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Individual and environmental predictors of attrition from a court-mandated anger management group for adolescents.

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INDIVIDUAL AND ENVIRONMENTAL PREDICTORS OF ATTRITION FROM A
COURT-MANDATED ANGER MANAGEMENT GROUP FOR ADOLESCENTS

A Dissertation Presented
by
JAMES D. SLAVET

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

September 2004

Clinical Psychology

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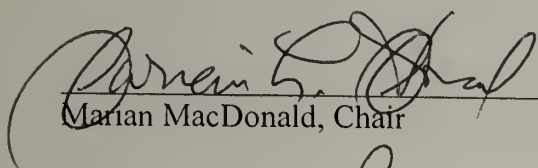
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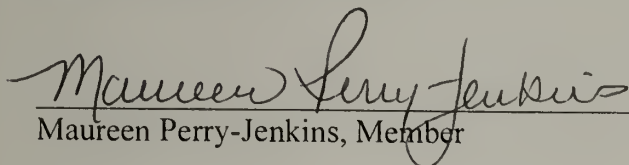
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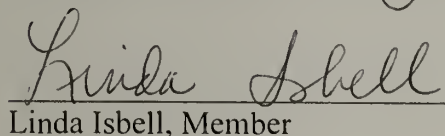
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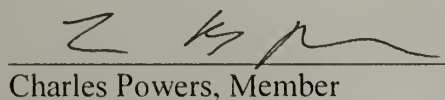
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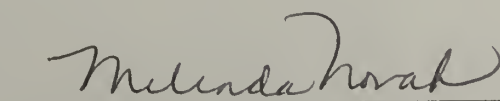

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ABSTRACT

INDIVIDUAL AND ENVIRONMENTAL PREDICTORS OF ATTRITION FROM A COURT-MANDATED ANGER MANAGEMENT GROUP FOR ADOLESCENTS

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Cognitive-behavioral anger management groups have been established as an efficacious treatment for anger and aggression problems in adolescents. A central issue in providing anger management groups as a community-based treatment for court-involved adolescents is attrition. No studies have investigated predictors of attrition from this intervention. This study investigated individual and environmental predictors of attrition from a community-based anger management group intervention for court-involved adolescents. Forty-one adolescents participated in this intervention. These participants reported on the following predictors of treatment attrition: 1) mental health, 2) academic progress, 3) aggressiveness, 4) goals, 5) attitude toward behavior change, 6) delinquent peers, 7) parental monitoring, 8) frequency of family meals, 9) life changes, and 10) pro-social community activities.

A series of logistic regression equations were used to determine which of the ten aforementioned risk factors for delinquency might predict treatment attrition. The four predictors that emerged ($p < .05$) were entered into another regression equation. As a

result three predictors, being classified as academically behind ($B = -3.44$, $S.E. = 1.35$, $p = .01$), attitude towards aggressive behavior change ($B = -3.71$, $S.E. = 1.34$, $p = .01$), more delinquent peers ($B = .72$, $S.E. = .29$, $p = .01$), significantly predicted treatment attrition. This three-predictor model correctly classified 82.5 percent of the participants as completers or dropouts, and accounted for 52% of the variance in treatment attrition. The results of this study indicated that several well-known risk factors for delinquency also predicted therapy attrition. Understanding predictors of attrition from a community-based anger management group intervention can help clinicians screen court-involved adolescents least likely to benefit from this intervention. The results of this study should be interpreted with caution due in part to the small sample size.

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CHAPTER 1

INTRODUCTION

Adolescents on probation for aggressive behavior are at risk for incarceration in juvenile facilities, removal from their families, and later incarceration in adult facilities. Preventing future violence is vital to promoting the well-being of at-risk adolescents and their families, as well as protecting public safety. In general, cognitive-behavioral interventions with aggressive adolescents have been successful in reducing aggressive behavior (Smith, Larson, DeBaryshe, & Salzman, 2000), reducing angry feelings (Smith, Larson, DeBaryshe, & Salzman, 2000), changing aggressive attitudes (e.g. Guerra & Slaby, 1990), improving social problem solving skills (e.g. Snyder, Kymissis, & Kessler, 1999), and modestly reducing recidivism (Lipsey, 1992). While many of these studies have been done with youth who are detained, incarcerated, or living in group-homes, some anger management programs for youth contain components aimed at increasing generalization of anger management skills to their natural environments (Smith, Larson, DeBaryshe, & Salzman, 2000).

Treatment Targets for Aggressive Youth on Probation

There is a wealth of literature that identifies appropriate cognitive-behavioral therapy targets for aggressive adolescents. The most prominent targets for this type of intervention can be placed into two broad categories: social cognitive skills and aggressive attitudes. In intervening with youth who are living in the community, attention to environmental considerations also seems important in the generalization of skills and attitudes to the youths' natural environment.

Social Cognitive Skills

Deficits in social cognitive skills (e.g. problem solving and impulse control) might be one factor that leads to aggressive behavior in adolescents. Dodge's (1986) five-step sequential model described the stages of social information processing as, encoding, interpretation of cues, response search, response decision, and enactment (in Slaby & Guerra, 1988). Skill deficits at any stage in the social information processing sequence might be an antecedent to aggressive behavior.

Slaby and Guerra (1988) found that, when compared with low-aggressive adolescents (high-school students), high-aggressive adolescents (who were incarcerated for violent crimes) showed significant disturbances in problem-solving, providing support for Dodge's model of social information processing. High-aggressive adolescents were more likely to interpret behavior as hostile, were more likely to endorse hostile goals, were less likely to seek additional facts about the situation, were less likely to generate alternative solutions to the situation, were less likely to anticipate negative consequences for aggression, and were less likely to endorse effective solutions as the best alternative.

Lochman and Dodge (1994) also investigated the social-cognitive processes of severely violent, moderately aggressive and non-aggressive pre-adolescent and young adolescent boys. Violent youth were enrolled in an outpatient intervention program for externalizing problems. Moderately aggressive and non-aggressive youth were categorized by teacher ratings of aggressive behavior and matched on ethnicity and cognitive ability. The three groups were compared on a variety of social-cognitive variables including recalling details from conflictual situations, generating solutions to problem situations, reporting outcome expectancies of interactions with classmates, and

reporting perceived interpersonal competence. In general, there was a continuum of social-cognitive skills. Violent youth exhibited the least skill, followed by moderately aggressive youth, while non-aggressive youth showed the most social-cognitive skills. The specific differences among the three groups on the five social-cognitive variables over two age groups are too cumbersome to report in this review, but the findings support Dodge's model of social information processing.

It is clear that, in general, aggressive adolescents use more maladaptive problem-solving skills during interpersonal conflict. However, adolescents' attitudes towards using non-aggressive problem-solving skills seems to be just as important as actual skill level in determining whether or not an adolescent uses adaptive problem-solving skills (Kuperminc & Allen, 2001). Furthermore, belief in the utility of non-aggressive problem-solving skills was significantly related (negatively) to delinquent behavior, regardless of social problem-solving skill level.

Attitudes

Slaby and Guerra (1988) identified beliefs about aggression that differentiated violent-incarcerated, high-aggressive and low-aggressive adolescent groups (both male and female). More aggressive adolescents tended to believe in the legitimacy of aggression and that victims of aggression don't suffer. They also expected aggression to enhance their own self-esteem and to prevent a negative image. In another study, middle school children who fought endorsed more aggressive attitudes on a modified aggression scale from the Child Behavior Checklist (Cotten, Resnick, Browne, Martin, McCarraher, & Woods, 1994). In their qualitative analysis of adolescent offender's crimes, Lopez and Emmer (2000) found that a subset of violent crimes were driven by a belief in the value

of aggression and a belief in the importance of traditional male gender roles. There is some evidence for the persistence of aggressive adolescents' aggressive attitudes.

Farrington (1994) found that "aggressive frequent group fighters" at age 18, in general, still held more aggressive attitudes at age 32 and were likely to experience a variety of negative outcomes. These studies of course do not prove that aggressive attitudes cause aggressive behaviors; they do, however, demonstrate a significant relationship between aggressive attitudes and aggressive behavior.

Some authors have postulated that past behavior is the best predictor of future behavior (e.g. Mossman, 1994), casting doubt on the influence of attitudes on future behavior. However, Zhang, Loeber, & Stouthamer-Loeber (1997) found that at-risk adolescent males who approved of delinquency were more likely to engage in deviant behavior than those who had a history of delinquent behavior.

Skills and Attitudes in Environmental Context

Although much research has focused on the individual adolescent's social-cognitive skills and attitudes, how those skills are applied in contexts such as the family and peer group is an important consideration. Environmental considerations, such as poor parental monitoring and negative peer involvement, and social-cognitive factors each make independent contributions to the prediction of delinquent behavior (Hoge, Andrews, & Leschied, 1994).

