

Changing the Way Children “Think” About Aggression: Social-Cognitive Effects of a Preventive Intervention

The Metropolitan Area Child Study Research Group

The study reports social-cognitive outcomes of interventions in a cluster-randomized school-based aggression prevention trial in low and moderate resource urban communities. Targeted social cognitions were aggressive responses, aggressive/prosocial fantasy, and normative beliefs supporting aggression. Participants were 1,484 early elementary school-age children selected for aggression above school medians. Schools received no treatment, curriculum plus teacher consultation (Level A), or Level A plus small-group training (Level B) over 2 years. The Level A condition changed the social cognitions supporting aggression in the desired direction but only in the moderate resource communities. The small-group component did not appear to add to the effect of the Level A condition. Findings suggest that early prevention can modify children’s social cognitions in moderate resource communities.

Keywords: prevention, social cognition, aggression, school-based intervention

In a recent article, we reported on the proximal effects on children’s behavior of a cognitive-ecological intervention to prevent the development of aggression in urban children living in low and moderate resource communities (Metropolitan Area Child Study Research Group [MACS], 2002). The intervention targeted the child’s developing cognitive processes across contexts, specifically the classroom, the peer group, and the family. Three intervention conditions were evaluated: Level A consisted of a classroom enhancement teacher training and social-cognitive curriculum; Level B consisted of Level A plus a small-group social-cognitive program; and Level C consisted of Level B plus a family intervention program.

The effects on aggression were modest and occurred only among children who (a) received the full spectrum of interventions in the Level C condition, (b) received the intervention during the early elementary school years (Grades 2 and 3), and (c) attended school in moderate versus low resource communities (characterized by lower rates of poverty and crime; MACS, 2002). Nevertheless, it is possible that the Level A and B interventions were successful in changing the child’s emerging patterns of cognition. Indeed, evidence has suggested that ages 6–9 years (corresponding

to the early elementary school years) appear to be a period during which children’s cognitions related to aggressive behavior develop through interactions with the environment (Guerra, Huesmann, & Spindler, 2003; Huesmann & Guerra, 1997). Given the overall success within the clinical field of cognitive-behavioral interventions for aggression and conduct disorder (e.g., Kazdin, 2003), it is important to understand the emergence of specific maladaptive cognitions and whether they can be modified before they influence behavior.

In the current article, we examine the effects of the MACS intervention on three types of social cognitions relevant to the learning of aggression: (a) intent to use aggressive responses, (b) aggressive/prosocial fantasy, and (c) normative beliefs about the appropriateness of aggression.

There is a robust literature linking aggressive behavior with endorsement of aggressive responses in both children (Deluty, 1983; Rubin, Bream, & Rose-Krasnor, 1991) and adolescents (Slaby & Guerra, 1988). There is also reason to believe that these responses become increasingly more accessible and automatic as children rehearse them (Klatzky, 1980). One type of rehearsal of social behavior is fantasy, which begins during the preschool years and continues through elementary school (Piaget, 1962). Linking this to the development of aggressive scripts, Huesmann and colleagues (e.g., Huesmann, 1988; Huesmann & Eron, 1984) and others (e.g., Viemero & Paajanen, 1992) have shown that more aggressive children are more likely to rehearse aggressive acts in fantasy and are less likely to rehearse competing prosocial sequences.

Children’s normative beliefs about the acceptability of aggression have also been found to be related to how aggressively they behave (Guerra, Huesmann, & Hanish, 1995; Huesmann & Guerra, 1997; Huesmann, Guerra, Zelli, & Miller, 1992). Evidence has suggested that normative beliefs about aggression emerge as a consequence of children’s social experiences, including their own aggression, during the early elementary

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school years. In turn, normative beliefs predict subsequent aggression during the later elementary school years (Huesmann & Guerra, 1997).

Because the classroom enhancement and small-group interventions were designed to target these cognitions, we hypothesized that these interventions would produce changes in children's cognitions to set the stage for later reductions in aggression and that these changes would be greatest in communities with moderate resources. Communities with very low resources may also be communities with highly stressful environments that overwhelm preventive efforts.

