

THE MEDIATING EFFECT OF DELINQUENT FRIENDSHIP NETWORKS ON THE
RELATIONSHIP BETWEEN SELF-ESTEEM AND DELINQUENT BEHAVIORS IN
ADOLESCENCE

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ABSTRACT

CORETTA MALLERY: The Mediating Effect of Delinquent Friendship Networks on the Relationship between Self-Esteem and Delinquent Behaviors in Adolescence
(Under the direction of Jill Hamm Ph.D.)

This study examined the mediating effects of delinquent friendship networks on the relationship between self-esteem and delinquency in young adolescents using the data from the National Longitudinal Study of Adolescent Health. This research expanded on previous research conducted by DuBois and Silverthorn (2004) by incorporating a comprehensive measure of friendship network delinquency. Principles of Social Learning Theory were also incorporated to explain why it is important to include a peer context in delinquency research. Additionally, this study included race and gender as moderator variables. Findings indicated that delinquent peer associations were significantly related to respondent delinquency in the White, male, and female participants. This relationship was not significant for African American participants suggesting an area for future research.

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CHAPTER 1 INTRODUCTION

It is important to study delinquent behaviors among adolescents because they can be predictive of future negative outcomes. In their longitudinal study, Tanner, Davies, and O'Grady (1999) examined the long-term impacts of teen delinquency. These researchers found that among both males and females, engagement in all types of delinquent behaviors was negatively associated with educational outcomes, including the highest grade completed, whether respondents finished high school or received a GED, and whether or not they completed college. Committing delinquent behaviors in adolescence also had a substantive, negative impact on sample participants' unemployment as adults. These findings suggest that delinquent behavior in adolescence can have negative effects felt twelve years later in individuals' educational and occupational lives (Tanner, Davies, & O'Grady, 1999).

The relationship between peers and involvement in delinquent activities is at the core of delinquency research (Eley, Lichtenstein, & Moffit, 2003; Haynie, 2001; Haynie, 2002; Hirschi, 1969). Peer groups, in particular, have been emphasized as companions that embody the wider cultural norms and values of adolescents beyond their best friends. These groups often have normative codes, and those adolescents who do not conform may be rejected by the group. Peer groups dictate the behaviors that adolescents perform such as dress codes and conduct, as well as general attitude. Early adolescents may perceive pressure to experiment with new roles and behavior when finding their place within a peer group; therefore, adolescents who report that they commit delinquent acts tend to report that they associate with peers who commit delinquent acts. Friendship networks are defined as the children

adolescents name as their friends and the children that name the adolescents as a friend and are a subset of the larger peer group (Haynie, 2001). This is not necessarily a reciprocal relationship between the adolescents but a broader network of children that have an impact on each other's behaviors and attitudes. Friendship networks often provide the context in which adolescents learn delinquent behaviors (Haynie, 2001).

The transition from elementary school to middle school is often the time that adolescents expand their peer relations beyond just a best friend to broader friendship networks to avoid becoming socially lost or isolated (Lerner et al., 1996). This need to find a position within a larger friendship network can create an increased susceptibility to the influence of delinquent behaviors (Haynie, 2001). In particular, the array of biological, cognitive and social changes that characterize middle school aged adolescents causes them to have an intensified interest and concern with peer relations (Heaven, 2001).

Adolescent males have been found to be more susceptible to peer influences than adolescent females. Females self-impose a larger moral barrier that can buffer the influence of delinquent peers; therefore, delinquent peer associations are a better predictor of delinquency among males than among females (Piquero, Gover, MacDonald, & Piquero, 2005). Girls have also been found to be less violent than boys, possibly because girls learn fewer violent definitions and are often taught that being violent is inconsistent with being female (DuBois & Silverthorn, 2004; Heimer & DeCoster, 1999). Therefore, it is important to consider gender when examining the relationship between peer networks and delinquent behaviors.

An additional factor that has been found to predict increased engagement in problem behaviors is low overall self-esteem (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Moran & DuBois, 2002). However, other researchers have suggested that there is not a direct relationship between low self-esteem and delinquent behaviors, and that delinquent adolescents may in fact have a very high self-esteem (Harter, 1990). This discrepancy may be due to how adolescents prioritize their aspects of self-concept (Cairns & Cairns, 1994).

Few studies have examined racial differences in the relationship between self-esteem and delinquency. One study found this relationship to differ across different ethnic groups, with a stronger relationship between low self-esteem and delinquency observed among the White students compared to African American students (Leung & Drasgow, 1986). It has also been found that levels of self-esteem in African American youth tended to be comparable or higher to that of their White peers (Tashakkori & Thompson, 1991), which could affect the strength of the correlation found between those students and the frequency of delinquent acts they commit. Other researchers have reported that African Americans when compared to White students have shown significantly greater deviant peer associations (DuBois & Silverthorn, 2004), which in turn may predict a higher mean of deviant behavior.

Recent research has incorporated deviant peer associations as a mediating variable linking an overall low self-esteem with involvement in problem behaviors among adolescents (DuBois & Silverthorn, 2004). These researchers suggested that the relationship between low self-esteem and delinquent behavior can be explained by an association with delinquent peers. However, there are several limitations inherent in the DuBois and Silverthorn (2004) study. First, this study relied on a single item to measure deviant peer association (“I hang

around with kids who get in trouble)”. This is a problem because recent research points to the significance of friendship networks specifically as a primary context for studying delinquency (Haynie, 2001; 2002). Because of the importance of peer networks in delinquency research, this study provided an opportunity to see whether a network approach will provide a deeper understanding of the mediating effect delinquent friendship networks has on the relationship between self-esteem and delinquency.

A second limitation of the Dubois and Silverthorn (2004) study is that the researchers measured respondents’ perceptions of their peers’ delinquency. Haynie (2002) suggested that respondents’ perceptions of friends’ delinquent behaviors are not always an accurate measure of peer delinquency because respondents project their own behaviors on their friends. Thus, the current study measured friends’ involvement in delinquent behaviors by self-reported responses of all identified friends.

An additional limitation is that the participants for the Dubois and Silverthorn (2004) research were limited to 350 low-income, White and African American youth in a medium-sized Midwestern city. Therefore, results from this study may only be generalizable to similar populations. The proposed study used a large, nationally representative sample providing results that are generalizable to all White and African American early adolescents in the United States.

Additionally, the previous research failed to incorporate empirical findings that gender and ethnicity are significantly associated with the relationship between peer networks and adolescent delinquent behaviors. Research has shown that males are more susceptible to peer influence than females (Piquero et al., 2005). Research has also shown that the

relationship between self-esteem and delinquency is different for African Americans than Whites (Leung & Drasgow, 1986); therefore, the proposed study incorporated race and gender as moderator variables.

Finally, the authors of the previous study did not invoke a comprehensive theoretical framework to explain why peer networks are an important context for studying adolescent delinquency. In this study, I incorporated aspects of Social Learning Theory to address this issue. I also integrated a theory proposed by Leary et al. (1995), Sociometer Theory, to explain why self-esteem may be a factor among adolescents' association with delinquent friendship networks.

