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Improving Emotion Regulation and Sibling Relationship Quality: The More Fun With Sisters and Brothers Program*

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Abstract: We examined the role of emotion regulation (ER) in improving sibling relationship quality (SRQ) by evaluating the More Fun With Sisters and Brothers Program where 4- to 8-year-old siblings from 95 families were taught emotional and social competencies. Parents reported on SRQ and ER, and sibling interactions were observed in homes. SRQ and ER improved for program participants ($n = 55$) in comparison to those in a wait list condition ($n = 40$). Children participating in the program needed less parental direction to control negative emotions and refrain from directing negative actions toward others following the program. Higher levels of ER were linked with more positive SRQ at posttest. Results highlight the value of strengthening children's emotion regulation processes as a mechanism for promoting prosocial sibling relationships.

Key Words: emotion regulation, family relationships, intervention, parenting, sibling relationships.

Emotion regulation processes are increasingly being recognized as significant components of children's social development that prepare them to establish prosocial interactions with parents and peers (Blair, Denham, Kochanoff, & Whipple, 2004). Emotion regulation refers to the dynamic interaction of multiple behavioral, psychophysiological, attentional, and affective systems that allow young children to participate effectively in their social world (Cole, Martin, & Dennis, 2004). Although it follows that emotion regulation abilities should also help children to form more harmonious relationships with siblings, this premise has not yet been systematically evaluated. The purpose of this research was to investigate the contributions of emotion regulation in promoting sibling relationship quality through the evaluation of the More Fun With Sisters and Brothers (MFWSB) preventive intervention program, which was designed to promote such competencies.

The Need for Sibling Relationship Interventions

Research has consistently documented high levels of aggression in sibling relationships, making it the most prevalent form of family violence and abuse (Straus, Gelles, & Steinmetz, 2003). Conflict among siblings is generally more frequent and more volatile than other family relationships (Straus et al.). The fact that as many as 10% of family homicides are at the hands of siblings (Dawson & Langan, 1994) illustrates the severity of this problem. Although research has been helpful in identifying many of the factors that set the stage for conflictual sibling relationships, evidence-based strategies for ameliorating sibling strife and promoting prosocial sibling

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relationships are lacking. Most interventions that are available to families to address these issues are designed to impact parents' rather than children's behaviors, and almost all lack formal evaluation (see Kramer, 2004, for a review). The current approach to improving sibling relationship quality is unique in that it (a) works to equip children with specific competencies that prior research indicates they need to relate positively to siblings, (b) trains parents to support and maintain children's new competencies, and (c) includes an evaluation component.

Emotion Regulation and Sibling Relationships

Sibling relationships can be highly emotionally charged and frustrating relationships for children. Kramer (2008) presented an ''incomplete list'' of the specific competencies that recent research has identified as important for the establishment of prosocial sibling relationships. Emotion regulation figures highly in this list, as it is considered to undergird relevant social competencies. The ability to engage in appropriate social behaviors rests strongly on one's ability to manage emotional experiences and behaviors. For example, productive conflict management is unlikely to occur with a sibling if a child is experiencing high levels of frustration, anger, or other negative emotions that are not effectively regulated.

''Emotion regulation consists of extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features to accomplish one's goals'' (Thompson, 1994, pp. 27 – 28). Although emotion regulation was initially viewed as evidence of children's ability to control the expression of negative emotions (Fox, 1994), there is growing recognition that it is a complex construct that plays an instrumental role in shaping children's social competence and, in particular, their ability to form productive interpersonal relationships (Blair et al., 2004; Thompson).

Children with effective emotion regulation competencies are generally able to coordinate their own emotional and social behaviors to meet social expectations (Thompson, 1994). They are likely to persevere and to demonstrate more competent responding during emotionally charged situations (Eisenberg et al., 2000; Fabes, Leonard, Kupanoff, & Martin, 2001), for example, by altering their emotional responsiveness in emotionally evocative peer situations (Fabes et al., 1999). In contrast, children who display difficulty in emotion regulation behave more negatively, impulsively, and less constructively when responding to emotion-arousing events (Fabes et al., 2001). The dysregulation of affect (i.e., the inability to regulate emotions) has been linked with difficulties in controlling behaviors when emotions are highly charged (Gottman, Katz, & Hooven, 1996, 1997). Thus, children with lower levels of affect regulation tend to exhibit poorer social competencies and are less well accepted by peers (Eisenberg et al., 1993).

