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An Initial Evaluation of a Culturally-Adapted Social Problem Solving and Relational Aggression Prevention Program for Urban African American Relationally Aggressive Girls

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Abstract

Recent research demonstrating that relational aggression is associated with peer relationship difficulties, internalizing and externalizing behaviors, social processing deficits, and possibly later mental health disorders among girls has emphasized the need to address the unique expression of aggression amongst females. Despite these findings, almost all aggression interventions have been directed towards physically aggressive boys. In the current manuscript, authors describe the acceptability and initial effectiveness of a culturally-adapted social problem solving/social skills intervention for inner-city third to fifth grade urban, African American, relationally aggressive girls called the Friend to Friend Program. The authors partnered with youth, teachers, parents, and playground supervisors to design the program, and the current study presents preliminary data suggesting that the intervention is viewed as highly acceptable by participating girls and teachers. Further, the intervention appears to have promise for decreasing at-risk girls' levels of relationally and physically aggressive behaviors, hostile attributions, and loneliness.

Although prior research has found that school-aged children frequently exhibit physical aggression, more recent research has demonstrated that girls are likely to express their anger by manipulating others' social standing, which has been termed *relational aggression* (e.g., gossiping, threatening to withdraw friendships; Crick & Grotpeter, 1995). Research suggests that relational aggression is related to peer relationship problems, social processing deficits, and internalizing and externalizing symptoms (Crick, 1995, 1996), that relationally aggressive behavior becomes more frequent over time (Murray-Close, Ostrov, & Crick, 2007), and that it may be associated with later mental health disorders among girls (Geiger & Crick, 2001). Relationally aggressive behaviors are frequent among inner-city girls and often lead to physical conflicts (Talbot, Celinka, Simpson, & Coe, 2002). Prior research highlights the complicated nature of relational aggression, especially for urban African American girls.

Despite advances in the understanding of relational aggression, particularly among girls, almost all aggression interventions still target physical aggression among boys (Leff, Power, Manz, Costigan, & Nabors, 2001). Thus, contrary to the proliferation of popularized books on relational and social aggression, there have been relatively few empirically-supported interventions to decrease relational aggression, with a few notable exceptions. For example, *Second Step* is a classroom-based violence prevention curriculum that is designed to change maladaptive attitudes towards aggression, teach empathy awareness, and promote problem solving abilities (Van Schoiack-Edstrom, Frey, & Beland, 2002). Results from recent studies

suggested that the program altered students' attitudes about physical and relational aggression (Van Schoiack-Edstrom et al., 2002), but did not decrease aggressive behavior (Frey, Nolen, Van Schoiack-Edstrom, & Hirschstein, 2005). Another study evaluated a program designed to change rejected kindergarteners' behavior (Harrist & Bradley, 2003). Researchers helped teachers implement a "no exclusion" rule in their class. Results were mixed, suggesting that target children endorsed liking to play more with their peers while also reporting higher levels of loneliness and dissatisfaction in their peer relations at the end of the program as compared to control children. No significant findings on teacher reports and behavioral observations were found. Recently, the *Walk away, Ignore, Talk, and Seek (WITS)* program was designed for kindergarten to 3rd graders to decrease classroom levels of relational and physical victimization (Leadbeater, Hoglund, & Woods, 2003). It includes the reading of several popular books, a playground peer helpers' component, and a parent manual. Initial findings suggest that *WITS* may be related to decreases in student reports of relational and physical victimization.

Issues within Inner-City Schools Serving Predominately African American Students

Research suggests that inner-city youth are at heightened risk for emotional and behavioral problems (Black & Krishnakumar, 1998), may be less focused on academics, and are more likely to drop out of school than their peers (Witherspoon, Speight, & Thomas, 1997). Recent studies also suggest that rates of bullying are quite high among African American students (Peskin, Tortolero, & Markham, 2006), including among inner-city girls, in which relational slights (e.g., rumors) often proceed physical aggression at school (Talbot et al., 2002). Given the greater risk for emotional, academic, and behavioral problems for youth living in inner-city settings, it is vital that interventions address the needs of these youth. In particular, a program targeted at reducing relational aggression among urban girls has the potential to prevent both short- and long-term negative outcomes, including an escalation to physical aggression.