In this thesis, I investigated the mediating role of delinquent friendship networks in the relation between low self-esteem and involvement in delinquent behaviors among adolescents. I addressed the following questions:

1. Is there a negative linear correlation between self-esteem and self-reported delinquent behaviors among middle school aged adolescents?
2. Is the negative relationship between adolescents' self-esteem and self-reported delinquent behaviors among middle school aged adolescents mediated, or explained by, the delinquency profile of the friendship networks?
3. Are the previous relationships moderated by race and gender?

THEORY

Self-esteem has been proposed to be an important factor that could decrease the likelihood of adolescents engaging in delinquent behaviors. Accordingly, many interventions have been designed to reduce levels of delinquent behaviors among adolescents by increasing feelings of self-worth (DuBois & Tevendale, 1999). Sociometer Theory (Leary, Schreindorfer, & Haupt, 1995) addresses the issue of why adolescents with low self-esteem would seek delinquent friends. The theory rests on the idea that humans are driven to sustain interpersonal relationships. Adolescents possess a mechanism that continuously monitors the social environment for cues as to whether they are being accepted or rejected by others. When evidence of a low relational evaluation is presented, adolescents are motivated to resolve this. Therefore adolescents who are not regarded favorably by their peers may seek alternative delinquent peer groups where they may be accepted by committing delinquent acts. This theory also addresses the difference between state self-esteem and trait self-esteem. State self-esteem involves the momentary fluctuations among adolescents' feelings about themselves while trait self-esteem refers to adolescents' general appraisals about their value (Leary, Schreindorfer, & Haupt, 1995). Committing delinquent acts to gain the acceptance of delinquent friends may provide state self-esteem without raising an adolescent's overall sense of value. Thus, adolescents may be tempted to do things that are not beneficial to their trait self-esteem in order to protect their interpersonal relationships rather than their inner integrity.

Moran and DuBois (2002) cited Sociometer Theory when relating self-esteem to problem behavior. They interpreted the central premise of the theory to be that a desire to maintain positive bonds with significant others has a more substantial influence on behavior than motivation to maintain or increase self-esteem. This conclusion has important implications for deviant behavior. If adolescents do not feel that they are accepted socially, they may try to increase their social inclusion by committing delinquent acts as a means to gain peer acceptance. This would explain why adolescents with low self-esteem may choose to associate with delinquent peers and in turn commit delinquent acts in order to maintain their associations with this delinquent friendship network. This might also explain why adolescents who commit delinquent acts in order to maintain a place in a delinquent friendship network would maintain a low self-esteem.

Aspects of Social Learning Theory help to explain how and why friendship networks in particular feature prominently in delinquent behavior. According to this theory, humans learn by observing others (Bandura, 1977). Vicarious experience is a primary way that human beings develop; behaviors modeled by others can have as much impact on adolescents as can direct experience. This suggests that an adolescent that observes a friend receiving praise or esteem for a certain behavior might try to imitate that behavior to earn the same rewards. This can be seen not only in prosocial behaviors such as getting good grades or doing well in sports but also in the minor delinquent behaviors researched in this project.

Principles of this theory suggest that engagement in delinquent behavior is dependent on the available rewards and costs for the behavior (Bandura, 1977). Adolescents' perception of rewards are dependent on their learning history and own attitudes toward delinquent

behaviors as well as what they perceive their rewards or punishments to be from their peers. When adolescents are deciding whether or not to engage in delinquent behavior, they will examine the ratio of benefits to costs of antisocial behavior, versus the ratio of benefits to costs of pro-social behavior. Thus, delinquent behavior is more likely among adolescents who perceive greater rewards in antisocial behavior. Basic principles of Social Learning Theory suggest that adolescents with delinquent friends are more likely to receive positive reinforcement for delinquent behaviors. If friends reinforce delinquent acts with praise or esteem, or if adolescents observe that friends' delinquent acts are reinforced, for instance, through group acceptance, they are more likely to perceive a benefit in the act. Friends play an important part in reinforcement contingencies and potentially contribute to the development and maintenance of delinquent behaviors. Therefore, adolescents with friends who engage in delinquent activities would receive frequent reinforcement for committing delinquent acts and would be more likely to continue these behaviors than youths with pro-social peers. It is important to look at the friendship network as the unit of study rather than simply a best friend because of the increase in importance of an adolescent's social group during the middle school years. The adolescent's group as a whole may have more influence on the adolescent than one specific friend (Heaven, 2001).

A REVIEW OF THE LITERATURE

Early adolescence is a period during which delinquent behaviors are often learned; delinquent behaviors in early adolescence are predictive of future negative outcomes (Tanner, Davies, & O'Grady, 1999). It is therefore important to identify elaborate pathways to involvement in these behaviors.

Deviant Peer Associations as a Mediator on the Relationship between Self-Esteem and Delinquent Behaviors

The foundation for this thesis was a recent study conducted by DuBois and Silverthorn (2004) which identified deviant peer associations as a mediator of the influence of general self-esteem on problem behavior. This research was based in Sociometer Theory (Leary, Schreindorfer, & Haupt, 1995), which posits that adolescents with low self-esteem may be susceptible to deviant peer associations because of a search for alternative feelings of self-worth. However, the research did little to address the importance of friendship networks in reinforcing these learned delinquent behaviors that result from associations with deviant peers, an idea rooted in principles of Social Learning Theory.

The results from this prior study (DuBois & Silverthorn 2004) provide support for the hypothesis that deviant peer associations mediate the relationship between low self-esteem and delinquent behavior in early adolescence, using a limited measure of deviant peer associations. They found that lower general self-esteem was correlated with association with deviant peers which was in turn significantly correlated with higher rates of problem

behavior. Deviant peer associations were found to mediate this association of lower levels of self-esteem and higher levels of problem behaviors. This suggests that low self-esteem alone does not predict delinquent behavior; the association with deviant peers was also necessary. This research built on these findings specifically by incorporating the delinquency profile of friendship networks as a mediating variable on the relationship between low self-esteem and delinquent behaviors. Current research has pointed to social networks as an important socializing agent during adolescence (Haynie, 2001; Haynie, 2002); therefore, it is important to include a more extensive measure of peer delinquency in the model.

The Friendship Network Context of Delinquency in Adolescence

Friendship groups have been found to have a significant impact on adolescent development. As children move from late childhood into early adolescence, peer influences and friendship networks play an increasingly important role. The friendship network forms the avenue in which early adolescents make the transition from the family into the wider world. Research has shown that, as children enter into early adolescence, the amount of time spent with members of their peer groups increases while the amount of time spent with family decreases (Heaven, 2001).

The friendship network comprises adolescents who have their own cultural norms and values; therefore, adolescents who do not conform to the normative codes of a group are often rejected. This friendship network may dictate behaviors such as social conduct and dress codes especially in early adolescence. This may lead to experimentation with new roles and behavior. Early adolescents rely on their friendship network for guidance and acceptance and may therefore work hard to maintain their place in their group (Heaven, 2001).

