

EFFECTS OF A VIOLENCE PREVENTION PROGRAM
ON THE AGGRESSIVE SCRIPTS AND PROSOCIAL
BEHAVIOR OF “HIGH RISK” STUDENTS

A THESIS IN
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PROJECT SAFE: BELIEFS SUPPORTING AGGRESSION
AND PROSOCIAL BEHAVIOR

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ABSTRACT

The purpose of this study was to evaluate the impact of a school-based violence prevention program, Project SAFE, which was designed to decrease beliefs supporting the use of aggression in response to conflict, as measured by decreases in a Beliefs Supporting Aggression (BSA) scale and an Attitudes Toward Conflict (ATC) scale. This study further examined how changes in beliefs supporting aggression impacted changes in prosocial behavior, and the impact of gender on all of these relationships. Data used for this project included 219 students in 2nd through 6th grades. Students involved in this program came from primarily low-income neighborhoods, and the average rate of free/reduced lunches provided at these schools was 88.9% (67.0% - 99.4). Results suggested that this program was effective in decreasing beliefs supporting aggression, and also that decreased beliefs supporting aggression, measured by the BSA scale, resulted in increased prosocial behavior. However, initial ATC scores predicted overall changes in behavior, with lower ATC scores predicting fewer changes in behavior. These conflicting results are further examined in the discussion. Boys were consistently found to have higher beliefs supporting aggression and lower prosocial behavior than boys at all levels of analysis, but there was no differential impact of the program based on gender.

APPROVAL PAGE

The faculty listed below, appointed by the Dean of the College of Arts and Sciences have examined a thesis titled “Project SAFE: Beliefs Supporting Aggression and Prosocial Behavior,” presented by Arden D. Day, candidate for the Master of Arts degree, and certify that in their opinion it is worthy of acceptance.

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CHAPTER 1

INTRODUCTION

Youth who live in families and communities with high levels of poverty are at increased risk for witnessing and experiencing violence as compared to their peers living in more affluent contexts. For example, youths from low-income families witness significantly more violent acts in their communities than youths from middle and upper income neighborhoods (Buka, Stichick, Birdthistle, & Felton, 2001). Estimates are that 25-47% of low-income youth witness a murder in their communities and 56% witness a stabbing; among higher income youth, these numbers are 1% and 9% respectively. In addition, youths in poverty are at a greater risk to witness or experience violence at home, as rates of domestic violence are highest among families at the lowest end of the socioeconomic scale (Benson, Fox, DeMaris, & Van Wyk, 2003).

Exposure to violence in homes and communities increases youths' risk for a variety of mental and physical health problems (Buka et al., 2001). It is also associated with increased aggression including the likelihood of committing violent acts (DuRant, Pendergrast, & Cadenhead, 1994), explaining up to one quarter of the variance in youths' violent behavior (DuRant et al., 1994). Not only is violence exposure predictive of problem behaviors, it has also been linked to decreases in positive indicators of social adjustment such as empathy, prosocial behavior, self-control, and social problem solving (Frey, Hirschstein, & Guzzo, 2000). These skills remain important across the lifespan.

This study uses data from Rose Brooks Domestic Violence Center's Project SAFE, a violence prevention program that targets low-income students in kindergarten through 6th grade. The aim of Project SAFE is to increase prosocial behavior by addressing knowledge

and attitudes about aggression and violence. This program is grounded in social-cognitive information processing (SCIP) models which posit that attitudes and beliefs that normalize aggression lead to a greater likelihood of perpetuating violence and lower levels of prosocial behavior (Crick & Dodge, 1994; Huesmann, 1998). From a social information processing perspective, normative beliefs about aggression impact how individuals process information and evaluate the appropriateness of a behavioral response, which ultimately affects the tenor of the response they make (Huesmann, 1998). Exposure to violence increases the likelihood that people develop schemas that depict the world as a hostile place (Guerra, Huesmann, & Spindler, 2003), where aggression is an acceptable behavior that will lead to increased status and minimal negative consequences (McMahon et al., 2012).

Empirical evidence has linked exposure to violence to beliefs supporting aggression and aggressive behavior. For example, Colder, Mott, Levy, and Flay (2000) tested the hypothesis that the relationship between exposure to violence and aggressive behavior to be mediated by the development of scripts or normative beliefs about aggression. Consistent with their hypothesis, perceived community violence was associated with strong positive beliefs supporting aggression, which in turn was associated with high levels of aggressive behaviors (Colder et al., 2000).

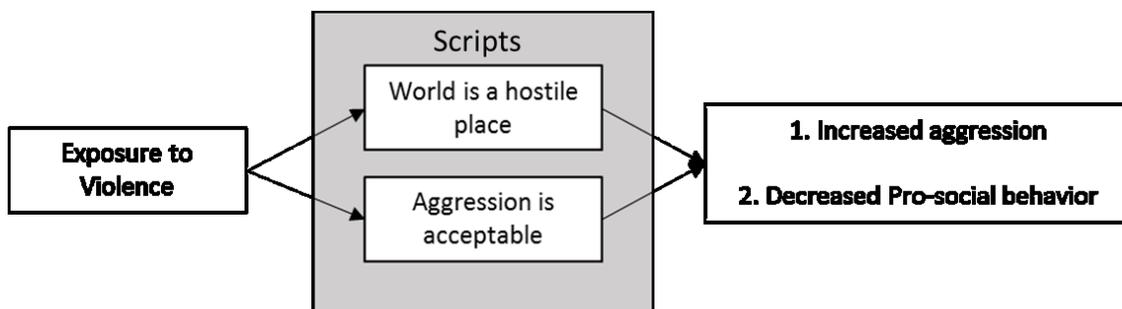


Figure 1. Impact of Exposure to Violence on Beliefs.

Some evidence suggest that children with stronger beliefs supporting aggression are also less likely to engage in prosocial behavior since they are more likely to interpret social cues as hostile, while children without those beliefs are more likely to consider alternate responses to perceived threats (Belgrave, Nguyen, Johnson, & Hood, 2011). Thus, normative beliefs about aggression are negatively correlated with social competence, and are a factor in poor social relationships (Belgrave et al., 2011). Reducing one's belief about the acceptability of aggression might therefore lead to changes in social competence behaviors. As such, this intervention targeted children's beliefs about aggression with the ultimate aim of increasing prosocial behavior. However, while the relationship between knowledge, beliefs and aggression is well-supported (Hardaway, McLoyd, & Wood, 2012), the evidence for the impact of knowledge on prosocial behavior is less conclusive. Thus, the first aim of the study is to determine if providing students with increased knowledge about violence through Project SAFE results in changes that are consistent with a SCIP model whereby changes in their beliefs and attitudes about the acceptability of aggression predict changes in their prosocial behaviors. Since studies have shown that there are gender differences in exposure to violence, rates of aggression, and social competence, the second aim of this study is to determine if there is a differential effect of the violence intervention program on the beliefs and behaviors of boys versus girls.

Specifically, the questions addressed in this study include:

1. Are there changes in beliefs and attitudes about aggression among those students involved in Project SAFE?
2. Are changes in beliefs and attitudes about aggression predictive of changes in classroom social competence behaviors?

3. Does gender moderate any pre-post changes in (a) beliefs and attitudes about aggression and (b) social competence behaviors?
4. Does gender moderate the relationship between changes in beliefs and attitudes about aggression and changes in social competence behaviors? (Is the slope of the relationship between attitude change and behavior change consistent across genders?)

CHAPTER 2

LITERATURE REVIEW

Prevalence and Impact of Youth Exposure to Violence

Youth are exposed to violence at surprisingly high rates. One study found that as many as 1 in 3 youth from a nationally representative sample have witnessed some form of violence (e.g., witnessed domestic violence, seen a murder), with youth who live in urban, impoverished areas being significantly more likely to be exposed to community and domestic violence than youth living in other areas (Buka et al., 2001). For example, using data from the Social and Health Assessment, Brookmeyer, Henrich, and Schwab-Stone (2005) found poverty to be correlated with witnessing violence. According to some studies, over 50% of children in neighborhoods with low SES have witnessed severe acts of violence (Margolin & Gordis, 2000). In addition, youth who are exposed to one type of violence are more likely to be exposed to other types of violence (e.g. youth who are sexually abused are more likely to also witness domestic violence) (Hanson et al., 2006).

Home is a specific context in which low-income youth are at an increased risk for exposure to violence. Cox, Kotch, and Everson (2003) found that being low-income contributed significantly to the risk for maltreatment and domestic violence. They looked at longitudinal data from mothers who participated in the southern LONGSCAN (Longitudinal Studies of Child Abuse and Neglect) site study. This sample included 219 families who were interviewed at two different time points, when the children were age 6 and age 8. The sample was predominately low-income (66% had incomes under \$15,000) and African American (65%), and one-third of the sample had been reported to the State Central Registry of Child Abuse and Neglect prior to the study. Results indicated that families in the bottom third of

the income distribution were almost twice as likely as the average family to report maltreatment, domestic violence, or both. In addition, significant overlap was also found between being reported for child maltreatment and domestic violence.