The Need for Making Cultural Adaptations to Interventions

Research demonstrating that traditional assessment and intervention techniques may not be culturally sensitive and engaging for African American youth (Leff et al., 2006), coupled with the growing recognition of the importance of designing culturally-specific assessment tools for youth from minority backgrounds (e.g., U.S. Public Health Service, 2001) suggest that empirically-based problem solving interventions developed primarily for physically aggressive boys must be adapted to meet the specific needs of females, especially those from low-income, minority ethnic backgrounds. As such, the present program was developed through a process of participatory action research (PAR). PAR focuses on integrating empirical research and relevant psychological theory with feedback from community stakeholders (Leff, Costigan, & Power, 2004). As such, theory and research on aggression interventions combined with input from girls, teachers, community members, and playground supervisors were involved as partners in the research (Leff et al., 2007). These individuals worked closely with researchers to ensure that both content and modality of implementation (e.g., culturally-specific cartoons, video illustrations and role plays) were adapted to be culturally sensitive. These novel modalities, which were suggested and in part designed by representatives of the local community, enhance engagement in the resulting intervention, an important ingredient for making cultural adaptations to programs (Lau, 2005). Also, establishing strong research-community partnerships may increase the ecological validity and sustainability of interventions, two important components of culturally sensitive programs (Nastasi et al., 2000).

How Friend to Friend (F2F) Attempts to Address Limitations of Prior Intervention Research

Although prior school interventions generally have been designed for physical aggression and have demonstrated more success with boys (see Leff et al., 2001), F2F was developed to address the problems of relational and physical aggression among urban African American girls. Unlike most existing relational aggression programs that have been designed primarily for Caucasian middle-schoolers (e.g., Van Schoiack-Edstrom et al., 2002) and kindergarten to early elementary age students of varying socioeconomic status backgrounds (e.g., Harrist & Bradley, 2003; Leadbeater et al., 2003), F2F was designed specifically to meet the needs of third to fifth grade inner-city African American girls of lower socioeconomic status. Further, existing interventions for relational aggression have been somewhat limited by measurement and research design problems, have not adequately recognized the challenging classroom social context in which relational aggressive and perceived popularity may be intertwined, and have typically not examined or found effects related to decreasing relationally aggressive behaviors. In contrast, F2F uses a multi-method, multi-informant battery to assess relational aggression and problem solving and has a specific classroom-based component designed to reinforce appropriate leadership and problem solving skills demonstrated by girls. Further, F2F uses several teaching modalities that were created in partnership with local youth, teachers, and community members (Leff et al., 2007), including culturally-specific cartoon illustrations and videos, and role plays. Finally, F2F includes evaluation of program acceptability, a key component of cultural sensitivity (Nastasi et al., 2000), which is not adequately addressed in existing programs.

The primary goal was to conduct an extensive pilot study of the acceptability and effectiveness of F2F. We hypothesized that this novel, culturally-responsive intervention would have promise for decreasing urban aggressive girls' relational and physical aggression, tendencies to exhibit hostile attributional biases, and feelings of loneliness and sadness. We also expected that participants would express high levels of acceptability for the program.

Method

Developing an Intervention Curriculum and Related Materials for the Friend to Friend Program

To create a culturally-specific and empirically-supported intervention, the F2F curriculum was developed by integrating three primary sources: (1) psychological theory, (2) prior research on empirically-supported school-based group interventions with physically aggressive urban boys, and (3) feedback from ongoing meetings with girls, teachers, and community partners through an extensive participatory research framework (Leff et al., 2007). Given that there were no previous empirically-supported problem solving interventions for relationally aggressive urban girls, the authors chose to utilize best practice procedures for interventions that had proven effectiveness with physically aggressive boys and then to make modifications based upon feedback from stakeholders.

Theoretical Bases and Prior Empirical Research—Social information processing (SIP) models of aggression propose that a child approaches each social situation with a combination of biologically determined capabilities, memories of previous experiences, and schemas for social situations. Children's behavioral response in a social situation is posited to be a function of how these pre-existing capabilities interact with the way in which children process a series of social cognitive steps (Crick & Dodge, 1994). F2F is, in part, a SIP re-training program modeled after two best practice attributional re-training programs, the Anger Coping Program (Lochman, 1992) and the Brain Power Program (Hudley & Graham, 1993).