Method

We conducted a longitudinal, quasi-experimental field study that spanned 7 years and included eight grade cohorts of children. The University of Illinois at Chicago Institutional Review Board reviewed and approved the study. From the 16 schools that volunteered to participate, four blocks of 4 schools per block were constructed (two blocks consisted of schools located in moderate resource communities, and two blocks had schools from low resource communities). Within each block, schools were randomly assigned to the control condition or one of three different intervention combinations. Parental informed consent was obtained for all children assessed or participating in the interventions. Children in the 4 schools assigned to the Level A condition received a 2-year social-cognitive curriculum in Grades 2–3 or Grades 5–6 described below as delivered by regular classroom teachers (who also received teacher support and consultation). Children in the 4 schools assigned to the Level B condition received the interventions included in the Level A condition plus a 2-year small-group training also described below. A family intervention was added to the Level B condition to create a Level C condition, but because there was no social-cognitive component to the family intervention, we restrict the analyses in this article to comparisons between the Level A and Level B conditions and the control condition. Because of our focus on the early development of social cognition, we also restrict the analyses in this article to the early intervention delivered in Grades 2 and 3.

Participants

Figure 1 is a CONSORT chart detailing sample selection for this study. All participants were children in the eligible schools for whom active consent was received. Of the 4,458 participants with permission (84.2% of those solicited), 2,177 were classified as high risk on the basis of their combined pretest scores on both the Peer Nomination Index (Eron, Walder, & Lefkowitz, 1971) and the Child Behavior Checklist Aggression Scale (Achenbach, 1991). Participants above the school median on aggression were classified as high risk and are the focus of this article. Of these children, 1,484 were in early grades (Grades 2–3 with a few exceptions of children in Grades 1 or 4 when classes were combined) during the intervention years and composed the early intervention sample. By way of reference to pretest level of risk, 52.8% of this high-risk early intervention sample scored in the clinical range on the Child Behavior Checklist Aggression Scale (> 95th percentile). Nearly two-

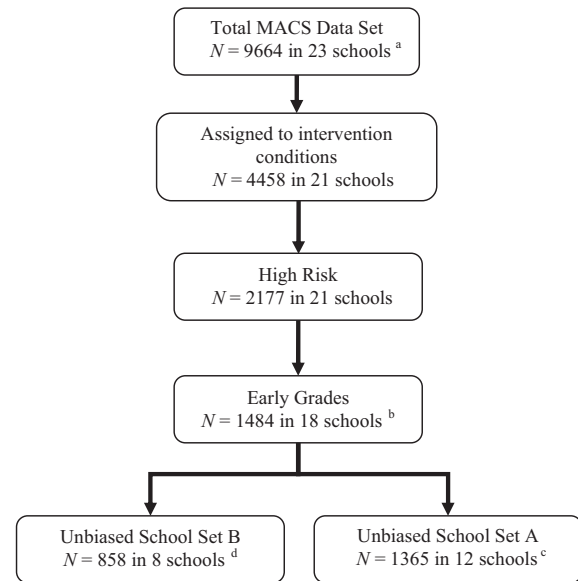


Figure 1. CONSORT chart detailing selection of schools and individuals. ^aThe full Metropolitan Area Child Study Research Group (MACS) data set includes individuals who consented and were assessed, but never randomized to conditions, such as those in Grades 5–8 in 1990–1991, and students in two schools assessed at the beginning of the study but never randomized. ^bExcludes three middle schools in the moderate resource community. ^cExcludes one block of schools for which the district withdrew from the study in 1995. ^dExcludes the block of schools under note c and a second block of schools containing one school that withdrew in 1992.

thirds of this high-risk sample (60.7%) were male, and the ethnic composition of the high-risk sample was 47.6% African American, 36.8% Hispanic, and 15.5% non-Hispanic White. Table 1 reports differences between the low and moderate resource community on poverty and crime levels from school and community measures.

Over the 7-year period of the study, five schools withdrew for various reasons. To avoid biasing our results in this article because of school attrition, we excluded data from all relevant schools in a block if one school from the block withdrew. We followed Dunnett's (1955) recommendation for designs of this type and used two planned nonorthogonal contrasts to compare separately the Level A and Level B conditions with the control condition.

Children were assessed when they began the intervention, at the end of the first year and at the end of the second year (pre, mid, and post). Individual subject attrition also occurred. Of the original 1,484 early elementary high-risk children, 1,365 (92%) remained in the schools long enough to contribute data that could be used in the analyses for this article. The attrition rate did not differ significantly between any treatment and the control condition. Overall, as is typical in longitudinal studies of aggression, the 8% of children who dropped out of the study scored higher on pretest aggression than the children who remained, $F(1, 1482) = 43.7, p < .001$.