Exposure to violence also appears to perpetuate a “cycle of violence,” which is referred to in two different ways. First, it is referenced as the cyclical nature of abuse and reconciliation that occurs between victim and abuser, as witnessed by the child. More specifically this cycle follows the pattern of: occurrence of abuse, reconciliation of abuser and victim (abuser may apologize, give gifts, promise not to abuse again, etc.), a period of calm (abuser may deny abuse ever happened), tension building, and another incident of abuse (Widom & Maxfield, 2001). Secondly, the “cycle of violence” is referenced as the intergenerational nature of this cycle. This cycle repeats itself not only in the abusive relationship, but in future relationships of children and adults who are exposed to the violence at home. The intergenerational feature of this cycle is thought to be in part explained by the normalizing of aggressive beliefs depicted in SCIP models of behavior (Widom & Maxfield, 2001).

Social-Cognitive Information Processing Models

SCIP models are frequently used to frame the relationships between beliefs that normalize aggression and aggressive behavior (McMahon et al., 2013). A substantial amount of research has shown that stronger beliefs supporting aggression to solve problems, leads to increases in aggressive behavior. Generally SCIP models suggest that through the aid of cognitive scripts or schema, individuals (1) evaluate and interpret situational cues, (2) search memory for guides to behavior, (3) evaluate and decide on the best behavior, and (4) respond (Dodge & Crick, 1994; Huesmann, 1998).

Huesmann's (1998) "unified information processing model for aggression" combines the two leading SCIP models (see figure below). This model suggests that scripts are used as guides and are responsible for the majority of social behavior and problem solving.

Individuals use these scripts to decide on an appropriate behavior and assess the likely outcome to a behavior or situation based on past experience (Huesmann, 1998; Dodge & Crick, 1994; Huesmann, 1988). This unified model also suggests that while choosing a behavior in response to a situation may at first be a conscious response, as the script is practiced, the behaviors become more automatic, making them harder to change. As a result of exposure to violence, youth develop scripts about social situations that predispose them to aggressive behavior. Scripts are cognitions that organize situations into categories and help individuals respond to different environments. In this instance, scripts include: beliefs about the acceptability of violence, beliefs about normal behavior in relationships, and appropriate strategies for interacting with people and problem solving. Scripts are thought to be changed by factors in the environment. Youth who are exposed to environments that reinforce and model aggression are more likely to believe that aggression is acceptable. In this study, the focus will be on one aspect of youth's scripts: beliefs about the acceptable use of aggression.

Huesmann theorized that the largest impact of people's beliefs about aggression is on how information is processed and how the appropriateness of a behavioral response is evaluated. However, normative beliefs influence all four of the main SCIP steps mentioned above (Huesmann, 1998). In the evaluation and interpretation of situational cues, individuals may attend to or interpret situational cues differently based on normative beliefs. Individuals with normative beliefs about aggression may be more biased toward perceiving hostility in otherwise ambiguous social situations. In searching their memory for guides to behavior,

more aggressive individuals may have more normative beliefs and models that emphasize aggressive problem solving. Aggressive individuals also evaluate how socially acceptable their own behavior is using these normative beliefs about aggression. These normative beliefs about aggression reinforce the use of violence as an acceptable behavior. Lastly, an aggressive person may, in fact, change their normative beliefs in response to negative environmental feedback to make the feedback seem less negative, and thereby perpetuating the cycle of aggressive beliefs and behavior.

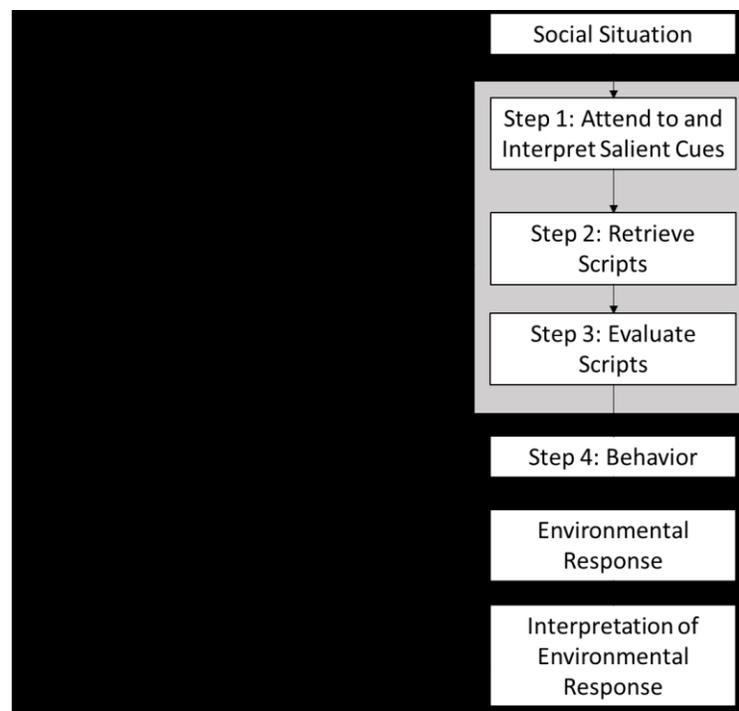


Figure 2. Huesmann's SCIP Model.

Numerous studies document that youth exposed to violence are more likely to have beliefs that support using aggression to solve problems. Using longitudinal data from the Metro Area Child Study in Chicago, Guerra et al. (2003) looked at the impact of exposure to community violence on children. Participants in the sample were children in first through sixth grade, two-thirds of whom qualified for the free/reduced lunch program. Three

constructs were assessed: aggressive behavior as reported by peers and teachers, exposure to violence as reported by the child, and two self-reported social cognitions about aggression, aggressive fantasies and normative beliefs about aggression. Using hierarchical linear growth curve modeling, exposure to violence was found to predict social cognitions with the strongest relationship being to normative beliefs about aggression. Exposure to violence also predicted aggressive behavior. Consistent with SCIP models, twenty-two percent of the effect of exposure to violence on aggression was mediated by normative beliefs and aggressive fantasies, with normative beliefs about aggression explaining a greater portion of this mediation.

In addition, Chaux, Arboleda, and Rincon (2012) conducted a study with 1,235 children from 8 to 18 years old looking at the impact of community violence on reactive and proactive aggression. Measures included questionnaires about reactive and proactive aggression, exposure to community violence, exposure to gangs, parental supervision, hostile attribution of intent, lack of guilt, positive expectations about the outcome of aggression, and normative beliefs supporting reactive and proactive aggression. Using structural equation modeling, they found that exposure to community violence strongly predicted normative beliefs supporting aggression, with greater exposure to violence leading to more beliefs that support aggression. Also, of the psychological variables measured, normative beliefs supporting aggression were impacted the most by exposure to violence. Normative beliefs about aggression also explained a greater percentage of the mediating relationship between exposure to community violence and both reactive and proactive aggression than all other psychological variables. This is also reflected in Guerra et al.'s (2003) previously mentioned results.

Calvete and Orue (2011) tested Dodge and Crick's SCIP model linking exposure to violence and aggression through changes in cognition using a longitudinal model. Adolescents participated in a three wave study over a 19-month period. They responded to questionnaires about: exposure to violence, interpretation of others' intentions in ambiguous social situations, anger, aggressive response selection, and reactive-proactive aggression. Exposure to violence at the first wave of data collection predicted negative interpretations of others' actions and the selection of aggressive responses when faced with ambiguous social situations at the second wave. The selection of aggressive responses at the second wave also predicted aggressive behavior at the last wave of data collection. However, the authors noted that one of the major limitations to this study was that it did not look at normative beliefs which are a key component of the SCIP model.

Suburban rather than urban youth were the focus of a study by Bradshaw, Rogers, Ghandour, & Garbarino (2009) to determine if beliefs supporting aggression mediated the relationship between exposure to violence and aggressive behavior. The study included 184 adolescents aged 14 to 17 years old, who completed measures on community violence exposure, hostile attribution bias, response generation, beliefs about aggression. Teachers also rated the youths on aggressive behavior. Using the SCIP model as a guide, they found that the relationship between violence exposure and aggressive behavior was mediated by hostile interpretation of situations, aggressive strategies for resolving situations, and belief supporting aggression. Normative beliefs justifying the use of aggression had a stronger association with violence exposure and aggression than the other factors included in the study.