These social problem solving programs were chosen because they have shown aggression reduction among urban African American boys, retrain participants at each social information processing step, and have been designated as highly promising aggression interventions (Leff et al., 2001).

Bronfenbrenner's developmental ecological theory (1986) also influenced the design of F2F. This model suggests that development is influenced by relationships and interactions with significant others in one's social environment. Interactions occur both within and across systems (child, peers, teachers, parents). As such, F2F was designed to improve girls' ability to interact and negotiate conflicts more successfully with peers and also provide teachers with a number of strategies to support children when they are confronted by social challenges. Finally, cognitive behavioral strategies (role-playing, practicing, and shaping new behaviors) derived from social learning theory (Bandura, 1973) were also used to make F2F an engaging and impactful program for participants.

Brief Description of F2F—F2F was designed to help girls recognize different types of aggression, to become problem solvers, and to find less aggressive solutions to conflict situations. The primary component is a 20-session attribution retraining program for girls in a pull-out lunch group format. The program is divided into five components: (a) Types and Locations of Friendship Making Problems; (b) Physiological Arousal and Calming Strategies; (c) Evaluating Intentions and Responses; (d) Applying Strategies to Gossip and Peer Entry Situations, and (e) Review.

The group meets biweekly for 30-minute sessions during the lunch-recess period to minimize disruption to classroom teaching. Groups consist of 6–10 girls, including relational aggressors and positive role models (at a 4:1 ratio). Positive role models are included because research suggests that having only aggressive adolescents in group interventions may not be effective in aggression reduction (e.g., Dishion, McCord, & Poulin, 1999). The group is co-led by a F2F research therapist and a classroom teacher. F2F uses enjoyable and easy to remember detective analogies to teach social cognitive strategies for paying better attention to one's own arousal signs, others' behavior, and the social environment. These detective strategies are depicted through cartoon handouts, between session cartoon assignments, and videos (see Figure 1). Thus, F2F teaches participants social cognitive strategies that are similar to previous empirically-supported programs, but the modalities for accomplishing this are novel, as they include culturally-specific cartoons of African American girls and video illustrations. Finally, an eight-session classroom component of F2F is also included. Thus, after F2F participants have completed 10 group sessions, they help to facilitate a similar program within their class. The class sessions help F2F participants practice their new strategies, while also emphasizing their emerging leadership skills. These sessions also allow more students to gain exposure to F2F, and help teachers cue F2F participants to use their new strategies.

Group Leaders

F2F was implemented jointly by a research therapist and a classroom teacher. The therapists are psychology graduate students, and are trained over a two-month period by a licensed psychologist, spending four hours per week completing background readings and learning the curriculum. Then, the therapist meets with a teacher from the participating classrooms on three-four occasions for 30 minutes to help them learn the basics of the curriculum and how they can co-lead the intervention.

Participants

All third through fifth grade students (boys and girls) from two inner-city elementary schools who received principal, teacher, and parent permission participated in an unlimited peer

nomination identification procedure.¹ Eighty-one percent of the student body participated and fully completed the peer nomination assessment. The resulting sample of girls was 98% African American and the majority received free or reduced-price lunches.

The number of girls with relational aggression (GRAs) within each of the 18 participating classrooms was calculated (described in the next section). Any classroom that had at least two GRAs was eligible for the study. Eleven of 18 classrooms met this criterion, resulting in a total of 49 GRAs. The 11 eligible classrooms were randomly assigned to intervention or control (e.g., standard school practice, which is a referral to the school counselor as needed), blocked by grade, and then GRAs were randomly chosen from within those classes (as opposed to including all relationally aggressive girls) due to budget limitations. This initially resulted in 35 targeted GRAs (21 GRAs from six experimental classrooms and 14 GRAs from five control classrooms), but one control classroom, which contained three GRAs, was dropped from the study after two of the students changed schools prior to the intervention beginning. This resulted in an 8.5% attrition rate for the entire study, as the rest of the 32 GRAs (21 in F2F and 11 in control) participated in the complete study. Five prosocial role models, who scored above average on a prosocial behavior peer nomination item, were randomly selected from experimental classrooms for participation in F2F.