As part of their emotion regulation theory of meta-emotion, parenting, and child outcomes, Gottman et al. (1997) proposed that competence in emotion regulation is essential for the acquisition and demonstration of social competencies such as coordinating play and conversation, perspective taking, conflict management, and social problem solving in peer relationships. According to Gottman et al. (1997), the ability to self-soothe, focus attention, and refrain from reacting impulsively when distressed are fundamental emotional competencies that serve as a foundation for more complex forms of social engagement, such as being able to understand what another child may think and need and using this understanding to behave in a responsive manner. In this theoretical model, emotional competencies are thought to grow out of accepting emotional connections with parents that are devoid of criticism and contempt and that assist children to develop regulatory control at both the physiological and the behavioral levels. In testing this model, Gottman et al. (1996) demonstrated that emotion regulation was linked with enhanced abilities to respond to provocation in the peer context.

Although Gottman et al. (1997) did not examine linkages between emotional regulation and competence in sibling relationships, given the many parallels in peer and sibling social processes (Katz, Kramer, & Gottman, 1992), it is likely that children with more well-developed emotion regulation competencies will be better equipped to respond effectively to siblings. Brody, Stoneman, Smith, and Gibson (1999) evaluated self-regulation processes, a form of emotion regulation that emphasizes the exertion of behavioral control over emotional responses, in sibling relationships in rural African American children aged 9 – 12 years. Self-regulation was defined as the ability to set and fulfill goals, understand actions and consequences, and suppress aggressive behaviors. Their results indicated that children with better self-regulation skills, as measured by

both parental reports and self-reports, exhibited friendlier and less conflictual sibling relationships.

Volling, McElwain, and Miller (2002) found that preschool-aged older siblings with higher emotion understanding scores were less likely to demonstrate negative emotions and behavioral dysregulation in a "social triangle"—a context designed to elicit jealousy in which children observed their sibling receiving unilateral attention from their mothers. In addition to forming a less secure attachment relationship with parents and a proneness to anger, behavioral dysregulation was linked with less positive sibling relationships.

In summary, strengthening children's ability to regulate negative affect in the sibling context can be an important mechanism for reducing sibling conflict (Bedford & Volling, 2004) and enhancing prosocial sibling interaction (Kramer, 2004). However, no models currently exist that teach children how to regulate their emotional experiences and behaviors in ways that facilitate successful sibling interactions. Thus, a major purpose of the current study was to test a new method for helping children to regulate their emotional states with siblings.

Teaching Emotion Regulation Through the MFWSB Program

The MFWSB Program is a preventive intervention designed to help siblings 4 – 8 years of age strengthen their relationship by developing emotional competencies and prosocial behaviors. MFWSB grew out of the Fun With Sisters and Brothers (FWSB) Program (Kramer & Radey, 1997), which was designed for 4- to 6-year-old children with an infant or toddler-aged sibling. Whereas the initial FWSB Program necessarily took an individual approach in working only with elder siblings, MFWSB followed a dyadic approach and included sibling pairs in the 4- to 8-year age range. A dyadic approach enables both siblings to learn the target competencies; the transfer of training to spontaneous interactions is more likely to occur when both siblings possess the requisite competencies rather than only one. The specific emotional and social competencies taught in MFWSB, and the strategies used to teach them, are in line with the developmental characteristics of the targeted age group.

The conceptual foundation and specific approach of both programs was based on the findings of longitudinal research that linked the performance of specific emotional and social competencies in the peer and sibling contexts with more positive sibling interactions (Kramer & Gottman, 1992; Kramer & Kowal, 2005). Designed to meet the social demands of sibling relationships among 4- to 8-year-old children, the current MFWSB Program targeted the following competencies: (a) initiating play with a sibling, (b) methods for accepting and (c) appropriately declining an invitation to play, (d) perspective taking, (e) identifying and discriminating among emotions, (f) regulating emotions, and (g) problem solving and conflict management.

Following Thompson's (1994) definition of emotion regulation, MFWSB teaches children to identify, monitor, evaluate, and modify their emotional reactions. For example, children are instructed to *identify* feelings and emotions in self and in others and are led through a process of emotional recognition and labeling as they explore what specific emotions feel like in their bodies and how they can tell when others are experiencing specific emotions. Through this process, children learn to *monitor* their own feelings with special attention to identifying the initial signs of frustration and other negative emotions. Children are taught to *evaluate* their feelings before acting, in order to identify occasions in which they may need to *modify* their emotion states (e.g., calm themselves or self-soothe) before responding to their sibling. The *intensity* and *temporal* features of Thompson's concept of emotion regulation are addressed by teaching children to de-escalate frustrating episodes so they can lessen the intensity of their response and effectively communicate with their sibling.