Allwood and Bell (2008) conducted one of the few studies to distinguish between exposure to home and community violence. In looking at what factors mediate between exposure to violence and aggressive behavior, 124 seventh and eighth grade students completed measures on exposure to violence, beliefs supporting aggression, and trauma symptoms. The relationship between exposure to in-home violence and aggression was fully mediated by trauma symptoms and beliefs supporting aggression meaning that youth who were exposed to violence at home are more likely to endorse the acceptance of violence as a strategy for interacting with peers. This relationship was not found for youth exposed to community violence.

While the following study does not include a measure for exposure to violence, it does further explore the relationship between beliefs supporting aggression and aggressive behavior. There are generally two different types of aggression: relational and physical aggression. Relational aggression is harm inflicted through peer relationships, such as malicious gossip and social exclusion, as opposed to harm caused by physical harm (physical aggression). Werner and Nixon (2004) looked at how relational and physical aggression were impacted by beliefs supporting aggression. Seventh and eighth grade girls completed questionnaires about normative beliefs about aggression, which included approval of retaliation and general beliefs subscales, and self-reported aggressive behavior, with relational and physical aggression subscales. They found relationally aggressive beliefs (retaliatory beliefs subscale) to be predictive of relationally aggressive behavior and physically aggressive beliefs to be related to physically aggressive behavior.

SCIP and Prosocial Behavior

Although links between experienced aggression, beliefs about aggression and aggressive behavior are well-established, there has been far less research looking the impact of normative beliefs about aggression on *prosocial* behavior, and many of the studies that have been done have had mixed results (McMahon et al., 2013). Whereas some studies suggest that aggression and prosocial behavior are inversely related, other studies propose that aggression and prosocial behavior exist independently. If aggression and prosocial behavior are inversely related, decreased aggressive beliefs and scripts should lead to increased prosocial behavior, as well as decreased aggressive behavior. However, if these behaviors are independent, reducing beliefs about the acceptability of aggression may not be sufficient to increase prosocial responding, but rather prosocial responding must also be taught.

Consistent with the argument that beliefs about aggression would impact prosocial behavior, Belgrave et al. (2011) found that poorly adjusted youth, characterized as having high acceptance of aggression and low anger management skills, scored higher on measures of aggression and lower on measures of prosocial behavior. Using survey data from 789 African American adolescents between ages 11 and 14, the authors created clusters for both males and females based on their responses to measures of empathy, anger management, normative beliefs about aggression, ethnic identity, overt and relational aggression, and prosocial behavior. Four clusters were identified for both males and females. Notably, for the purpose of this study, youth with high scores in both overt and relational aggression also had low scores on prosocial behavior measures, while youth with low scores in aggression had much higher scores on prosocial behavior measures.

Farrell, Bettencourt, Mays, Kramer, Sullivan, and Kliewer (2012) conducted another study that examined patterns in beliefs about aggression, aggressive behavior and prosocial behavior. They classified sixth-grade students into three groups based on their scores on a scale addressing beliefs about fighting: (1) the Beliefs Against Fighting (BAF) group that was generally opposed to aggression, (2) the Beliefs Supporting Fighting (BSF) group that supported the use of aggression in most contexts, and (3) the Fighting is Sometimes Necessary (FSN) group that believed that sometimes fighting was unavoidable. Self-reports of aggression and problem behavior, prosocial behavior, emotion regulation, empathy, and behavioral intentions were collected, as well as teacher reports of aggressive and prosocial behavior. However, they did not include a measure looking at exposure to violence in this study, and so were not able to make conclusions about how violence exposure impacted inclusion in the groups. The youth in the BSF group (i.e., those with the strongest endorsement of aggression) ranked themselves higher in aggressive behavior than either of the other two groups (BAF and FSN). Teachers rated both groups that supported any use of aggression (BSF and FSN) as higher in aggressive behavior than those that were opposed to aggression (BAF). The findings were also consistent with the hypothesis that beliefs about aggression impact prosocial behavioral responses. The group that more generally believed in fighting to solve problems (BSF) ranked the lowest in prosocial behavior, the FSN group ranked in the middle, while the group that was consistently opposed to fighting ranked the highest in teacher-rated prosocial behavior. Together these studies suggest that beliefs about the acceptability of aggression are related to reduce prosocial behavior.

Many violence prevention programs are grounded in the idea that prosocial behavior and aggression are related, and therefore, assume that targeting violent beliefs will not only

reduce aggressive responses but also lead to increased prosocial behavior. For example, Second Step is a violence prevention program that is grounded in the idea that part of the reason children are aggressive is that they lack appropriate prosocial decision making skills, and expect aggressive solutions to yield positive outcomes (Frey, Hirschstein, & Guzzo, 2000). They also lack the ability to appropriately detect others emotions, interpreting socially ambiguous situations to be more hostile, which is consistent with SCIP theories. Second Step focuses on three social-emotional competencies: empathy, social problem solving, and anger management. It also emphasizes the importance of beliefs and attitudes about aggression, and incorporates discussions on school dilemmas to target these beliefs. In their evaluation of this program, Frey et al. found that youth who participated in Second Step increased in prosocial behavior and decreased in physical aggression and verbal hostility, while youth in the control group increased in verbal hostility and physical aggression and remained neutral in prosocial behavior. While does not specifically clarify the debate about the role that “aggressive scripts” play in social competence, it does suggest that positive changes in social competence produced decreases in aggression.

The studies reviewed thus far all have results that are consistent with the hypothesis that lower beliefs supporting aggression predict increased prosocial behavior, yet other studies relay mixed findings. For example, Boxer, Tisak, and Goldstein (2004) had students in seventh through 12th grade complete measures on proactive and reactive aggression, and altruistic, proactive, and reactive prosocial behavior, as well as normative beliefs about aggression. They found that beliefs supporting aggression were negatively associated with the combined measure of prosocial behavior (including altruistic, reactive, and proactive prosocial behavior) and positively associated with aggression. This is the expected outcome

if prosocial behavior and aggression exist on a continuum. However, when they looked at the prosocial behavior subscales, *proactive* prosocial behavior was positively correlated with both actual aggression and beliefs supporting aggression and uncorrelated with other prosocial behavior (reactive and altruistic). Boxer et al. (2004) hypothesized that proactive prosocial behavior might be more about manipulating a situation to “get what I want.” While proactive prosocial behavior does not fit in the classic definition of aggression, it does not fit with other forms of prosocial behavior either, and could offer an explanation of why students with high aggressive beliefs also have higher rated prosocial behavior.

Findings similar to those above were documented by McMahon et al. (2013). They collected four waves of data from students who were in fifth through eighth grade at the start of the study. Students completed measures of exposure to community violence, knowledge and skills related to interpersonal violence, empathy, anger management, acting on impulse, problem solving skills, beliefs about aggression, self-efficacy, impulsivity, and aggressive behavior. Teachers also reported on students’ aggressive and prosocial behavior. In their multi-level lagged effects model, they found that normative beliefs about aggression predicted lower peer-rated prosocial behavior, but not teacher-rated prosocial behavior. However, surprisingly, the between person effects indicated the opposite, students with higher beliefs supporting aggression also had higher teacher-reported prosocial behavior. This is potentially the result of teachers being more likely to witness *proactive* prosocial behavior, which is usually done to manipulate a situation to get a positive reaction, and not for altruistic reasons.

Whereas the two studies above suggest that some aspects of pro-social behavior but not others would be affected by an intervention that targets aggression, other studies suggest

that aggression and prosocial behavior are independent of each other. For example, Kokko, Tremblay, Lacourse, Nagin et al. (2006) concluded that prosocial behavior and aggressive behavior exist as independent characteristics. This study used data from the Montreal Longitudinal and Experimental Study that collected information including teacher assessed physical aggression and prosocial behavior at four time points when participants were ages 6, 10, 11, and 12. When participants were age 17, they then collected self-reported information on problem behaviors, including school dropout and physical violence. Trajectories of prosocial behavior and aggression were modeled. The three trajectories for aggression were: low, moderate, and high but declining over time. Two trajectories were identified for prosocial behavior: low but declining over time, and moderate but declining over time. This study found that while physical aggression predicted school dropout and physical violence, prosocial behavior did not have any protective effect against problem behaviors later in adolescence. Also, while prosocial behavior generally decreased as aggression increased, there was also a small subsample of youth (3.4%) that displayed severe physical aggression and a moderate level of prosocial behavior at the same time. In addition, only half of the participants on the moderate prosocial trajectory were also on a low physical aggression trajectory. Kokko et al. concluded that aggressive and prosocial behaviors were independent characteristics, since the results indicated that both high aggression and higher prosocial behavior could coexist in an individual and also that only half of the participants with higher prosocial behavior also had low aggression. While this study does not include a measure of aggressive beliefs, it does lend evidence to the argument that aggressive and prosocial behaviors are independent characteristics.