Recent studies have expanded our knowledge about the relationships among individual factors, environmental factors, and aggressive behavior. For example, Beyers, Loeber, Wikstroem, & Stouthamer-Loeber (2001) found that positive attitudes towards delinquent behavior and deviant peers increased risk for violent behavior across different

SES groups. Gorman-Smith, Tolan, Loeber, & Henry (1998) found that the families of violent urban youth were more likely to have deviant attitudes than the families of other urban youth.

The context of social problem-solving situations is also an important consideration in understanding treatment targets for aggressive adolescents. Lochman and Lampron (1986) suggested that aggressive young adolescents might only exhibit poor social problem-solving skills in certain situations. For example, it is possible that a subset of aggressive adolescents may have a pronounced difficulty with social problem-solving situations that involve obeying authority figures. In addition, issues of autonomy and relatedness are especially salient in adolescence. Kupermic, Allen, & Arthur (1996) found that delinquency was more common among adolescents who did not strive for relatedness with others in social problem-solving situations. Leadbetter, Hellner, Allen & Aber (1989) found that the extent to which adolescents considered the needs of others was related to their social problem-solving skills. Delinquent adolescents were more likely not to consider the needs of others in social problem solving situations.

Several recent studies have demonstrated a relationship between exposure to neighborhood violence and social-cognitive deficits or aggressive attitudes. Recently, Shahinfar, Kupersmidt, & Matza (2001) found that violent incarcerated juvenile offenders had been exposed to a large amount of violence both as victims and witnesses. Victims of violence were more likely to perceive others' behaviors as threatening, to have aggressive goals in social problem solving situations, and to believe aggression is an acceptable response to provocation. On the other hand, witnessing severe violence was associated with the belief that violence would lead to more positive outcomes. Another

study found that the relationship between impulsivity and delinquent behavior was found to be significant in the most violent and poor neighborhoods, but not in safer neighborhoods (Lynam, Caspi, Moffit, Wikstrom, Loeber, & Novak, 2000). It seems like the relationship between an adolescent's social-cognitive skills and aggressive behavior can be influenced by exposure to violence.

Commitment to a conventional institution (such as school) was found to protect against delinquency in a sample of urban middle school adolescents (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995). Laub, Nagin, & Sampson (1998) posited that attachment to prosocial institutions such as work, school, and positive relationships facilitates desistance from aggressive behavior among some adolescents. Investment in work, school or family and increased responsibility presumably increases feelings of self-worth. Among a sample of African-American male adolescents, feelings of self-worth were negatively associated with a measure of propensity for violence, which assessed both past aggressive behavior, aggressive attitudes, and social problem-solving skills (Paschall & Hubbard, 1998). Furthermore, these African-American male adolescents' feelings of self-worth seemed to mediate the relationship between family and neighborhood variables and propensity for violence.

Environmental Considerations in Past Cognitive-Behavioral Interventions for Aggressive Adolescents

Several effective group interventions for aggressive adolescents have integrated social-cognitive skills and environmental considerations in hopes of producing better skill generalization. Guerra & Slaby's (1990) Viewpoints Program and Goldstein & Glick's (1987) Anger Replacement Training are among the most widely cited and successful

interventions that included both social-cognitive components and environmental considerations for aggressive adolescents involved in the juvenile justice system.

Guerra & Slaby's (1990) twelve session intervention with incarcerated juvenile offenders had two social-cognitive components, problem-solving skills and attitude change. Problem-solving was taught and aggressive attitudes were challenged using hypothetical conflict situations. Later group members were asked to apply the skills they had learned to personally relevant problem solving situations and to evaluate the results. Participants in the treatment condition showed significant improvement in social-problem skills and aggressive attitudes in comparison to participants in a control group. Behavior (as rated by supervisors in the youth facility) improved significantly for youth in the treatment condition in comparison to control youth. However, it is unclear if participants' problem solving skills actually improved in real-life situations, as treatment did not have a significant effect on recidivism.

Anger Replacement Training (ART) is a multimodal treatment that involves training in social-cognitive skills, such as problem-solving, impulse control, and moral reasoning (Goldstein & Glick, 1987). In a study of incarcerated adolescents, ART clinicians attempted to address adolescents' cognitive functioning in various contexts. The treatment group (compared to control) in this study improved on several skills taught in ART, including problem-solving skills and impulse control skills. Furthermore, the treatment group significantly differed in several measures of post-release functioning in comparison to the control group. Another study found that in a community-based application of ART, at post-treatment participants significantly differed from controls in skill competence and feelings of anger (Reddy & Goldstein, 2001).

Larson (1990) described a group intervention for adolescents on probation for delinquent behavior, in which “group members were taught to apply cognitive behavioral constructs to both their past delinquent and present adaptive social behaviors (p. 47).” Among the environmental considerations included in this intervention were functional analyses of thoughts and delinquent behavior in specific contexts, and a discussion of goal setting.

Goodman, Getzel, and Ford (1996) reported on a cognitive-behavioral intervention with older adolescents (age 16-20) who were on probation. These authors explicitly integrated environmental considerations into treatment. Among the objectives of the group was to learn problem-solving techniques and to apply those techniques to situations “that pose a high risk for violent behavior (p. 377).”

Review articles on group treatment with juvenile delinquents have suggested the integration of social-cognitive and environmental considerations in group therapy for aggressive adolescents. Gordon, Jurkovic, & Arbuthnot (1998) reported that the most successful group treatments for this population include cognitive-behavioral, behavioral, and social learning components, and involve people in the juvenile’s natural environment. Stern & Fodor (1989) suggested that future research on treatment with aggressive children should examine how a youth’s environment encourages or supports his or her aggressive behavior.

Engaging Difficult Youth

While cognitive-behavioral anger management group therapy is supported by both theory and empirical evidence, clearly not all people benefit from this treatment. In one study, less than 10% of adults referred to an anger management group completed the

six-session intervention (Siddle, Jones, & Awenat, 2003). There has been some discussion (Smith, Larson, DeBaryshe, & Salzman, 2000; Howells and Day 2003), but little investigation of factors that might lead to attrition from community-based anger management groups for adolescents.

Recently, a number of studies have been done investigating the effectiveness of evidence-based treatments, when they are transported from more controlled environments (usually university labs) to community settings (e.g. Kazdin, 2000). One important implementation issue that arises when trying to transport evidence-based treatment into the community is treatment attrition. Understanding predictors of attrition can help clinicians screen out potential participants least likely to benefit from this intervention. Screening based on empirically validated predictors of attrition can help direct potential clients towards services that are more likely to benefit them, and can preserve limited resources for clients most likely to benefit from them.

Participants in the current study were adolescents, often of color and of low socioeconomic status, who were ordered to attend an anger management group as a condition of their probation for an aggressive offense. These youth did not live in a controlled environment, such as a detention facility or a group home. They were subject to many of the well-established individual (i.e. attitude towards behavior change, aggressiveness, mental health problems, lack of life goals, and poor school progress) and environmental (i.e. low parental monitoring, delinquent peers, frequent life changes, lack of pro-social community activities, and infrequent family meals) risk factors for delinquency. These risk factors for delinquency may also be predictors of treatment attrition from an anger management group for court-involved adolescents.

Individual risk factors

Aggressiveness.

In a recent review, Howells and Day (2003) described treatment “readiness” considerations for anger management. A major treatment readiness consideration discussed by these authors is the complexity of anger and aggression problems. One might hypothesize that those who report more anger would be more likely to drop out of treatment. In fact, in a study of mandated batterers, those who were most angry were more likely to drop out of treatment (Brown, O’Leary, & Feldbau, 1997).

Mental Health.

Since mental health problems often co-occur among court-involved adolescents, court-involved adolescents presenting with anger and aggression problems are likely to be struggling with other mental health issues as well (Lahey, Loeber, Burke, Rathouz, & McBurnett, 2002). In a study of prisoners mandated to substance abuse treatment, problems with depression and anger were associated with treatment drop out (Hiller, Knight, Rao, & Simpson, 2002). Another study looking at drop out from a general psychotherapy group found that alcohol/drug use and somatic complaints were significantly associated with treatment dropout (McNair & Corazzini, 1994).

Interestingly, several authors have also found that parents’ mental illness has been a barrier to treatment completion for children (Kazdin, 2000). In the past, the format and content of anger management programs have been altered for severely mentally ill participants (Howells & Day, 2003), but no research has investigated how co-occurring mental health problems might relate to the completion of anger management treatment for adolescents.

School Progress

Being old for one's grade and low school achievement are strong predictors of delinquency and physical aggression (Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998). Poor school progress may also predict attrition from an anger management group for court-involved adolescents. In a correctional treatment program for adults, treatment attrition was associated with less educational attainment (Wormith & Olver, 2002). Since anger management groups usually include a psycho-educational component, those adolescents who have progressed to higher grades may have an easier time learning the skills taught in the group. Similarly, those adolescents who are currently making normal school progress may be more accustomed to and accepting of the therapists' expectation, including homework, participation, and appropriate conduct.