The emotional and social competencies were taught through a sequential process of modeling, role-playing, performance feedback and coaching, and transfer of training following successful social skills training approaches used to foster children's peer relationships (Ladd & Mize 1983; McGinnis & Goldstein, 1990; Oden & Asher, 1977). Children were first shown examples of individuals performing a set of sibling-competent interactions (modeling). Next, children rehearsed and practiced these behaviors with their sibling (role-playing) and received immediate feedback and coaching. Children were taught a method of instructional self-talk and self-control to be used in potentially problematic sibling encounters so that they could avoid impulsive responding, think explicitly about what their goals were in the particular social situation as well as how they could achieve those goals, respond calmly in emotionally charged situations, and communicate

with their sibling about their individual perspectives and needs. Finally, procedures were used to increase the likelihood that children would use the newly learned skills in real-life situations with their sibling at home (transfer of training). In addition to providing parents with comprehensive instructions and guidance for facilitating newly learned socially competent behaviors outside of the training context, a "generalization" training session was performed in each family's home.

An evaluation of the earlier FWSB (for preschool children with infant and toddler-aged siblings) provided evidence for the effectiveness and benefits of this preventive intervention approach (Kramer & Radey, 1997). The experimental condition consisted of five 40-min training sessions, while the children in the randomly assigned control condition received instructional material in lieu of participation in the program. Parents of children in the experimental group reported improvements in sibling warmth and agonism (e.g., less conflict or aggression, or both), whereas children in the control group were described by their parents as either showing declines or no change in sibling relationship quality. Observations of sibling interaction in the home revealed improvements in sibling prosocial behaviors. These findings suggested that interventions that target specific social and emotional competencies can have a positive impact on the quality of sibling relationships (Kramer & Radey).

Although several emotional and social competencies were taught in MFWSB, the current study targets the contributions of emotion regulation competencies in promoting prosocial sibling relationships. This focus is supported by the conceptual frameworks of Gottman et al. (1997) and Saarni and Harris (1989) that contend that emotion regulation competencies are essential for the acquisition and enactment of social competencies. We adopted Katz and Gottman's (1986) method for assessing children's emotion regulation by indexing parental down regulation—the amount of effort that parents devote to calming their children when their emotions are highly charged or limiting children's inappropriate expression of behaviors and emotions. Rather than relying on parents' appraisals of children's emotional experiences, or young children's reports of these experiences, which may lack validity, this method has the advantage of assessing the impact that children's emotionality and its regulation may have on spontaneous, naturally occurring parent-child interactions.

In summary, the current study investigated the role that emotion regulation plays in promoting prosocial sibling relationships through an evaluation of the MFWSB Program. We hypothesized that participation in MFWSB would lead to (a) improvements in sibling relationship quality and (b) declines in parental down regulation. Furthermore, we hypothesized that children who require lower levels of parental down regulation would also have more positive sibling relationships.

Method

Participants

Families who responded to an advertisement and who met the criteria of having at least two children aged 4 – 8 years were randomly assigned to an experimental ($n = 55$) or wait list comparison group ($n = 40$). There were 13 older sister/younger brother, 14 sister/sister, 12 brother/brother, and 16 older brother/younger sister sibling dyads in the experimental group. The comparison group consisted of 10 older sister/younger brother, 3 sister/sister, 21 brother/brother, and 6 older brother/younger sister sibling dyads.

The majority of the mothers (87%) and fathers (89%) in the experimental group were White. Similarly, 89% of mothers and 89% of fathers in the comparison group were White. Median income levels were in the range of $70,000 – $79,999 and $60,000 – $69,999 for the experimental and control groups, respectively. With the exception of three families in the experimental group, families were maritally intact. Additional demographic characteristics of the families are presented in Table 1.

No differences were found between the experimental and comparison group families in terms of preintervention levels of parental down regulation and sibling relationship quality. Only one significant difference was found between the demographic characteristics of the experimental and comparison groups. Fathers in the experimental group reported more years of education than fathers in the comparison group, $F(1,94) = 4.72$, $p < .05$.

Procedures

Participants were randomly assigned to either an experimental or a wait list comparison condition.

Table 1. *Demographic Characteristics of Experimental and Comparison Group Families* (N = *95 families*)

	Experimental Group ($n = 55$ families)		Comparison Group ($n = 40$ families)	
Demographic Characteristic	*M*	*SD*	*M*	*SD*
Age (older sibling)	7.61	1.23	7.80	1.09
Age (younger sibling)	5.27	1.16	5.08	1.05
Age difference (months)	28.06	15.27	33.71	13.49
Educational level (mother)	17.43	3.95	16.31	2.44
Educational level (father)	17.63	3.31	16.06	3.34
Hours worked outside home (mother)	19.39	16.59	19.88	15.22
Hours worked outside home (father)	43.61	14.53	42.87	11.19

Both groups were invited to participate in the MFWSB Program; however, families in the comparison group were told following the pretest assessment that they would need to wait 5 weeks before the next group of sessions would commence. These families were recontacted at 5 weeks and asked to participate in a second home visit so that we could obtain the most recent and accurate assessment of their children's relationship before beginning the intervention. Thus, the wait list comparison group received the pre- and posttest assessments at the same intervals as the experimental group but took part in the intervention only after the posttest assessment.

