine Baltimore schools were randomly assigned to one of two intervention conditions or to a control condition. The first intervention involved enhancements to the academic curriculum (e.g., the routine math curriculum was replaced with a new curriculum), a weekly classroom meeting designed to teach social problem-solving skills and resolve classroom disputes, and the "good behavior game"—a structured activity in which children are divided into heterogeneous groups and points are earned on the basis of prosocial behaviors (Kellam, Ling, Merisca, Brown, & Ialongo, 1998). The second intervention consisted of a family support program. It involved efforts to strengthen parent-classroom partnerships by training teachers to work with parents, implementing weekly home-school activities, and providing a series of nine parent workshops on such material as effective praise, limit setting, timeouts, and problem solving. By the end of the second grade, the classroom intervention resulted in lower referral rates to special education and mental health services. Relative to the control group, both the classroom and the family support interventions improved children's cognitive concentration in class and social contact with peers. Treatment effects persisted at sixth-grade follow-up, with Grade 1 to Grade 2 increases in cognitive concentration and social contact predicting Grade 6 conduct problems. This suggests that social contact and cognitive concentration—measures used in this study—may mediate longer term developmental outcomes (Ialongo, Poduska, Werthamer, & Kellam, 2001).

Other projects incorporate skills training in child and family interventions. In Oregon, the Linking the Interests of Families and Teachers or LIFT program combined classroom skills training with parenting training in a 10-week intervention for first-grade and fifth-grade students (Reid, Eddy, Fetrow, & Stoolmiller, 1999). Observations of both mother-child and child-child interactions suggested that the program reduced maternal aversive behavior and child physical aggression (Reid et al., 1999; Stoolmiller, Eddy, & Reid, 2000). More comprehensive, the Seattle Social Development Project was a nonrandomized trial of a multielement intervention with children in Grades 1 through 6 in eight elementary schools in high-risk areas of Seattle. The intervention consisted of changes in classroom instruction and management, child skill development, and parenting, including skills training in discipline and methods to strengthen home-school collaboration. Six years after the close of services, findings favored the intervention condition on a variety of child outcomes including school commitment, school attachment, self-reported achievement, grade completion, school misbehavior, heavy drinking, number of sex partners, pregnancy or causing pregnancy, and violent offenses (Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999; Lonczak, Abbott, Hawkins, Kosterman, & Catalano, 2002).

Finally, in the Fast Track program, 56 elementary schools were assigned to either intervention or control conditions. Still being evaluated, the program consists of seven integrated universal and selective prevention interventions. The universal element is delivered in classrooms and uses a skills training program called PATHS (Kusche & Greenberg, 1994). The selective element provides services to high-risk children and their parents. Services include parent groups, academic tutoring, and school enrichment. Evaluations at the end of Grade 1 showed positive program effects on children's social, emotional, and academic skills; peer interactions and social status; and conduct problems (Conduct Problem

Prevention Research Group, 1999). Although some effects were maintained on social outcomes in the third grade, the effects on academic outcomes in the first grade were not maintained in the third grade after 2 additional years of intervention. For social outcomes, the effect sizes for significant group differences at the third grade were in the moderate range (Conduct Problem Prevention Research Group, 2002).

Across these and a variety of other school-related prevention studies, the research indicates that well-timed and carefully constructed interventions can be effective (Burns et al., 2003). Several directions for future initiatives are suggested by these studies. First, multicomponent programs that focus on individual, family, and school risk factors are warranted. Second, targeting early elementary school may be critical. Patterson et al. (2000) concluded that research should focus on "some point prior to Grades 4 or 5" (p. 10). Third, interventions that aggregate antisocial youth present the potential for iatrogenic effects or "deviancy training" where problem behavior is rewarded and inadvertently accelerated (Dishion, McCord, & Poulin, 1999). Mixing disruptive and prosocial peers in treatment groups or providing interventions in normative settings, such as the classroom, may be a critical component of group interventions. Last, because virtually no intervention study has measured both physical and relational aggression, research that focuses on both types of coercion is needed.