Measures and Procedures

Peer Nomination Procedures—Peer nomination items included the standard five relational and three physical aggression items derived from the peer nomination survey designed by Crick and Grotpeter (1995). Raw score nominations on the five relational aggression items were standardized within the nominator group (each grade), resulting in a final relational aggression z-score for each child. Given that our prior pilot studies had established that girls with moderate elevations on peer nominations of relational aggression ($z > .50$) exhibit high levels of teacher-reported relational (and physical) aggression, we chose a z-score cut-off point of .50 to designate girls as being *relationally aggressive*. This resulted in 21.8% of the girls being classified as relationally aggressive.

Measure of Aggression and Social Behavior—The Children's Social Behavior Questionnaire (CSB; Crick, 1996) was completed by the teacher for each of the girls randomized to condition. The Relational Aggression, Physical Aggression, and Peer Likeability subscales were utilized. The CSB's reliability and validity has been previously established (Crick, 1996).

Measure of Hostile Attributional Bias (HAB) in Relationally Provocative Situations—A cartoon-based version of a well-established HAB measure (Crick, 1995) was used to determine girls' level of HAB in relational situations. Participants are presented with the cartoon illustration while the corresponding vignette is read aloud. A recent study has established strong psychometric properties of this cartoon-based adaptation combined with higher acceptability ratings than the traditional written measure for urban African American girls (Leff et al., 2006).

Internalizing Symptoms—The total scores from the Asher and Wheeler Loneliness Scale (Asher & Wheeler, 1985) and from the Children's Depression Inventory (Kovacs, 1985) were used to document loneliness and depression, respectively. These scale have shown adequate reliability and validity in prior studies (Asher & Wheeler, 1985; Crick & Grotpeter, 1995).

¹The peer nomination procedure is well-established and well-validated (Kupersmidt & Coie, 1990). Children circle the names of all class- or grade-mates who exhibit certain behaviors, and unlimited procedures have slightly stronger psychometric properties than traditional limited nominations (Terry, 2000).

Intervention Integrity and Acceptability—All sessions were videotaped and integrity was assessed by randomly selecting 20% of sessions to be coded by two researchers who were blind to study hypotheses. Coders rated primary content and process (e.g., encouraging students to participate, being responsive to student questions) variables for each session on a three-point scale of 0=Not Implemented, 1=Partially Implemented, and 2=Fully Implemented. Inter-rater agreement was strong for both content (98%) and process (96%). A 16-item student- and a 21-item teacher acceptability measure were constructed based on community feedback. Students and teachers responded on a four-point scale anchored by 1=Strongly Acceptable and 4=Strongly Unacceptable. The measures had strong internal consistency ($\alpha = .90$ and $.95$, respectively).

Results

Descriptive Analyses

Forty four percent of GRAs exhibited high levels of both relational and physical aggression (z -scores $> .50$) and 56% exhibited only high levels of relational aggression at pre-intervention. Many GRAs were also popular (44%) or average (31%) in sociometric status, as opposed to being controversial (16%) or rejected (9%).

Acceptability and Integrity Analyses of F2F Program

Participating relationally aggressive girls, positive role models, and teachers rated F2F as extremely acceptable, with mean acceptability scores of 1.51 ($SD = .41$), 1.68 ($SD = .33$), and 1.61 ($SD = .39$) on a four-point scale anchored by 1=Strongly Acceptable and 4=Strongly Unacceptable. Integrity analyses suggested that co-facilitators (therapists and teachers) fully implemented the majority of core content (86%) and process (96%) areas for each session coded.

Effectiveness Analyses

As indicated, the current investigation was a pilot study of the effectiveness of F2F. The sample used was relatively small with unequal cell sizes between intervention ($n = 21$) and control conditions ($n = 11$). As such, the study was powered to detect only very large effect sizes. To maximize the usefulness of the findings for the purposes of planning a more comprehensive clinical trial in the future, we chose to examine effect size differences in change scores between GRAs randomly assigned to F2F versus GRAs randomly assigned to the control condition (Cohen, 1988), as opposed to conducting tests of statistical significance with limited power.