Summary

Students who have more beliefs supporting aggression consistently exhibit fewer prosocial behaviors (Belgrave et al., 2011; Farrell et al., 2012). Some violence prevention programs are based on the idea that changing beliefs and attitudes about aggression will not only decrease aggressive behavior but also increase prosocial behavior, giving students more tools for better decision making, and a greater understanding of why aggressive solutions are not the best ones (Frey et al., 2000). However, since some studies suggest that aggressive behavior and prosocial behavior are completely unrelated (Kokko et al., 2006), it is still unclear if programs that target beliefs about aggression will produce changes in prosocial behavior.

Gender Differences

Boys are more likely than girls to be exposed to violence, have stronger beliefs supporting aggression, and have more aggressive behaviors (Bradshaw et al., 2009; Chaux et al., 2012). Belgrave et al. (2010) suggests that this is because boys and girls are socialized differently, with girls encouraged to be more compassionate and nurturing and boys encouraged to be more aggressive. This results in differences in beliefs about when it is appropriate to use an aggressive response, as well as differences in the type of aggressive response selected. Sullivan, Farrell, Bettencourt, and Helms (2008) also suggest that, in inner-city environments, violence might play a role in establishing self-identity for males, but not as much for females. However, other research shows that differences in socialization result in differences in the types of aggression displayed, with girls more likely to use relational aggression and boys more likely to use physical aggression (Crick, Bigbee, & Howes, 1996).

Girls and boys are exposure to various kinds of violence occur at different rates. Using data from a nationally representative sample of 4,008 adolescents Hanson, Self-Brown, Borntrager, Kilpatrick, Saunders, Resnick & Amstadter,(2008) found that while boys witnessed more violence than girls, girls were more likely to be victims of sexual assault than boys, but no gender differences in physical assault. There were no documented gender differences in number of experienced non-sexual assaults.

After exposure to violence, girls are more likely than boys to internalize symptoms and develop depression and anxiety. These differences are presumed to contribute to gender differences in beliefs supporting aggression. For example, in the study above, girls were more likely to meet criteria for major depression and post-traumatic stress disorder, and gender was a moderating variable between sexual assault and PTSD (Hanson et al., 2008). Similarly, Buckner, Beardslee, and Bassuk (2004) conducted a study that used data from the in-depth interviews conducted with single mothers and their children at 3 different time points, as part of the Worcester Family Research Project. This study looked at exposure to violence and mental health outcome variables including depression, anxiety, and trauma symptoms, behavior associated with externalizing, such as aggression and delinquent behaviors, other substantial life events outside of a child's control (e.g. parents get divorced); and perceptions of control and environmental danger. After being exposed to violence, girls were found to be more likely than boys to display symptoms related to internalization of violence, such as depression and anxiety, but no gender differences were found in the externalization of violence.

Foster, Kuperminc, and Price's (2004) study confirmed this finding, among a sample of 149 adolescents, ages 11 to 16 from Boys' and Girls' Clubs. They found that girls who

witnessed community violence experienced higher levels of trauma symptoms (i.e., internalizing) than boys who had also witnessed community similar levels of violence. Other studies have also found that boys are more likely than girls to be exposed to community and when exposed, to have more beliefs supporting aggression, and more aggression (i.e., externalizing behavior) (Chaux et al., 2012).

Girls and boys also rely on different kinds of aggression to solve problems. In a sample of 491 third through sixth grade students, Crick and Grotpeter (1995) found that girls classified as aggressive had higher ratings of relational aggression, whereas boys classified as aggressive were more likely to use overt or physical aggression. Measures included peer-rated physical aggression, relational aggression, prosocial behavior and isolation, as well as measures of loneliness, social anxiety and avoidance, depression, and perceptions of peer relations.

A study by Crick, Bigbee, and Howes (1996) confirmed this finding in a sample of 459 third through sixth grade children. Participants responded to questions about what boys do when they get angry and what girls do when they get angry. Responses were coded into seven categories: physical aggression, verbal threats, verbal insults, nonverbal aggression, relational aggression, telling, and avoidance. According to these responses, girls were more likely to use relational aggression when they were angry, and boys were more likely to use overt or physical aggression when they were angry.

Girls are more likely to display prosocial behavior than boys. Zimmer-Gembeck, Geiger, and Crick (2005) had 464 children complete peer-nominated assessments at two time points, in third grade and in sixth grade, addressing the following measures: social preference and impact, relational and physical aggression, and prosocial behavior. At both time points,

girls were rated higher in prosocial behavior than boys, while boys were rated higher in physical aggression.

Summary

There is evidence that students from low-income neighborhoods, who are involved in Project SAFE, are likely exposed to high rates of violence in their communities and homes. This exposure to violence means that these students have beliefs supporting aggression, which leads to higher rates of aggression. There is also evidence that boys are more likely to be exposed to violence and to react to exposure to violence differently than girls, leading to more beliefs supporting aggression and aggressive behavior in boys. However, there are mixed results on whether more beliefs supporting aggression lead to less prosocial behavior, and whether an intervention focusing on changing beliefs supporting aggression will result in more prosocial behavior. Thus, this study addresses the following questions:

1. Are there changes in beliefs and attitudes about aggression among those students involved in Project SAFE?
2. Are changes in beliefs and attitudes about aggression predictive of changes in classroom social competence behaviors?
3. Does gender moderate any pre-post changes in beliefs and attitudes about aggression and social competence behaviors?
4. Does gender moderate the relationship between changes in beliefs and attitudes about aggression and changes in social competence behaviors? (Is the slope of the relationship between attitude change and behavior change consistent across genders?)

CHAPTER 3

METHODS

Participants

This project used data that were collected from the evaluation of a school-based violence prevention program (Project SAFE) facilitated by domestic violence shelter staff. Students were referred to Project SAFE by their teachers or self-referred for the program based on the following experiences: family conflict or other issues affecting family dynamics, grief or loss, and/or personal or family/close adult issues of substance abuse, sexual abuse, or anger issues. The final sample for this project included 219 second through sixth grade students who had complete data.

Overall, 474 kindergarten through sixth grade students were involved in Project SAFE. Of these students, all (87) kindergarten and first grade students were excluded from this study due to inconsistencies in completion of the study measures. Of the 387 students in grades 2 through 6 who participated in the program, only 56.6% (N = 219) had complete data at the end of the study.

Demographic information for students who participated in the program broken down by data completion (yes/no) are provided in Table 1. Of the final sample participants, 99 (45.2%) were African American, 40 (18.3%) were Hispanic, 35 (16.0%) were multi-racial, 15 (6.8%) were Caucasian, 4 (1.8%) were Asian, 5 (2.3%) belonged to other racial/ethnic groups, and 21 (9.6%) were missing this information. There were approximately equal numbers of participants in lower elementary, 2nd-3rd grades (108; 49.3%), and upper elementary, 4th-6th grades (111; 50.7%), and there were slightly fewer girls (105; 47.9%) than boys. Lastly, the average rate of free/reduced lunches provided at these schools was 88.9%

(67.0% - 99.4) suggesting that a vast majority come from low-income communities and households.

Chi-square tests (Tables 2 - 4) were performed to determine whether the children's demographic characteristics were similarly distributed in the completion versus non-completion groups. There were no differences between students that had complete data compared to those with incomplete data in terms of race/ethnicity ($\chi^2 (5, N = 387) = 8.10, p = 0.15$), gender ($\chi^2 (1, N = 357) = 0.14, p = 0.71$), or grade level ($\chi^2 (1, N = 387) = 2.34, p = 0.13$) the subsample that remains for analysis is representative of the larger sample on which the intervention was conducted. However, the distribution of the prevention specialists did vary by data completion ($\chi^2 (4, N = 379) = 50.64, p < 0.01$), indicating that some prevention specialists might have been better about collecting surveys from students. This variation in data completion by prevention specialists was also reflected in the school differences in completion rates, as prevention specialists were assigned to specific schools.

Procedures

Students involved in Project SAFE received a specialized curriculum, based on the Second Step curriculum (Frey et al., 2000) covering a variety of topics over the course of a full school year, including domestic and sexual violence, substance abuse, and coping skills. The Project SAFE curriculum is categorized into the following three domains: coping, developing relationships, and communication and social skills. These domains contain a series of units available to students at various grade levels. The coping domain included lessons in following topics: stress, anger, self-esteem, disappointment, safety and support systems, communicating feelings, problem solving, and human development. The developing relationships domain included lessons in: bullying, honesty, teamwork, emotional well-being,

family relationships, caring about others, communication, and resolving conflict. The communication and social skills domain included lessons in: listening, safety, feelings and emotions, working with others, setting goals, responding to others, and appropriate communication.