When exploring the delinquency research, it is imperative not to overlook the role that friendship networks play. Adolescents often find the need to expand their social networks beyond just a best friend to avoid becoming lost or isolated during middle school years (Heaven, 2001). This need to find a position within a larger friendship network can create susceptibility to peer influence (Haynie, 2001). A consistent finding has been an association between the delinquent behavior of adolescents' friends and adolescents' own delinquency (Dishion, McCord, & Poulin, 1999; Eley, Lichtenstein, & Moffit, 2003; Haynie, 2001; Haynie, 2002; Hirschi, 1969; McCarthy & Hagan, 1995). Adolescents who report that they commit delinquent acts tend to report that they associate with peers who commit delinquent acts. This can be attributed to the idea that friendship networks provide the context where adolescents learn delinquent behaviors. More importantly, when behavioral patterns such as delinquency are reinforced by members of the friendship network, the network begins to generate trust, establish behavioral expectations and reinforce social norms that may be favorable or unfavorable to delinquent behaviors. DuBois and Silverthorn (2004) fell short in their deviant peer measure by asking the respondents to simply comment on whether or not they spend time with kids that get in trouble. This failed to tap into the entire network of relationships that may have influenced the respondents' behaviors.

In a recent study, researchers attempted to uncover the different factors that contribute to aggressive and nonaggressive antisocial behavior (Eley, Lichtenstein, & Moffit, 2003). This study was based on evidence that there may be different underlying causes for two different types of delinquent behavior: aggressive and nonaggressive antisocial behavior. Aggressive antisocial behavior was defined as physical as well as verbally aggressive

behavior. In contrast, nonaggressive antisocial behavior was associated with rule-breaking behaviors that are often performed with peers such as vandalism, illegal substance use, theft, and truancy and was more influenced by a child's environment. The current thesis project was concerned with nonaggressive delinquent behaviors. Eley, Lichtenstein, and Moffitt (2003) concluded that the critical component among adolescents' environment is their peers; interventions were suggested that specifically target the children's peer interactions.

In *Causes of Delinquency*, Hirschi (1969) attempted to uncover the motivation for boys to commit delinquent acts. Although his research focused on boys, it laid important groundwork for studying overall adolescent delinquency. Hirschi's data supported some widely accepted ideas about delinquent boys and their interactions with their peers: Most delinquent acts are not committed alone, and most delinquent boys have friends who are considered to be delinquent. To illustrate, Hirschi found that 75% of the boys with four or more close friends who had been picked up by the police committed delinquent acts in the year prior to the study. Slightly more than 25% of the boys with no delinquent friends committed delinquent acts in the year prior to the study. Of the boys who reported committing two or more delinquent acts, 84% had at least one friend picked up by the police. Of the boys who committed no delinquent acts, 34% had a friend detained by the police. One interpretation of these data is that delinquent peers are a central cause of delinquency (Hirschi, 1969). These findings also support the proposed need to incorporate friendship networks when studying adolescent delinquency.

In a study that related friendship networks to delinquent behavior, Haynie (2002) concluded that adolescents' proportion of delinquent friends is correlated with the

respondent's own engagement in delinquency. These findings were consistent with a Social Learning Theory- based assertion that adolescents follow behavioral modeling of significant others. Haynie (2002) concluded that the proportion of delinquent friends adolescents have is the most important aspect of peer influence. The majority of friendship networks in Haynie's (2002) study had a heterogeneous mix of adolescents who engaged in delinquent behaviors and adolescents who did not commit delinquent acts. Very few networks were composed entirely of students classified as delinquent or non-delinquent. A higher concentration of friends classified as delinquent in a network correlated with a higher self-reported delinquency rate of the respondents. This study controlled for the target adolescent's level of prior delinquency, which lends evidence to the idea that self-selection is not entirely responsible for a student's association with delinquent friends (Haynie, 2002). Important implications emerged from this study for this thesis. Most notably this research establishes that an association with delinquent friends likely is associated with adolescents' involvement in delinquent activity. This research suggests that in order to fully understand why peer associations lead to delinquency in adolescence, friendship networks must be incorporated. It is within this context that delinquent expectations and norms are generated, and delinquent behaviors are reinforced.

The Relationship Between Low Self-Esteem and Problem Behaviors in Adolescence

Many researchers have attempted to link self-esteem to problem behaviors (Byner, O'Malley, & Bachman, 1981; Donnellan et al., 2005; Kaplan, 1978; Moran & DuBois, 2002; Rosenberg & Rosenberg, 1978). Rosenberg and Rosenberg (1978) examined the causal relationship between self-esteem and delinquency, and concluded that self-esteem exerted a

stronger effect on delinquency than delinquency exerted on self-esteem. Thus, adolescents with low self-esteem may be particularly susceptible to engage in delinquent behaviors. Kaplan (1980) examined the relationship between self-derogation (a reverse coded self-esteem measure) and self-reported delinquent behavior, and concluded that low self-esteem motivated adolescents to engage in delinquent behaviors (Kaplan, 1980). Byner, O'Malley, and Bachman (1981) expanded on the work of Rosenberg and Rosenberg. In a longitudinal study, they tested causal relationships between self-esteem and delinquency. They found little support for the hypothesis that self-esteem influenced delinquency; however, they found strong support that delinquent behaviors predicted negative self-esteem. The conclusions from these three studies are important to the current thesis because it supports the hypothesis that there is a negative correlation between self-esteem and delinquency.

Moran and DuBois (2002) related social support and self-esteem to delinquency using structural equation modeling to evaluate three different models: a mediational model where social support is related indirectly to delinquent behavior through intervening effects of self-esteem, a mediated and direct effects model in which social support has a direct relation to delinquent behavior as well as an indirect relationship through self-esteem, and a direct effects model in which the relationship of social support to delinquent behavior is not mediated by self-esteem. The best fit model was the mediated and direct effects model in which social support had a direct impact on problem behavior, in addition to an indirect linkage through self-esteem. This suggests that self-esteem is a primary factor in delinquent behavior. The model that proposed a direct relation between social support and problem behavior, omitting the self-esteem variable, was not significant, emphasizing the importance

of self-esteem in the previous model. The researchers concluded that there was a negative relationship between social support and self-esteem, and problem behavior, which also supports the hypothesis for the current thesis.

Contradictory empirical evidence has also been found in studies supplying evidence of the influence of low self-esteem on deviant behavior, McCarthy and Hoge (1984) evaluated the relationship between self-esteem and delinquency and concluded that the effect of low self-esteem on delinquent behavior was negligible; however, there were weak negative effects of delinquent behaviors on self-esteem. These researchers hypothesized that the weakness of their results suggests that researchers should look elsewhere for an understanding of why adolescents engage in delinquent behaviors.

