

RECREATION AND DELINQUENCY: AN EXAMINATION OF THE RELATIONSHIP
BETWEEN ORGANIZED AND UNORGANIZED RECREATIONAL ACTIVITY AND
TYPES

by

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ABSTRACT

Recreational activity, whether organized or unorganized, has an interesting relationship with delinquency. Generally, research shows that delinquent youth were less likely to participate in organized recreational activity (Burgess, Shanas, & Dunning, 1942; Landers & Landers, 1978; Yin, Katims, & Zapata, 1999). Furthermore, delinquent students were found to be more likely to participate in unorganized activity, socialize with friends, and were less likely to participate in home-based recreational activity. Drawing on the previous research, this proposed study would examine the relationship between recreational activity and delinquency. This study aims to advance the existing literature on this relationship by utilizing the social bond theoretical framework. Data will be derived from the first and third waves of the National Longitudinal Study of Adolescent to Adult Health. The in-home questionnaire includes measures of recreational activity, academic outcomes, behavioral outcomes, and demographic information. This study aims to help inform criminal justice, educational, and recreational policy.

DEDICATION

This thesis is dedicated to everyone who encouraged and helped me complete this project. I especially want to dedicate this thesis to my family, friends, and the community of Tuscaloosa, Alabama.

LIST OF ABBREVIATIONS AND SYMBOLS

<i>b</i>	unstandardized regression coefficient: used to measure the direction and relationship between two variables.
<i>M</i>	Mean: the sum of a set of measurements divided by the number of measurements in the set
Max	Maximum value
Min	Minimum value
<i>N</i>	Total number of cases
<i>p</i>	p-value: used to determine the significance of a result when a statistical hypothesis test is performed.
R^2	R-Squared: a statistic used to assess how close data is to the fitted regression line.
<i>SD</i>	Standard Deviation: a quantity calculated to indicate how much deviation exists for a group as a whole.
Sig.	Significance: same as the p-value
S.E.	Standard Error: measures the standard deviation of the sampling distribution of a statistic
Wald.	Wald test: used to assess the value of the parameters of a statistical model that is estimated from a sample
χ^2	Chi-square: statistic used to determine whether a significant difference exists between the expected frequencies and the observed frequencies in one or more variables.

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CHAPTER 1. INTRODUCTION

Recreational activities play an intersecting role between peer socialization, education, and juvenile delinquency (Siegel & Welsh, 2012). Students typically socialize with peers who go to the same school or reside in the same neighborhood. Research shows that peer association strongly influences individuals' likelihood of engaging in delinquency (Defazio, 2017; Reynolds & Crea, 2015). Consequentially, some adolescents become less influenced by adults and are more likely to engage in juvenile delinquency (Siegel & Welsh, 2012).

Recreational activity is one factor that allows for the convergence in time and space of juveniles and adolescent peers, who may be influenced to engage in delinquent acts. Recreational activity has generally been tied positively and negatively to delinquency. The positive link between recreational activity and delinquency generally results from participation in unsupervised recreation that leads to increased chances of networking with juveniles and committing delinquent acts (Burgess, Shanas, & Dunning, 1942; Siegel & Welsh, 2012; Yin, Katims, & Zapata, 1999). Conversely, those who participate in school-sanctioned activities likely have to also prioritize education, which may discourage participation in delinquency. The studies that have examined how education may mediate the relationship between recreation and delinquency have produced mixed findings. There is evidence suggesting that some recreational activities can have a positive impact on academic performance. Moreover, studies show that there appears to be a positive relationship between doing poorly in school and displaying delinquent behavior (Maguin & Loeber, 1996; McKee & Caldarella, 2016; Siegel & Welsh,

2012). Furthermore, poor performance in school has been found to be a robust predictor of delinquency, regardless of demographics (Maguin & Loeber, 1996; Siegel & Welsh, 2012). This evidence is compounded when evaluating repeat offenders. These developments make researching the causes of delinquency very important to society.

The aim of this study is to analyze the relationship between recreational activity and delinquency. Specifically, this study aims to explore how various forms of organized and unorganized recreational activity impacts delinquency rates for various types of offenses. The study also aims to incorporate social bond theory to help explain the relationship between recreation and juvenile delinquency. Furthermore, the study will examine how other important factors—demographics, education, and stress—contribute to the relationship between recreation and juvenile delinquency.