Table 1
Selected School and Community Characteristics

Characteristic	Community resources	
	Low (SD)	Moderate (SD)
School		
% students below poverty level	94.8 (4.4)	35.5 (19.5)**
% limited English	14.1 (17.2)	16.3 (13.2)
% Attendance rate	91.3 (1.3)	95.4 (0.9)**
Community		
Median income	\$21,248 (8,998)	\$33,389 (7,608)**
% Income below poverty level	34.1 (28.0)	12.9 (7.5)**
% Owner occupied housing	18.7 (5.5)	57.5 (12.8)**
Crime rate (per 100,000)	10,405 (411)	4,790 (2,910)**

Note. School characteristics were taken from the Illinois State Board of Education (1992), and community characteristics were taken from the U.S. Census Bureau (n.d.) and the U.S. Department of Justice, Federal Bureau of Investigation (2005).

** $p < .01$.

Approximately one fourth ($n = 343$) of the 1,365 children who remained in the study had missing data on some measures.¹ For individuals who had at least one datum during a measurement wave, we imputed replacement values for any missing measures in that wave by using a state of the art multiple imputation technique (Little & Yau, 1998; Little & Rubin, 1987) that produces more accurate estimates than other methods (Schafer & Graham, 2002). As we report in Footnote 1, the data satisfied the requirement for multiple imputation that it be missing at random. All significance tests reported in this article are corrected to account for the use of multiple imputation, which adjusts degrees of freedom and standard errors to account for uncertainty (Bryk, Raudenbush, & Congdon, 1996; Raudenbush & Congdon, 1999).

Measures

The child's intent to use aggressive responses was assessed with a measure derived from Slaby and Guerra (1988). Each child was presented with four situations likely to provoke aggressive responses and was asked to rank four possible behavioral responses in terms of how likely they would be to do them. Each child's raw score was the average rank given to the physically aggressive choice across the four situations. The scale score was then computed as 4 minus the average raw score for the four situations. Thus, a higher score indicates greater aggressive intent. Alpha coefficient of this four-item scale was .68.

The child's aggressive and prosocial fantasies were measured with the Children's Fantasy Inventory (Rosenfeld, Huesmann, Eron, & Torney-Purta, 1982). This is a self-report measure to assess rehearsal of different action sequences or scripts (e.g., prosocial, aggressive). Alpha coefficients for our sample were .70 for aggressive fantasies and .68 for prosocial fantasies. These are similar to the coefficients for these scales reported for first and third graders in an earlier study (Rosenfeld et al., 1982). The aggressive fantasy scale was found to correlate significantly with first and third graders' aggressive behaviors in the same study.

The child's normative beliefs about physical aggression were measured with the Normative Beliefs About Aggression Scale (Huesmann & Guerra, 1997). This is a reliable and valid self-

report measure that assesses children's perception of how acceptable it is to behave aggressively under varying conditions of provocation. The physical aggression subscale consists of eight items. Alpha coefficient of the subscale was .76 in these data. Previously published analyses of first graders' responses had reported alphas in the .7 range as well as significant correlations between beliefs and behavior (Huesmann & Guerra, 1997) even for children that young.

Interventions

The classroom and small-group components of the MACS intervention emphasized the three areas of social cognition described previously while fostering their integration and coordination into scripted or automatic responses through a variety of strategies. In the classroom intervention, children participated in 1-hr per week teacher-led lessons over the course of 20 weeks per year for 2 years (40 lessons over both years). The curriculum taught children to generate prosocial solutions and effective action plans as well as to reduce endorsement of aggression as appropriate behavior. In addition to the specific lessons, the curriculum was supplemented by teacher training and consultation by using education graduate students. Teachers were encouraged to model prosocial solutions, to provide contingent reinforcement for prosocial rather than aggressive behavior, and to infuse social-cognitive learning into the regular academic curriculum. The small-group intervention was designed to give more aggressive children a leadership role in classroom lessons via additional training in small groups for 12 weeks in the first year and 16 weeks in the second year (28 meetings over both years). The small-group format (led by clinical psychology graduate students and ethnically matched undergraduate coleaders) provided intensive exposure to the social-cognitive lessons and offered additional opportunities for writing, rehearsing, and videotaping prosocial solutions, and children were assigned to play a leadership role during classroom activities. Although there is some evidence of iatrogenic effects of grouping aggressive youths together, these studies typically involve programs for older children and adolescents rather than children in the primary grades (e.g., Dodge, Dishion, & Lansford, 2006).

