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Behavioral Outcomes for Caribbean Adolescents in an Aggression-Reducing Intervention in a

Custodial Setting

by

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AGGRESSION-REDUCING INTERVENTION

Abstract

Crime is a significant problem in the Caribbean, and young men are overrepresented both as victims and perpetrators of violent crime in this region. This study analyzes the effects of a pilot short-term aggression-reducing intervention similar to others such as Aggression Replacement Training. Participants were adolescent males living in a juvenile detention center in the Caribbean. The intervention aimed to teach participants to restructure potentially aggression-inducing situations into challenges to overcome by understanding the emotions of themselves and others rather than as threats. Thomas & Cain (2011) found that the intervention effectively reduced aggressive behavior; this study further analyzed these effects. There was a significant effect of the initial level of aggression such that those boys with higher aggression levels at the start of the intervention showed a significantly greater decrease in aggressive behavior, delinquent behavior, and conduct disordered behavior than boys who were lower in aggression at the beginning of the intervention. These results can inform future uses of this intervention, as well as future research on the Caribbean and its youth.

Keywords: Caribbean, adolescence, juvenile delinquents, aggression, intervention, conduct disorder, Aggression Replacement Training, cognitive-behavioral therapy

Behavioral Outcomes for Caribbean Adolescents in an Aggression-Reducing Intervention in a Custodial Setting

The Caribbean region experiences one of the highest rates of murder in the world and the number of murders in the region per year continues to increase (United Nations Office on Drugs and Crime, & the Latin America and the Caribbean Region of the World Bank, 2007). Youth, particularly young men, are overrepresented both as victims and perpetrators in the Caribbean's crime and violence statistics. In this region, as in many other parts of the world, crime is a major public health, social, and economic problem that stands in the way of development (United Nations Office on Drugs and Crime, & Latin America and the Caribbean Region of the World Bank, 2007).

The Caribbean is an extremely diverse region consisting of twenty-eight countries, which differ significantly in important ways. Some countries are far more developed than others, with world development rankings for Caribbean countries ranging from 31 (Barbados) to 154 (Haiti), according to the 2006 Human Development Index (United Nations Office on Drugs and Crime, & the Latin America and the Caribbean Region of the World Bank, 2007). There is also large variation in population size, ranging from 4,000 in Montserrat to more than 11 million in Cuba. Additionally, countries in the region were colonized by one of six distinct nations: Denmark; France; the Netherlands; Spain; the United Kingdom; or the United States; leading to significant differences in language and culture among countries (United Nations Office on Drugs and Crime, & the Latin America and the Caribbean Region of the World Bank, 2007). Despite this heterogeneity, most current literature on youth violence and aggression in the Caribbean focuses on the region as a single unit. With only four of the countries in the Caribbean (Cuba, Jamaica, Haiti, and the Dominican Republic) making up 87% of the region's population, it is clear that

any statistics pulled from an overall analysis of the Caribbean region will not be representative of the many countries that make up the region itself (United Nations Office on Drugs and Crime, & the Latin America and the Caribbean Region of the World Bank, 2007).

Crime and violence play a large role in the lives of Caribbean adolescents. A study of the health of school-going adolescents in nineteen Caribbean countries found that one out of five males had carried a weapon to school in the past thirty days (Halcon et al., 2003). The same study also found that one in ten youths had been knocked unconscious in a fight, and one in ten had been stabbed or shot. With regard to more passive acts of violence, it was reported that two in five of these Caribbean adolescents reported that they think about hurting or killing someone else sometimes or most of the time; and that one in six reported that they did not think they would live past the age of 25 (Halcon et al., 2003). These rates of violence are alarmingly high, and when combined with what is known about crime in the Caribbean as a whole, suggest that aggression and crime play a large role in the daily lives of the region's adolescent population. Interventions may be useful in reducing instances of aggression in this population.