The Strong Families (SF) and Making Choices (MC) Programs

Informed by previous research, the SF and MC interventions were developed. Both programs provide a sequence of activities designed to interrupt risk processes. SF is composed of 15 lessons on child development, parent-child communication, family problem solving, and discipline. MC contains 30 lessons on children's social cognition and skills. Both manuals include (a) a summary of theory and research related to risk factors for childhood aggression and peer rejection, (b) strategies for enhancing cultural competence when working with children and families from a variety of backgrounds, and (c) practice tips on issues such as building relationships with family members, understanding group processes, and tailoring content to meet the unique needs of families.

SF. Using work from parenting training, family preservation, and multisystemic family treatment (e.g., Fraser, Nelson, & Rivard, 1997; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998; Spoth et al., 2000) and a coercion theory perspective, the SF program is designed to increase parenting skills such as limit setting, problem solving, and rewarding of prosocial behavior. The manual provides content and exercises to engage parents in developing children's skills, and it provides links to the MC program. Designed to be a brief intervention involving 15 to 30 hours of face-to-face contact, SF is delivered in the home, targeting the highest risk families who—because of poverty, lack of transportation, dangerous neighborhoods, or other problems—are unlikely to participate in office- or school-based services. It emphasizes solving concrete problems that produce stress and isolation. Prior to the start of core services, family specialists work with parents to resolve health, housing, and employment problems.

MC. The purpose of the MC program is to teach social problem-solving skills to children and to reduce peer rejection (Fraser, Nash, Galinsky, & Darwin, 2001). MC is based on social information processing (SIP) (Crick & Dodge, 1994), social preference (Warman & Cohen, 2000), emotional regulation (Eisenberg, Fabes, Guthrie, & Reiser, 2002), and social skills research (Griffin, Botvin, Scheier, Epstein, & Doyle, 2002). The curriculum outlines a skill-building program that is designed to help children build enduring friendships, work more productively in groups, and respond positively to new social situations. Children who become more skillful in regulating emotions, managing attention, and solving social problems usually improve their ability to establish and maintain relationships with peers and authority figures such as teachers (Pakaslahti, 2000).

Based on six elements of SIP (i.e., encoding social clues, interpreting social information, formulating relational goals, generating alternative responses to social situations, choosing a particular response, and enacting a response), the program is designed to equip children with alternatives in how to perceive and think about social situations and in how to formulate social goals and responses. An important aim of the curriculum is to teach children ways to interact with others in a collaborative manner. In the program, children practice recognizing emotions that can arouse intense and potentially physical responses. They learn to use self-talk to choose between harmful and helpful responses to social situations, such as responses that lead to compromising versus sustaining friendships. In this sense, the program explicitly addresses both physically and relationally coercive behavior.

To reduce the potential for deviancy training effects associated with aggregating high-risk children in groups (for a discussion, see Dishion et al., 1999), MC is

designed for mixed-group settings. In this study, prosocial peers were recruited at the same time that at-risk children were recruited. The manual provides instructions for recruiting and working with groups composed of a range of children from prosocial to high risk or "targeted." The relative mix of prosocial to targeted children must favor prosocial children. Activities are designed such that group leaders make use of the heterogeneous mix of children.

METHODS

Participants

From nine sites in North Carolina, 115 children were recruited to participate in the project. A total of 62 children and their parents were randomly assigned to an intervention condition consisting of the MC and SF programs, whereas 53 children and their parents were randomized to a wait list control condition. The children ranged in age from 6 to 12 years ($M = 8.8$, $SD = 1.4$).