Families were visited in their homes 1 week prior to the beginning of the program, and again following the program, to conduct observations of sibling interaction and to administer questionnaires to parents. At both the pre- and posttest assessments, siblings were videotaped for 20 min during free play with their own toys and play materials. Children were not instructed to play together or separately and no adults were present other than a videographer. In a separate room, parents completed a series of questionnaires assessing their children's sibling relationship quality, parental down regulation, and demographic information.

Sibling dyads in the experimental condition received five 1-hr MFWSB training sessions. Four sessions were conducted in a laboratory playroom once a week and the final session (generalization training) was conducted in the home. In the four laboratory training sessions, sibling dyads from three families were taught a set of seven competencies: (a) initiating play with a sibling, (b) accepting a sibling's invitation to play, (c) appropriately declining an invitation to play, (d) perspective taking, (e) identifying feelings of self and others, (f) regulating emotions and dealing with angry feelings, and (g) problem solving and conflict management. These skills were taught by two adult facilitators using instruction, live and videotaped puppet demonstrations, role-playing, coaching, and positive feedback. Sibling dyads practiced the new skills in the sessions and were rewarded for participating with tokens, which they later traded for a small toy.

Parents observed the training sessions through a video monitoring system. A program facilitator highlighted the skills the children were learning and explained how they should prompt and reinforce children's demonstrations of the competencies at home. Parents also received written summaries of program objectives along with instructions for how to promote competent sibling interaction.

One week after completion of the lab-based training sessions, a generalization training session was conducted in each experimental family's home to reinforce the transfer of skill performance to the home environment. A research assistant worked with each sibling dyad to review the specific skills taught in the program and to practice how they would use these skills.

Program fidelity (consistency and quality) was maintained, as all program leaders followed a detailed script for each session. Furthermore, the senior investigator observed all training sessions and provided feedback to the leaders if they departed from the stated procedures. All families participated in at least four of the five sessions of the program, thereby ensuring that all participants received at least a minimal dosage of the intervention.

Measures

Parental Down Regulation

Mothers and fathers completed the down regulation subscale of Katz and Gottman's (1986) Emotional Regulation Scale, a 12-item measure of the degree to which parents perceive their children require external regulation of emotions. Parents used a 5-point Likert scale (1 = *never*, 5 = *very often*) to indicate the level of down regulation they exerted to regulate their children's emotional behaviors, for example, how often they acted to "calm the child when he/she was upset." Higher scores indicated that children required more parental intervention to regulate or calm emotions. Because mothers' and fathers' reports were highly correlated (rs = .46 and .63, $p < .01$, for younger and older siblings, respectively), and because comparable findings resulted when maternal and paternal reports were analyzed separately, the mean of their scores served as the summary measure of down regulation. Internal consistency of this scale for the current sample was .94.

Sibling Relationship Quality

Parental report. Mothers and fathers completed a modified version of the Parental Expectations and Perceptions of Children's Sibling Relationships Questionnaire (PEPC-SRQ; Kramer & Baron, 1995), which asks parents to rate the frequency of 24 behaviors in their children's interactions. Scores were derived using three scales: warmth, agonism, and rivalry/competition. The warmth scale consisted of 13 items assessing the degree of pride, sharing, protectiveness, kindness, affection, comfort, help, loyalty, and respect. The agonism scale contained eight items that assess anger, physical aggression, arguing, threats, teasing, and unresolved conflicts. The three items comprising the rivalry/competition scale were jealousy, rivalry, and competition. Scores for each of the three scales were then standardized to a 10-point scale to facilitate comparison across scales. Correlations between mothers' and fathers' reports on the PEPC-SRQ were robust (rs averaged .47, $p < .001$), and so the mean of parents' scores was used in subsequent analyses. Standardized item alpha coefficients were .90 for warmth, .87 for agonism, and .79 for rivalry/competition. Kramer and Baron reported 1-month retest reliabilities of .74 (warmth), .86 (agonism), and .77 (rivalry/competition).

Observed sibling interaction quality. The Sibling Interaction Quality coding system (Kramer, Perozynski, & Chung, 1999, adapted from Stocker, Dunn, & Plomin, 1989) was used to assess the quality of the videotaped sibling interactions on five dimensions: involvement, warmth, agonism, control, and rivalry/competition. Five independent, trained, undergraduate research assistants, who were blind to children's treatment condition, used a 5-point Likert scale to rate the extent to which each dimension was prevalent in 5-min sections of the 20-min observations. Intercorrelations among the five dimensions revealed significant associations between warmth and involvement ($r = .87$, $p < .001$) and between agonism, control, and rivalry/competition (rs ranged from .64 to .70, $p < .001$). Thus, two subscales were created to reflect positive (warmth and involvement; $\alpha = .93$) and negative (agonism, control, and rivalry/competition; $\alpha = .85$) sibling interaction. Interrater agreement, estimated by correlating the ratings of the independent observers on a random sample of 25% of the observations, was .89, $p < .001$, for positive and .74, $p < .001$, for negative interaction. Observed sibling interaction scores were significantly correlated with parental reports of sibling relationship quality: positive sibling interaction correlated with parents' reports of sibling warmth ($r = .27$, $p < .01$), whereas negative sibling interaction correlated with parents' reports of agonism ($r = .44$, $p < .01$) and rivalry/competition ($r = .19$, $p < .07$).