Interventions with high-risk youth in the Caribbean have proven effective in reducing violence in the adolescents receiving some kind of intervention (United Nations Office on Drugs and Crime, & the Latin America and the Caribbean Region of the World Bank, 2007). However, there have been relatively few well-tested interventions; thus, there is currently no general consensus as to what really is effective in reducing youth violence in the Caribbean (United Nations Office on Drugs and Crime, & the Latin America and the Caribbean Region of the World Bank, 2007). Further, there is very little documented research on high-risk youth in the less populous Caribbean countries. The present study focuses on a piloted intervention aimed at reducing aggression in a group of highly aggressive adolescent males living in a juvenile

detention center on an English-speaking Caribbean island with a development ranking of 71 and a population of roughly 174,000 (United Nations Office on Drugs and Crime, & the Latin America and the Caribbean Region of the World Bank, 2007). This research should provide valuable information on what works for this specific population of adolescents in the context of one Caribbean country. This study also breaks from previous research by focusing on one specific island population rather than treating the entire Caribbean region as if it were a single homogeneous grouping.

Chronic aggression in childhood and adolescence can be devastating to an individual's life-course (Huesmann, Dubow, & Boxer, 2009; Kokko & Pulkkinen, 2005). In fact, an individual's childhood measure of aggression has been correlated directly with his or her aggression in adulthood. Longitudinal research shows that males have consistently higher levels of aggression across the life-course than females (Kokko & Pulkkinen, 2005). People, especially males, who are aggressive in childhood and adolescence are also more likely to experience substance abuse, depression, and incarceration, among many other negative outcomes, later in life (Huesmann et al., 2009).

Juvenile delinquents are an especially high-risk group for aggression and conduct disorder, as well as many other mental health problems (American Academy of Pediatrics, 2011; Wierson, Forehand, & Frame, 1992). Research on American adolescents has found that while the mean prevalence rate of psychiatric disorders in the overall adolescent population is 16.5%, in juvenile offenders this rate increases to 50%-100% when disruptive behavior disorders, like conduct disorder, are included (American Academy of Pediatrics, 2011). These rates may be different for adolescents in the Caribbean, but the pattern of findings may be similar in most populations because the offenses committed by children and adolescents in trouble with the law

(e.g., theft or aggression toward peers) are often manifestations of symptoms of conduct disorder. In a sample of mostly African American, highly aggressive, incarcerated adolescent boys in a training school environment, it was found that those who had been victims of severe violence were more likely to approve of aggression as a social response, misinterpret social cues, and have maladaptive social goals (Shahinfar, Kupersmidt, & Matza, 2001). Even those who had witnessed severe violence were more likely to perceive positive outcomes for the use of aggression. Coupling this aggression-based problem solving schema with the persistence and detrimental effects of aggression throughout the life-course, it seems that aggressive juvenile delinquents are in serious need of intervention programs to decrease their violent behavior.

The current study is concerned with institutionalized adolescent male juvenile offenders who demonstrate significant levels of aggression. In a meta-analysis of two hundred studies on interventions with violent juvenile offenders, it was found that for institutionalized offenders, the teaching of interpersonal skills and cognitive behavioral therapy were the most successful approaches to promoting pro-social behaviors and decreasing aggressive and violent behaviors (Lipsey and Wilson, 1998). Cognitive behavioral therapy emphasizes that in order to change a person's behavior, interactions between the social context and the individual's behavior must be taken into account; it is not enough to focus on either one alone (Goldstein, Nensen, Daleflod, & Kalt, 2004). Further support of the efficacy of cognitive behavioral therapy in a sample similar to ours is seen in a study by LeSure-Lester (2002), who found that in a sample of twelve adolescent African-American males in a group home, an aggression-reducing intervention based on cognitive behavioral therapy was significantly more effective than a more traditional indirect therapeutic approach in reducing aggression toward peers and staff as well as increasing compliance with house rules.