Procedures

Sites. Sites were selected purposively on the basis of interest in the program and availability of resources. Of the sites, six were in urban areas and three were in towns or rural communities. Services for children were delivered in after-school settings at seven of the sites either on a school campus or in Boys and Girls Clubs, YMCAs, or churches. Two sites conducted MC during school hours by drawing children from nonacademic classes. SF was delivered in home at each site. Children varied in age across sites, but no post hoc pairwise comparison between sites was significant. Sites varied significantly on the basis of child gender (chi-square = 21.442, $df = 7$, $p = .003$).

At each site, a local agency was identified to provide experimental services during the school year. The staff members at these agencies had education, school psychology, and social work backgrounds. From the researchers, MC and SF practitioners received 6 hours of manual-based training at the beginning of the program. Subsequently, they were supervised by research staff members who conducted biweekly telephone consultation or site visits during the year. Practitioners were asked to complete treatment integrity forms to provide process-related information for revising the treatment manuals and to track the implementation of the interventions. Data from these forms were used in clinical supervision to monitor treatment fidelity. Not all practitioners recorded the number of hours of service provided or filled out the treatment integrity forms for all sessions. However, based on available reports, children received on average 28 hours of MC training, and emotional regulation and SIP material from the manual was fully covered. Families received an average of 26 hours of SF service, comprising both concrete assistance and manual-based training.

Recruitment and informed consent. Classroom teachers referred children to the project on the basis of two criteria. The first was aggressive behavior defined as "frequent hitting, arguing, defiance, or anger." The second criterion was rejection by prosocial peers defined as "being not liked by or isolated from classmates." In face-to-face interviews with parents of referred children, project staff members provided information about the two interventions and data collection procedures.

To ensure that the MC intervention was composed of a heterogeneous mix of children with and without conduct problems, teachers nominated at the same time a separate pool of prosocial peers who were on grade level for their age, demonstrated appropriate social skills, and had consistent attendance in school. These prosocial peers were included in the MC children's intervention groups. After parent consent was obtained, all children participating in the program—both children referred for conduct problems and those recruited as prosocial peers—were asked to give informed assent. Outcomes were measured only for the at-risk students, not prosocial peers. All findings refer to the youth referred for aggressive behavior and rejection.

All children with conduct problems and their parents who agreed to participate in the study were randomly assigned to either an MC + SF intervention or a wait list control condition. In the intervention condition, children participated in MC in after-school or school settings. Their parents or caretakers participated in the home-based SF program. Children in the control condition continued to participate in any routine services they may have been receiving. At the conclusion of the study, children and parents or caretakers in the control condition were offered the MC and SF programs.

Dropout and missing information. A total of 11 consenting participants dropped out of the study (treatment = 7; control = 4) during or prior to the completion of services and posttest assessment. Furthermore, pretest or posttest information was incomplete for 18 children (treatment = 10; control = 8), and these children were excluded from analyses. A nonparametric analysis com-

TABLE 1: ***Composition and Reliability of Outcome Measures (N = 86)***

Prosocial behavior (α = .847)	
Friendly	Is helpful to others
Good at understanding other's feelings	Resolves peer problems on his or her own
Can give suggestions and opinions without being bossy	
Emotional regulation (α = .818)	
Controls temper when there is a disagreement	Expresses needs and feelings appropriately
Thinks before acting	Can calm down when excited
Social contact (α = .849)	
Initiates interactions with others	Plays with others
Avoids social contact	Has social contact with others
Cognitive concentration (α = .954)	
Self-reliant	Learns to ability
Concentrates	Shows poor effort
Stays on task	Works well alone
Works hard	Easily distracted
Completes assignments	Eager to learn
Pays attention	Mind wanders
Relational aggression (α = .914)	
Yells at others	Stubborn
Teases classmates	Says means things about others
Excludes other kids from peer group	Excludes other kids from games or activities
Lies to make peers dislike	Can give suggestions without being bossy
Tells peers he or she will not like them unless they do what he or she says	
Authority acceptance (α = .908)	
Takes property	Fights
Stubborn	Teases others
Lies	Breaks things
Harms others	
Yells at others	
Breaks rules	
Has trouble accepting authority	

paring the two groups and the 86 remaining children (who participated in the study with complete pre- and posttest data) found no significant differences on age, sex, race/ethnicity, or pretest scale scores where available.