Results

Preliminary Analyses

We first tested for pretest differences between the experimental and comparison group on levels of parental down regulation and sibling relationship quality. No significant differences were found, indicating that children in the two conditions entered the study with similar characteristics.

We next examined the strength of associations among the variables of interest (sibling relationship quality and parental down regulation) and participant characteristics (sibling gender constellation, age, age difference between siblings, and birth order). These analyses were intended to determine whether any particular participant characteristics should be controlled in subsequent analyses aimed

at testing the study's hypotheses. First, a series of 2 (Group: Experimental, Comparison) × 2 (Gender Constellation: Mixed or Same Sexed) analyses of variance (ANOVAs) were conducted to investigate the effects of gender on pretest parental down regulation and sibling relationship quality. No significant effects were found, indicating that gender constellation was not significantly associated with pretest levels of down regulation and sibling relationship quality. Similarly, no significant associations were found between siblings' age or age difference and sibling relationship quality.

However, with respect to birth order, later-born children ($M = 4.88$, $SD = 1.51$) required more parental down regulation at pretest than their elder siblings, $M = 3.99$, $SD = 1.07$; $t(93) = -3.46$, $p < .001$. Furthermore, parents reported exerting more down regulation with their later-born children when these children were younger in age, $r = -.26$, $p < .05$. These results suggest that it is important to take birth order into account when testing hypotheses, as different patterns of results may emerge for elder and later-born siblings; thus, separate analyses were conducted for children of each birth order when examining down regulation.

Table 2. *Parental Report and Observed Sibling Relationship Quality (N = 95 families)*

	Pretest		Posttest	
Dimension	*M*	*SD*	*M*	*SD*
Parental report				
Experimental group (n =55)				
Warmth	5.36	1.19	5.63	1.14
Agonism	5.48	1.09	4.62	0.93
Rivalry	5.06	1.46	4.32	1.46
Comparison group ($n = 40$)				
Warmth	5.67	0.79	5.56	0.95
Agonism	5.55	1.18	5.21	1.23
Rivalry	5.03	1.54	4.78	1.62
Observed sibling interaction quality				
Experimental group (n =55)				
Positive	5.69	2.18	6.57	2.43
Negative	4.55	1.62	4.18	1.38
Comparison group ($n = 40$)				
Positive	6.76	2.39	6.49	2.50
Negative	4.72	2.02	4.68	1.90

Hypothesis Testing

We began by examining the degree to which the MFWSB intervention was associated with improvements in children's sibling relationship quality. Three 2 (Group: Experimental, Comparison) × 2 (Observation: Pretest, Posttest) repeated-measures ANOVAs, with parents' reports of sibling relationship quality (warmth, agonism, and rivalry/competition) as the dependent variables, were conducted to test the effect of the intervention on parents' perceptions of the sibling relationship. These analyses produced significant group by observation interaction effects for sibling warmth, $F(1,88) = 5.63$, $p < .05$ (effect size = .39); agonism, $F(1,88) = 10.99$, $p < .001$ (effect size = .48); and rivalry/competition, $F(1,88) = 5.42$, $p < .05$ (effect size = .30). MFWSB participants were reported by their parents to engage in increased levels of warmth and decreased levels of agonism and rivalry/competition with their sibling following the program (Table 2). In contrast, siblings in the comparison group remained stable in these parent-reported dimensions of sibling relationship quality.

Comparable results emerged when observed sibling interaction quality served as the dependent measures. Two 2 (Group: Experimental, Comparison) × 2 (Observation: Pretest, Posttest) repeated-measures ANOVAs were conducted to test the effect of the intervention on observed positive and negative sibling interaction quality, respectively. These analyses produced a significant group by observation interaction effect for positive sibling interaction quality, $F(1,91) = 3.57$, $p < .05$ (effect size = .47). As shown in Table 2, participants in MFWSB engaged in warmer and more involved sibling interactions following the program, whereas siblings in the comparison condition remained relatively stable. Declines in negative sibling interaction were not significant. This suggests that the MFWSB Program may have more potent effects in promoting prosocial sibling behaviors than it does for reducing negative sibling behaviors, at least when such behaviors are assessed observationally.