Aggression Replacement Therapy (ART) is an intervention method meant to change the behavior of chronically aggressive adolescents (Goldstein & Glick, 1994). Based on cognitive behavioral therapy principles, ART aims to increase the frequency of pro-social behaviors and decrease instances of aggressive behaviors through a constructive, rather than destructive, approach—rather than punishing past behavior, ART aims to change participants’ thinking and behavior to improve their chances of future success (Goldstein et al., 2004). ART uses a multi-modal approach, focusing on changing the individual’s thinking, emotion, and action (Goldstein et al., 2004). There are three stages in ART: (1) skillstreaming, with the goal of teaching participants step-by-step methods to manage social situations with constructive, pro-social behaviors rather than destructive, aggressive ones; (2) anger control training, which teaches participants to manage their anger by enhancing self-awareness of anger cues, using coping strategies, and social problem solving; and (3) moral reasoning training, with the goal of enhancing participants’ ability to take the perspective of others (Goldstein et al., 2004). ART has been shown to reliably “promote skills acquisition and performance, improve anger control, decrease the frequency of acting-out behaviors, and increase the frequency of constructive, pro-social behaviors” in many populations, most notably in adolescent juvenile delinquents who have been violent or aggressive towards peers (Goldstein et al., 2004).

While ART has been tested in America and in Norway (Holmqvist, Hill, & Lang, 2007), we know of no study that has tested ART or a similar CBT program in the Caribbean region. The current study addresses this gap in the literature by assessing the efficacy of a CBT-based intervention on a sample of fourteen adolescent males living in a juvenile detention center in a Caribbean island. Thomas & Cain (2011) found that the intervention significantly decreased measures of aggression in this sample. This investigation will further analyze the proposed

positive effects of the intervention to determine which adolescents had the largest decrease in aggressive behavior. Continued analysis of the intervention may help to improve the number and quality of strategies currently employed in similar Caribbean settings. New interventions that draw from current research may serve well in decreasing aggressive behavior while also increasing pro-social behavior in high-risk adolescent males. It is hoped that research related to this intervention will ignite this much needed dialogue. This study will therefore broach the discussion by investigating whether older versus younger boys experienced greater reduction in aggressive behavior after the intervention. Additionally, it will explore whether age, reason for referral to the detention center, and initial levels of aggression are related to the level of change in aggressive behavior at the end of the intervention.

Older adolescents have been shown to demonstrate higher levels of aggression than younger adolescents (Lochmann & Dodge, 1994; Loeber & Hay, 1997). Further, studies show that aggressive acts committed by adolescents tend to be more violent when the aggressor is older (Loeber & Hay, 1997). This might be explained by the fact that older adolescents tend to be stronger and have more access to weapons (Loeber & Hay, 1997). Since the intervention caters to highly aggressive adolescents, and older adolescents tend to show more aggression, it was hypothesized that there would be a significant difference in the rate of change in aggressive behavior between older and younger adolescents in the current sample such that older adolescents would demonstrate significantly greater change than younger adolescents.

Notably, the current sample consisted of boys referred to the detention center for one of two reasons: either they had committed a crime, or they did not have a reliable caregiver and were placed in the center for care and protection. Most of the crimes committed by participants in the crime group were violent in nature; for this reason, it was hypothesized that those

adolescents referred for criminal reasons would have higher levels of aggression at intake than those who were referred for care and protection. Research finds that high-risk adolescents who associate with deviant peers are particularly vulnerable to increases in delinquency and violence due to the influence of their peers, a phenomenon known as “deviancy training” or “peer contagion” (Dishion, McCord, & Polin, 1999; LaCourse, Nagin, Tremblay, Vitaro, and Claes, 2003).

Bandura’s Social Learning Theory (1973) posits that individuals learn to be aggressive based on social cues from others and from modeling the behaviors of their peers. Combining this with the deleterious effects of peer contagion and deviancy training, boys referred for care and protection are predicted to demonstrate significantly less change in aggressive behavior than those referred for crime by the end of the intervention because those high-risk, less aggressive boys referred for care and protection are predicted to model the aggressive behaviors of their peers referred for committing crimes.