Measures

The Carolina Child Checklist–Teacher Form (CCC-TF) was developed to assess outcomes (Macgowan, Nash, & Fraser, 2002). The CCC-TF is an elaboration of the 37-item Social Health Profile that in turn is an adaptation of the 26-item Teacher Observation of Classroom Adaptation–Revised (Werthamer-Larsson, Kellam, & Wheeler, 1991). Previous research supported the dimensionality, internal consistency, and test-retest reliability of the Teacher Observation of Classroom Adaptation–Revised as well as its concurrent and predictive validity (Fast Track, 1997; Kellam, Branch, Agrawal, & Ensminger, 1975; Werthamer-Larsson et al., 1991). The CCC-TF relies on teachers to estimate peer sociometry on the basis of observed behaviors in classroom and play environments. Work with similar instruments has found that teacher ratings of peer sociometry can be highly reliable and valid, especially when related to aggressive behavior (Huesmann, Eron, Guerra, & Crawshaw, 1994). To assess relational aggression, the CCC-TF contains a modified version of the Relational Victimization subscale derived from the Social Experience Questionnaire (Crick & Grotpeter, 1996). The CCC-TF scales measure Prosocial Behavior, Emotional Regulation, Social Contact, Cognitive Concentration, Relational Aggression, and Authority Acceptance. Previous studies have found the CCC-TF to have a Cronbach's alpha of .95 for the entire instrument and test-retest correlation of .75 or higher (Macgowan et al., 2002). Shown in Table 1, the alpha reliabilities for this study range from .818 for Emotional Regulation to .954 for Cognitive Concentration.

TABLE 2: ***Sociodemographic Characteristics by Group***

	Strong Families Plus Making Choices (n = 45)	*Routine Control Group (n = 41)*	*Total (N = 86)*	p
Age (years)				
Mean (*SD*)	9.1 (1.4)	8.6 (1.3)	8.9 (1.4)	NS
Sex (%)				
Female	18 (40.0)	14 (34.1)	32 (37.2)	NS
Male	27 (60.0)	27 (65.9)	54 (62.8)	
Race/ethnicity (%)				
African American	40 (88.9)	33 (80.5)	73 (84.9)	NS
White not Latino	5 (11.1)	8 (19.5)	13 (15.1)	

NOTE: NS = not significant.

Analysis

Multivariate general linear modeling (also known as multiple analysis of variance) is used to estimate the effects of treatment (Stevens, 2002). Overall and univariate tests are reported. The experimental condition consisted of children who received MC while their parents received SF. For these analyses, participation in the intervention program was coded as a single variable (0 = routine services, 1 = MC + SF). When diagnostics indicated residuals greater than 2.5 *SD*s, the effect of outliers was estimated in sensitivity analyses comparing models with and without outliers. Outliers did not affect the findings. Following Tabachnick and Fidell (2001), findings are reported with outliers included.

Both site and race/ethnicity effects were found. Sites differed significantly (Wilks's lambda = .425, $F = 1.649$, $df = 42$, $p = .009$) on five of six pretest measures. Post hoc comparisons isolated two sites with significantly different pretest scores. A dummy variable was created for these sites. Controlling for pretest, posttest scores were related significantly to this site measure and to race/ethnicity. No effects for gender were found. Controls for site and race/ethnicity (African American = 1; White = 0) are included in general linear modeling analyses.