We next investigated whether the MFWSB intervention was associated with improved parental down regulation. A series of 2 (Group: Experimental, Comparison) × 2 (Observation: Pretest, Posttest) repeated-measures ANOVAs were conducted to test the effects of the intervention on parents' reports of the degree to which they needed to down regulate their elder and later-born children's emotional behaviors. Significant group by observation interaction

effects were found for both elder, $F(1,76) = 11.87$, $p < .001$, and later-born, $F(1,76) = 9.49$, $p < .01$, siblings. Figure 1 shows that, according to parents, both elder and later-born siblings in the experimental group demonstrated decreases in down regulation from pre- to posttest. In contrast, children in the comparison group showed little change or required higher levels of down regulation. These results suggest that MFWSB may reduce the amount of parental regulation required to maintain children's behavior during emotionally provocative events.

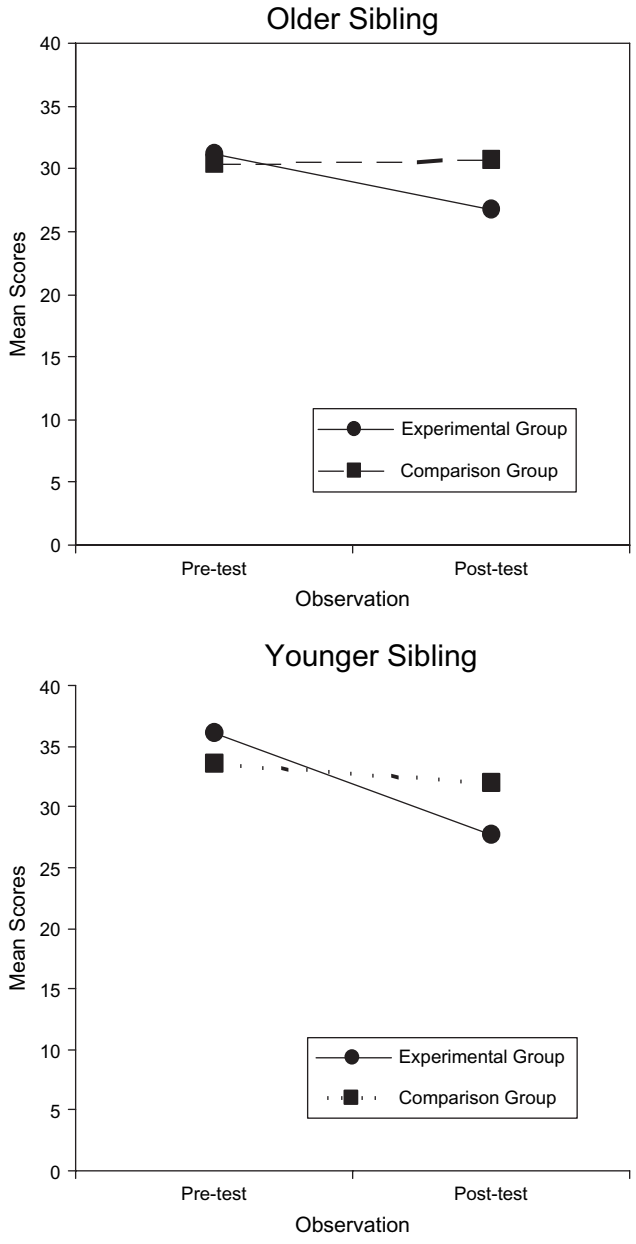

Figure 1. Mean Down Regulation Scores for Older and Younger Siblings by Observation ($N = 95$ Families).

We next addressed the question of whether improvements in parental down regulation, experienced through the MFWSB Program, were accompanied by more prosocial sibling relationships. A series of partial correlations were conducted in which the strength of the association between posttest levels of down regulation and posttest measures of sibling relationship quality were assessed, controlling for pretest levels of down regulation. With only one exception, all partial correlations were significant or marginally significant (see Table 3). Both elder and later-born children who were reported by their parents to require less regulation of their emotional behaviors following MFWSB were more likely to engage in warmer and less conflictual sibling relationships, when controlling for initial levels of down regulation, than children who required greater parental regulation. One exception to this pattern was that down regulation among later-born children was not significantly associated with observed negative sibling interaction at posttest (although it was related to parents' reports of sibling agonism and rivalry/competition). In summary, sibling relationship quality (assessed through both parent report and home observations) was generally more positive and less negative when children demonstrated higher levels of parental down regulation following MFWSB.