Highly aggressive male adolescents show significant social-cognitive biases. These biases may well help to explain the higher crime and incarceration rates for such boys both as juveniles, and later in life as adults. They are more likely to demonstrate attributional bias, poor problem-solving skills, and low self-worth (Lochman & Dodge, 1994). This deficit in interpersonal skills may well lead to increased conflict with others. Coupling these difficulties with a problem-solving schema that views aggression and violence as good solutions to conflict (Lochmann & Dodge, 1994; Shahinfar et al., 2001) clarifies why these high-risk adolescents account for a large proportion of the youth violence statistics in the Caribbean region. The current intervention engages these high-risk boys, and for this reason, it is hypothesized that

those with higher levels of aggression before the intervention will experience significantly greater decreases in aggression after the intervention.

Method

Participants

The sample consisted of fourteen boys ranging in age from 10-17 years old ($M = 13.8$). All participants were residents of a juvenile detention center on a Caribbean island with a GDP of \$1.3 billion. All participants were of low socioeconomic status, with monthly incomes of under \$500, and had parents who were educated to an elementary school level. The boys came from families with a range of 1-6 children, with an average family size of 2.14 children. A majority of the participants (78.5%) came from single-parent homes. The remaining 21.5%, came from two-parent households. Boys were placed in the juvenile detention center for one of two reasons: (1) because they had committed a crime ($N=8$) or (2) for care and protection ($N=6$). Participants were housed in the detention center for varying durations of time, from a matter of months to over two years. Boys who were referred for care and protection tended to be housed in the center for longer durations than those who were referred for crime because they stayed there until either they turned eighteen or they were claimed by a relative, whereas those referred for crimes would stay in the center for varying amounts of time depending on the crime committed. All were citizens of the Caribbean.

Due to noncompliance or unwillingness to participate, there was an attrition of four participants who began the intervention but did not complete treatment. Thus, of the eighteen boys living in the detention center, fourteen participated in the current study. Assent was obtained from all 18 original participants prior to the intervention. Additionally, consent was obtained from the resident counselor and psychologist at the detention center, as parental consent

was not an option due to parental absence in the case of most participants. The researchers also received approval from the director of the site and the government official in charge of the ministry in control of the detention center and similar social programs in the country.

Procedures

The three-week intervention included three sessions per week, with each session lasting about two hours. The intervention used similar versions of the skillstreaming and anger control training segments as found in the ART. The ART program uses a moral reasoning training portion; however, the current intervention does not include this portion because there were moral reasoning-type sessions built into the weekly programming of the center. The intervention was also shorter than the ART. At the beginning and end of each session, the boys checked in or out verbally with a counselor who worked for the center and had a degree in social work, and had been trained for the current intervention. For check-in, boys expressed their goals for the day, and how they were feeling before the session started. At check-out, they expressed what they liked and disliked about the day's session, as well as anything that they looked forward to changing as a result of the session.

Skillstreaming and anger control training focused on emotional intelligence. Boys were provided with skills to help them better appreciate and evaluate their emotions while also recognizing and respecting the emotions that their peers expressed. The goal was to teach the boys to recognize the "triggers" that lead them to act aggressively. Once they were able to recognize these triggers, boys were presented with skills to help them manage their emotions in a prosocial manner; to change their own actions; and to better regulate their emotions based on triggers either from themselves or others. The intervention sought to teach the boys to restructure how they perceived potentially aggression-inducing situations so that they saw them

as challenges rather than as threats. It was hypothesized that if participants were taught to view these situations as games that could be “won” through emotion identification and regulation, the “win” would act as an innate benefit which would buffer against these stressful situations for the participants.

Both the skill-streaming and anger control segments of the intervention consisted of role-playing and didactic sessions. Examples of activities used include sessions with pro-social youth, including past inmates who had become very successful; journaling; small-group discussions; a field trip to an art gallery followed by an art lesson; and teaching sessions with two counselors and a psychologist. Arts and crafts, sports, and other teamwork exercises gave participants the chance to apply the new anger control, attributional, and problem-solving strategies discussed throughout the sessions.