Motivation to Change

The transtheoretical model of change is a well-researched paradigm used in part for understanding treatment readiness (Prochaska & DiClemente, 1982). This model lays out a stage of change continuum that includes pre-contemplation, contemplation, action, and maintenance. However, treatment is not always focused on reaching determination or action; rather it may be focused on moving participants from pre-contemplation to contemplation (Miller & Rollnick, 2002). Several studies have demonstrated that participants who have a more positive attitude towards behavior change are more likely to engage in treatment. For example, a study of an anger management group for adults found that those participants who were more ambivalent concerning treatment were more likely to drop out (Siddle, Jones, & Awenat, 2003). In another study, adult participants in a 12-step group were less likely to drop out if they were more motivated to change

(Kelly & Moos, 2003). However, reported desire to change aggressive behavior among youth on probation may not have the same implications as it does for adults. Given the oppositional behavior of many of these youth, reporting that they have already begun to make changes may reflect a desire to avoid treatment.

Goals

Delinquent and at-risk youth have also been found to have differences in goal setting when compared to not-at-risk youth (Carroll, Durkin, Hattie, & Houghton, 1997). At-risk and delinquent youth were more likely to set goals of gaining independence from authority, gaining acceptance from peers, and engaging in delinquent activities. Not-at-risk youth were more likely to have goals to achieve in school, develop knowledge, and maintain positive relationships. This research on goals is consistent with the findings that attachment to prosocial institutions discourages aggressive and other delinquent behavior (Jessor, et al. 1995; Laub, Nagin, & Sampson, 1998). Differences in goals may also impact treatment attrition. Presumably, setting positive goals like finishing high school and getting a part-time job are more likely to be consistent with treatment than setting negative goals like going to prison. If treatment is consistent with a person's goals, he or she is more likely to engage in treatment (Miller & Rollnick, 2002). Linking the therapist's goals to the participant's goals is an important facet of several evidence-based treatments including Dialectical Behavior Therapy (Linehan, 1993).

Environmental risk factors

Family Meals

Among single-parent families, eating dinner together has been associated with less aggression and less delinquency in youths (Griffin, Botvin, Scheier, Diaz, & Miller,

2000). Frequency of family meals was also negatively related to mental health problems in a sample of Spanish adolescents (Compan, Moren, Ruiz, & Pascual, 2002).

Adolescents' eating together with family members implies some degree of family involvement in the adolescents' life. For that reason, frequency of family meals may impact treatment attrition.

Life changes

Adolescents often endure multiple life changes. Examples of life changes are the birth or death of a relative, experimentation with sex and drugs, and increasing conflict with caregivers. Significant life stressors have been identified as a risk factor for adolescent substance abuse (Spooner, 1999). Life changes could also have an impact on treatment completion. On the one hand, stress related to life changes may pose a barrier to treatment completion by tapping family and emotional resources. On the other hand, those who endure more life changes may experience increased psychological distress, and therefore, may find therapy more useful and reinforcing.

Parental Monitoring

Insufficient parental monitoring is a well-known risk factor for delinquency and physical aggression (Gorman-Smith, D., Tolan, P.H., Loeber, R., & Henry, D.B. 1998; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998). Monitoring may also have implications for treatment completion. If parents monitor in general, there may be more contingencies present for adolescents to complete treatment. More parental monitoring may also help alleviate logistical barriers to treatment, such as transportation. Finally, if parents monitor activities, adolescents may be less likely to skip therapy sessions.

Delinquent Peers

Having delinquent peers is another well-known risk factor for delinquency and physical aggression (Gorman-Smith, D., Tolan, P.H., Loeber, R., & Henry, D.B. 1998; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998). Given the tendency for adolescents to be influenced by their peer group, strong delinquent peer associations may provide a therapy undermining influence. This influence could manifest itself in several ways. Adolescents may come to see therapy as contrary to their peer group values. More practically, delinquent peers could influence adolescents to skip therapy sessions. This issue creates concern given that all participants in the group are court-involved. Dishion, McCord, & Poulin (1999) cautioned therapists about “deviancy training” that can occur in these type of groups, where anti-social speech is reinforced and a counter therapeutic environment is created.

Pro-Social Community Activities

As described earlier, attachment to pro-social institutions has been found to facilitate desistance from delinquent behavior (Jessor, et al. 1995; Laub, Nagin, & Sampson, 1998). Among activities that may promote desistance are work, clubs, sports, and going to church/temple. On the other hand, attachment to anti-social institutions like gangs may hinder desistance from delinquent behavior (Thornberry, 1998). Attachment to pro- or anti-social institutions could also have implications for treatment completion. In a study of adults in 12-step groups, participants who attended church and were more socially involved were less likely to drop out (Kelly & Moos, 2003). Attachment to pro-social institutions would presumably positively impact completion of court-mandated

treatment for adolescents. However, a youth may also choose to forgo therapy sessions to participate in more favored activities such as work or clubs.

Hypotheses

Five individual and five environmental predictors of treatment attrition were investigated in this study. I hypothesized that treatment attrition would be associated with the following five individual predictors: 1) more aggressiveness, 2) more mental health problems, 3) poor school progress, 4) less of a belief in the need to change aggressive behavior, and 5) less pro-social life goals. We also expected that treatment attrition would be associated with the following five environmental predictors: 1) less frequent family meals, 2) more life changes, 3) less parental monitoring, 4) more delinquent peers, and 5) less engagement in community activities.

CHAPTER 2

METHOD

Participants

There were forty-one participants in this study, 27 males and 14 females. All were on court-ordered probation and had committed misdemeanor or felony offenses that involved physically aggressive or violent behavior. Participants were court-ordered to participate in an anger management intervention. Our intervention was offered free of charge at a juvenile court house. Theoretically, participants could have participated in another anger management group. However, all participants were referred to our anger management program by their probation officers. The consequences of dropping out of this intervention depended in part on a participant's compliance with other probation conditions and her or his overall history of offenses.

Participants ranged in age from twelve to seventeen with a mean of 14.80 years ($S = 1.36$). Fifty percent of the participants identified as Hispanic American, 17.5% as African American, 17.5% as European American, and 15% as bi-racial or multi-racial (one participant did not report ethnicity). Most participants resided in urban areas, while a few lived in suburban areas. Seventeen percent of participants said that their parents were married, and 83% reported that their parents were not married. Sixty-one percent of participants reported living with a single parent (their mothers), 14.5% percent of participants reported living with their mothers and a step-father, 10% of participants reported living with their mothers and fathers, and 14.5% of participants reported living in foster homes or with family members other than their mothers or fathers. Participants'

number of siblings ranged from 0 to 10. On average participants had 3.24 siblings ($S = 2.19$, Mode = 2). Forty-nine percent of participants reported moving four or more times during their lifetime, 33 % said that they moved two or three times, and 18% percent of participants said that they moved zero or one time.

Procedure

Initial Assessment.

During the first anger management group meeting, participants completed a pre-treatment assessment battery. This assessment battery was comprised of: (1) a demographic information sheet reporting age, sex, school grade, ethnicity, family constellation, parents' marital status, number of siblings, and number of family moves, (2) a single item measuring frequency of family meals (3) a single item measuring Prochaska & DiClemente's (1982) stages of change concerning aggressive behavior, (4) a modified version of Buss & Perry's (1992) measure of aggressiveness, (5) a brief assessment of goals and participation in pro-social community activities, (6) a modified version of McCubbin & Thompson's (1991) measure of life changes, (7) a measure that is used to screen for mental health problems (MAYSI-2: Grisso, Barnum, Fletcher, Cauffman, & Peuschold, 2001), (8) a brief assessment of parental monitoring, and (9) a brief measure of friends' delinquent behavior.

Measures

Frequency of family meals. Participants were presented with an open-ended question that asked, "How many times per week does your family eat together?" Responses ranged from zero to seven with a mean of 2.88 times ($S = 2.77$). The response to this item was the Family Meals Score.

School grade and educational progress. Participants were asked to indicate their current school grade. Three participants indicated that they had dropped out of school. For those currently in school, responses ranged from sixth grade to twelfth grade ($M = 8.61, S = 1.48$). Participants' School Progress Score was coded as normal or behind by comparing current grade levels against expected grade levels, given their chronological ages. Participants at least two years older than the modal age of children in their grade who started first grade at age six were classified as behind. Participants who reported dropping out of school were also considered behind. Twenty-five participants were classified as making normal school progress, while sixteen participants were classified as being academically behind.

Stage of aggressive behavior change. Prochaska & DiClemente's (1982) stages of pre-contemplation, contemplation and action were translated into statements intended to represent those stages of change. Two statements represented the stage of pre-contemplation: "It is not my fault that I act aggressively. I only react to other people" and "People make me so mad that sometimes I have to act aggressively." One statement represented the stage of contemplation: "I would like to change my aggressive behavior, but I am not sure if it will work." And one statement represented the stage of action: "I must change my aggressive behavior and I have started to do something about it." Participants were asked to circle the one of those four statements that best described their attitude towards their aggressive behavior. Pre-contemplative responses were coded as one. Contemplative responses were coded as two. Action responses were coded as three. Eighteen participants endorsed a pre-contemplative statement. Sixteen participants selected the contemplative statement. Seven participants endorsed the action statement.