Measures

As part of Project SAFE, students completed a *Beliefs Supporting Aggression* scale and an *Attitude Towards Conflict* scale at the start of the program, mid-year, and at the close of the program. However, due to more substantially missing data at the mid-point measure across all of the scales, this project will only use the pre- and post-assessment data. In addition, teachers completed the *Social Competence* ratings at the close of the program. Although this measure was only completed at one time point, it asked teachers to rate how much students had changed over the course of the program. All surveys relied on Likert-scale responding and were adapted from the Center for Disease Control's (CDC) *Measuring Violence-Related Attitudes, Behaviors, and Influences Among Youths: A Compendium of Assessment Tools* (2005).

Attitudes

Beliefs Supporting Aggression Scale. The *Beliefs Supporting Aggression* scale developed by Bandura (1973) has six items, on which students rated their agreement with various normative beliefs about aggression on a 4-point scale (*strongly agree* to *strongly disagree*). This scale included indicators such as: "If you back down from a fight, everyone will think you are a coward." Values for this scale were summed, with higher scores indicating more beliefs that support for aggression. While this scale was originally used with African-American males, ages 12-16, the internal consistency of this scale for this sample (α

= 0.77, Table 1) exceeds previously recorded measures of internal consistency of 0.66. In addition, a longer version of this scale has been shown to correlate with violent behavior (Parke & Slaby, 1983; Slaby & Guerra, 1988).

Attitude towards Conflict. The *Attitude towards Conflict* scale developed by Lam (1989), has eight items rated on a 4-point scale (*strongly agree to strongly disagree*), including three reverse coded items. This scale measures agreement with attitudes about the use of violence to solve conflicts or disagreements. Higher scores indicate a higher favorable attitude toward using violence to solve conflicts. Sample items include: “If I’m mad at someone I just ignore them” (reverse-coded) and “It’s OK for me to hit someone to get them to do what I want” (not reverse-coded). This scale was originally used for sixth grade students in urban settings and has previously observed internal consistency coefficients ranging from 0.66 to 0.72, and. For this sample, the internal consistency was $\alpha = 0.70$.

Behavior

Social Competence – Teacher Post Ratings. The *Social Competence* scale consists of two subscales (academics and prosocial behavior) formed from ten items that were rated on a 6-point scale (*much worse to much improved*) (Conduct Problems Prevention Research Group, 1995). It was used to assess changes in children’s academic performance and behavioral functioning over the school year. The indicators of this scale include items such as: “Ability to sound out unfamiliar words” (academic) and “Ability to show empathy and compassion for others’ feelings” (prosocial). Higher scores indicate greater improvement in social competence. This scale is targeted toward elementary school children in first through sixth grades, with previously observed internal consistencies ranging from 0.87 (academic subscale) to 0.94 (prosocial subscale) (Corrigan, 2003). Internal consistency for this sample

is 0.95 (academic subscale) to .97 (prosocial subscale). While teachers for this project completed the scale at the beginning and end of the project, only end of project scores will be used for this data analysis, given that the scale responses are worded in such a way that forces reflection (*much worse* to *much improved*). In addition, this scale was originally intended by the authors to only be used after an intervention, and not as a pre and post-test measure.

Data Analysis

SPSS 22 (IBM Corp, 2014) was used to calculate demographic characteristics, run descriptive statistics, and test all hypotheses. Given the nested structure of the data (participants nested within Prevention Specialist), an intraclass correlation (ICC) was calculated to determine if hierarchical modeling should be used in lieu of Ordinary Least Squares (OLS) regression. The resulting ICC in the dependent variable was 5.9%, which is substantially less than the 10% suggested (Lee, 2000) for use of HLM.

Preliminary analysis of all continuous predictor variables was conducted to ensure all assumptions for OLS regression are met with bootstrapping or transformations done to correct any violations. Continuous variables include scores on the following measures: Attitude toward Conflict, Beliefs Supporting Aggression, and Teacher Post-Rating of Social Competence.

Post-hoc power analysis was conducted using G*Power (Faul and Erdfelder, 1992). The sample size of 219 was used for the statistical power analysis and a 5 predictor variable equation was used. The recommended effect sizes for this analysis are: small ($f^2 = 0.02$), medium ($f^2 = 0.15$), and large ($f^2 = 0.35$) (Cohen, 1977). The alpha level used for this analysis was $p < .05$. Power analysis showed the statistical power for this study is 0.71 for

detecting a small effect, whereas the power exceeded 0.99 for the detection of a moderate to large effect size.

Hypothesis Testing

All data analyses was conducted using SPSS.

Research Questions One and Three – Mixed Model ANOVA

The first and third research questions were answered using a mixed model ANOVA looking at whether there were changes in students' beliefs and attitudes about aggression over time, and whether there were differences in beliefs based on gender. The mixed model ANOVA tested the hypotheses that there are pre-post changes in beliefs supporting aggression, and that there are gender differences in beliefs supporting aggression.

Research Question Two – Ordinary Least Squares Regression

The second research question looked at using OLS regression, predicting *Teacher Post-Ratings of Social Competence* based on changes in *Beliefs Supporting Aggression* and *Attitudes Towards Conflict*. The following equation was used in this model.

$$Y = a + b_1(\text{BSAChange}) + b_2(\text{ATCChange}) + e$$

Research Question Four – Ordinary Least Squares Regression

The fourth research question builds upon the second question, using OLS regression, by adding gender and interaction terms to the list of independent variables. The following equation was used in this model.

$$Y = a + b_1(\text{BSAChange}) + b_2(\text{ATCChange}) + b_3(\text{gender}) + b_4(\text{BSA*gender}) + b_5(\text{ATC*gender}) + e$$

Limitations

Data were collected by primarily self-report measures, which can result in response bias. Specifically, the scales relating to beliefs filled out by the students are susceptible to this bias because they may respond differently based on behaviors modeled by their peers, or alternatively based on what the students think the prevention specialist might want them to respond. However, due to the use of changes in scores of the scales, this bias should be minimized because it is looking at growth instead of the individual scores. In addition to this response bias, there was a substantial amount of missing data for various reasons, including inconsistent collection by the prevention specialists and student absences on the days of data collection. However, analyses suggest that the students with complete data were similar to those without complete data.

CHAPTER 4

RESULTS

Results are presented in three sections. Descriptive statistics on the following variables are displayed first: gender, changes in teacher ratings of social competence, the pre-test and post-test for Beliefs Supporting Aggression (BSA) scale, and the pre-test and post-test for the Attitudes Toward Conflict (ATC) scale. Next, I present the results from the two mixed model ANOVAs used to answer research questions 1 and 3. Lastly, results from the OLS regression used to answer research questions 2 and 4 are reviewed.

Descriptive Statistics

Descriptive statistics are displayed in Table 7, and correlations are displayed in Table 8. Visual inspection of the data suggested that both BSA and ATC declined between pre and post-test. Also, on average, students appeared to have experienced some improvement in teacher rated social competence behavior. The correlation matrix reveals logical correlations between attitudes towards conflict (ATC), beliefs supporting aggression (BSA), and changes in teacher-rated behavior. Included in these correlations are correlations between partial scores for BSA and ATC and other variables. Partial scores for these scales look at the correlation between post-test scores, while controlling for the effect of pre-test scores. In the partial score correlations, there are moderate to high correlations between ATC and BSA; ATC has a nonsignificant correlation with teacher rated changes in behavior while BSA is significantly correlated with the outcome. Data were checked for normality. One outlier was found with a high z-score on teacher rated behavior ($Z = -4.09$). In order to make sure this outlier did not unduly influence the solution, the score was truncated to one point below the next lowest score, $Z = -3.16$. The descriptive statistics in Table 7 include this change. This

score was truncated rather than deleted since notes from the student's teacher, included with the data, indicated this student was intentionally rated very low in prosocial behavior, as the student was being retained for fighting.

Research Questions One and Three – Mixed Model ANOVA

Two mixed model ANOVAs were conducted to answer research questions 1 and 3: Are there changes in students' beliefs and attitudes about aggression over time as measured by BSA and ATC, and are these differences moderated by gender?

BSA. A significant main effect of time was found for BSA, $F(1, 217) = 56.69, p < .001, \eta_p^2 = .21$, indicating that beliefs supporting aggression decreased over time. There was also a significant main of gender for BSA, $F(1, 217) = 10.94, p < .001, \eta_p^2 = .07$, with boys endorsing stronger beliefs ($M = 13.29, SD = 4.70, N = 114$) than girls ($M = 11.39, SD = 3.92, N = 105$). However, there was no gender by time interaction for BSA, $F(1, 217) = 0.00, p = .994$, indicating that while boys' and girls' beliefs differed, there was no differential impact of the program.