These discrepancies in the literature concerning the relationship between low self-esteem and involvement in delinquent activities was addressed by Cairns and Cairns (1994), who suggested the discrepancy may lie in adolescents' prioritization of their self-concept. For example, when an adolescent considered aggressive was asked what makes him proud of himself, he responded by describing a fighting technique at which he was particularly good and about which his father gave him praise. Another adolescent male explained that he considered himself popular because people knew him for fighting. The interviewer then asked what makes boys popular, and the adolescent replied "fighting". This suggests that if adolescents view delinquent acts as being valuable, they may actually have high self-esteem when they perceive themselves to be good at them.

Although it is widely accepted that a low self-esteem is associated with many negative outcomes, Harter (1990) claimed that there is no straightforward relationship

between self-esteem and delinquent behaviors in adolescents. Delinquent adolescents may in fact report a very high self-esteem contrary to what was predicted in this study. When adolescents fail to meet standards set by the dominant group, this leads to negative self-attitudes. This in turn leads the adolescents to seek out peer groups that ignore the dominant group standards and reward delinquent behaviors. The adolescents are motivated here to restore their self-esteem. Research using causal models with longitudinal data supports this hypothesis. Among males entering high school with low self-esteem, delinquent behaviors were self-enhancing.

This debate was addressed in a study that found low self-esteem to be related to aggression, antisocial behavior, and delinquency (Donnellan et al., 2005). These researchers investigated the relationship between self-esteem and delinquency using self-reported self-esteem and delinquency measures and found self-esteem to be consistently negatively correlated with delinquency. This recent study provides current support for the hypothesis investigated in this thesis.

The self-esteem literature provides conflicting evidence to the relationship between self-esteem and delinquency. There are a substantial number of studies to support the proposed hypothesis of a negative relationship between self-esteem and delinquency (Byner, O'Malley, & Bachman, 1981; Donnellan et al., 2005; Kaplan, 1978; Moran & DuBois, 2002; Rosenberg & Rosenberg, 1978). It is important to note however that there is also contradictory evidence stating that there may be a positive relationship or no relationship between self-esteem and delinquency (Cairns & Cairns, 1994; Harter, 1990; Kaplan & Lin, 2000).

Moderating Effects of Race on Delinquency

Few studies have examined ethnic differences in the relationship between self-esteem and delinquency. Leung and Drasgow (1986) examined the hypothesis that low levels of self-esteem were related to high frequencies of delinquent behavior across three ethnic groups. The hypothesis was confirmed within the White student samples, but not for the African American and Hispanic student samples. This study also reported similar levels of self-esteem among the White and African American samples while the Hispanic sample showed lower self-esteem. Different researchers have found that levels of self-esteem in African American youth were comparable or higher than their White peers (Tashakkori & Thompson, 1991). These higher levels of self-esteem could significantly affect the relationship between low self-esteem and delinquent behaviors in African Americans because it is predicted that low self-esteem is related to delinquency. Thus, if the overall level of self-esteem is higher there may be less of a correlation present.

The DuBois and Silverthorn (2004) study found that White students had significantly lower deviant peer associations than African Americans. These findings are important to this study because deviant peer associations were proposed to explain the relationship between low self-esteem and delinquency. If there is a higher likelihood of African American adolescents associating with delinquent friends, then there is a greater chance that they themselves will be delinquent. The limited findings on the effects of race on these relationships pose a need for the examination of the differences race may introduce into the mediation of friendship networks on the relationship between self-esteem and delinquency in

adolescents. Therefore, this study examined whether any of these relationships can be partially explained by race.

Moderating Effects of Gender on Delinquency

Research reveals that gender is a strong correlate of delinquency (Giordano, 1978; Moffit, Caspi, Rutter, & Silva, 2001; Johnson, 1979; Simons, Miller, & Aigner, 1980). A twelve culture cross-national comparison that followed children through three decades of life found a consistent discrepancy in male and female delinquent behaviors across all age ranges (Moffit et al., 2001). This research also lent support to the conclusion that males commit more delinquent acts than females in adolescence. Specifically, these research findings suggest that the large gender gap in delinquency is not simply due to increased exposure to delinquent peer groups among males. This research showed a differential impact of delinquent peers on males compared to females (Moffit et al., 2001). An analysis of the National Youth Survey (Mears, Ploeger, & Warr, 1998) showed that males were exposed to more delinquent friends than females; however, this did not completely account for the gender gap in self-reported delinquency. It was observed that strong moral inhibitions acted as a barrier to peer influence much more frequently in females than in males. The females that disapproved of criminality were much less likely to be susceptible to peer influence on delinquent behaviors, whereas males with strong moral values were still found to engage in delinquent behaviors when exposed to delinquent peer networks. Association with delinquent peers appeared to overrule any moral disapproval for males, but this was not found for females. This was important to the current study because males who engage in delinquent behavior due to peer influence, although they have moral reservations about the behaviors,

are likely to suffer from low self-esteem. It was therefore expected that the relationship between the delinquency profile of the friendship networks and respondent delinquency was higher for males than females. Thus, gender was included as a moderating variable because it has been found that males are more susceptible to delinquent peer influence.

Additionally, Johnson (1979) found that the effects of delinquent peer exposure on delinquency were greater for males than females. This notion was expanded in research by Simons, Miller, and Aigner (1980) who found the majority of the gender gap in self-reported juvenile delinquency was accounted for by the fact that males more often had peers who supported delinquent behaviors. Giordano (1978) found that girls who spent time in male peer groups were significantly more likely to engage in delinquent behaviors than females that associated with mostly other females.

CURRENT STUDY

Peer relations are at the core of the theory underpinning many delinquency studies. There is a consensus in the literature that delinquent behaviors often occur in a group context in which delinquent behaviors are modeled and rewarded by friends (Dishion, McCord, & Poulin, 1999; Eley, Lichtenstein, & Moffit, 2003; Haynie, 2001; Haynie, 2002; Hirschi, 1969). It is therefore critical to consider friendship networks when conducting delinquency research. In this thesis, I expanded on the work of DuBois and Silverthorn (2004) by examining delinquent friendship networks as a mediator to the contribution of self-esteem and problem behavior in adolescence. I extended the previous study by incorporating a more comprehensive delinquency profile of adolescents' friendship networks, using self-report data for the friendship delinquency profile to eliminate the problem of respondents projecting their own behaviors on their friends and expanding the theoretical framework of the prior study by using principles of Social Learning Theory to explain why it is important to incorporate a peer context in delinquency research using a nationally representative data set. Additionally, I included race and gender as moderator variables based on empirical evidence that there is a significant difference in peer influences on male and female delinquency and that a different relationship between self-esteem and delinquency is observed between African Americans and Whites. Specifically, I proposed three research questions:

1. Was there a negative correlation between self-esteem and self-reported delinquent behaviors among middle school aged adolescents?

2. Was this relationship mediated, or explained by the delinquency profile of the friendship networks?
3. Were the previous relationships moderated by race and gender?