Since only one participant who completed treatment endorsed an action response, this variable could not be analyzed a three-level categorical predictor. Instead, the Attitude Score was converted to a two-level categorical predictor. Pre-contemplative responses were coded as one. Contemplative and action responses were coded as zero. Each participant's coded response was his or her Attitude Score.

Participation in pro-social community activities. Three items asked participants "Do you belong to a..." 1) church (or temple or mosque), 2) club, and 3) team? A fourth item asked, "Do you have a part-time job?" Participants responded using a "yes-no" format. Yes answers were coded one and no answers were coded zero and the scores on the four items were summed. The range of the possible scores then, was zero to four. The actual range of the scores was zero to four with a mean of .8 ($S = 1.01$; Mode = 0). Scores were then coded as either no community connections (0; 18 responses) or some community connections (1; 20 responses). Each participant's coded response was his or her Activities Score

Life Goals. Participants were asked, "How much do you want to..." 1) finish high school 2) go to college 3) have a full time job? 4) go to jail. Participants responded to these questions using a four-point scale ranging from "not at all" to "a lot." Responses of "a lot" were coded as four and responses of "not at all" were coded as one. The Life Goals Score was defined as the sum of the three first three items minus the fourth item. The range of possible Life Goals Scores was negative one to eleven. The actual range of scores was two to twelve with a mean of 8.3 ($S = 2.46$; Mode = 8).

Aggression. Each participant filled out an adapted version of the Aggression Questionnaire (AQ; Buss & Perry, 1992). The AQ, as described in Measures for Clinical

Practice, 2nd edition (Fischer & Corcoran, 1994), has thirty items, which ask participants to rate how much an attitude or behavior corresponds to their attitudes and behaviors. Participants responded using a five point scale ranging from “extremely uncharacteristic of me” to extremely characteristic of me”. The AQ has been studied with undergraduate students and it has been shown to have good internal consistency with that population, as evidenced by a Cronbach’s alpha of .89 (Buss & Perry, 1992).

For this study, thirteen of the thirty items were selected, based on the appropriateness of their reading level for this sample and the relevance of their content for this sample. One example of an included item was “If somebody hits me I hit back,” while an example of an excluded item was “When frustrated I let my irritation show.” The range of possible Aggression Scores was thirteen to sixty-five, with higher scores indicating more aggression. The range of actual Aggression Scores observed in this sample was fifteen to fifty with a mean of 31.9 (S = 8.59). The adapted measure used in this study had good internal consistency (Cronbach’s alpha = .85).

Life changes. Each participant filled out the Adolescent-Family Inventory of Life Events and Changes (A-FILE; McCubbin & Thompson, 1991). The A-FILE as described in Measures for Clinical Practice, 2nd edition (Fischer & Corcoran, 1994) has fifty items intended to gauge a participant’s experience of life changes during the last twelve months. The A-FILE was designed for clinical assessment and is an inventory of events that do not necessarily co-occur. Internal consistency data was not available.

In this study, participants indicated whether or not each life change had occurred during the past twelve months, using a “yes-no” format. Each endorsement of a life change was scored as two, while each denial of a life change was scored as one. Higher

summed scores indicated more life changes during the past year. The range of possible Life Changes Scores was fifty to one hundred. The range of actual scores was fifty to eighty with a mean of 62.3 (S= 8.06).

Mental health and substance use problems. The Massachusetts Youth Screening Instrument-2nd Version (MAYSI-2: Grisso, Barnum, Fletcher, Cauffman, & Peuschold, 2001) was used to screen for mental health and substance abuse problems. The MAYSI-2 has fifty-two items to which participants responded using a “yes-no” format. The MAYSI-2 consists of seven scales: (1) Alcohol-Drug Use, (2) Angry-Irritable, (3) Depressed-Anxious, (4) Somatic Complaints, (5) Suicidal Ideation, (6) Thought Disturbance, and (7) Traumatic Experiences. Each scale has two cutoff scores: one “Caution Score” classified as a score meeting or exceeding the cutoff, but below the warning score cutoff and a “Warning Score.” A Caution Score indicates that a participant has scored higher than approximately two-thirds of youth involved in the juvenile justice system. A score meeting or exceeding the “Warning Score” cutoff indicates that a participant has scored higher than eighty-five to ninety-five percent of youth involved in the U.S. juvenile justice system. The range, mean, standard deviation, caution score, and warning score for each of the seven scales is shown in Table 1.

Each participant’s total number of caution or warning scores was his or her Mental Health Score. The Mental Health Score could range from zero to seven. The actual range of Mental Health Scores in this study was zero to six with a mean 2.59 and standard deviation of 1.79.

Delinquent friends. Participants responded to five items describing their friends. These items were (1) “Some of my close friends have been arrested,” (2) “Some of my

friends use alcohol or drugs,” (3) “Some of my close friends steal,” (4) “Some of my close friends get into fights,” and (5) “My close friends are bad.” Participants selected one of three response options: (1) “not true,” (2) “somewhat true,” or (3) “very true.” “Very true” responses were coded as three, “Somewhat true” responses were coded as two, and “Not true” responses were coded as one. The Delinquent Friends Score was calculated by summing the scores on the five items that asked about friends. Higher Delinquent Friends scores indicated more friends’ delinquency.

The range of the possible Delinquent Friends Scores was five to fifteen. The range of the actual Delinquent Friends scores was five to fifteen with a mean of 9.68 ($S = 2.70$, Mode = 13 and 15). The Cronbach’s Alpha for the Delinquent Friends items was .73.

Parental Monitoring. Participants responded to three items that asked about parental monitoring: (1) “I tell my mother (or other caregiver) where I am most of the time,” (2) “My mother (or other caregiver) keeps track of where I am” and (3) “I listen to my mother (or other caregiver) when she tells me I can’t go out.” Participants selected one of three response options: (1) “not true,” (2) “somewhat true,” or (3) “very true.” “Very true” responses were coded as three, “Somewhat true” responses were coded as two, and “Not true” responses were coded as one. The Parental Monitoring Score was calculated by summing scores of these three items, with higher scores indicating closer monitoring. The range of possible Parental Monitoring Scores was three to nine. The range of actual Parental Monitoring Scores was three to nine with a mean of 7.35 ($S = 1.76$, Mode = 9). Cronbach’s Alpha for the Parental Monitoring items was .74.

Group Intervention

Participants attended eight anger management sessions lasting an hour and a half each. Two therapists led each of the six anger management groups. In total, there were seven therapists who participated in this study. Four of the therapists were master's level social workers and three of the therapists were doctoral students in clinical psychology. Six therapists were female and one was male. The therapists ranged in age from early twenties to mid-forties. Six therapists identified as European American and one therapist identified as Mexican American.

The first session was an orientation session during which data were collected, the ground rules for the group were discussed, and a cognitive-behavioral model of the path from anger to aggression was presented. This model served as the framework for the skills that were presented later in the group. During the first session, group members also introduced themselves. Finally, the therapists explained research detailing how exposure to violence can influence attitudes related to aggressive behavior. Each participant then discussed how exposure to violence has influenced her or his attitudes and behaviors.

During the second session, the skill of identifying and controlling triggers of anger was taught. The therapists introduced the concept of triggers, and it was stressed that the first step in changing aggressive behavior is understanding what sets it off. Participants were asked to identify which people and situations, and which of their own behaviors trigger anger. Participants then discussed specific examples in which people, situations, or behaviors had made them angry at school, at home, and with their peers.

Homework was assigned that asked participants to identify triggers at school, at home and with their peers during the next week.

The third session began with a review of the previous session's homework. The focus of the third session was dealing with the emotional and physiological components of anger. The therapists introduced the concept of a "fight or flight reaction" to give a framework for understanding the relationship among physiological sensations, the experience of anger, and aggressive behavior. The following physiological components of anger were introduced and discussed: "racing heart," "fast breathing," and "feeling disoriented or heated." The therapists presented several skills that could be used to deal with these physiological sensations: 1) imagery, 2) progressive muscle relaxation, and 3) mindfulness. These three skills were then practiced by participants during the group. Feeling hurt, feeling out of control, and feeling like hurting others were introduced as possible emotional components of anger. The therapists presented several skills for dealing with the emotional components of anger: 1) taking a break, 2) talking to confidants, and 3) writing or journaling. Participants then discussed whether or not they use these skills to deal with the emotional experience of anger. Homework was assigned that asked participants to record the physiological and emotional components of their anger during the upcoming week and record the use of skills in those situations. Participants were also instructed to practice the skills to increase their competence at using them.