ATC. A significant main effect of time was also found for ATC, $F(1, 217) = 15.96, p < 0.001, \eta_p^2 = .07$, as well as a significant main of gender $F(1, 217) = 10.94, p < 0.001, \eta_p^2 = .05$, with boys ($M = 15.00, SD = 4.66, N = 114$) endorsing stronger attitudes than girls ($M = 13.35, SD = 4.36, N = 105$). These results parallel the results of BSA. Similarly, there was no gender by time interaction for ATC, $F(1, 217) = 2.99, p = .085$, indicating no differential impact of the program on attitudes.

To answer the second part of question three, an independent samples t-test was run to determine if there were gender differences in changes in teacher-rated behaviors. Girls ($M =$

48.89, SD = 8.62) had significantly higher changes in teacher-rated social competence scores than boys (M = 45.15, SD = 9.03; $t(217) = 3.12, p = .002, d = .42$).

Research Questions Two and Four: OLS Regression

Recall that Question 2 and 4 ask whether changes in beliefs and attitudes about aggression are predictive of changes in classroom behavior, and if gender moderates this relationship. To answer these questions, OLS regression analyses were conducted to determine if beliefs and attitudes supporting aggression and gender predicted social competence.

The data were first examined for violations of assumptions. First a plot of residuals versus predicted values was observed to test the assumptions of linearity and homoscedasticity, and there were no indications of systematic errors. Scores for BSA and ATC post-tests were positively skewed, but transforming variables resulted in a negatively skewed dependent variable (Skew Statistic = -0.70, CR = -4.25), as well as more complicated overall interpretation. Also, transforming variables did not change the results of the analyses, so they were left untransformed. In addition, although student data were nested in preventions specialist, the ICC (5.9%) did not suggest violations of independence.

Changes in BSA/ATC Predict Behavior. Pre-test scores for ATC and BSA were entered in step 1 in the model as control variables. This model was significant, $R^2 = 0.07$, $F(2, 216) = 8.10, p < 0.001$, explaining 7.0% of the variance in teacher-rated changes in prosocial behavior. In this model, only ATC pre-test scores significantly predicted teacher-rated changes in behavior, $b = -0.40, t = -2.66, p = .008$; BSA pre-test scores did not predict, $b = -0.18, t = -1.20, p = .231$. In step 2, post-test scores for ATC and BSA were entered. This second model resulted in no significant change in explained variance, $\Delta R^2 = .021, F(2, 214)$

= 2.47, $p = .087$. In this model, only the pre-test scores for ATC, $b = -0.39$, $t = -2.53$, $p = .012$, and the post-test scores for BSA, $b = -0.40$, $t = -2.21$, $p = .028$, significantly predicted changes in teacher-rated behavior, indicating that decreases in BSA are related to increases in teacher-rated prosocial behavior.

Gender Moderation. In step 3, gender was added, and resulted in no significant changes in explained variance, $\Delta R^2 = .02$, $F(2, 213) = 3.55$, $p = .061$. The interactions for gender by BSA and by ATC were added in step 4, and also resulted in no significant change in explained variance, $F(2,211) = 0.40$, $p = .668$. Coefficients for these models were not interpreted.

Additional Analyses: OLS Regression

Because there were moderate to strong correlations among the two predictor variables across the time periods, I conducted some additional analyses to determine how BSA and ATC behaved as predictors of behavior in isolation from one another. Specifically, OLS regression analyses were conducted using the same steps as previous analyses, but separating BSA and ATC. Interactions between gender and BSA and ATC were not included, since they proved insignificant in the main analyses.

Changes in BSA Predicts Behavior. Pre-test scores for BSA were entered in the first step in the model as a control variable. This model was significant, $R^2 = 0.04$, $F(1, 217) = 8.88$, $p = 0.003$, explaining 3.9% of the variance in teacher-rated changes in prosocial behavior. Pre-test scores for BSA significantly predicted changes in behavior, $b = -0.39$, $t = -2.98$, $p = .003$. In Step 2, post-test scores for BSA were entered, resulting in significant change in explained variance, $\Delta R^2 = .022$, $F(1, 216) = 5.04$, $p = .026$, explaining a total of 6.1% of variance. In this second, model, only the post-test scores for BSA, $b = -0.36$, $t = -$

2.25, $p = .026$ significantly predicted changes in teacher-rated behavior, indicating that decreases in BSA are related to increases in teacher-rated prosocial behavior.

Gender Moderation-BSA. In step 3, gender was added. The final model included pre- and post-tests for BSA and gender. This model resulted in significant change in explained variance, $\Delta R^2 = .02$, $F(1, 215) = 5.06$, $p = .026$, resulting in 8.3% of total variance explained. However, in this model, gender was the only variable that significantly predicted changes in prosocial behavior at the standard .05 level, $b = 2.69$, $t = 2.24$, $p = .026$. However, the post-test for BSA, $b = -0.31$, $t = -1.88$, $p = .060$, was very close to being significant at the standard .05 level.

Changes in ATC Predicts Behavior. In step 1, pre-test scores for ATC was entered in the model as a control variable. This model was significant, $R^2 = 0.06$, $F(1, 217) = 14.73$, $p < 0.001$, explaining 6.4% of the variance in teacher-rated changes in prosocial behavior. Pre-test scores for ATC significantly predicted changes in behavior, $b = -0.49$, $t = -3.84$, $p < .001$. Next, in step 2, post-test scores for ATC were entered, which did not result in significant change in explained variance, $\Delta R^2 = 0$, $F(1, 216) = .003$, $p = .955$. Only pre-test scores for ATC, $b = -0.48$, $t = -3.54$, $p < .001$, significantly predicted changes in teacher-rated behavior.

Gender Moderation-ATC. In the step 3, gender was added. The final model included pre- and post-tests for ATC and gender. This model resulted in significant change in explained variance, $\Delta R^2 = .02$, $F(1, 215) = 5.23$, $p = .023$, resulting in 8.6% of total variance explained. In this model, pre-test scores for ATC, $b = -0.42$, $t = 2.99$, $p = .003$, and gender, $b = 2.72$, $t = 2.29$, $p = .023$, significantly predicted changes in prosocial behavior.

CHAPTER 5

DISCUSSION

The current study was designed to examine whether students involved in a school-based violence prevention program, Project SAFE, changed their beliefs and attitudes about aggression over the course of the program, examine whether changes in these beliefs and attitudes resulted in changes in prosocial behavior, and investigate whether gender was a factor in these relationships. The results showed that attitudes and beliefs supporting the use of aggression decreased over the course of the year, suggesting a positive impact on students involved in Project SAFE. The results also showed that changes in beliefs supporting aggression were marginally significant in predicting changes in teacher-rated prosocial behavior, but changes in attitudes towards conflict did not predict changes in teacher-rated prosocial behavior.

Changes in Beliefs/Attitudes

As hypothesized, students' beliefs supporting aggression and attitudes toward conflict decreased over time, indicating that Project SAFE was effective. This result confirms current literature indicating that violence prevention programs decrease aggressive beliefs over time, and is similar to what was found by Frey et al. (2000) in the evaluation of the Second Step program. Since aggressive beliefs are related to aggressive behavior (DuRant et al., 2001), this is an important outcome. While aggressive behavior was not measured, it is possible that aggression decreased over time in conjunction with the decreases in aggressive beliefs.

Generally, these results indicate that these violence prevention programs are effective at reducing beliefs supporting aggression and may be important for reducing aggressive behavior in classrooms. Also these results indicate that Project SAFE might consider a

measure of aggressive behavior in future iterations of this program and evaluation. While decreases in beliefs supporting aggression are a good indicator of aggressive behavior, they do not replace a measure of aggression. Project SAFE might also consider changing the intensity of the programming to get bigger decreases in beliefs supporting aggression, or devoting more time during the program to changing beliefs/attitudes about aggression, as well as encouraging students to use nonviolent strategies for problem solving conflicts.

Predicting Prosocial Behavior

BSA. Evidence from some of the analyses suggest that changes in BSA might well predict prosocial behavior. Recall that changes in beliefs supporting aggression predicted changes in prosocial behavior, indicated by the significant change in explained variance after the post-test was entered in the additional regression analyses. These results lend support to the literature, which suggests aggressive beliefs are inversely related to prosocial behavior (Belgrave et al., 2011), and are consistent with the hypotheses in this study. These results are also consistent with SCIP theories indicating that beliefs about aggression impact behavior. These results would also lend support to continuing school-based violence prevention programs with a goal of changing student prosocial behavior in classrooms. These results could suggest that programs aimed at decreasing beliefs supporting aggression are sufficient to improve prosocial behavior. However, given the close to significant status of these results, more research would need to be done on a larger population.