CHAPTER 2. LITERATURE REVIEW

Extent of juvenile delinquency

The nature of juvenile delinquency. Juvenile delinquency can be defined as “participation in illegal behavior by a minor who falls under a statutory age limit” (Siegel & Welsh, 2012, p. 9). It is perceived as a huge societal problem in the United States that requires attention from academics, citizens, and policymakers. Juvenile delinquency is categorized into two types: school-based and community-based. School-based delinquency has been a growing issue over the last four decades. School-based delinquency includes, but is not limited to, the following types: expulsion, suspension, skipping school, and weapons possession. Alternatively, community-based delinquency includes, but is not limited to, the following types of crime: battery, burglary, fighting, robbery, theft, vandalism, and weapon use. The evidence suggests that the peak time for juvenile delinquency is the hours immediately following school (Carpenter, Cornelius, Francis, & Parsons, 2002; Office of Juvenile Justice, 2014; Soulé, Gottfredson, & Bauer, 2008). Given their status as minors, juvenile delinquents are also at risk for committing status offenses. Status offenses include, but are not limited to, the following: lying to parents about location and running away from home (Office of Juvenile Justice, 2015). While status offenses are not types of juvenile delinquency, they are forms of delinquent behavior that involve juveniles within the context of home.

The frequency of juvenile delinquency. The numbers suggest that juvenile delinquency is still a major issue despite signals suggesting that it may be improving. There are an estimated “1.2 million nonfatal crimes at school” and 40 fatalities resulting from homicide or suicide every year (Siegel & Welsh, 2012, p. 378). Nearly 2,752 juveniles per 100,000 persons were arrested in 2015, which is down 68 percent from a peak of 8,476 per 100,000 persons in 1996 (Office of Juvenile Justice, 2017). For serious violent crimes—including aggravated assault, rape, and robbery—the victimization rate was an estimated 14 out of 1,000 juveniles in 2014 (Office of Juvenile Justice, 2017). This is also significantly down from the peak at 52 out of 1,000 victimizations in the mid-1990s. The 2014 figure represents 14.1 percent of the total violent crime victimizations in the United States (Office of Juvenile Justice, 2017). The estimate number of homicides involving juvenile offenders in 2015 was 686 (Office of Juvenile Justice, 2017). This number includes the number of juvenile offenders who acted in the following numerical variations: alone, with other juvenile offenders, and with adult offenders. The 2015 homicide rate also mimicked the downward trend observed since the 1990s for arrests and other serious forms of crime.

The consequences and risk factors of juvenile delinquency. There are several consequences of delinquency that make it very crucial not only for academic study but for societal improvement. First, dropping out of school is a potential consequence that is associated with delinquent behavior (Siegel & Welsh, 2012). Second, adolescents who commit status offenses could succumb to societal labeling as criminals and consequently associate with more serious offenders, who could influence them to engage in increasingly severe delinquent acts and anti-social behavior (Levin & Cohen, 2014). Some adolescents continue to engage in increasingly severe delinquent acts until they are incarcerated. The school-to-prison pipeline

conceptualizes this transition from school-related delinquency to state-imposed incarceration (American Civil Liberties Union, 2017). As adolescents leave school due to disciplinary issues, they are increasingly susceptible to engage in acts that would lead to processing in juvenile and criminal justice systems (Nelson & Lind, 2017).

Schept, Wall, and Brisman (2015) found compelling legal evidence for the school-to-prison pipeline. Through their analysis of federal legislation from the 1980s through 2000s, they concluded that schools and students were being held accountable for failing standards and the prevalence of drugs, gangs, and guns. Specifically, the following legislative acts lead to an increased law enforcement role in schools and increased punishment of minority groups: Drug-Free Schools and Communities Act of 1989, the Gun-Free Schools Act of 1994, and the No-Child Left Behind Act of 2001 (2015). These legislative acts led to the following effects which may have contributed and reinforced the school-to-prison pipeline: preventative detention measures, strict federal standards for fund qualification, the extension of zero tolerance policies, and increased prevalence of police in schools.

There are several factors to consider when assessing who is most at risk to be delinquent. Age is a risk factor for juvenile delinquency. Adolescents who commit crime are likely to continue that habit as they mature into adulthood (Siegel & Welsh, 2012, p. 50). In fact, the risk for status offenses increases as adolescents become older (Office of Juvenile Justice, 2015). Moreover, the amount of cases for drug, person-based, and property delinquency increases gradually as adolescents mature into adulthood (Office of Juvenile Justice, 2017). Individuals who display anti-social tendencies in their youth are more at risk for enduring delinquent behavior (Siegel & Welsh, 2012). These realities are shaped by the puberty process, which leads to adolescents yearning for independence, money, and sex (Siegel & Welsh, 2012). However,

once adolescents have endured the puberty process and aged into adults then their delinquent urges generally diminish with time (Ulmer & Steffensmeier, 2014).