Each week of the intervention was structured around themes. The first week’s themes were “Who am I?” and “I have feelings”. The second week’s themes were “You have feelings, too” and “We can agree to disagree”. The third week’s theme was “Decisions are serious”. A resident psychologist with a PhD who worked at the center daily and was well-acquainted with the participants administered counselor-reported measures for each participant at two time points: before the intervention began and one week after the intervention ended.

Measures

Data were taken on three constructs of aggression: (1) aggressive behavior--the relational portion of aggressive reactions; (2) delinquent behavior—rule breaking and difficulties with limitations and structure; and (3) conduct disordered behavior—more deliberate, chronic acts of aggression that suggest ingrained aggressive behaviors.

Aggressive behavior

Aggressive behavior was measured using the Child Behavior Checklist (CBCL) Teacher Report Aggressive Behavior Subscale (Achenbach, 2001) with an alpha of .86 for this sample. This subscale consists of 21 questions from the CBCL and assesses a number of aggressive behaviors including physical violence, threatening others, bullying behavior, and destruction of objects of one's own or others. The center's resident psychologist completed the CBCL Aggressive Behavior Subscale. The measure uses a Likert Scale where 0 = Not True, 1 = Somewhat or Sometimes True, and 2 = Very True or Often True.

Delinquent behavior

The Delinquent Behavior measure is a subscale of the CBCL (Achenbach, 2001). This scale had an alpha of .69 for the current sample. The Delinquent Behavior subscale measures 17 delinquent, rule-breaking behaviors such as lying and cheating, running away from home, setting fires, stealing, swearing, and alcohol and drug use. Like the Aggressive Behavior Subscale, the Delinquent Behavior Subscale is measured on a Likert Scale such that 0 = Not True, 1 = Somewhat or Sometimes True, and 2 = Very True or Often True.

Conduct Disordered Behavior

This was measured using the Vanderbilt Diagnostic Scale's Conduct Disordered Subscale (Wolraich et al., 1998), with an alpha of .84 for this sample. This subscale measures 13 behaviors consistent with Conduct Disorder, including bullying peers, physical fights, lying to get out of trouble or avoid jobs, purposefully destroying property of others, using weapons, and stealing. The Conduct Disordered Subscale is measured on a Likert Scale such that 0 = Never, 1 = Occasionally, 2 = Often, and 3 = Very Often. Data were collected from the same resident psychologist who filled out the CBCL forms.

Results

Independent samples *t*-tests were used to investigate the predictions for this study regarding change in aggression based on age, reason for referral, and initial aggression. Participants were divided around the mean into two age groups: older adolescents ($M = 15.1$, $SD = 1.05$) and younger adolescents ($M = 11.2$, $SD = .84$). Older adolescents were expected to demonstrate a greater change in aggression than younger adolescents. This prediction was not supported by independent samples *t*-tests comparing younger adolescents and older adolescents on any of the 3 measures of change in aggressive behavior (Aggressive Behavior, $t(13) = -.93$, *ns*; Delinquent Behavior, $t(13) = -.95$, *ns*; and Conduct Disordered behaviors, $t(13) = -1.80$, *ns*). See Table 1 for descriptive statistics of the age categories and levels of change in aggression.

It was predicted that male adolescents referred to the detention center for crime would demonstrate more change in aggression than those referred for care and protection. This prediction was not supported by *t* tests comparing Reason for Referral and Change in Aggression for any of the three measures of aggression used (Aggressive Behavior, $t(13) = 1.84$, *ns*; Delinquent Behavior, $t(13) = 1.06$, *ns*; and Conduct Disorder, $t(13) = .041$, *ns*). See Table 2 for descriptive statistics of Reason for Referral and Levels of Change in Aggression.