The fourth session began with a review of the previous session's homework. The focus of the fourth session was recognizing and restructuring automatic aggressive thoughts. The therapists presented the concept of automatic aggressive thoughts that

arise from feeling angry. Examples of cognitive distortions including: “mind reading,” “all or nothing thinking,” and “catastrophizing” were also introduced. Cognitive restructuring was introduced to as a skill that can be used to counter aggressive automatic thoughts and cognitive distortions. Group members then practiced restructuring aggressive thoughts and cognitive distortions. Participants were asked to monitor automatic aggressive thoughts, cognitive distortions, and their use of cognitive restructuring during the following week.

The fifth session began with a review of the previous session’s homework. The focus of the fifth session was understanding the relationship between aggressive behavior and the self- concept and using assertive behavior to increase self-efficacy. The therapists discussed how aggressive behavior can affect one’s sense of self-efficacy and self-esteem, using examples like: “feeling like you can’t solve problems without acting aggressively can make you feel incompetent” and “feeling like you are bad because of acting aggressively can make you feel inferior.” Assertiveness was introduced as a skill that can improve participants’ effectiveness, and therefore increase their self-efficacy and self-esteem. Participants then practiced giving assertive responses to provoking statements made by other group members and therapists. Participants were asked to monitor their use of assertive behavior during the following week.

During sessions six and seven, participants had the opportunity to integrate the use of all four skills during role-plays. Participants contributed to the design of these role-plays to ensure that they closely simulated real-life situations. Each participant presented three situations, one at home, one at school, and one with friends, in which he or she anticipated having problems managing his or her anger. Those situations were

then role-played by the participant, other group members and therapists. The participant was instructed to use applicable skills to reduce anger and prevent an aggressive response. During the role-play, the participant was asked to rate his or her anger before and after the use of skills. These ratings were used to determine if the role-play triggered anger and if the use of skills reduced those feelings of anger.

The eighth session focused on setting goals and reflecting on participants' and therapists' experiences of participating in this group intervention. Each group member was asked to discuss his or her goals for the future. Then the therapists asked group members for feedback on the content and structure of the group, and to discuss their experience in the group. Finally, the therapists made concluding remarks.

Therapy Interfering Behaviors and Dropouts

It has been common for adolescents involved in this anger management program not to comply with the rules of the group or to drop out from the group completely. If rules were broken such as not doing homework, acting disruptively during group or arriving late, these behaviors were addressed immediately during the group. The therapists used these situations as learning opportunities to analyze disruptive behavior. However, in some cases, excessive and repeated misbehavior led to dismissal from a group session. Group members were considered dropouts if they missed more or were dismissed from more than one session. There was a make-up session for those participants who missed one session or were dismissed from one session. Since participation in this group was a court ordered condition of probation, dropping out of the group resulted in probation violations for some participants. For those who dropped out

of a group and began a later anger management group, data were only included from the first group they attended.

CHAPTER 3

RESULTS

The focus of this study was comparing participants who dropped out (dropouts) of the anger management group to participants who successfully completed (completers) it. Overall, there were twenty-two dropouts and nineteen completers. Before modeling individual and environmental predictors of treatment attrition, differences between treatment completers and treatment dropouts on demographic variables and therapy variables were investigated. In addition, gender and ethnicity differences on individual and environmental predictors of therapy attrition were explored. Correlations among predictor variables are presented in Table 2.

Differences Between Treatment Dropouts and Treatment Completers

Demographic variables

Gender. Fourteen of the dropouts were boys, while eight dropouts were girls. Thirteen of the completers were boys, and six of the completers were girls. Boys and girls were equally likely to drop out of this anger management group (Chi-square $(df= 1) = .10, p = .75$)

Age. Dropouts ranged in age from twelve to seventeen with a mean of 14.95 and a standard deviation of 1.40. Completers ranged in age from thirteen to seventeen with a mean of 14.63 and a standard deviation of 1.34. In this sample, age was not related to treatment attrition ($F_{(1, 39)} = .57, p = .48$).

Ethnicity. Twelve of the dropouts identified as Hispanic American, one dropout identified as African American, four dropouts identified as European American, and four

dropouts identified as Bi Racial or Multi Racial. Eight of the completers identified as Hispanic American, six completers identified as African American, three completers identified as European American, and two completers identified as Bi Racial or Multi Racial. There was not a statistically significant difference in treatment attrition rates among ethnic groups in this study (Chi-square $(df=3) = 5.09, p = .17$).

Family Constellation. Of the twenty-two participants who dropped out of this treatment, twelve reported living with just their mothers, three reported living with their mothers and step-fathers, one reported living with his or her mother and father, and six reported living with other family members or in foster care. Of the nineteen participants who completed this treatment, thirteen reported living with just their mothers, three reported living with their mothers and step-fathers, four reported living with their mothers and fathers, and none reported living with other family members or in foster care. There was a marginally significant relationship between participants' family constellations and treatment attrition (Chi-square $(df=3) = 6.86, p = .08$). This relationship seems to be due to the fact that six dropouts, but no completers, reported living in foster care or with other family members.

Parents' Marital Status. Twenty of the dropouts reported that their parents were not married, while two reported that their parents were married. Fourteen of the completers reported that their parents were not married, while five reported that their parents were married. Parents' marital status did not significantly differ between dropouts and completers (Chi-square $(df=1) = 2.14, p = .14$).

Number of Siblings. Dropouts reported having between zero and eight siblings with a mean of 3.32 ($S = 2.01, \text{Mode} = 2$). Completers reported having between one and

ten siblings with a mean of 3.16 ($S = 2.43$, $\text{Mode} = 3$). In this sample number of siblings was not related to treatment attrition ($F_{(1, 39)} = .05$, $p = .82$).

Frequency of family moves. Twelve of the dropouts reported moving four or more times, none reported moving three times, seven reported moving two times, one reported moving once, and one reported not having moved at all. One treatment dropout did not complete this item. Seven of the completers reported moving four or more times, five reported moving three times, one reported moving two times, two reported moving once, and three reported not having moved at all. One treatment completer did not complete this item. There were statistically significant differences in the number of moves reported by dropouts and completers ($\text{Chi-square}_{(df=4)} = 11.99$, $p = .02$).

Therapy Variables

Therapists. Treatment attrition was not significantly related to having any single therapist ($\text{Chi-square}_{(df=6)} = 6.22$, $p > .05$) or any pair of therapists ($\text{Chi-square}_{(df=5)} = 4.46$, $p > .05$)

Gender, Ethnic, and Age Differences on Predictor Variables

Individual Predictors

Aggressiveness. There were no gender differences ($F_{(df=1, 39)} = 1.25$, $p = .27$, $M_{\text{Boys}} = 30.78$, $M_{\text{Girls}} = 33.93$), ethnic differences ($F_{(df=3, 36)} = .74$, $p = .54$, $M_{\text{Hispanic American}} = 33.60$, $M_{\text{African American}} = 29.00$, $M_{\text{European American}} = 29.14$, $M_{\text{Bi-racial or Multi-racial}} = 31.50$), or age differences ($F_{(df=1, 39)} = .43$, $p = .52$, $M_{12-14} = 30.75$, $M_{15-17} = 32.56$) in Aggressiveness Score.

Mental health/substance use problems. There were gender differences ($F_{(df=1, 39)} = 5.22$, $p = .03$, $M_{\text{Boys}} = 2.15$, $M_{\text{Girls}} = 3.43$), but no ethnic differences ($F_{(df=3, 36)} = 1.13$,

$p = .35$, $M_{\text{Hispanic American}} = 2.95$, $M_{\text{African American}} = 1.86$, $M_{\text{European American}} = 3.00$, $M_{\text{Bi-racial or Multi-racial}} = 1.83$) or age differences ($F_{(df=1, 39)} = .01$, $p = .91$, $M_{12-14} = 2.63$, $M_{15-17} = 2.56$) in Mental Health Score. Girls had a significantly higher Mental Health Score than boys did in this study.

School Progress. There were no gender differences (Chi-square $(df=1) = .10$, $p = .75$), ethnic differences (Chi-square $(df=3) = .32$, $p = .36$), or age differences (Chi-square $(df=1) = 2.17$, $p = .14$) in School Progress Score.

Attitude towards aggressive behavior change. There were no gender differences (Chi-square $(df=1) = 1.21$, $p = .51$), ethnic differences (Chi-square $(df=3) = 1.37$, $p = .71$), or age differences (Chi-square $(df=1) = .00$, $p = .99$) in Attitude Score.

Life Goals. There were marginally significant gender differences ($F_{(df=1, 39)} = 3.61$, $p = .07$, $M_{\text{Boys}} = 7.80$, $M_{\text{Girls}} = 9.29$), and no ethnic differences ($F_{(df=3, 36)} = 1.49$, $p = .23$, $p = .35$, $M_{\text{Hispanic American}} = 7.75$, $M_{\text{African American}} = 9.71$, $M_{\text{European American}} = 7.57$, $M_{\text{Bi-racial or Multi-racial}} = 8.92$) or age differences ($F_{(df=1, 39)} = .11$, $p = .74$, $M_{12-14} = 8.47$, $M_{15-17} = 8.20$) in Life Goals Score. Girls tended to have a higher Life Goals Score than boys did in this study.