RESULTS

Shown in Table 2, the majority of the 86 participating children were male (63%), and more than four of five (85%) were African American. Pretest scores suggest that the children in both intervention and control groups were at greater than average risk. In comparison with a normative sample of third graders ($N = 343$) from the Fast Track project (Corrigan, 2003), mean scores of children in both groups were at least 0.65 *SD*s lower than the norm on all measures except Social Contact. For the Authority Acceptance scale, intervention-group children ($M = 2.99$, $SD = 1.06$) were about 1 *SD* lower (i.e., more aggressive) than the normative Fast Track sample ($M = 3.94$, $SD = 0.91$).

Controlling for site and race/ethnicity, no significant differences between experimental and control groups were observed at pretest (Wilks's lambda = .942, $F = .795$, $df = 6$, $p = .577$); however, the multivariate between-group posttest difference across all outcome measures was significant (Wilks's lambda = .788, $F = 3.187$, $df = 6$, $p = .008$, partial eta-square = .212). (See Table 3.) At the univariate level, significant posttest differences were observed on all measures except Authority Acceptance. Children in the experimental group were rated by teachers as having significantly more social contact with peers and engaging in significantly more prosocial behavior. That is, they were more likely to initiate interactions with peers and to demonstrate cooperative, friendly play. They were less likely to avoid social contact and play by themselves, both indicators of peer rejection. Intervention children also were rated as more skillful in expressing feelings appropriately, controlling their tempers, and calming down when excited—all elements of emotional regulation. Although the design does not permit a causal inference about relationships among the outcome measures, these changes may explain in part the greater social contact scores of children in the intervention group.

Shown in Table 3, children from the intervention group demonstrated increases in cognitive concentration in the classroom. Cognitive concentration describes behavioral skills related to school success. Compared with children in the control condition, teachers reported that children in the intervention group were working harder, paying more attention to instructions and assignments, staying on task longer, and completing more assignments.

Finally, children in the experimental groups were significantly less relationally aggressive with peers when compared with children in the routine services control

TABLE 3: ***Multivariate General Linear Model: Differences Between the Experimental and Control Groups at Posttest, Controlling for Pretest, Site, and Race/Ethnicity***

	Pretest					*Posttest*				
	MC + SF		*Routine*			*MC + SF*		*Routine*		
Outcome Measures	M	(SD)	M	(SD)	*Pretest* F *Value*	*M*	(SD)	M	(SD)	*Posttest* F *Value*
Prosocial behavior	2.45	(1.01)	2.37	(1.00)	NS	2.61	(1.00)	2.30	(.93)	10.682**
Emotional regulation	2.06	(1.14)	2.21	(1.07)	NS	2.19	(1.02)	2.01	(1.06)	4.659*
Social contact	3.44	(1.02)	3.57	(.96)	NS	3.65	(.86)	3.43	(.91)	4.610*
Cognitive concentration	2.42	(.97)	2.41	(1.18)	NS	2.62	(1.03)	2.37	(1.00)	8.966**
Relational aggression	3.49	(1.13)	3.57	(.93)	NS	3.61	(.85)	3.45	(.99)	4.697*
Authority acceptance	2.99	(1.06)	3.04	(1.01)	NS	3.27	(1.01)	3.27	(.96)	1.409
Wilks's lambda = .788										
F = 3.187										
df = 6										
p = .008										
Partial eta-square = .212										

NOTE: MC = Making Choices; SF = Strong Families. MC + SF indicates the experimental group in which children and parents received the Making Choices and Strong Families programs. Routine indicates the routines services control group. Lower scores indicate more antisocial behavior; higher scores indicate more prosocial behavior. The *F* values for pretest between-group differences are not significant. Pretest between-group differences are adjusted for site and race/ethnicity. Posttest between-group differences are adjusted for pretest, race/ethnicity, and site.
*$p < .05$. **$p < .01$.

group. Teacher ratings suggested that children who participated in the intervention were less likely at posttest to exclude other children from their peer groups, to tease other children, to yell at others, and to tell lies or say mean things to achieve social goals.