METHOD

Participants

The data for this study were taken from the first wave of the National Longitudinal Survey of Adolescent Health (Add Health). The sample included 7th through 12th graders from a systematic, random sample of 80 high schools and 52 middle schools across the United States. The schools were stratified by region, urbanicity, school type, ethnic make-up, and size with the school as the primary sampling unit. The design of Add Health was a cluster sampling technique in which clusters were sampled with unequal probability; therefore, the observations are not independent and identically distributed. Hence, there are variables within the data to correct for design effects and grand sample weighting (Chantala & Tabor, 1999).

This study will limit the sample to 7th and 8th grade students resulting in a sample size of 1238: 563 males, 675 females; 906 White students, and 332 African American students. The respondents were asked to identify their race from six options: White, Black or African American, American Indian or Native American, Asian or Pacific Islander, other, or do not know. Race could also be coded as legitimately skipped or refused to answer. Gender was selected similarly from two options: male or female. This study included only the White and African American students because that is where the literature suggested there would be significant findings.

The first wave of the data collected had an in-school component (response rate 78.9%) in which participants were asked to identify up to five best male and up to five best female friends from a school roster. Respondents also answered items designed to measure self-esteem, and items designed to measure delinquent behaviors. The survey was administered to all students in the participating schools who were present the day of the survey administration and who had parental permission to participate. Because the friendship nomination data was recorded by participant identification number, it was possible to link together most of the students in the school, and to recreate their friendship networks. A concern with limiting the number of friendship choices to 5 males and 5 females may be that friends not included in participant networks may be influencing participant delinquency. However, Haynie's (2002) analysis of the friendship network data from the Add Health data set revealed that most participants did not nominate ten friends (the mean number of friends nominated is 5.7). Thus, it is unlikely that this design severely limits the number of friendship choices a student might make (Haynie, 2002).

Another limitation to the network data as collected, is that participating students may have had friends outside of their school whose data were not included in the Add Health study. This may pose problems for the proposed study because non-participants may have influenced participants' delinquent behaviors, which would distort the proposed relationship between delinquent friends and delinquent behaviors. Haynie (2001) addressed this limitation and found that of the mean 5.7 nominated friends, a mean of 1.4 friends were from outside their school. Further analyses by Haynie (2001) found that the number of out-of-school nominations did not significantly differ between delinquent and non-delinquent

adolescents (1.4 vs. 1.3). Thus, it is reasonable to use the in-school friendship networks in this study.

Measures

Independent variable. A composite variable indicating self-esteem was constructed by using the mean of participants' responses to six items, with a 5 point Likert scale. Responses ranged from strongly disagree to strongly agree. A higher score indicated a stronger sense of general self-esteem. The six items were derived from the Rosenberg (1965) measure of global self-esteem and included statements such as "I have a lot to be proud of" and "I have a lot of good qualities" (Cronbach α for the sample = .83). A study by Tracy and Erkut (2002) used the same six self-esteem items within a larger sample of the Add Health data set. This sample included 43,832 White and African American adolescents and the internal consistency coefficient for the self-esteem scale was 0.86.

Dependent variable. To assess participants' involvement in delinquent behavior, this study employed an index of delinquency involvement based on the self-reported responses to a series of 6 questions about their participation in delinquent activities in the 12 months prior to the survey. These items measured participation in activities such as smoking cigarettes, drinking alcohol, getting drunk, skipping school without an excuse, doing dangerous things on a dare, and racing vehicles such as cars or motorcycles (Cronbach α for the sample = .75). The responses range from 1 to 6 (1 representing "never", 6 representing "nearly every day"). The delinquency items were averaged to create a delinquency score for each participant. A study of the role of friendship networks in delinquency (Haynie, 2001) utilized this

delinquency index within the Add Health data set and reported a Cronbach α of .82 for a larger sample of approximately 13,000 adolescents.

Mediator variable. This study used the responses of all identified friends to the series of delinquency items previously described to create a delinquency profile of the friendship networks. The friendship nomination data links each respondent with the students they nominated as friends as well as the participants that nominated the respondent as a friend. The Add Health data set includes network variables that link all of the participants in the school and this information on friends' delinquency involvement. Using these variables, a measure of network delinquency was created. This was calculated as the average response of all identified friends to the six delinquency items. Research by Haynie (2001) also used these network delinquency variables.

Moderator variables. Race and gender were used as moderator variables in the analysis. The race and gender variables were dummy coded for analyses. White participants were represented by a 0 and African Americans were coded with a 1. Gender was done similarly with males coded as 0 and females being represented by a 1.

PLAN FOR DATA ANALYSIS

In this thesis, I investigated the role of delinquent friendship networks in mediating the relationship between self-esteem and delinquent behaviors in young adolescents moderated by race and gender. To accomplish this, I began by running preliminary analyses to test for normality in the distributions of the variables. Then I estimated a series of three regression models: first, regressing the mediator (Friendship Delinquency Profile) on the independent variable (Self-Esteem); second, regressing the dependent variable (Respondent Delinquency Profile) on the independent variable (Self-esteem); and third, regressing the dependent variable (Respondent Delinquency Profile) on both the independent variable (Self-Esteem) and the mediator (Friendship Delinquency Profile). Separate coefficients for each equation were estimated and tested. The network delinquency profile can be said to have functioned as a mediator if: variation in the independent variable (Self-Esteem) significantly accounts for variation in the mediator variable (Friendship Delinquency Profile), variation in the mediator (Friendship Delinquency Profile) significantly account for variation in the dependent variable (Respondent Delinquency), and when the previous two relationships are controlled for, a previously significant relationship between the independent (Self-Esteem) and dependent (Respondent Delinquency) is significantly attenuated (Baron & Kenny, 1986). The friendship delinquency profile is a mediator if it accounted for much, if not all of the relationship between self-esteem and delinquency.

The three regression models were estimated five times separately. The purpose of the first was to test for mediation in the entire sample. The next four models were tested to test

for moderating effects of gender and race. The second model included only White students, the third model included only the African American students, the fourth included males, and the last included only females. Gender could be considered a moderator variable if the regression coefficient for one gender was significantly different than the regression coefficient for the other gender. A t-test was conducted to see if the effects of one gender were significantly different than the other using the formula:

$$t_{\text{calc}} = \frac{b_{(M)} - b_{(F)}}{\text{sqrt} [\text{se}(b_{(M)})^2 + \text{se}(b_{(F)})^2]}$$

as given in Cohen and Cohen (1983). The moderating effects of race were tested similarly. The Bonferroni approach was used to control for Type 1 error across the 15 correlations. A p value of less than .003 (.05/ 10 = .003) was required for significance.