ATC. Unlike BSA scores, the pre-test for ATC, but not changes in ATC, predicted changes in prosocial behavior. Regardless of whether or not student attitudes toward conflict changed over the course of the program, students with higher initial attitudes towards conflict

were less likely to have improvements in prosocial behavior, and more likely to have worse prosocial behavior.

The differences in results between the BSA and ATC scales were surprising, given that they were both used to measure beliefs about aggression. Given these results, the content of these scales was examined further. While the BSA scale looked at general agreement with normative beliefs about aggression, the ATC scale focused on the use of violence in response to conflict or the belief that fighting is the only alternative. Another and slightly longer version of the ATC scale included two subscales not included in the shorter version (Multisite Violence Prevention Project, 2004): (1) beliefs about aggression, and (2) use of nonviolent strategies. Thus ATC also addressed student belief in their ability to use nonviolent strategies as opposed to just beliefs about aggression. While ATC might be a subset of overall beliefs about aggression, changes in student self-efficacy in using nonviolent alternatives in response to conflict may not be related to changes in prosocial behavior. However, initial self-efficacy in using nonviolent strategies does impact how much student behavior changes over time. This could suggest that the program is less effective for students with less initial self-efficacy in using nonviolent strategies.

In addition, these scales also used different language in the wording of the questions, with the BSA scale using “you statements” (e.g. “It makes *you* feel big and tough when you push someone around”), and the ATC scale using “I statements” (e.g. “If *I’m* mad at someone *I* just ignore them”). It is possible that differences in results mean that the internalization of these ideals, measured by “I statements” in the ATC scale, is not as important in changing prosocial behavior as more generalized beliefs about the use of

aggression, measured by “you statements” in the BSA scale. However, more research and another review of the literature would need to be completed to address this observation.

It seems that ATC does not adequately measure beliefs supporting aggression and more accurately measures self-efficacy in using nonviolent strategies. Since participants’ initial attitude toward conflict (but not changes in these attitudes) predicted changes in behavior, the ATC scale could be used to determine how frequently the student needs to attend the program in order to experience positive changes in behavior. Students with higher ATC scores might get more attention from prevention specialists in order to increase the effects of this program for those students.

Gender

Gender differences were found in many aspects of these results. In line with hypotheses, boys had consistently more beliefs supporting aggression at both pre- and post-test times. This is consistent with the literature that indicates that boys are socialized differently than girls and this leads to the acceptance of more aggressive beliefs (Belgrave et al., 2010). In addition, boys’ and girls’ beliefs supporting aggression changed at about the same rate, meaning that the program was not more effective for one gender than the other. However, some of the differences in gender could be related to the type of aggression referred to in the scales. Both scales looking at beliefs and attitudes about aggression had questions related to overt or physical aggression, as opposed to relational aggression. Girls tend to have higher beliefs supporting *relational* aggression, and boys tend to have higher beliefs supporting *physical* aggression (Crick et al., 1996), this could have easily led to the differences found in the results.

Gender differences were found in teacher-rated changes in prosocial behavior as well, with girls being rated as having experienced more positive changes in behavior than boys. This is also consistent with the literature indicating that girls exhibit more positive prosocial behavior than boys (Zimmer-Gembeck et al., 2005). Given these results, it is also not surprising that gender independently predicted prosocial behavior in the regression analysis, but that there was no interaction effect.

Limitations

This study was not without limitations. Differences in the implementation of the program were a problem. For example, there was no information given on how frequently students attended the program, so it is unknown whether frequency of attendance would have impacted these results, as well. It is probable that students that more consistently attended the program experienced larger a larger effect of the program.

Also, while the flexibility in curriculum was a potential benefit to the students when in crisis, it also meant that there was no measure of fidelity of implementation of the program. Prevention Specialists would frequently adapt the program to meet student needs at the time. For example, if students were in crisis, the curriculum would be set aside for that session to give students the opportunity to reflect on their experiences. However, “in crisis” was never defined.

The lack of fidelity measures likely resulted in inconsistencies in the program that the students received, and as a consequence impacted how they responded to the survey items. It also resulted in differences in both collection and completion of study measures. Not all students completed all of the measures, and if they did, answers to items were sometimes missing. Sometimes students would complete only the pre-test or only the post-test, but there

was also no indication that the student had dropped out of the program. It is possible that if data from all 387 students had been used, results would have varied slightly, as students and prevention specialists wouldn't have self-selected out of the surveys. This might have also resulted in more evenly distributed scores.

In addition, both of the scales used to measure beliefs about aggression were normed on students who were slightly older. This study sample used a population of youth aged 7 to 12. The BSA scale was originally used for youth aged 12 to 16, and the ATC scale was used for youth aged 11 to 12. In addition, the original BSA scale was normed with 20 items (Huesmann & Guerra, 1997), but was reduced to only 6 items in the CDC's Compendium, which was the version of this scale used by Project SAFE. This possibly removed some important dimensions of the scale and didn't give as complete a profile of beliefs supporting aggression as the original scale would have. As mentioned previously, the ATC scale was also shortened from an original scale of 12 items.

Interpretation of the results is further complicated by the way the outcome variable was measured. Changes in teacher-rated prosocial behavior were measured using a scale meant for use as a post-test. Teachers rated items about student behavior based on a Likert scale ranging from "Much Worse" to "Much Improved." However, the program used it as a pre- and post-test. Thus, it is difficult to determine if when the teachers completed this form they responded to the questions as reflecting on changes in student behavior or if they completed this form as rating student behavior at that moment.

Summary

These results suggest that this program is effective at reducing beliefs supporting aggression, and also that these beliefs and prosocial behavior might be indirectly related. An

unintended outcome of these results indicated that initial self-efficacy to use nonviolent strategies might impact changes in prosocial behavior. While self-efficacy was measured as an aspect of beliefs supporting aggression, these results differ from the way in which more general beliefs supporting aggression impact changes in prosocial behavior. In addition, it would be interesting to further investigate in other populations if initial self-efficacy in using nonviolent strategies predicts how much prosocial behavior changes. However, given the problems stated with the implementation of this program, as well as measurement problems, these results are by no means conclusive, and more research needs to be done looking into how violence prevention programs impact prosocial and aggressive behavior through changing beliefs supporting aggression. Since these results were not conclusive, it is possible that changing students' beliefs about aggression would also result in changes in not only aggressive behavior but also changes in prosocial behavior.

APPENDICES

Appendix A: Tables

Table 1. Pre-Test and Post-Test Reliability of Scales.

Scale	Number of Items	Pre-Test Alpha (N = 219)	Post-Test Alpha (N = 219)
Beliefs Supporting Aggression	6	0.71	0.73
Attitudes Towards Conflict	8	0.62	0.73
Social Competence- Teacher Post Ratings	10		0.96
Academic Subscale	2		0.95
Prosocial Behavior	8		0.97

Table 2. Summary of Demographic Characteristics for Sample.

Characteristic	N	%
School		
1.00	8	3.7%
2.00	5	2.3%
3.00	6	2.7%
4.00	3	1.4%
5.00	30	13.7%
6.00	38	17.4%
8.00	11	5.0%
9.00	21	9.6%
11.00	8	3.7%
13.00	3	1.4%
14.00	15	6.8%
15.00	12	5.5%
16.00	3	1.4%
17.00	5	2.3%
18.00	17	7.8%
Race		
Asian	4	1.8%
African-American	99	45.2%
Multi-Racial	35	16.0%
Hispanic	40	18.3%
White	15	6.8%
Other	5	2.3%
Missing	21	9.6%
Gender (Female)	105	47.9%
Grade		
2 nd – 3 rd	108	49.3%
4 th – 6 th	111	50.7%
1	38	17.4%
2	8	3.7%
3	52	23.7%
4	105	47.9%
5	16	7.3%

Table 3. Chi Square of Complete Data and Race

Race	Complete Data		χ^2
	Yes (N = 219)	No (N = 168)	
Asian	4 (-0.94)	4 (0.94)	0.15
African-American	99 (2.39)	37 (-2.39)	
Multi-Racial	35 (-0.53)	21 (0.53)	
Hispanic	40 (-1.87)	31 (1.87)	
Other	15 (-0.61)	10 (0.61)	
White	5 (0.93)	1 (-0.93)	

Table 4. Chi Square of Complete Data and Gender

Gender	Complete Data		χ^2
	Yes (N = 219)	No (N = 168)	
Female	105 (-0.4)	69 (0.3)	0.71
Male	114 (0.4)	69 (-0.4)	

Table 5. Chi Square of Complete Data and Grade

Grade Level	Complete Data		χ^2
	Yes (N = 219)	No (N = 168)	
Lower Elementary	108 (-1.5)	96 (1.5)	0.13
Upper Elementary	111 (1.5)	72 (-1.5)	

Table 6. Chi Square of Complete Data and Prevention Specialist

Prevention Specialist	Complete Data		χ^2
	Yes (N = 219)	No (N = 168)	
1	38 (-4.79)	63 (4.79)	50.64**
2	8 (-2.1)	14 (2.1)	
3	52 (-1.36)	48 (1.36)	
4	105 (6.55)	25 (-6.55)	
5	16 (0.4)	10 (-0.4)	

Table 7. Descriptive statistics.