Overall, the effect of the intervention was large. A measure of effect size, partial eta-square (η_p^2) is the ratio of the variation explained by an independent variable—in this case, MC + SF—to the sum of the variation attributable to the independent variable of interest plus error (Tabachnick & Fidell, 2001). The multivariate effect size for MC + SF is $\eta_p^2 = .21$, in Cohen's (1988) large range of $\eta_p^2 > .14$. The univariate effect sizes for significant outcomes fall in Cohen's medium range ($.06 < \eta_p^2 < .14$): prosocial behavior ($\eta_p^2 = .12$), emotional regulation ($\eta_p^2 = .06$), social contact ($\eta_p^2 = .06$), cognitive concentration ($\eta_p^2 = .11$), and relational aggression (Cohen, 1988; see also, Stevens, 2002).

DISCUSSION AND APPLICATIONS TO SOCIAL WORK PRACTICE

This article describes the results of a selective prevention project designed to increase prosocial behavior, promote social involvement, and reduce aggressive behavior in children at risk of serious conduct problems. Combined, the MC and SF programs appear to strengthen children's social skills, increasing social involvement and social competence. Intervention also was associated with improved classroom behaviors related to academic achievement. In the same vein, intervention was related to decreases in relational aggression, a measure of coercion in interpersonal peer relationships. This finding is consistent with child development research suggesting that relational aggression and deficits in SIP skills, including skills in regulating emotions, are highly related (Crick, Grotpeter, & Bigbee, 2002).

In contrast with the gains shown by children in the intervention group, children randomized to a routine services group showed, on balance, slight declines in classroom behavior and social performance. This suggests that the program sampled children who were at marked risk and on a potentially eroding behavioral trajectory. It also underscores the need for early and effective intervention programs for high-risk children. By the end of the study, intervention children were rated by teachers as more socially competent—skillful in expressing feelings appropriately, controlling their tempers, calming down when excited, understanding others' feelings, being helpful, and resolving problems with peers. In a longitudinal experimental study using these same measures with a large public school sample of first-grade children, these constructs were shown to predict conduct problems in the sixth grade (Ialongo et al., 2001).

Three Practice Strategies

Three practice strategies emerge from and distinguish MC + SF: (a) teaching specific skills, (b) restructuring

opportunities and environmental contingencies, and (c) strengthening parenting while reducing family stress. First, specific skills related to known risk sequences were taught. For children, the findings suggest that SIP and emotional regulation skills enhanced social competence and reduced peer rejection. However, because the intervention effect includes the combined impact of two programs, the observed outcomes also could be attributed to changes in the problem-solving and child management skills of parents.

The second practice strategy focuses on changing structures: Environments were restructured to create new opportunities and to change contingencies for social participation. In MC, children were placed in mixed groups. For rejected children, the mixed group structure created opportunities to establish new friendships; it exposed children to role models, prosocial scripts, and noncoercive schema; and through choreographed activities, it produced group- and peer-related contingencies for cooperative play. In the home, SF workers taught parents to use charts of child behaviors—also, in a sense, new structures—that systematized providing rewards to children for prosocial communication, problem solving without resort to behavioral escalation, and timely completion of children's homework. These were designed to reinforce MC skills and promote behavior change in the classroom as well as in the home.

Finally, the third practice strategy of MC + SF involves reducing family stress prior to the provision of family communications and parenting content. As a part of SF, practitioners went to children's homes and assisted parents in accessing services. SF workers did not provide direct assistance but rather they worked with parents to obtain local services. They aided in making medical appointments for children and helped parents complete public assistance and health care applications. With all families, in-home intervention began with an assessment of concrete needs and the development of a plan to address food, health, and environmental problems. Only after these plans were developed did SF workers begin to engage parents in family communications, child discipline, and other skills-related content.