Because the participants for this study were individuals nested within the larger unit of the school, a random-effects overdispersion model was used in all analyses. This type of model allows dispersion to randomly vary among schools. Statistical techniques that could account for the clustering of the data and unequal probability of selection were necessary for unbiased parameter estimates (Chantala and Tabor, 1999). The software package STATA was used for all analyses which allowed the incorporation of the survey design characteristics into the computational formulas. The basic model used in design based analysis is:

$$\text{Outcome} = \text{Covariates} + \text{Design Variables} + \text{Error Terms}.$$

The covariates are the characteristics of the adolescents that affect the outcome. Using design-based analysis incorporates the design variables and error terms in the sampling design by the software package (Chantala & Tabor, 1999).

RESULTS

Determining the proper model for the analyses required an examination of the self-esteem index, delinquency index, and the measure of peer delinquency. Preliminary analyses revealed that measures of delinquency exhibited a substantial positive skew of 1.48 with a standard error of .04. This in turn affected the delinquency profile of the friendship network which also showed a substantial positive skew of 1.08 with a standard error of .04. Scores on these measures were therefore transformed using a base-10 logarithmic transformation. This transformation proved effective in producing variables with distributions acceptable for use in subsequent analyses as seen in Table 1. The data were also screened for the possibility of a non-linear relationship between variables. Examination of the scatter plots did not reveal any evidence of alternative relationships between variables.

Table 1

Descriptive Statistics (n= 1238)

	Mean	Standard Deviation	Range	Skewness	Kurtosis
Self-esteem	1.78	.56	3.33	.72	.94
Respondent Delinquency	.61	.41	1.95	.67	-.21
Delinquency Profile of friendship	.66	.24	1.73	.36	.66

Total Sample

Initially, three regression models were run to test for a mediating effect of an adolescent's friendship network on the relationship between self-esteem and delinquency for the entire sample. As shown in Table 2, no relationship was found between self-esteem and delinquency and no relationship was found between the respondent's self-esteem level and the delinquency profile of their friendship network. The third equation revealed a positive relationship between the delinquency profile of the respondents' friendship networks and the respondents' mean delinquency value. Mediation is not present in the total sample because all three equations are not significant; however, the proposed hypothesis that delinquent friendship networks are a correlate of adolescents' delinquent behaviors was supported.

Table 2

Regression Results of the Total Sample (n= 1238)

Predicting Respondent Delinquency					
	Beta	SE	t	p	R ²
Self-esteem	.07	.03	2.4	.02	.01
Delinquency Profile of Friendship Network	.45	.08	5.8	<.003	.07

Predicting Delinquency Profile of Friendship Network					
	Beta	SE	t	p	R ²
Self-esteem	.00	.01	.27	.79	.00

White Student Sample

The three regression models were then tested within the sample of White students to test for a moderating effect of race. The results in Table 3 were similar to those of the total sample. Contrary to the proposed hypothesis, a positive relationship was found when regressing respondent delinquency on respondent self-esteem. There was no relationship between respondents' self-esteem and the delinquency profile of their friendship network indicating again that friendship networks are not acting as a mediator between self-esteem and delinquency in the White students. As with the total sample, the notable results are the

positive correlation between the delinquency level of the adolescent friendship networks and the respondents' mean delinquency level.

Table 3

Regression Results for White Students (n=906)

Predicting Respondent Delinquency					
	Beta	SE	t	p	R ²
Self-esteem	.07	.03	2.4	.02	.01
Delinquency Profile of Friendship Network	.49	.08	6.5	<.003	.08

Predicting Delinquency Profile of Friendship Network					
	Beta	SE	t	p	R ²
Self-esteem	.00	.01	.47	.64	.00

African American Student Sample

Similar to the White sample there was no relationship found between self-esteem and delinquency, or between the self-esteem and the delinquency profile of the friendship network. Unlike the results for the White sample, however, the delinquency of the African American adolescents' friendship network had no relationship with the adolescent's own involvement in delinquent behaviors (see Table 4).

Table 4

Regression Results of African American Students (n=335)

Predicting Respondent Delinquency					
	Beta	SE	<i>t</i>	<i>p</i>	R ²
Self-esteem	.01	.04	.24	.81	.01
Delinquency Profile of Friendship Network	.22	.15	1.5	.14	.02

Predicting Delinquency Profile of Friendship Network					
	Beta	SE	<i>t</i>	<i>p</i>	R ²
Self-esteem	-.01	.03	-.47	.64	.00

Male Student Sample

The three models were then tested including only the male students to test for the moderating effect of gender (see Table 5). There was no relationship found between self-esteem and delinquency, or self-esteem and the mean delinquency level of the friendship networks. This suggests that low self-esteem was not associated with the delinquent behaviors of male adolescents. The proposed mediation hypothesis was not supported for the male adolescents either but there was a significant relationship between the delinquency level of the friendship networks and the respondents' delinquency.

Table 5

Regression Results for Male Students (n=563)

Predicting Respondent Delinquency					
	Beta	SE	t	p	R ²
Self-esteem	.10	.05	1.9	.06	.01
Delinquency Profile of Friendship Network	.39	.10	4.1	<.003	.05
Predicting Delinquency Profile of Friendship Network					
	Beta	SE	t	p	R ²
Self-esteem	-.01	.02	-.41	.68	.00

Female Student Sample

The results from the female adolescents mirrored those of the results from the total sample, from the White participants, and male participants (see Table 6). There was no relationship between self-esteem and delinquency or between self-esteem and the mean delinquency level of the friendship networks. There was a positive relationship between the mean delinquency level of the friendship networks and the female adolescents' delinquency measure. The proposed mediation hypothesis is not supported; however, the hypothesized significant correlation between the delinquency level of the friendship networks and respondent delinquency in females is supported.

Table 6

Regression Results for Female Students (n=675)

Predicting Respondent Delinquency					
	Beta	SE	t	p	R ²
Self-esteem	.10	.04	2.6	.01	.02
Delinquency Profile of Friendship Network	.47	.10	4.7	<.003	.09

Predicting Delinquency Profile of Friendship Network					
	Beta	SE	t	p	R ²
Self-esteem	.03	.02	1.2	.25	.00

Summary of Results

This study addressed three research questions:

1. Was there a negative correlation between self-esteem and self-reported delinquent behaviors among middle school aged adolescents?
2. Was this relationship mediated, or explained by the delinquency profile of the friendship networks?
3. Were the previous relationships moderated by race and gender?

The first question was not supported by any of the subgroups. There was no relationship between self-esteem and delinquency for any of the models. The second research question predicted mediation, meaning self-esteem and delinquency were predicted to be

correlated because low self-esteem causes delinquency through an association with delinquent friendship networks. In order for mediation to be present there would need to be a negative significant relationship between self-esteem and delinquency, a significant relationship between the respondents' self-esteem and the delinquency profile of the respondents' friendship network, and a significant relationship between the delinquency profile of the respondents' friendship network and the respondents' delinquency level. In addition to there being no relationship found between self-esteem and delinquency, there was no relationship found between students' self-esteem level and the delinquency profile of their friendship network in any of the subgroups. This lack of significant findings suggests that the mediation hypothesis was not supported.