Discussion

The results of the current investigation provide support for the effectiveness of a preventive intervention program for improving emotion regulation abilities

Table 3. *Partial Correlations of Posttest Sibling Relationship Quality and Down Regulation, Controlling for Pretest Down Regulation, for More Fun With Sisters and Brothers Participants (*n = *55 families)*

Dimension	Elder Siblings	Later-Born Siblings
Parental reports of sibling relationship quality and down regulation		
Warmth	−.33**	−.26*
Agonism	.28*	.29**
Rivalry	.32**	.26*
Observed sibling interaction and downregulation		
Positive	−.20	−.21*
Negative	.22*	.14

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

and sibling relationship quality in siblings aged 4 – 8 years. As we discuss in the following, these findings have important implications for enhancing our understanding of the role of emotional regulation in young children's sibling relationships. In addition, the results yield practical implications about how we might best provide young children with emotional and social competencies that strengthen their abilities to respond effectively in challenging interpersonal situations.

The sibling relationship is a critical relationship that spans the course of our lives. The available evidence suggests that the quality of sibling relationships tends to be rather consistent over development (Dunn, Slomkowski, & Beardsall, 1994) in that sibling relationships that are largely conflictual early in life are likely to remain so, whereas those relationships that are more harmonious may also be preserved as children age. These results are consistent with a growing body of research that highlights the long-term significance of sibling relationships for individual well-being (East & Khoo, 2005; Snyder, Bank, & Burraston, 2005) and for establishing positive relationships with individuals outside the family such as peers (McElwain & Volling, 2005). Given its importance across the life course, a clearer understanding of how to make sibling relationships as positive as possible is critical. The MFWSB Program was designed to improve the quality of sibling relationships early in childhood by teaching children to engage in social behaviors that are characterized by high levels of warmth and involvement and to respond effectively in emotionally provocative interactions.

In the current study, improvements in sibling relationship quality were detected as a function of participating in the MFWSB Program. According to both parental report and home observations of sibling interaction, sibling relationship quality improved for children in the experimental group but remained consistent for children in the wait list comparison group. In particular, warm and involved behaviors were reported by parents to be exchanged more frequently between siblings following participation in the program. The finding that siblings were also observed to interact with greater involvement and warmth following the program suggests that program gains exist not only in the eyes of parents. Whereas parents also reported that conflictual and agonistic behaviors decreased for program participants, the observational measures of negative sibling interaction did not indicate significant declines. Although it would have been desirable to show that negativity in sibling interactions also declined as a function of the program, these results are not surprising given that the emphasis of the MFWSB Program is to increase prosocial sibling behaviors; the termination of conflictual and other agonistic sibling behaviors was intentionally given less attention. The rationale for this novel approach is based on the finding that interventions that stress a reduction in conflict tend to lead siblings to engage in separate activities, often in disparate spaces, leaving them uninvolved with one another (Leitenberg, Burchard, Burchard, Fuller, & Lysaght, 1977). This relational style is contrary to the types of warm and involved sibling relationships that parents report wanting their children to build (Kramer & Baron, 1995). Thus, the results of the current study are consistent with Leitenberg et al.'s perspective that prosocial sibling interaction is most likely to occur when it is intentionally promoted.

Promoting Emotion Regulation

Because the sibling relationship is potentially an emotionally volatile one, teaching children how to regulate emotions was expected to yield beneficial effects for promoting more positive and less negative sibling interactions. Indeed, children who participated in MFWSB demonstrated improved down regulation, whereas children in the control condition showed no change. This suggests that children learned competencies through MFWSB that enabled them to refrain from the types of behaviors that prompt parental direction, control, and admonishment.

In this study, emotion regulation was measured in terms of parental down regulation—the degree to which parents exert control over their children's emotionality, high activity levels, and misbehavior that are incompatible with prosocial behaviors (Katz & Gottman, 1986). As discussed above, emotion regulation has been defined and measured in a variety of ways (Bridges, Denham, & Ganiban, 2004; Cole et al., 2004). Our focus on parental down regulation stemmed from the view that parents may be better informants about how their children's emotional behaviors affect them personally (e.g., the degree to which they must exert effort to manage their behavior) than of their children's internal experiences. Furthermore, the few instruments that directly assess children's

perceptions of their abilities to regulate emotions have not been validated with the targeted age group. Although the current research supports the notion that down regulation as an important dimension of emotion regulation enhances sibling relationships, investigation of the ways in which MFWSB may impact other dimensions of emotion regulation (e.g., children's perception of their self-regulation) is warranted.

Links Between Emotion Regulation and Sibling Relationship Quality

A major hypothesis of this study was that children who displayed improvements in emotion regulation skills would also show improvements in sibling relationship quality. The examination of emotion regulation and sibling relationship quality as mutually influential processes has been given only scant attention by researchers. Given the high base rates of conflict that typically occur in these relationships (Kramer et al., 1999; Perlman & Ross, 2005), siblings are confronted with repeated opportunities to exercise emotion regulation. The sibling relationship is a fertile ground in which children may learn to resolve disagreements and to learn to regulate emotions in high-intensity situations.