Teacher consultants monitored the fidelity and dosage of the classroom interventions by visiting each classroom weekly. Fidelity and dosage of the small-group interventions were monitored via initial intensive training, weekly group and individual supervision by an advanced clinical graduate student and a supervising project

¹ At midtest, 9.5% of participants had missing data on the fantasies measure, 9.8% on normative beliefs, and 20.5% on intent to use aggressive responses. At posttest, the extent of missing data was 25.1% on each measure. Missingness on any variable was unrelated to condition individually and when tested in the aggregate, $\chi^2(3, N = 1,365) = 3.99, ns$. Aggregate missingness was unrelated to gender, residence location, or SES but was related to ethnicity. African American participants were more likely to have missing values and Hispanic participants less likely to have missing values than would have been expected by chance alone, $\chi^2(2, N = 1,297) = 7.68, p < .05$. Although the relation between ethnicity and missingness suggested that the data were not missing completely at random, missingness was unrelated to intervention condition, leading us to conclude that the data were missing at random and that multiple imputation would be an appropriate strategy for intent-to-treat analyses.

investigator, and random videotaping and observation of group leaders. If any problems were noted, supervision frequency was increased and demonstration of skills was required. On average across sessions, 90% of leaders and coleaders reported complete implementation of planned activities.

Results

We used three-level hierarchical linear modeling (HLM) to test the effects of the Level A and Level B conditions, each compared with the no-treatment control condition, on measures of aggressive fantasy, prosocial fantasy, normative beliefs approving of physical aggression, and intention to use aggressive responses. Schools were a Level 3 random effect. Individuals were the Level 2 unit of analysis, and observations nested within individuals were the Level 1 unit of analysis. Significant intervention effects were tested by examining the parameters for differences in growth (linear slope) across three waves of measurement (pretest, midtest, and posttest). We included terms that allowed us to assess differential effects by gender at Level 2 (person level) and by condition and the school location at Level 3 (school level). The effects of ethnicity and location could not be differentiated because ethnicity was confounded with location in the sample. Each model was reduced by eliminating nonsignificant interactions and by eliminating nonsignificant random error terms. All lower order terms involved in significant interactions were retained. Thus, the degrees of freedom differ among final models. We report effect sizes with each comparison below. Mean differences are reported in standard deviation units (Cohen's *d*), and slope differences are reported in units of the Pearson *r*.

This approach to the analyses models the nesting of participants within schools and allows the variation attributable to schools to be separated from that attributable to individuals. We used an HLM program that analyzes multiple imputed data sets and combines the results according to procedures offered by Rubin (1987) to produce hypothesis tests that take into account the uncertainty associated with

imputation of missing values (Bryk et al, 1996; Raudenbush & Congdon, 1999). The correlations among the social-cognitive variables that went into these analyses are shown in Table 2.

Social-Cognitive/Teacher-Consultation Classroom Only Condition (Level A)

With the HLM analysis of the effects of the classroom only condition (Level A), we found significant Condition \times Community interactions for prosocial fantasy, HLM $t(1055) = 3.33, p < .001$, and for normative beliefs about physical aggression, HLM $t(1055) = 3.71, p < .0001$. For aggressive fantasy, the interaction approached significance, HLM $t(391) = 1.92, p < .055$, and for intent to use aggressive responses, the Condition \times Community interaction was not significant. There were no significant differential effects by gender. In Table 3, we present the observed mean scores on aggressive fantasies, prosocial fantasies, normative beliefs about physical aggression, and intent to use aggressive responses along with their standard deviations. These means are presented by assigned condition and community for all three times of assessment (pretest, midintervention, and posttest). In Table 4, we present the estimated slopes and intercepts derived from the model.

We explored the significant interactions of condition with community by conducting planned contrasts of the growth parameters for each condition within each community. These analyses revealed that the significant interactions were due to the intervention changing children's social cognitions in the desired direction (toward less aggression) within the schools in the moderate resource community but not in the lower resource community. This is the same type of interaction that was found in our previously reported analysis of proximal outcomes of the Level C condition (including a family intervention) on aggressive behavior (MACS, 2002). That intervention was also more successful in the moderate resource community.