Change scores for girls with relational aggression (GRAs) randomly assigned to F2F were compared to change scores for GRAs randomly assigned to the control condition across all outcome variables (see Table 1). Findings suggested that GRAs in F2F demonstrated greater decreases in teacher reports of relational aggression from pre-treatment ($M = 2.86$; $SD = .90$) to post-treatment ($M = 2.26$; $SD = .49$) on the CSB as compared to GRAs in the control condition from pre-treatment ($M = 2.57$; $SD = .74$) to post-treatment ($M = 2.57$; $SD = .80$). This was associated with a moderate to large effect size of $.74$ (Cohen, 1988). Findings suggested that the intervention may also have had an impact upon physical aggression, as GRAs in F2F demonstrated greater decreases in teacher reports of physical aggression using the CSB from pre-treatment ($M = 2.67$; $SD = 1.01$) to post-treatment ($M = 2.21$; $SD = .87$) as compared to GRAs in the control condition from pre-treatment ($M = 2.43$; $SD = 1.10$) to post-treatment ($M = 2.27$; $SD = 1.24$). This was associated with a low to moderate effect size of $.43$. Teacher ratings of peer likeability on the CSB demonstrated very large change scores, as GRAs in F2F showed greater improvements in peer likeability from pre-treatment ($M = 3.17$; $SD = .66$) to post-treatment ($M = 3.90$; $SD = .77$) as compared to GRAs in the control condition who showed

decreases in peer likeability from pre- ($M = 3.75$; $SD = 1.00$) to post-treatment ($M = 3.39$; $SD = .96$). This was associated with a very large effect size of 1.73.

Change scores related to girls' hostile attributional biases (HAB) in relational situations were also examined. GRAs in F2F demonstrated greater decreases in HABs from pre-treatment ($M = 6.19$; $SD = 1.94$) to post-treatment ($M = 5.00$; $SD = 2.14$) than GRAs in the control condition from pre-treatment ($M = 6.00$; $SD = 2.14$) to post-treatment ($M = 6.00$; $SD = 2.53$). This was associated with an effect size of .61, and represented a 12% reduction in HABs for participating F2F girls. More specifically, girls in F2F exhibited HABs in 62% of the relationally provocative situations pre-treatment compared to in 50% of the relationally provocative situations post-treatment, which appears to be a clinically meaningful change given the strong relationship between hostile attributions and aggressive behaviors (de Castro et al., 2002).

There was some indication that F2F may improve girls' feelings of loneliness, as GRAs in F2F demonstrated decreases in loneliness from pre- ($M = 30.86$; $SD = 12.47$) to post-treatment ($M = 25.57$; $SD = 9.69$) as compared to GRAs in the control condition who reported similar levels of loneliness at pre- ($M = 26.73$; $SD = 8.58$) and post-treatment ($M = 27.09$; $SD = 8.63$). This was associated with a moderate effect size of .45. Interestingly, GRAs did not exhibit high levels of depression pre- or post-treatment despite past research which has suggested that relationally aggressive girls tend to exhibit higher levels of depression (Crick & Grotpeter, 1995). For example, GRAs in F2F showed slight decreases in depression from pre- ($M = 48.86$, $SD = 8.81$) to post-treatment ($M = 47.33$, $SD = 7.88$) as compared to GRAs in the control condition who reported similar levels at pre- ($M = 46.00$; $SD = 5.31$) and post-treatment ($M = 46.27$; $SD = 5.10$).

Discussion

Although the results are preliminary, they suggest that F2F has the potential to be effective with urban, African American girls with high levels of relational aggression (GRAs). High rates of program acceptability combined with low rates of attrition suggested that the curriculum, created and fine-tuned through a participatory process, was engaging and meaningful to students. In addition, teachers shared with therapists that they appreciated that the program was taught in their own class when participating F2F girls co-presented the eight class sessions with therapists. For instance, teachers indicated that the classroom component helped them to better understand the program and strategies as well as to cue participants to use their new skills. Further, GRAs who participated in F2F experienced a 12% reduction in hostile attributions, which appears to be clinically meaningful. In addition, GRAs randomized to F2F had improvements in teacher-reported peer likeability coupled with decreases in relational and physical aggression as compared to GRAs in the control condition. Thus, F2F is the first program, to our knowledge, to suggest both a reduction in hostile attributions and aggressive behavior among relationally aggressive girls.