Adolescents with higher aggressive, delinquent, and conduct disordered behaviors at initial assessment were predicted to exhibit significantly higher levels of change than those with lower aggression levels at initial assessment. Participants were divided around mean initial aggression scores on each measure to determine “low” or “high” initial aggression groups. This prediction was supported by the results of *t* tests comparing low levels of initial aggression and higher levels of initial aggression using all 3 measures of Initial Aggression (Aggressive Behavior, $t(13) = 2.89$, $p = .015$, eta squared = .41; Delinquent Behavior, $t(13) = 2.77$, $p = .018$, eta squared = .39 ; and Conduct Disorder, $t(13) = 3.49$, $p = .004$, eta squared = .50). See Table 3

for numbers of participants in the low and high initial aggression levels for each measure of aggression. Participants who demonstrated higher levels of aggressive behaviors at initial assessment experienced significantly greater levels of change than those who demonstrated lower levels of aggressive behavior. The same was true for adolescents who demonstrated high versus low levels of delinquent, rule-breaking behaviors and conduct disordered behaviors. All significant effects observed showed large effect sizes. See Figure 1 for a comparison of mean changes in aggression for low versus high levels of initial aggression.

Discussion

This study assesses the behavioral outcomes for participants in an intervention which aimed to increase emotional intelligence and decrease aggressive behavior in a group of aggressive adolescent males in a Caribbean juvenile detention center. It was hypothesized that those boys who (*a*) were older, (*b*) were referred to the center for having committed a crime, and (*c*) exhibited higher levels of aggressive behaviors at initial assessment, would show significantly greater decreases on overall aggressive behavior, delinquent behavior, and conduct disordered behavior than younger boys referred to the center for care and protection who exhibited lower levels of aggressive behaviors. Three aspects of aggression were measured: aggressive behavior primarily assessed relational aggression used against others; delinquent behavior assessed rule-breaking behaviors and difficulties with authority figures; and conduct disordered behavior assessed aggressive symptoms of Conduct Disorder.

Results showed no significant effects of age and reason for referral on change in aggression. However, there was a significant effect of initial level of aggression such that those boys who were higher in aggression at the start of the intervention showed significantly greater decrease in aggressive behavior, delinquent behavior, and conduct disordered behavior than did

those boys who were lower in all measured constructs of aggression at the beginning of the intervention. Boys who had higher levels of aggressive behavior at the beginning of the intervention experienced significantly greater levels of change in aggressive behaviors after the intervention's completion. This suggests that the intervention's lessons on emotion regulation and conflict resolution were effective in reducing levels of aggressive behaviors during conflicts with others, especially for those boys who were especially aggressive in these situations before the intervention began. The same effect was observed for delinquent, rule-breaking behaviors, suggesting that the intervention's lessons aimed to reduce these behaviors may have been the most effective on the boys who demonstrated the highest levels of these problematic behaviors. Additionally, the intervention appears to have decreased conduct disordered behaviors the most in boys who demonstrated high levels of said behaviors at initial assessment. This suggests that the intervention may have been the most effective for boys who showed the most symptoms of Conduct Disorder at the beginning of the intervention.

Since this was a primarily clinical population and all participants demonstrated high levels of aggression at intake, these results suggest that the intervention may be highly effective at reducing problem behaviors in adolescents with extremely high levels of aggressive, delinquent, and conduct disordered behaviors. The small sample size, a common limitation to research with clinical populations, may have limited the ability of this study to effectively explore the possible influence of age and reason for referral. In keeping with research on social phenomena, such as peer contagion, in custodial settings, it would be expected that both the age and the chronicity of delinquency of participants would influence their outcome in such treatment programs.

The significant effect of initial level of aggression on change in aggressive behaviors is consistent with research that suggests that highly aggressive adolescents are more likely than less-aggressive adolescents to demonstrate social-cognitive biases and low emotional intelligence, both of which often lead to aggressive behavior as a solution to conflict. Since the intervention was aimed at increasing emotional intelligence and decreasing social-cognitive biases, it appears that it was more effective on reducing aggression in the highly aggressive adolescents who exhibited high levels of these psychological constructs at initial assessment.