The most interesting of the results was the somewhat consistent finding that the delinquency profile of adolescents' friendship networks was significantly related to the adolescent's own engagement in delinquent behaviors. This was found in the total sample, for both genders, and for White students. There was no correlation found for African American participants.

The third proposed hypothesis predicted that race and gender were moderator variables in the model. Race was a moderator variable if the regression coefficient for White participants was significantly different than the regression coefficient for African American participants. This was determined using a t-test as shown in Cohen and Cohen (1983). The relationship between the delinquency profile of the respondents' friendship network and respondent delinquency was significant for White respondents and not African Americans, hence race was a moderator variable in this relationship. The test of gender as a moderator

variable was tested similarly. Gender was not a moderator variable in any of the relationships. The relationship between the delinquency profile of the respondents' friendship network and respondent delinquency was significant for both males and females; although, the values were not different enough for gender to be a moderator in this relationship.

DISCUSSION

Researchers have long treated self-esteem as an important concept for understanding behavior and psychological well-being. Many researchers believe that low self-esteem can manifest in a variety of negative ways in an adolescent's life such as delinquent behavior. Although research has not always generated consistent findings on the relationship between self-esteem and delinquency, a large body of research supports the proposed hypothesis of a negative correlation between self-esteem and delinquency in adolescents (Byner, O'Malley, & Bachman, 1981; Donnellan et al., 2005; Kaplan, 1978; Moran & DuBois, 2002; Rosenberg & Rosenberg, 1978). Alternative researchers propose that this relationship is more complex and that there are other variables involved (Harter, 1990); a growing body of research emphasizes the importance of significant others in adolescents performing delinquent behaviors (Dishion, McCord, & Poulin, 1999; Eley, Lichtenstein, & Moffit, 2003; Haynie, 2001; Haynie, 2002; Hirschi, 1969). This study investigated the role that friends play in intervening between self-esteem and delinquent behaviors. There were three research questions proposed by this study. First, was there a negative relationship between self-esteem and adolescent delinquency? Second, was this relationship mediated by the adolescents' friendship networks? Finally, were the previous relationships moderated by race and gender?

The Relationship between Self-Esteem and Delinquency

Lower levels of self-esteem were not related to increased delinquent friend associations or increased delinquent behaviors. The results from this study revealed no relationship between self-esteem and delinquency in any of the subgroups. Although many

models predict a simple negative relationship between self-esteem and delinquency, other evidence in the literature supports a more complex relationship. Kaplan (1980) proposed that low self-esteem may increase the likelihood of delinquent behavior, in turn; this delinquency may then have a self-enhancing effect on later self-esteem. According to Kaplan (1980), adolescents attempt to satisfy their need for self-esteem through their behaviors. This is referred to as a self-esteem motive, a need to minimize negative self-attitudes and maximize positive self-attitudes. Adolescents spend time with peers that provide favorable views for the self and they continue to maintain membership in and conform to these social groups as long as the group is providing positive self-evaluations.

When this self-esteem motive is not met by conventional peer groups, adolescents lose motivation to conform to these groups and turn to deviant groups to meet their need for self-esteem. Once these adolescents become a part of these delinquent peer groups the adolescents compare more favorably with delinquent peers than conventional friends. This may then increase the adolescents' self-esteem as the behavior similarities within the peer group provide legitimacy and support for their behavior. They may then change their self-concept from being conventional to deviant which protects and promotes their self-esteem (Kaplan, 1980). This is contradictory to the hypothesis of the current study that adolescents that engage in delinquent behaviors have low self-esteem. This study found no direct relationship between self-esteem and engagement in delinquent behaviors which suggests that some adolescents with low self-esteem may engage in delinquent behaviors while others delinquent adolescents may actually have a high self esteem as proposed by Kaplan (1980).

Harter (1990) also stated that there was no direct relationship between self-esteem and adolescent delinquent behavior. Delinquent adolescents in one study did not necessarily report having a low self-esteem; many actually had a very high self-esteem. Cairns and Cairns (1994) suggested differences where adolescents place value in their self-concept could account for the discrepancy in the relationship between self-esteem and delinquency. This suggests that the adolescents with a high level of self-esteem and a high level of delinquency may value delinquent behaviors. These behaviors may bring them praise from classmates and friends. This may explain why this study found no relationship between self-esteem and delinquency. Some participants with low self-esteem may commit delinquent acts in order to gain acceptance from alternate peer groups while other participants that commit delinquent behaviors may actually have high self-esteem due to the acclaim these behaviors may earn them from their friends.

The lack of association between self-esteem and delinquency on the delinquency profile of an adolescent's friendship network was also contrary to prediction. This relationship was not significant for any of the subgroups. Some adolescents with low self-esteem may associate with delinquent friends while other members of a delinquent friendship network may actually have a high self-esteem because their behaviors are rewarded in their peer group. These results are somewhat supported by Sociometer Theory's central premise that a desire to maintain a bond with a friendship network has a greater influence on behavior than the motivation to increase self-esteem (Leary, Schreindorfer, & Haupt, 1995). This theory suggests that adolescents with low self-esteem may seek any peer group that would accept them in order to have that social interaction. This may result in committing delinquent acts in

order to maintain a place among a delinquent peer network. However, adolescents with low self-esteem shunned by conventional peer groups may also associate with friendship groups that do not commit delinquent acts but that have some other common interest. Association with friends that do not commit delinquent acts would predict a lower level of delinquent behavior according to principles of Social Learning Theory.

The Relationship between Friendship Networks and Delinquency

In this thesis, the association between friendship networks and delinquency was explored guided by the foundation that a complete understanding of peer influence requires a measure of the friendship networks in which adolescents are embedded. The mean participation in delinquent activities for this sample of 7th and 8th graders was .61 suggesting that many adolescents participated in at least one minor delinquent activity. Moreover, the mean delinquency level of the friendship networks was .66 suggesting that many adolescents were located in friendship networks that report some minor delinquency involvement. By incorporating a social network approach, this research contributes to research and theory linking friendship networks with adolescent delinquency. Overall, the findings suggest that a network perspective can provide an important context for studying adolescent delinquency.

Much of the literature linking peers and delinquency used a more severe measure of delinquent behaviors than employed in this study (Dishion, McCord, & Poulin, 1999; Eley, Lichtenstein, & Moffit, 2003; Haynie, 2001; Haynie, 2002). However, it was appropriate for this study to use a measure of relatively minor delinquent activities based on research that suggests that engagement in these types of risky behaviors such as smoking cigarettes, drinking alcohol, or skipping school in early adolescence, may lead to more major delinquent

behaviors in late adolescence. A study conducted by Ellickson and McGuigan (2000) identified early predictors of adolescent violence. These researchers gathered data from a 5-year longitudinal self-report survey of more than 4,300 high school seniors and dropouts in the states of California and Oregon. Students were first administered the survey in 7th grade to determine baseline statistics on the risk behaviors. These same students were contacted by mail 5 years later to fill out a second survey assessing engagement in various forms of violence. Predictor variables included problem behaviors similar to the minor delinquent behaviors used to measure delinquency in the current thesis project. Early deviant behavior in the 7th grade consistently predicted all types of future violence in 12th grade.