There was significantly less growth in aggressive fantasy for children in the Level A condition compared with those in the control group, $\chi^2(1, N = 263) = 5.41, p < .02, r = .14$, and

Table 2
Correlations Among Pre-, Mid-, and Posttest Social-Cognitive Variables

Variable	Aggressive fantasies			Prosocial fantasies			Normative beliefs			Intent-aggression		
	1	2	3	4	5	6	7	8	9	10	11	12
Aggressive fantasies												
1. Pre	—											
2. Mid	.35**	—										
3. Post	.24**	.37**	—									
Prosocial fantasies												
4. Pre	.10**	.09**	.08**	—								
5. Mid	.03	.13**	.11**	.40**	—							
6. Post	-.01	-.01	.09**	.28**	.40**	—						
Normative beliefs about physical aggression												
7. Pre	.17**	.10**	.08**	-.04	.01	.03	—					
8. Mid	.17**	.30**	.24**	-.07*	-.08**	-.03	.29**	—				
9. Post	.17**	.23**	.27**	-.04	-.04	-.09**	.21**	.37**	—			
Intent to use aggressive responses												
10. Pre	.14**	.05	.03	-.10**	-.08**	-.11**	.14**	.16**	.10**	—		
11. Mid	.10**	.17**	.11**	-.04	-.06*	-.04	.08**	.29**	.19**	.15**	—	
12. Post	.10**	.13**	.18**	.05	-.04	-.11**	-.02	.17**	.31**	.25**	.28**	—

* $p < .05$. ** $p < .01$.

Table 3

Means (Standard Deviations) for Children in Classroom Social-Cognitive Intervention Condition (Level A) and Equivalent Control Group

Test	Aggressive fantasy		Prosocial fantasy		Normative beliefs about physical aggression		Intent to use aggressive responses	
	Control	Intervention	Control	Intervention	Control	Intervention	Control	Intervention
Low resource (control <i>ns</i> = 132, intervention <i>ns</i> = 120)								
Pre	1.68 (.47)	1.81 (.52)	2.28 (.35)	2.35 (.32)	1.79 (.55)	1.77 (.47)	1.22 (.60)	1.32 (.60)
Mid	1.57 (.49)	1.91 (.52)	2.13 (.45)	2.19 (.46)	1.80 (.64)	2.11 (.64)	1.12 (.61)	1.27 (.73)
Post	1.80 (.48)	1.88 (.46)	2.18 (.44)	2.19 (.48)	1.85 (.64)	2.19 (.65)	0.91 (.61)	1.15 (.69)
Moderate resource (control <i>ns</i> = 122, interventions <i>ns</i> = 141)								
Pre	1.75 (.45)	1.80 (.46)	2.25 (.43)	2.10 (.40)	1.62 (.52)	1.84 (.57)	1.05 (.65)	1.06 (.62)
Mid	1.78 (.49)	1.71 (.49)	1.98 (.48)	1.99 (.50)	1.80 (.74)	1.82 (.73)	1.05 (.69)	1.18 (.62)
Post	1.96 (.49)	1.78 (.49)	1.89 (.48)	2.09 (.49)	1.96 (.81)	1.94 (.72)	1.16 (.74)	1.00 (.66)

significantly more growth in prosocial fantasy for the Level A than for the control children, $\chi^2(1, N = 263) = 17.3, p < .001, r = .26$. Posttest intervention and control scores differed in the desired direction on both measures, $t(261) = 2.79, p < .01, d = 0.30$, for aggressive fantasy; and $t(261) = 3.41, p < .001, d = 0.36$, for prosocial fantasy. The growth on normative beliefs approving physical aggression was also lower among the intervention children than among the control children, $\chi^2(1, N = 263) = 4.36, p < .05, r = .13$, although the final scores only approached significant difference, $t(261) = 1.93, p < .10, d = 0.23$.

The above effect sizes are generally regarded as small to moderate in size. In terms of practical significance, the postintervention means in the moderate resource community for aggressive fantasy indicate that, compared with control participants, 18% more children in the intervention group reported no aggressive fantasizing after the intervention. At the same time, 20% fewer children in the intervention group reported no prosocial fantasizing at postintervention. Although the postintervention means for normative beliefs about physical aggression were similar for the intervention and control groups, the increase in approval of

aggression from pretest to posttest was much smaller for the intervention group. The change in the control group was equivalent to 15% of the participants switching from thoughts that aggression was really wrong to thinking it was perfectly OK compared with only 3% switching in such a manner in the intervention group.