Of the three measures of aggression, the results suggest that the intervention may have been the most effective at reducing overall relational aggressive behaviors in highly aggressive adolescents, followed closely by conduct disordered behaviors in the more aggressive participants. The intervention also appears to have been successful in reducing delinquent behaviors in these highly aggressive youth at a slightly lower level of significance. This suggests that the intervention may be most effective at reducing relational aggression than rule-breaking behaviors. These results are consistent with the goals of the intervention, which was aimed primarily at emotion regulation as it applies to interactions with others and social situations. This is promising evidence for the efficacy of this CBT-based Aggression Reduction Intervention.

Limitations

There are several limitations to the current research which must be considered when analyzing the results. First, there was no control group used in the study. Because of the small sample size, it was not possible to make further divisions among the boys. Thus, we cannot be certain that any observed effects were the result of the intervention itself or natural effects that would have occurred over time with or without the intervention. However, it must be noted that the intervention site had limited programming directly aimed at addressing the aggressive,

delinquent, and conduct disordered behaviors addressed with the intervention. The inclusion of this intervention, therefore, would represent an injection of new social and psychological resources on an individual level. While the sample size was comparatively small, it is often a limitation of work with such specific clinical populations (i.e. boys in a custodial setting on a Caribbean island), and this study does not differ from the norm in that respect.

The sample of adolescent juvenile delinquent boys in the Caribbean is extremely specific. This could affect the external validity of the study because the effects of the intervention on the current sample may not be representative of the effects it would have on the general adolescent population. However, explorations from clinical samples are often the first step to developing interventions for more normative samples. This research therefore serves as the catalyst for subsequent investigations of aggression in adolescents in the region both from a clinical and normative standpoint. With the existing dearth of literature in this region and with regard to these specific social issues, this study makes a contribution to the literature in a unique, albeit specific, way.

The significant results observed certainly suggest that the intervention was most effective for those boys who were highly aggressive at intake. However, in interpretation, one must consider that the boys who started out highest in aggression also had the most opportunity for decrease in aggression and regression to the mean.

Implications

Research on the Caribbean region is lacking. The current study expands the literature on this often overlooked population. Further, the piloted intervention, which draws from ART but with some critical adjustments such as the omission of the moral reasoning portion and the emphasis on increasing emotional intelligence and making stressful situations into challenges

that can be “won”, has been shown to be effective in reducing aggressive behavior and increasing emotional intelligence. Thus, it could be applied in other contexts and similar effects may be found.

The fact that boys higher in aggression at intake showed significantly greater decreases in aggression suggests that the intervention is extremely beneficial to especially high-risk adolescents. This information can help inform future uses of the intervention. The intervention may be ideal for highly aggressive adolescent boys, and can be implemented on similar populations in the future to effectively decrease aggressive behavior as it appears to have done in the current study.

Future Directions

An advisable next step in the development of the intervention would be to test the intervention with a much larger sample size. This would allow for a more detailed analysis of the effects of the intervention. With a larger sample, it will be easier to see the effects of the intervention. Also, the intervention should be tested on non-clinical populations to determine its generalizability. The effects of the intervention on a non-clinical population could help determine the appropriate sample size needed to detect effects of the intervention. Future tests of this intervention should include a control group which does not receive treatment so that the effects of the intervention can be isolated from other, natural effects.

The finding that this intervention may be highly beneficial to more aggressive adolescents, who are at especially high risk for negative outcomes, can benefit future attempts to reduce youth aggression and crime in the Caribbean country where the intervention took place. The methods used in this intervention can be implemented in future interventions for adolescents in the country and other, similar countries. The results of this study, if applied to future

interventions, could help reduce aggression in today's Caribbean youth and lead to a decrease in the high rates of violence that plague the region today.

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Table 1

Change in Aggression mean scores for Younger and Older Adolescents

	Younger (<i>N</i> = 5)	Older (<i>N</i> = 9)
	$\overline{M (SD)}$	$\overline{M (SD)}$
Aggressive Behavior	11.25(9.54)	8.22(2.49)
Delinquent Behavior	9.60(4.93)	9.11(2.98)
Conduct Disorder	10.00(3.67)	6.44(3.47)

Note: Differences are non-significant.