Environmental Predictors

Frequency of family meals. There were no gender differences ($F_{(df=1, 39)} = .15$, $p = .70$, $M_{\text{Boys}} = 3.37$, $M_{\text{Girls}} = 3.00$), ethnic differences ($F_{(df=3, 36)} = .19$, $p = .90$, $M_{\text{Hispanic American}} = 3.20$, $M_{\text{African American}} = 3.86$, $M_{\text{European American}} = 3.00$, $M_{\text{Bi-racial or Multi-racial}} = 2.67$), or age differences ($F_{(df=1, 39)} = 2.59$, $p = .12$, $M_{12-14} = 4.13$, $M_{15-17} = 2.68$) in Family Meals Score.

Life changes. There were no gender differences ($F_{(df=1, 37)} = .72, p = .40, M_{Boys} = 61.46, M_{Girls} = 63.75$), ethnic differences ($F_{(df=3, 34)} = .52, p = .67, M_{Hispanic American} = 63.18, M_{African American} = 60.00, M_{European American} = 60.07, M_{Bi-racial or Multi-racial} = 64.40$), or age differences ($F_{(df=1, 39)} = 2.54, p = .12, M_{12-14} = 64.83, M_{15-17} = 60.69$) in Life Change Score.

Parental monitoring. There were no gender differences ($F_{(df=1, 38)} = 1.09, p = .30, M_{Boys} = 7.15, M_{Girls} = 7.77$), ethnic differences ($F_{(df=3, 35)} = 1.98, p = .14, M_{Hispanic American} = 7.37, M_{African American} = 8.57, M_{European American} = 6.57, M_{Bi-racial or Multi-racial} = 6.67$), or age differences ($F_{(df=1, 39)} = 2.12, p = .15, M_{12-14} = 7.87, M_{15-17} = 7.04$) in Parental Monitoring Score.

Delinquent friends. There were no gender differences ($F_{(df=1, 38)} = 1.40, p = .24, M_{Boys} = 11.81, M_{Girls} = 10.64$) or no age differences ($F_{(df=1, 39)} = .13, p = .72, M_{12-14} = 11.19, M_{15-17} = 11.54$) in Delinquent Friends Score., but there were significant ethnic differences ($F_{(df=3, 35)} = 4.22, p = .01, M_{Hispanic American} = 12.65, M_{African American} = 8.71, M_{European American} = 11.29, M_{Bi-racial or Multi-racial} = 10.00$), In this study, African American participants had lower Delinquent Friends Scores than participants from other ethnic groups.

Participation in pro-social community activities. There were marginally significant gender differences (Chi-square $(df=1) = 3.52, p = .06$), no ethnic differences (Chi-square $(df=3) = 4.98, p = .17$), and significant age differences (Chi-square $(df=1) = 5.55, p = .02$) in Community Activities Score. On average, girls had a higher Community Activities Score than boys, and younger participants had a higher Community Activities Score than older participants in this study

Multivariate Model Development for Predicting Treatment Attrition

The first step in developing the multivariate model was modeling a series of single predictor logistic regression equations to determine which of the ten aforementioned individual and environmental predictors might be related to treatment attrition. For further consideration a single predictor model was required to be significant at the $p < .05$ level. This stringent criterion was used in the initial stage of model development because the small sample size (22 dropouts and 19 completers) limits the number of predictors that can be included in the final multivariate model. If too many predictors are entered into the regression equation the standard errors of the predictors rise and the power for detecting significant effects is diminished. For a summary of all ten single predictor models, see Table 3. At this point four predictors were retained for further investigation. Those four predictors were: 1) School Progress Score ($B = -2.04$, $S.E. = .76$, $p = .01$), 2) Attitude Score ($B = -2.75$, $S.E. = .75$, $p = .01$), 3) Mental Health Score ($B = .42$, $S.E. = .21$, $p = .04$), and 4) Delinquent Friends Score ($B = .25$, $S.E. = .12$, $p = .04$)

A multivariate model was then fit with the four remaining candidates. In this model, one individual predictor, Mental Health Score, was not a significant predictor of treatment attrition and was dropped. Two individual predictors, School Progress Score ($B = -3.31$, $S.E. = 1.38$, $p = .01$) and Attitude Score ($B = -4.28$, $S.E. = 1.61$, $p = .01$), and one environmental predictor, Delinquent Peers Score ($B = .74$, $S.E. = .29$, $p = .01$), were retained as significant predictors of treatment attrition. For a summary of this model please see Table 4.

The final multivariate model for predicting treatment attrition was comprised of the School Progress Score ($B = -3.44$, $S.E. = 1.35$, $p = .01$), the Attitude Score ($B = -3.71$, $S.E. = 1.34$, $p = .01$), and the Delinquent Peers Score ($B = .72$, $S.E. = .29$, $p = .01$). This three-predictor model accounted for fifty-two percent of the variance in treatment attrition (Cox & Snell R square = .52), and correctly classified 82.5 percent of the participants as treatment completers or treatment dropouts. For a summary of this model please see Table 5. Each of the two-way interactions between predictors in the final multivariate model was added to the model individually to inspect for evidence of effect modification. None of those interactions achieved statistical significance.

CHAPTER 4

DISCUSSION

The primary purpose of this study was to determine whether well-known risk factors for delinquency would predict attrition from an anger management group for court-involved adolescents. Three of the well-known risk factors did predict attrition; 1) making poor school progress, 2) having more delinquent peers, and 3) endorsing the need to change aggressive behavior. This three-predictor model accounted for over half of the variance in attrition in this sample and correctly classified over eighty-percent of the participants, as either treatment completers or treatment dropouts.

Treatment attrition studies have been controversial (see Harris, 1998, for a review). Two of the primary controversial methodological issues in treatment attrition studies are: 1) how to define treatment dropout and treatment completer status, and 2) how to determine which factors to study as predictors of treatment attrition. In this study, dropouts were defined as participants who were: 1) referred to the anger management intervention, 2) attended at least one session, and 3) did not complete all eight sessions (a make-up group was available for participants who missed one session). Completers attended all eight anger management session. Other studies have compared early and late dropouts with treatment completers (Kazdin & Mazurick, 1994). Because of sample size restrictions, the current study did not differentiate between early and late dropouts.

The potential predictors of attrition in this study were all selected from well-known individual and environmental risk factors for delinquency. Given the fact that I was studying a group of court-involved adolescents, it seemed reasonable to hypothesize

that these risk factors for delinquency might also predict treatment attrition. Other treatment attrition studies have investigated demographic predictors (e.g. Buttell & Pike, 2002; Sayre et. al., 2002), predictors related to the characteristics of the interventions delivered (Kelley & Moos, 2003), and predictors that focus on a parent of the child or adolescent in therapy (Kazdin & Mazurick, 1994). The present study did not investigate how treatment attrition was impacted by the characteristics of the treatment delivered, as all participants received the same treatment. However, it was determined that treatment attrition was not significantly associated with a specific therapist or co-therapist dyad. This study did not systematically investigate the characteristics of parents of participants. However, a number of demographic variables, including some related to parents and families, were investigated. Those demographic variables were gender, age, ethnicity, parents' marital status, family constellation and number of siblings; none significantly differed between treatment completers and treatment dropouts in this study. Frequency of family moves, however, did significantly differ between the two groups.

Attrition rates

While research studies support the use of cognitive-behavioral anger management groups for adolescents, little is known about attrition rates for these interventions. This is due in part to the fact that these interventions have often been delivered in institutional or school settings, where treatment is integrated into a daily routine. In Reddy & Goldstein's (2001) description of a community-based application of Anger Replacement Training, attrition rates were not mentioned. More than fifty-percent of participants did not complete the eight-session intervention delivered in the current study. While this attrition rate is high, it is consistent with attrition rates from other community-based

interventions. A meta-analysis of psychotherapy dropout indicated that the mean dropout rate in one hundred and twenty-five studies was approximately forty-seven percent (Wierzbicki & Pekarik, 1993).

Rates of attrition from community-based outpatient treatments for children and adolescents are quite high. In Garcia & Weisz's (2002) study of therapeutic relationship problems in ten outpatient clinics serving children and adolescents, they found that treatment attrition rates were over sixty percent for youth who had been assigned a therapist. In his review of treatment for youth with conduct disorder, Kazdin (1996) found that forty to sixty percent of clients dropout of therapy early against the recommendation of their therapists. Participants in the current study were youth, who likely meet criteria for conduct disorder based on the nature of their criminal offenses. It seems as though treatment attrition rates for youth, in general, and those with conduct disorder, in particular, are at least as high as treatment attrition rates for the population as a whole, if not higher. Another study of youth released from juvenile correctional facilities, found that twenty-five percent of youth referred for services received none (Carney & Buttell, 2003). Taken in combination with high treatment attrition rates, this finding suggests that it is difficult to engage conduct-disordered or court-involved youth in treatment.