Tailoring Program Content to Culture, Ethnicity, Poverty, and Gender

Additionally, activities in MC and SF were tailored to the cultural and ethnic backgrounds of children and program content was sequenced to address points in child development when risk factors change in strength. By the third grade, aggressive behavior and peer rejection become important predictors of developmental outcomes (Patterson et al., 2000). Skills in processing social information and regulating emotions are strongly associated with aggressive behavior and peer relations, mediating early behavior problems and later peer rejection (Dodge et al., 2003). In addition to its relationship to developmental risk factors such as early aggressive behavior, the SIP framework was chosen because it was developed from culturally sensitive research on African American and other children who have high exposure to poverty, discrimination, and other factors that accelerate risk. Similarly, a coercion theory perspective grounded SF because coercive family processes have been shown to predict child outcomes in studies with samples of low-income African American, European American, and Latino parents (Henry et al., 2001).

Both the central risk processes and the means for delivering interventive content were developed from knowledge of the impact of culture, poverty, and gender on child development and social problems. Although research suggests that core parenting content may apply across the racial and ethnic backgrounds of families, the means for delivering content—for example, puppet plays, drawings of self or others, and stories—must constantly be viewed through the lenses of culture, language, religion, and other aspects of ethnicity. Similarly, gender differences such as those manifest in different conceptions of relational and physical aggression were incorporated into MC. Developing culturally relevant and gender-sensitive practice content is not an easy undertaking because knowledge about risk factors, especially knowledge about variation in risk and protective factors by age, gender, and race/ethnicity, is only now emerging (Fraser, 2004). In both programs, practitioners modified activities—although not core content—to ensure cultural and gender sensitivity. This kind of flexibility in the use of practice manuals is an essential part of tailoring services to the needs and conditions that confront children and families.

Limitations

The study has important design, measurement, and sample limitations. It tests the combination of the two programs and does not separately estimate the effects of skills training for children versus home-based, family-centered intervention. Given the findings, a factorial or dismantling design in which the effects of MC, SF, and MC + SF are separately estimated is warranted. From a measurement perspective, follow-up data and information from sources in addition to teachers (e.g., parent ratings, behavioral observation, and peer sociometry) are

needed to extend the sense of confidence about the outcomes and to assess the duration of treatment effects over time. Similarly, although dropouts and missing information pose challenges in all intervention studies, larger studies with follow-up and more data sources provide the possibility for intent to treat analyses and for multiple imputation of missing information. In addition, a larger sample might permit the estimation of treatment effects for boys and girls from different racial and ethnic backgrounds. A larger sample and a richer measurement model with follow-up data would permit more refined analyses of differential parent and child outcomes, including interactions between changes in the skills of parents, the skills of children, and developmental outcomes.

Finally, social desirability may have affected the ratings of some teachers. Teachers at two school sites where MC was provided during the day were aware of the identities of children in the experimental condition. Because services were provided after school and in the evenings, the teachers at the other seven sites were not likely to have known whether referred children were in the intervention or wait list control condition. It is, of course, possible that they would have become aware of children's assignment through discussions with the children or their parents. So although some two thirds of the teachers could not easily have discovered the treatment status of referred children, teachers were not fully blind to the random assignment, and the ratings of some teachers may have been influenced by their knowledge of the program— intervention or control—to which children were assigned. Caution is warranted in interpreting the findings.

Conclusion

Intervention research, such as this study of MC and SF, requires designing a new or modified service, changing routine activities in agencies or schools to deliver the service, providing ongoing supervision and support to promote treatment fidelity, and collecting data over time on outcomes. Although fraught with pitfalls, this kind of research is foundational for the growing movement in social work toward evidence-based practice and the development of practice guidelines (Rosen & Proctor, 2003). In practice with socially rejected children whose behavior is disruptive or aggressive, our findings suggest that these guidelines should include at least the following three strategies: (a) teaching skills in processing social information as a part of social problem-solving training, (b) restructuring opportunities and contingencies to increase interaction with socially accepted peers, and (c) strengthening parenting while reducing family stress.

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