Table 2

Change in Aggression mean scores for Adolescents referred for Crime and Care and Protection

	Crime ($N = 8$)	Care and Protection ($N = 6$)
	$M (SD)$	$M (SD)$
Aggressive Behavior	6.50(3.94)	11.43(5.65)
Delinquent Behavior	7.50(2.59)	9.25(3.58)
Conduct Disorder	7.75(4.60)	7.67(2.94)

Note: Differences are non-significant.

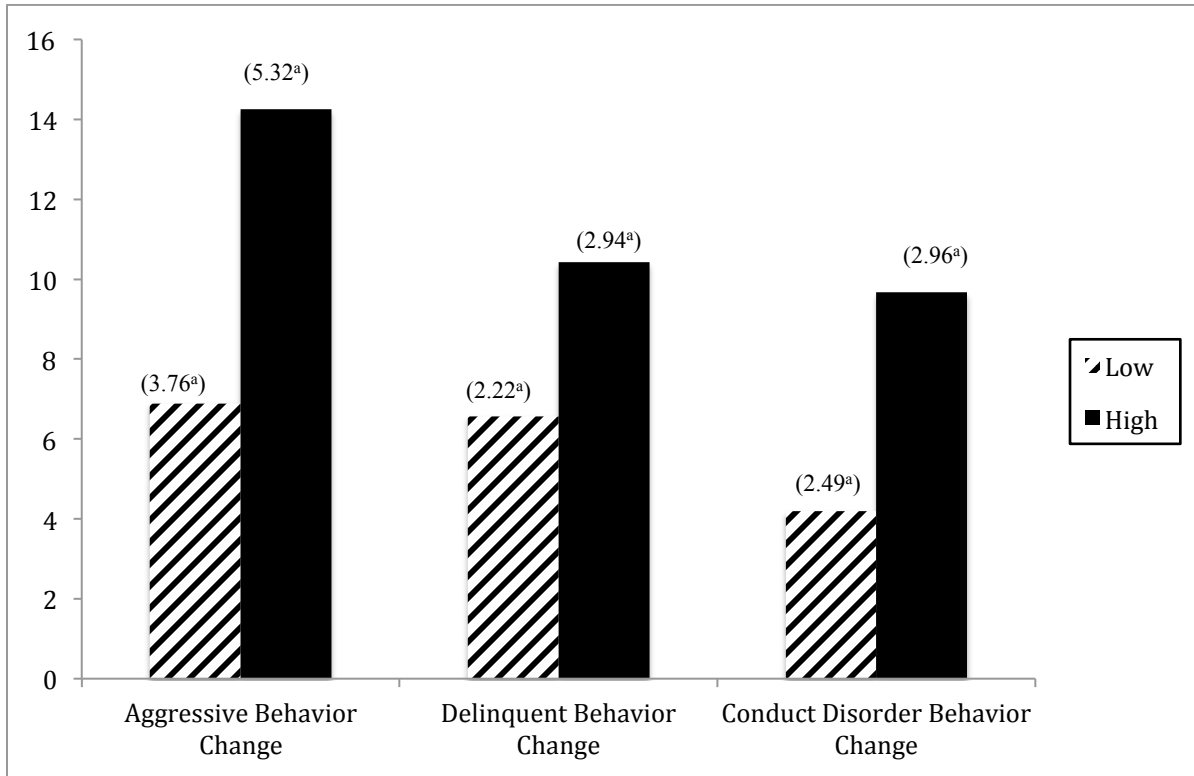
Table 3

Breakdown of sample split by mean initial aggression scores for three measures of aggression

	Low Initial Aggression	High Initial Aggression
	<hr/> N	<hr/> N
Aggressive Behavior	10	4
Delinquent Behavior	7	7
Conduct Disorder	5	9

Figure 1

Mean and Standard Deviations of Change in Aggression for Adolescents with High and Low Initial Aggression



^a Indicates standard deviation scores.