The most notable finding from this research is that friends' delinquency, as measured by responses from friends who compose the adolescent's friendship network, is significantly associated with an adolescent's own delinquency involvement. This is consistent with Haynie's research using the same data set (2001; 2002). Haynie's research used the entire Add Health sample of 7th to 12th graders while this research focused on 7th and 8th graders. Haynie's research also differed by using a scale of more severe delinquent acts to measure respondent delinquency and by using a proportion of friends who reported committing one or more of these acts for the network delinquency variable. And in comparison this research used a scale of minor delinquent acts and used the mean level of minor delinquent acts committed within a friendship network instead of a proportion measure. The current research showed that this relationship is consistent among minor and severe delinquent acts. The relationship was also consistent between the proportion of delinquent friends in the networks and the mean delinquency score for friendship networks. Since other prior research

incorporates a measure of peer delinquency based on responses from the respondents rather than the peers themselves, Jussim and Osgood (1989) warn that peer delinquency may simply measure the respondent's own delinquent behavior projected onto their friends. In contrast, measures used in the current research incorporated the responses of friends themselves and indicate that the delinquency-peer association exists. The significant association demonstrated in three of the subgroups (males, females, and Whites) of this study gives credibility to the idea that delinquency can be understood in the context of the friendship network where common norms and behaviors emerge (Lin, Dean, & Ensel, 1986).

This research provides support to principles of Social Learning Theory suggesting that it is within this friendship network that social norms and values regarding delinquency are observed, learned, and reinforced. When there is a high occurrence of delinquent behaviors within a network, members are at a greater exposure to definitions and behaviors consistent with delinquency involvement.

Contrary to Social Learning Theory, this relationship between delinquent peers and delinquent behaviors may also be explained by self-selection into delinquent peer networks based on already present delinquent behavior not due to delinquent peer influence. Glueck and Gleuck (1950) and Hirschi (1969) both found a strong relationship between antisocial behavior and antisocial peers. They made the case, however, that this is because young people who engage in delinquent behaviors are more likely to choose friends that also engage in delinquent behaviors. Thus, the delinquent behaviors may cause the individual to choose a delinquent peer group rather than the delinquent peers causing delinquent behavior. The nature of these data do not allow a determination of whether the observed behavior is due to

network influence or whether they are reflecting the tendency of youth with similar delinquent behaviors to select each other as friends. Longitudinal data are necessary to make this determination. Although the precise cause of the delinquent friendship network-delinquent behavior association cannot be determined with these data, these findings do support a growing body of research stating that friendship networks containing delinquent members provide a supportive environment for committing delinquent behaviors (Dishion, McCord, & Poulin, 1999; Eley, Lichtenstein, & Moffit, 2003; Haynie, 2001; Haynie, 2002; Hirschi, 1969; McCarthy & Hagan, 1995).

In addition, this study broke the sample into subgroups to examine the difference in the peer-delinquency relationship between males and females and White and African-American participants. A significant relationship was found for males, females, and White participants but not for the African American participants. This suggests that future research should look to alternative sources for where African American adolescents learn delinquent behaviors and the possible protective factors that may be present in the lives of African American adolescents that may not be present for White adolescents.

Limitations and Suggestions for Future Research

In order to fully understand why a negative correlation was not found between self-esteem and delinquent behaviors it would be interesting to run separate regression analyses on each delinquency item. The six items on the delinquency scale (smoking cigarettes, drinking alcohol, getting drunk, skipping school without an excuse, doing dangerous things on a dare, and racing vehicles such as cars) may all be related to different feelings adolescents have about themselves therefore, it may be necessary to tease out the different

delinquent behaviors on the scale more fully. Each of these six items may be reinforced differently among an adolescent's friendship network therefore some items may be more strongly connected to low self-esteem while some may be more likely related to high self-esteem.

Since the delinquency scale in this research measured relatively minor delinquent activities, a scale measuring activities deemed more severe by society such as stealing, fighting, or using illegal drugs may produce the hypothesized negative correlation with self-esteem. Much of the literature cited in this study that found a negative relationship between self-esteem and delinquency (Byner, O'Malley, & Bachman, 1981; Donnellan et al., 2005; Kaplan, 1978; Moran & DuBois, 2002; Rosenberg & Rosenberg, 1978) did use a measure of more severe delinquent behaviors. Committing more serious delinquent behaviors that are less acceptable by mainstream society such as stealing or fighting with a weapon may be more likely to sustain low self-esteem than the relatively minor delinquent behaviors measured in this research.

Another limitation is the cross-sectional nature of the data. This limits causal inferences that can be made about the relationship between involvement in delinquent friendship networks and respondent delinquency. Longitudinal data that measure delinquency behavior over time would be extremely valuable. Such a data design would allow determination of whether delinquent behavior precedes selection into friendship networks or whether incorporation into delinquent peer networks occurs prior to delinquency involvement.

The nature of the friendship networks in the Add Health data present another limitation. In reality, the friendship networks are dynamic not static as is suggested in the snapshot captured on the day of data collection. For example, some participants may be transitioning from a less delinquent friendship network to a more delinquent one or vice versa. To capture the dynamic nature of these networks, data which re-examines friendship networks over several time periods are necessary.

As previously stated, future research should also look to alternative sources of African American adolescents' delinquent behaviors. These findings suggest that protective factors may be present among these adolescents that are not present for White adolescents.

Despite the limitations, the current study provides support to the idea that social networks provide a promising framework for investigating the ways that social relationships are associated with adolescent delinquency. These findings highlight peer groups as a potential target for interventions to prevent the onset of problem behaviors at early adolescence. It is possible that exposing adolescents to non-delinquent friends could introduce pro-social behaviors reducing their delinquency levels. My findings show that a higher level of delinquency within a friendship network is related to a higher level of adolescent delinquency; therefore, introducing non-delinquent peers into a group would lower the mean delinquency level for the network in turn possibly lowering the respondent delinquency. However, further research should be done on this subject to investigate the potentially negative effects on the non-delinquent friends incorporated into the network. Making connections between delinquent adolescents and non-delinquents may be beneficial to the delinquent adolescents but potentially harmful to the non-delinquents since they would

be exposed to the same group norms and values that encourage delinquent behaviors among the other group members.

CONCLUSION

In summary, low self-esteem was not determined to be a significant correlate of delinquency suggesting that researchers look elsewhere for traits related to delinquency. The analyses of adolescent friendship networks provided a special insight into adolescent social worlds. Despite limitations, the present study's results support the approach of examining friendship networks to investigate how social relationships might be associated with adolescent delinquency and other adolescent behaviors. Because the friendship network-delinquency association is central to many delinquency theories, network research is essential. Hence, this study convincingly supports the network approach to delinquency research for White adolescents. Future research should look to other correlates of delinquent behaviors for African Americans.

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