Scale	M (SD)	Skewness		Kurtosis	
		Statistic	CR ^a	Statistic	CR ^b
TR-SC	46.98 (9.01)	-0.40	-2.41	-0.16	-0.50
BSA Pre-Test	13.52 (4.51)	0.33	2.00	-0.31	-0.96
BSA Post-Test	11.24 (4.09)	0.54	3.27	-0.29	-0.90
ATC Pre-Test	14.91 (4.57)	0.48	2.94	-0.30	-0.91
ATC Post-Test	13.51 (4.52)	0.66	4.00	-0.44	-1.34

a. SE = 0.164.

b. SE = 0.327

Table 8. Correlations.

	Gender	ATC Pre	ATC Post	BSA Pre	BSA Post	TR-SC	Partial BSA	Partial ATC
Gender	1	-.25**	-.12	-.21**	-.23**	.21**	-.16*	-.029
ATC Pre		1	.37**	.52**	.36**	-.25**	.15*	-
ATC Post			1	.34**	.56**	-.10	.48**	-
BSA Pre				1	.47**	-.20**	-	.20**
BSA Post					1	-.23**	-	.49**
TR-SC						1	-.15*	-.004

* Correlation is significant at the .05 level. ** Correlation is significant at the 0.01 level.

Table 9: Linear model of predictors of Teacher Ratings of Social Competence.

	<i>b (95% CI)</i>	<i>SE B</i>	β	<i>p</i>
Step 1				
Constant	55.34 (51.05, 59.62)	2.17		< 0.001
ATC-Pre	-0.4 (-0.69, -0.1)	0.15	-0.20	0.008
BSA-Pre	-0.18 (-0.48, 0.12)	0.15	-0.09	0.231
Step 2				
Constant	55.83 (51.13, 60.53)	2.38		< 0.001
ATC-Pre	-0.39 (-0.69, -0.09)	0.15	-0.20	0.012
BSA-Pre	-0.08 (-0.4, 0.24)	0.16	-0.04	0.616
ATC-Post	0.19 (-0.13, 0.5)	0.16	0.09	0.240
BSA-Post	-0.4 (-0.76, -0.04)	0.18	-0.19	0.028
Step 3				
Constant	53.57 (48.33, 58.8)	2.66		< 0.001
ATC-Pre	-0.34 (-0.64, -0.04)	0.15	-0.18	0.026
BSA-Pre	-0.07 (-0.38, 0.25)	0.16	-0.03	0.683
ATC-Post	0.17 (-0.14, 0.48)	0.16	0.09	0.285
BSA-Post	-0.35 (-0.71, 0.01)	0.18	-0.16	0.055
Gender	2.27 (-0.1, 4.64)	1.20	0.13	0.061
Step 4				
Constant	54.37 (48.63, 60.11)	2.91		< 0.001
ATC-Pre	-0.30 (-0.62, 0.01)	0.16	-0.16	0.058
BSA-Pre	-0.10 (-0.44, 0.24)	0.17	-0.05	0.562
ATC-Post	0.03 (-0.40, 0.47)	0.22	0.02	0.887
BSA-Post	-0.27 (-0.72, 0.18)	0.23	-0.13	0.241
Gender	2.23	1.21	0.13	0.067

	(-0.15, 4.61)			
BSA*Gender	-0.66	1.35	-0.04	0.624
	(-3.33, 2.00)			
ATC*Gender	1.14	1.29	0.09	0.374
	(-1.39, 3.68)			

Note. $R^2 = 0.07$, $p < 0.001$ for Step 1. $\Delta R^2 = 0.02$, $p = 0.087$ for Step 2. $\Delta R^2 = 0.02$, $p = 0.061$ for Step 3. $\Delta R^2 = 0.003$, $p = 0.668$ for Step 4.

Table 10: Linear model of predictors of Teacher Ratings of Social Competence-BSA.

	<i>b</i> (95% CI)	SE <i>B</i>	β	<i>p</i>
Step 1				
Constant	52.26 (48.58, 55.93)	1.87		< 0.001
BSA-Pre	-0.39 (-0.65, -0.13)	0.13	-0.20	0.003
Step 2				
Constant	54.25 (50.21, 58.30)	2.05		< 0.001
BSA-Pre	-0.24 (-0.53, 0.05)	0.15	-0.12	0.108
BSA-Post	-0.40 (-0.68, -0.04)	0.16	-0.17	0.026
Step 3				
Constant	51.793 (47.24, 56.34)	2.31		< 0.001
BSA-Pre	-0.20 (-0.49, 0.09)	0.15	-0.10	0.179
BSA-Post	-0.31 (-0.63, 0.01)	0.16	-0.14	0.060
Gender	2.69 (0.33, 5.06)	1.20	0.15	0.026

Note. $R^2 = 0.04$, $p = 0.003$ for Step 1. $\Delta R^2 = 0.02$, $p = 0.026$ for Step 2. $\Delta R^2 = 0.02$, $p = 0.026$ for Step 3.

Table 11: Linear model of predictors of Teacher Ratings of Social Competence-ATC.

	<i>b</i> (95% CI)	SE <i>B</i>	β	<i>p</i>
Step 1				
Constant	54.27 (50.35, 58.18)	1.99		< 0.001
ATC-Pre	-0.49 (-0.74, -0.24)	0.13	-0.25	< 0.001
Step 2				
Constant	54.33 (49.82, 58.84)	2.29		< 0.001
ATC-Pre	-0.49 (-0.76, -0.22)	0.14	-0.25	< 0.001
ATC-Post	-0.01 (-0.28, 0.27)	0.14	0.00	0.955
Step 3				
Constant	51.86 (46.91, 56.81)	2.51		< 0.001
ATC-Pre	-0.42 (-0.69, -0.14)	0.14	-0.22	0.003
ATC-Post	0.00 (-0.27, 0.27)	0.14	0.00	0.992
Gender	2.72 (0.38, 5.07)	1.19	0.15	0.023

Note. $R^2 = 0.06$, $p < 0.001$ for Step 1. $\Delta R^2 = 0.00$, $p = 0.955$ for Step 2. $\Delta R^2 = 0.02$, $p = 0.023$ for Step 3.

Appendix B: Measures

Beliefs Supporting Aggression Items and Item Responses.

Item	Item Responses			
	Strongly Agree	Agree	Disagree	Strongly Disagree
1. It makes you feel big and tough when you push someone around.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. If you back down from a fight, everyone will think you are a coward.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Sometimes you have only two choices—get punched or punch the other kid first.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. It's OK to hit someone if you just go crazy with anger.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. A guy who doesn't fight back when other kids push him around will lose respect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. A guy shows he really loves his girlfriend if he gets in fights with other guys about her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Attitude toward Conflict Items and Item Responses.

Item	Item Responses			
	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
1. If I'm mad at someone I just ignore them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Even if other kids would think I'm weird I would try to stop a fight.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. It's okay for me to hit someone to get them to do what I want.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Sometimes a person doesn't have any choice but to fight.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. When my friends fight I try to get them to stop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. There are better ways to solve problems than fighting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I try to talk out a problem instead of fighting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. If people do something to make me really mad, they deserve to be beaten up.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: Items 3, 4, and 8 are reverse coded.

Teacher Post Ratings-Social Competence Items and Item Responses.

Item	Item Responses					
	Much Worse	Somewhat Worse	A little worse	A little improved	Somewhat improved	Much improved
1. Ability to sound out unfamiliar words.	<input type="checkbox"/>					
2. Ability to read sentences and paragraphs and answer questions about what they have just read.	<input type="checkbox"/>					
3. Ability to stop and calm down when excited or upset.	<input type="checkbox"/>					
4. Ability to verbally label emotions of self and others.	<input type="checkbox"/>					
5. Ability to show empathy and compassion for others' feelings.	<input type="checkbox"/>					
6. Ability to handle disagreements with others in a positive way.	<input type="checkbox"/>					
7. Ability to initiate interactions and join in play with others in an appropriate and positive manner.	<input type="checkbox"/>					
8. Ability to provide help, share materials, and act cooperatively with others.	<input type="checkbox"/>					
9. Ability to take turns, play fair, and follow the rules of the game.	<input type="checkbox"/>					
10. Self-esteem	<input type="checkbox"/>					

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