Rates of treatment attrition among court-mandated adult clients are also high. One study reports that treatment attrition rates for court-mandated programs average from forty-two to sixty percent (Brown, O'Leary, & Feldbau, 1997). In a study of a spouse abuse abatement program, forty-three percent of participants did not complete a twelve-session treatment (Hamberger, Lohr, & Gottlieb, 2000). In another study of treatment for

court-ordered batterers over sixty percent of participants failed to complete a sixteen-session intervention (Buttell & Carey, 2002). Thus, although there is no prior research on treatment attrition for court-mandated adolescents, the treatment attrition rate in the current study seems consistent with attrition rates for court-mandated adults.

Little is known about treatment attrition rates in anger management groups. In one study, less than 10% of adults referred to an anger management group completed the six-session intervention (Siddle, Jones, & Awenat, 2003). In their review of readiness for anger management, Howells & Day (2003) described many factors that might lead to treatment attrition. However, they did not report treatment attrition rates. In Smith et. al.'s (2000) meta-analysis of school-based anger management programs, they found that the programs generally had a positive impact. However, the authors commented that the studies included in their meta-analysis were not sophisticated enough to determine for whom these interventions work, and unfortunately, there was no mention of treatment attrition rates in Smith et. al.'s meta-analysis.

The current study provides preliminary evidence that community-based anger management groups for court-mandated adolescents have high attrition rates, similar to the rates that plague community-based interventions for adolescents and community-based interventions for court-mandated populations. While the development of evidence-based interventions for adolescents' anger has flourished, there has been little attention paid to how many youth drop out of these interventions. A meta-analysis investigating treatment attrition from anger management groups is needed to truly estimate the magnitude of this problem.

Consequences of treatment attrition for court-involved adolescents

Participants were referred to the intervention in this study because their probation officers believed they needed help in improving their skill in managing anger. Previous research has found that court-involved adolescents typically have high rates of co-occurring mental health problems (Abram, Teplin, McClelland, & Teplin, 2003; Stewart & Trupin, 2003; Lahey, Loeber, Burke, Rathouz, & McBurnett, 2002). One recent study found that approximately fifty-six percent of females and forty-six percent of males at a short-term detention center for newly detained adolescents met criteria for two or more DSM-IV psychiatric disorders (Abram, Teplin, McClelland, & Teplin, 2003). It is likely that some of the participants who dropped out of the current study struggled with multiple mental health problems, and the intervention in this study was not designed to address those additional difficulties. If the problems that led these youth to be referred for treatment persist, the troubled youth may continue to commit crimes, act aggressively, and/or suffer from mental health problems. The cost of persistent legal and mental health problems to both the individual and his or her family is great.

In addition to improving mental health problems, interventions for court-involved adolescents also aim to reduce the social and economic costs of incarceration and to improve public safety (Greenwood, 1994). While the purposes of the juvenile justice system are both to rehabilitate youth and protect public safety, since the 1980's juvenile courts have leaned more towards protecting public safety by confining adolescents (Butts & Mears, 2001). High treatment attrition rates in community-based services could be used to bolster the argument that juvenile courts are correct to lean towards incarcerating adolescents who commit crimes rather than attempting to rehabilitate them in the

community. Confining a youth to the juvenile justice system has been estimated to cost taxpayers approximately thirty-six thousand dollars per year (Tate, Repucci, & Mulvey, 1995). If a youth continues to offend into adulthood, the economic costs of incarceration for each youth over the life span would be extremely high. The social costs of persistent offending over the life span would also be enormous.

Directing each court-involved adolescent towards an appropriate treatment

Fortunately, several evidence-based interventions have been developed that improve outcomes for court-involved adolescents (see Tate, Repucci, & Mulvey, 1995, for a review). However, even the best interventions do not lead to positive outcomes for all court-involved adolescents who engage in them (Butts & Mears, 2001). Proponents of treating court-involved adolescents like adult criminals have cited recidivism among court-involved adolescents as evidence; recidivism, it is argued, shows that “nothing works” for this population (see Levesque, 1996, for a review). Not directing court-involved adolescents towards interventions from which they are likely to benefit may lead to higher rates of adolescent recidivism and less support for community-based interventions. If court-involved adolescents are not directed towards treatments they are most likely to benefit from, the positive impacts of even the best interventions may be diminished. Given the limited resources available for court-involved adolescents, and the tremendous costs of persistent offending and mental health treatment throughout the lifespan, we must attempt to determine who benefits from specific interventions.

Predictors of attrition in this study

Predictors of attrition from the specific treatment delivered in this study have important implications for the delivery of community-based services for court-involved

adolescents. Participants who rated their friends as highly delinquent were more likely to drop out of this treatment. Providing group treatment for delinquent adolescents has been controversial. It has been suggested that the type of intervention that was delivered in this study might lead to more delinquent peer associations (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). Some authors have stressed that “deviancy training” is likely to occur in these types of groups undermining their intended therapeutic effects and actually producing iatrogenic effects (Dishion & McCord, & Poulin, 1999). Others believe that well-controlled behaviorally oriented therapy groups can positively impact delinquent adolescents (Frick, 2001; Handwerk, Field, & Friman, 2001). Nevertheless, if deviancy training occurs, treatment effectiveness and attrition may be negatively impacted.

Since anger management interventions don’t directly target participants’ peer associations, potential participants might benefit more from an intervention that does target their peer associations. One treatment that does directly target delinquent peer associations is Multi-Systemic Therapy (MST; Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998). MST employs parents or caregivers to influence associations with delinquent peers when it is determined that that association is a driver of delinquency.

Another predictor of treatment attrition in this study was making poor school progress or being old for one’s grade. There were two types of participants that were classified as making poor school progress: those who had dropped out of school and those who were old for their grade. This result is consistent with studies of drug

interventions, which have found that dropping out of school (Siqueland, et. al., 1998) and having less education (Sayre, et. al., 2002) were both associated with treatment attrition.

The intervention delivered in this study had psycho-educational components and group members were required to pass in homework. Those who were making poor school progress may have found these school-like components to be aversive, rather than therapeutic. They may have been more likely to comply with alternative interventions that don't involve school-like components. There are several such family-based and individual interventions, which can address anger and aggression problems. In addition to MST (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998), Functional Family Therapy (Alexander & Parsons, 1982), and individual cognitive-behavioral therapy for anger (Beck & Fernandez, 1998) have empirical support for treating adolescents with anger and aggression problems.

Participants' attitudes towards changing their aggressive behavior also predicted treatment attrition in this study. However, contrary to our hypothesis, participants who stated that they needed to change their aggressive behavior were more likely to drop out of treatment. A single multiple-choice item was used to measure participants' attitude towards changing their aggressive behavior, and measuring this variable with only one item may have led to this unexpected result. Well-established rating scales, such as the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES; Miller & Tonigan, 1996), or the Anger Readiness to Change Questionnaire (ARCQ; Williamson, Day, Howells, Bubner, & Jauncey, 2003) could be used to measure this concept more rigorously.

Beyond the possibility of inadequate measurement, there are several other potential explanations for this counterintuitive result. Some of the participants who stated that they needed to change may have believed that they had already changed their behavior and therefore, did not need to participate in the group. Also, given the oppositional behavior of many participants in this study, they may have reported that they needed to change as an attempt to tell the therapists that they would not engage in the intervention. Finally, participants may have not reported their true attitudes towards behavior change because they feared that their answers would be shared with their probation officers.

Limitations

The results of this study should be interpreted with caution due to several important limitations. While this study provides some preliminary evidence of predictors of attrition from a group anger management intervention for court-involved adolescents, the results should not be used to guide clinical decision-making until they are replicated. One or more of the predictors identified in this study as significant might not emerge as significant in attempts to replicate these results with a larger sample of court-involved adolescents, so that they may in fact be resulting from Type I error. Other significant predictors may have been missed, and a larger study with more statistical power might have detected them.

The relatively small sample size in this study also limited the logistic regression analysis that was used to predict treatment attrition. If more than one predictor for every ten subjects is used in a regression model, the regression model can become unstable. This instability is reflected in inflated standard errors of the predictor variables, which

lead to decreased statistical power. Since there were ten hypothesized predictors and forty-one subjects in this study, the criterion variable, treatment dropout, was regressed on each of the ten predictors separately. A larger sample size would have allowed all ten predictors to be evaluated in one multivariate model. Furthermore, the exploration of two-way interactions among the significant predictors of treatment attrition was hindered by the same problem.

This study also was limited by the intervention that was delivered. While cognitive-behavioral anger management groups for adolescents have been supported by other studies, the intervention delivered in this study was generally less intensive than the interventions delivered in those studies. For example, in one study of Anger Replacement Training the treatment involved fifty one-hour sessions (Coleman, Pfeiffer, & Oakland, 1992), as compared to the intervention delivered in this study which was comprised of only eight one and a half hour sessions. On the other hand, a four-session anger management group for adolescents in a psychiatric inpatient unit was effective (Snyder, Kymissis, & Kessler, 1999). Another limitation of this intervention was that many of the participants' first language was Spanish, while the intervention was delivered in English by therapists who generally did not speak Spanish (one therapist out of six did speak Spanish fluently). Group members spoke to each other in Spanish at times. The Bi-lingual therapist in this study was better able to monitor these conversations than the therapists who only spoke English.