Classroom Plus Small-Group Condition (Level B)

The HLM analyses of the effects of the Level B condition revealed a significant interaction between intervention condition and community resource level on aggressive fantasy, HLM $t(1122) = 2.21, p < .03$, and a significant main effect of condition on intent to use aggressive responses, HLM $t(42) = 3.11, p < .004$. The Community \times Intervention Group interaction was not significant for prosocial fantasy, normative beliefs approving of physical aggression, or intent to use aggressive responses. Like the analysis of the Level A condition, there were no significant differential effects for gender on growth in social cognitions.

Table 4

Estimates of Slopes and Associated Random Effects for Children in Classroom Social-Cognitive Intervention Condition (Level A) and Equivalent Control Group From HLM Models

Effect	Aggressive fantasy		Prosocial fantasy		Normative beliefs about physical aggression		Intent to use aggressive responses	
	Estimate	<i>df</i>	Estimate	<i>df</i>	Estimate	<i>df</i>	Estimate	<i>df</i>
Level A versus control in low resource community								
Slope (<i>SE</i>)	0.01 (0.06)	223	-0.03 (0.07)	1364	0.29 (0.09)**	1055	-0.12 (0.22)	9
Level A versus control in moderate resource versus low resource community								
Slope (<i>SE</i>)	-0.20 (0.08)†	122	0.37 (0.11)**	105	-0.48 (0.13)**	1055	0.31 (0.29)	9
Random effects								
L2 Slopes	0.05**	1234	0.05**	1234	0.02	1055	0.01	1070
L3 Intercepts	0.01*	9	0.001*	9	0.01**	9	0.001**	9
Residual	0.16		0.15		0.27		0.38	

Note. HLM = hierarchical linear modeling; L2 = Level 2, L3 = Level 3.

† $p < .10$. * $p < .05$. ** $p < .01$.

In Table 5, we present the observed (unadjusted) mean scores on aggressive fantasies, prosocial fantasies, normative beliefs about physical aggression, and intent to use aggressive responses broken down by assigned condition and community. In Table 6, we present the estimated slopes and intercepts derived from the model. Within each community, we conducted planned contrasts comparing the Level B and control conditions on children's growth in each social-cognitive variable. In the moderate resource community, the intervention had significant effects on two of the social cognitions. Compared with control participants, children in the Level B condition had significantly lower growth in aggressive fantasy, $\chi^2(1, N = 327) = 3.60, p < .05, r = .10$, and significantly lower growth on intent to use aggressive responses, $\chi^2(1, N = 327) = 11.6, p < .001, r = .19$. The postintervention scores on each of these measures were well below the control group scores as well, $t(325) = 4.19, p < .001, d = 0.33$, for aggressive fantasy; and $t(325) = 2.59, p < .01, d = 0.21$, for aggressive responses. Although growth in normative beliefs approving of physical aggression was not significantly different between Level B and the control condition, the postintervention mean score on normative beliefs was significantly lower for the intervention group than for the control group, $t(325) = 3.21, p < .001, d = 0.36$.

Again, these are small to moderate effect sizes. In terms of practical significance, the postintervention means in the moderate resource community for intent to use aggressive responses suggest that in the control group 11% of the participants actually ranked the aggressive response one position higher at posttest than at pretest. On the other hand, the means for the intervention group would be produced by 28% of the participants ranking the aggressive response one position lower at posttest. Findings for aggressive fantasy indicated that 24% more children in the intervention group than in the control group reported no aggressive fantasizing after the intervention. Although the changes in normative beliefs about physical aggression from pretest to posttest were not significantly different in the intervention and control groups, the increase in approval in the control group was much higher, equivalent to 16% of the participants switching from thinking aggression was really wrong to thinking it was perfectly OK. In comparison, the means for the intervention group suggest that only 3% of

children switched from thinking aggression was really wrong to thinking it was perfectly OK.

Comparing Classroom Only With Classroom Plus Small-Group Condition (Level A vs. B)

Given that both the Level A and Level B conditions seemed to have significant effects in preventing the development of social cognitions that support aggression in the moderate but not low resource communities, it made sense to compare their effects. When we did this, we discovered that contrary to our expectations, the effect sizes for the Level B condition in the moderate resource community were no different from the effect sizes for the Level A condition.