In the current study, greater competencies in emotion regulation following program participation were associated with more positive sibling relationship quality, as measured by both parents' reports of sibling relationship quality and independent observations of sibling interaction. Such associations were not found for the comparison group. These findings suggest that as children develop greater control over their emotional responses, they become better able to engage positively with siblings. The exact mechanisms by which such processes occur should be investigated in future research. It is possible that children who are able to modulate difficult emotions are more effective in solving problems and managing conflicts, which in turn may contribute to a more collaborative and harmonious climate in the sibling relationship. Alternately, it is possible that children who are more proficient in emotion regulation are likely to avoid the escalation of negative or coercive behaviors with siblings.

Although the current study emphasized the contribution of emotion regulation abilities to strengthen sibling relationship quality, it is important to recognize that MFWSB was designed to help children acquire several additional competencies, including perspective taking, self-control, problem solving, and conflict management. Future research should examine the extent to which the program is effective in improving these other important facets of sibling relationships as well as the extent to which gains in emotion regulation may lead to improvements in other social competencies, as Gottman et al.'s (1997) model might predict.

Practical Implications

This investigation of the MFWSB Program shows promise that a preventive intervention program may help siblings to interact with more warmth and less agonism. MFWSB was also successful in promoting a key form of emotion regulation that relieves parents from the necessity of constantly intervening to help regulate their children's behaviors in emotion-eliciting situations. Thus, preventive interventions such as MFWSB have the potential to play an important role in helping to equip children with the types of social and emotional competencies that contribute to harmonious family interactions.

Educators and practitioners who may not have access to the MFWSB Program can use the results of this study to work with parents to adopt parenting strategies that encourage children to engage in prosocial sibling behaviors and to develop emotion regulation competencies. For example, families can be helped to engage in open communication about emotions and, in particular, to discuss emotionally provocative events, especially as they relate to sibling interactions. The current findings suggest that children may benefit if they can develop a rich vocabulary that will enable them to label and make distinctions among different emotions that may be confusing (e.g., distinguishing frustration and disappointment from anger and hate). In addition, the findings support the approach of helping children to find ways to avoid impulsive responding in the face of emotionally stimulating events. Parents can be taught to help their children to identify situations in which they become frustrated by a sibling and to develop a repertoire of regulating strategies they can use to respond constructively. Some strategies that were used in this program that parents may find relatively easy to adopt include encouraging children to talk about an emotion-eliciting event, using a creative modality to express their thoughts and feelings (e.g., drawing or telling a story), or engaging in positive

self-talk in which the child uses self-instructional language to guide a controlled, calm response in evocative situations.

Limitations

There are a few limitations of this study that merit acknowledgment. Although the sample was representative of the geographic area in which the study was conducted, the generalization of results is limited to White, middle-class families with children in the target age range. In addition, the study did not include a clinical population. Although the results demonstrate that MFWSB can be of value to a normative population of children in the 4- to 8-year age range, we do not yet know the degree to which the program would be helpful to children experiencing severe difficulties in their personal development or sibling relationship. Furthermore, the fact that fathers in the experimental group had one more year of education than fathers in the comparison group should be considered when interpreting these findings. Additionally, the intensive nature of the study, which involved the administration of a five-session intervention program and observational recording of sibling interaction in home visits, precluded the use of a large sample. The limited sample size hampered the types of statistical analyses that could be conducted to understand the associations among key processes.

The equivalency of the experimental and wait list comparison groups also merits discussion. It is possible that posttest reports from experimental group parents were inflated because of parents' knowledge that they had participated in an intervention. A wait list condition was selected over a contrived alternate treatment control condition because previous research on FWSB that included an alternate intervention resulted in reduced sibling relationship quality. Because of ethical considerations, a wait list comparison condition was deemed most appropriate. However, the fact that positive sibling interaction quality also increased for the experimental but not the comparison group supports the interpretation that parents rated their children's relationship more favorably at posttest because they observed program-related improvements.

Despite the fact that multiple methods were used to assess the quality of children's sibling relationships, the measure of children's emotion regulation relied exclusively on parental report. Although reliance on parental report is a limitation shared by the vast majority of studies on this topic, we encourage future research to consider more direct means of assessing children's emotional experiences in natural contexts. For example, the assessment of children's perspectives of their ability to regulate their emotions in sibling relationships and observations of individual and sibling behaviors in natural contexts are likely to advance our understanding as to how children experience the emotionally challenging aspects of their relationships with their siblings and how we may better help them to meet these challenges.

In summary, the results of this study support the development of preventive intervention strategies that build emotional and social competencies to help children improve their relationships with their sisters and brothers. In particular, future exploration of emotion regulation processes hold strong promise for shedding greater light on the ways we may assist children to establish harmonious relationships with siblings.

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