One aspect that differentiates F2F from many other programs is that F2F includes classroom sessions in addition to the primary small group format conducted during lunchtime. We made this choice for several reasons. First, program impact may be increased by providing opportunities for classmates and teachers to view F2F participants as leaders as opposed to being viewed as behaviorally challenged. F2F participants are given opportunities to demonstrate leadership skills by teaching their peers the anger management skills they learn in the group sessions. In addition, having F2F participants take on a leadership role may help to change these girls' reputations with peers and teachers. Thus, although many of the girls in the present study were identified as both relationally aggressive and popular (similar to prior research, Xie, Farmer, & Cairns, 2003), the class component was designed to provide them

with the opportunity to practice prosocial ways of demonstrating leadership rather than engaging in aggressive behaviors that have the potential to hurt others and may have deleterious long-term mental health implications for the girls themselves. We also chose to include a class component because teachers expressed a desire to have more students, including boys, learn key program concepts. As such, this decision provides a good example of participatory research in which both researchers and school staff were able to re-conceptualize a part of the program to meet a clinical need within the context of an empirically-guided intervention.

Summary, Limitations, and Future Directions

Despite high levels of physically aggressive behavior present in inner-city settings (Black & Krishnakumar, 1998), it appears that relational aggression is also important to address, both due to the negative mental health and behavioral consequences of relational aggression itself, as well as the high level of comorbidity between relational and physical aggression. The fact that relational issues are often overshadowed by more salient physical altercations occurring within urban settings points to the merit of an integrated approach that addresses both relational and physical aggression.

Although results are promising, there were several limitations. First, although the research design utilized well-conceptualized random assignment procedures, GRAs participating in F2F were compared to GRAs in a standard school practice condition. Future studies are underway to compare GRAs randomly assigned to F2F versus GRAs randomly assigned to an alternative intervention in order to control for non-specific treatment factors. Second, the primary outcome measures used were teacher and self-report measures. Because it is not possible to keep teachers blind to treatment conditions, future studies will benefit by measuring outcomes using peer and parent report measures. Third, the small and unequal sample sizes across conditions precluded our ability to conduct formal tests of significance. Although relatively large improvements across several variables suggest that F2F had a positive effect, results should be interpreted cautiously until replicated with a larger and fully-powered sample size. Finally, although the study was designed specifically for African American, inner-city youth, the benefits of creating a program that is culturally acceptable for this population are balanced by the potential limitations on generalizability across other contexts. Nevertheless, F2F appears to be a promising culturally-sensitive intervention to decrease relational and physical aggression, hostile attributions, and feelings of loneliness.

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Social Problem Solving Strategy

Cartoon-Based Illustration

The *FBI – Self strategy* helps girls remember to pay attention to their own face and body clues to recognize signs of physiological arousal when they experience a feeling (such as being mad or sad)

CIA – The Cool It (before) Action strategy (Taking deep breaths, counting to 10; using visual imagery) helps girls to stay calm after they have recognized that their face and body clues are indicating that they are experiencing a feeling (e.g., FBI-Self)

FBI – Other – Once girls have cooled down through CIA, they are instructed to look at the other's person's face and body clues, and other information in the social environment to try and determine why something happened (e.g., was it an accident or was it done on purpose), as opposed to merely making a hostile attribution.

Figure 1.
Several of the Social Problem Solving Strategies Utilized in Friend to Friend.

Table 1

Means and Standard Deviations of the Change Scores for Relationally Aggressive Girls in the Friend to Friend Intervention versus Control Condition across Primary Findings

Outcome Variable	Change Scores F2F intervention	Change Scores Control condition	Effect Size
Behavior			
Relational Aggression	0.59 (.99)	−0.04 (.23)	0.74
Physical Aggression	0.45 (1.11)	0.03 (.55)	0.43
Peer Liking	−0.74 (.68)	0.44 (.68)	1.73
Hostile Attributions	1.19 (2.06)	0.00 (1.17)	0.61
Loneliness	5.29 (14.0)	−.36 (8.78)	0.45
Depression	−1.52 (9.38)	0.27 (5.95)	0.22

Note. Positive change scores represent less relational and physical aggression, less frequent hostile attributions, lower rates of loneliness, higher levels of depression, and lower levels of being liked by peers at post-intervention as compared to pre-intervention rates.