Discussion

A social-cognitive curriculum augmented by teacher consultation to infuse lessons into the regular curriculum and promote positive classroom management yielded significant improvements in three areas of cognition targeted by the intervention—intent to use aggressive responses, aggressive fantasy, and normative beliefs about aggression—but only for children from moderate resource communities. Adding small-group training for aggressive children did not strengthen these effects.

As noted previously (MACS, 2002), neither classroom nor classroom plus small-group interventions yielded significant reductions in proximal aggression. Still, given the centrality of cognition in emerging patterns of maladaptive behavior including aggression, interventions that can shape these developing cognitions may have greater impact later on. Indeed, there is some indication that the benefits of the social-cognitive intervention increased over time given that few of the noted effects on growth were linear. Most showed a substantial increase in the slope in the second year of intervention.

Lack of significant impact in low resource communities may be due to the overwhelming constraints on development and adaptive value of aggression in these settings (Fagan & Wilkinson, 1998).

Table 5
Means (Standard Deviations) for Children in Small-Group and Classroom Intervention Condition (Level B) and Equivalent Control Group

Test	Aggressive fantasy		Prosocial fantasy		Normative beliefs about physical aggression		Intent to use aggressive responses	
	Control	Intervention	Control	Intervention	Control	Intervention	Control	Intervention
Low resource (control <i>ns</i> = 89, intervention <i>ns</i> = 82)								
Pre	1.63 (.44)	1.88 (.37)	2.27 (.32)	2.34 (.41)	1.74 (.52)	1.93 (.55)	1.26 (.63)	1.50 (.65)
Mid	1.47 (.46)	1.79 (.48)	2.10 (.44)	2.21 (.41)	1.65 (.63)	2.00 (.73)	1.12 (.58)	1.06 (.57)
Post	1.67 (.43)	1.90 (.48)	2.15 (.45)	2.13 (.47)	1.68 (.58)	1.97 (.62)	0.87 (.56)	1.02 (.73)
Moderate resource (control <i>ns</i> = 122, intervention <i>ns</i> = 205)								
Pre	1.75 (.45)	1.67 (.47)	2.25 (.43)	2.22 (.48)	1.62 (.52)	1.64 (.51)	1.05 (.65)	1.23 (.68)
Mid	1.78 (.49)	1.69 (.51)	1.98 (.48)	2.09 (.56)	1.80 (.74)	1.69 (.56)	1.05 (.69)	0.98 (.54)
Post	1.96 (.49)	1.72 (.50)	1.89 (.47)	1.99 (.49)	1.98 (.81)	1.71 (.71)	1.16 (.74)	0.95 (.69)

Table 6

Estimates of Slopes and Associated Random Effects for Children in Small-Group and Classroom Intervention Condition (Level B) and Equivalent Control Group From HLM Models

Effect	Aggressive fantasy		Prosocial fantasy		Normative beliefs about physical aggression		Intent to use aggressive responses	
	Estimate	df	Estimate	df	Estimate	df	Estimate	df
Level B versus control in low resource community								
Slope (SE)	0.16 (0.12)	1122	-0.06 (0.11)	6	-0.11 (0.22)	6	0.08 (0.13)	46
Level B versus control in moderate resource versus low resource community								
Slope (SE)	-0.33 (0.15) [†]	1122	0.16 (0.13)	6	-0.02 (0.28)	6	0.23 (0.16)	47
Random effects								
L2 Slopes	0.02*	1122	0.02*	1122	0.03	845	0.01	1123
L3 Intercepts	0.002**	6	0.001**	6	0.005	6	0.0004	6
Residual	0.14		0.15		0.27		0.29	

Note. HLM = hierarchical linear modeling; L2 = Level 2; L3 = Level 3.

[†] $p < .10$. * $p < .05$. ** $p < .01$.

Implementation of the classroom curriculum was weaker (although still meeting criterion) in the lower resource environments, suggesting that it also may be more difficult to direct classroom attention to social development lessons when practical concerns (e.g., safety) are dominant. Although it is beyond the capability of these data to examine these possibilities, the results are consistent with the view that countervailing forces not only mitigate the implementation of classroom interventions but may also counteract their effects. Looking at this from a broader prevention perspective, our findings suggest that (a) early prevention programs should focus on the cognitive underpinnings of adjustment problems, and (b) readiness of the setting for preventive efforts must be considered in disadvantaged communities.

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