The limited scope of this study also left questions regarding the efficacy of the delivered intervention unanswered. It is unclear whether those who completed the treatment had changes in their attitudes towards aggressive behavior, or whether they had

improved skills in dealing with anger. Furthermore, we don't know if the aggressive behavior of treatment completers and dropouts differed as a result of this intervention. However, it is clear that the intervention delivered in this study incorporated several components of effective anger management interventions.

Future Directions

While efficacy studies have been considered the “gold standard” of psychotherapy research, recently the National Institute of Mental Health released a report that recognized the importance of integrating psychotherapy efficacy and psychotherapy effectiveness research (National Advisory Mental Health Council, 1999). It is important to determine not only if a given treatment works, but also for whom and under what conditions it works. Screening out potential clients who are unlikely to engage in a given treatment, would enable both directing them towards a treatment that is more likely to help and allocating limited youth likely to benefit from them. This could potentially have tremendous therapeutic and economic benefits. However, those potential benefits can only be realized when reliable screening procedures are developed through systematic research. Understanding predictors of treatment attrition is a first step in being able to direct potential clients to the interventions from which they are most likely to benefit (Kelley & Moos, 2003).

In order to fully understand which court-mandated adolescents benefit from community-based cognitive behavioral anger management groups, sophisticated “hybrid” studies should be designed that evaluate both the efficacy of the intervention and how to effectively deliver intervention found to be effective in the community (see Roy-Byrne, et al., 2003). Of course, this type of study would be quite expensive, and it may be

difficult to negotiate the legal and ethical barriers of trying to conduct a well-controlled study of court-involved adolescents in the community. However, before treatment allocation questions can be answered, such a study must be done.

The predictors of treatment attrition investigated in this study should be studied with a larger sample, as, in general, a major criticism of treatment attrition research has been a lack of replication studies (Harris, 1998). In addition, it is important to study treatment attrition from the clients' perspectives. Kazdin (2000) investigated clients' perceived barriers to engaging in treatment and their perceived acceptability of the treatment. A similar methodology could be applied to better understand why so many participants referred to the intervention delivered in this study left treatment. This type of analysis could guide clinicians in better engaging court-involved adolescents in community-based anger management groups. While anger management groups are heralded as an evidenced-based intervention for adolescents, much more research is needed to understand how to best deliver this intervention to court-involved adolescents living in the community.

Table 1. MAYSI-II Scales: Ranges, Means, and Standard Deviations

Scales	Possible Range	Actual Range	Mean	Standard Deviation	Caution Score	Warning Score
Alcohol-Drug Use	0-8	0-5	1.00	1.48	4	7
Angry-Irritable	0-9	0-9	4.98	2.62	5	8
Depressed-Anxious	0-9	0-7	1.98	1.86	3	6
Somatic Complaints	0-6	0-6	1.85	1.82	3	6
Suicide Ideation	0-5	0-5	.83	1.59	2	3
Thought Disturbance	0-5	0-3	.49	.84	1 ¹	2 ¹
Traumatic Experiences	0-5	0-4	1.51	1.23	1 ²	1 ²

¹The thought disturbance scale caution and warning scores were only normed on boys

²There are no caution and warning scores for the traumatic experience scale

Table 2. Correlations among Predictor Variables

Scales	FMS	LGS	LCS	AS	MHS	SPS	PMS	DFS	ATS	CAS
FMS	1	.213	.104	-.401*	-.283	-.211	.123	-.227	-.076	.059
LGS	.213	1	.180	-.130	.047	-.255	.355*	-.287	-.091	.379*
LCS	.104	.180	1	-.033	.274	.206	-.099	-.030	.122	.045
AS	-.401*	-.130	-.033	1	.368*	.037	.048	.376*	.038	-.178
MHS	-.283	.047	.274	.368*	1	.188	.116	.096	-.015	.027
SPS	-.211	-.255	.206	.037	.188	1	-.252	-.111	-.204	-.205
PMS	.123	.355*	-.099	.048	.116	-.252	1	-.281	-.095	.109
DFS	-.227	-.287	-.030	.376*	.096	-.111	-.281	1	.082	-.220
ATS	-.076	-.091	.122	.038	-.015	-.204	-.095	.082	1	.218
CAS	.059	.379*	.045	-.178	.027	-.205	.109	-.220	.218	1

* Significant at the $p < .05$ level

Scales: FMS- Family Meals Score, LGS- Life Goals Score, LCS- Life Changes Score, AS- Aggressiveness Score, MHS- Mental Health Score, SPS- School Progress Score, PMS- Parental Monitoring Score, DFS- Delinquent Friends Score, ATS- Attitude Score, CAS- Community Activities Score.

Table 3. Associations with Attrition: Single Predictor Models (N=41)

Predictor	N	Events of Attrition		Beta (SE)	Wald p-value	Odds Ratio (95% CI) ¹
		n	%			
<u>School Progress Score</u>	<u>41</u>			-2.04(SE .76)	.01	.13(.03, .58)
1=Normal	25	9	36%			
0=Behind	16	13	81%			
<u>Attitude Score</u>	<u>41</u>			-2.00(SE .75)	.01	.14(.03, .55)
1=Pre-Contmepl.	18	5	28%			
2=Contemplation	16	11	69%			
3=Action	7	6	86%			
<u>Activities Score</u>	<u>38</u>			-.86(SE .67)	.20	.42(.12, 1.56)
1=Yes	20	8	40%			
0 = No	18	11	61%			
<u>Life Goals Score</u>	<u>41</u>			-.05 (SE .13)	.68	.95(.73, 1.22)
1=High	15	9	60%			
2=Medium	15	6	40%			
3=Low	11	7	64%			
<u>Mental Health Score</u>	<u>41</u>			.42(SE .21)	.04	1.52(1.02, 2.27)
1= High	12	9	75%			
2= Medium	15	9	60%			
3= Low	14	4	29%			
<u>Aggressiveness Score</u>	<u>41</u>			.08(SE .04)	.07	1.08(.99, 1.17)
1=High	12	10	83%			
2=Medium	15	5	33%			
3=Low	14	7	50%			
<u>Delinquent Friends Score</u>	<u>40</u>			.25(SE .12)	.04	1.29(1.02, 1.63)
1= High	11	9	82%			
2= Medium	15	8	53%			
3= Low	14	5	36%			
<u>Parental Monitoring Score</u>				.08(SE .18)	.67	.93(.65, 1.33)
1= High	<u>41</u>					
2= Medium	14	7	50%			
3= Low	15	8	53%			
	12	7	58%			
<u>Life Change Score</u>	<u>40</u>			-.02(SE .04)	.65	.98(.91, 1.06)
1= High	13	6	46%			
2=Medium	15	8	53%			
3= Low	12	8	67%			
<u>Family Meals Score</u>	<u>41</u>			-.13(SE .11)	.25	.88(.70, 1.10)
1= High	12	6	50%			
2= Medium	16	8	50%			
3=Low	13	8	62%			

¹ 95% Confidence Interval for Odds Ratio has lower limit = exp(lower limit for beta) and upper limit = exp(upper limit for beta)

Table 4. Initial Multivariate Model for Treatment Attrition (N=40)

Value of (-2) ln-likelihood = 23.20

DF = 4

Cox & Snell R-Square = .55

Predictor	Beta (SE)	Wald p-value	Odds Ratio (95% CI) ¹
<u>School Progress Score</u>	-3.31(SE 1.38)	.01	.04(.00, .56)
<u>Attitude Score</u>	-4.28(SE 1.61)	.01	.01(.00, .33)
<u>Mental Health Score</u>	.51(SE .33)	.13	1.66(.87, 3.20)
<u>Delinquent Peers Score</u>	.74(SE .29)	.01	2.10(1.18, 3.75)

¹ 95% Confidence Interval for Odds Ratio has lower limit = exp(lower limit for beta) and upper limit = exp(upper limit for beta)

Table 5. Final Multivariable Model for Predictors of Treatment Attrition (N=40)

Value of (-2)ln-likelihood = 25.89

DF = 3

Cox & Snell R Square = .52

Predictor	Beta (SE)	Wald p-value	Odds Ratio (95% CI) ¹
<u>School Progress Score</u>	-3.44(SE 1.35)	.01	.03(.00, .47)
<u>Attitude Score</u>	-3.71(SE 1.34)	.01	.02(.00, .34)
<u>Delinquent Peers Score</u>	.72(SE .29)	.01	2.06(1.17, 3.62)

¹ 95% Confidence Interval for Odds Ratio has lower limit = exp(lower limit for beta) and upper limit = exp(upper limit for beta)

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