Juvenile delinquency could be the result of economic hardship where adolescents find it difficult to find legal sources of income (Siegel & Welsh, 2012). If juvenile delinquency is the result of lower socioeconomic status then the following factors may play a role: detachment from society, difficulty assimilating to societal norms, economic hardship, and problems arising from neighborhood (Siegel & Welsh, 2012). However, there is mixed evidence regarding the relationship between socioeconomic status and juvenile delinquency. It is also possible that economic hardship could limit the avenues for juveniles to commit certain crimes, such as theft (Siegel & Welsh, 2012). Furthermore, if juvenile delinquency is evaluated across all socioeconomic backgrounds then the following factors could also explain deviance: “educational failure, family dysfunction, intelligence, peer influence, personality, and socialization” (Siegel & Welsh, 2012, p. 59). Moreover, the stressors associated with community, family, and personal issues may place adolescents at risk for delinquency as they act out in response to frustration (Office of Juvenile Justice, 2015).

Race may also be a risk factor for juvenile delinquency. The research suggests that 70 percent of the total number of juveniles arrested annually were White (Siegel & Welsh, 2012). The remaining 30 percent of total juveniles arrested comprised of Blacks (28 percent) and the rest were scattered across the other races. These figures correspond to the racial make up the US population. However, Black youths are more likely to be arrested (Office of Juvenile Justice, 2017)). Furthermore, minority youth are more likely than White youth to be arrested for serious criminal offenses (Office of Juvenile Justice, 2017). Despite this, the evidence suggests that self-

reported delinquency is declining at a similar rate among all racial groups for most criminal offenses (Office of Juvenile Justice, 2017).

Gender is also a risk factor of juvenile delinquency. Male adolescents are typically more at risk of being delinquent than female adolescents (Siegel & Welsh, 2012). Males are four times as likely as females to commit serious violent crime (Office of Juvenile Justice, 2017).

Moreover, they are twice as likely as females to commit property crimes. However, female adolescents were more likely to run away from home than their male counterparts. The offending rate for both of these types of gender has decreased in the last ten years (Office of Juvenile Justice, 2017). Adolescents who engage in risky activities, such as drug use, are at an elevated risk of committing delinquent acts (Greenwood & Turner, 2011). Adolescents who spend more time during the week displaying bravado on cyber-space, playing video games, and using their phones are at an increased risk for engaging in cyber-bullying (Shin & Ahn, 2015).

Finally, poor academic performance may be a risk factor for juvenile delinquency. There is concern about too much emphasis on recreational activity at the expense of educational performance in the United States (Siegel & Welsh., 2012). A 2010 study that looked at international standardized testing found that American students ranked in the 20s in most areas, which suggests a diminishing priority placed on academic performance. Furthermore, the perception was that international students, particularly the Chinese, spent more time on academic endeavors instead of “athletics, music, and other activities” (Siegel & Welsh, 2012, p.367). China had also invested heavily in teacher salary and educational reforms that have led to benefits. In contrast, the United States has experienced budgetary cuts that have led to fewer resources and teachers (Siegel & Welsh, 2012, p.368). This in turn may impact the amount of resources that schools have for recreational activities. Consequently, delinquency rates may rise

since students would increasingly have fewer school-based resources that benefit them.. In some cases, students may concentrate more of their resources—effort, energy, money and time—on recreational activities than on school-related activities. This disparagement of school outcomes could then force students to commit delinquent acts.

Theoretical background

The theoretical framework typically used to explain the link between recreation and delinquency is Social Bond Theory, which was proposed by Hirschi (1969) as part of his social control theories in his 1969 work *Causes of Delinquency*. Social bond theory generally holds that individuals have connections to groups and individuals that tie them to conventional society and when those connections are weakened the likelihood of delinquency increases (Hirschi, 1969). There are several key assumptions that govern the development of social bond theory. The first assumption is that every adolescent has the potential for delinquency, but what prevents delinquent behavior are the relationships with people in their communities and social network (Siegel & Welsh, 2012). The second assumption is that once these relationships are removed, and if apathy for others develops, there is nothing to prevent delinquent behavior. The third assumption is that most individuals are aware of the rules of society, but there is no universality in how individuals react to these morals and rules. The final assumption is that an individual with weak bonds to conventional society, regardless of demographic background, is susceptible to engaging in delinquent acts.

There are four key elements of social bond theory that posited by Hirschi (1969): attachment, commitment, involvement, and belief (Hirschi, 1969; Siegel & Welsh, 2012). Attachment refers to the extent to which individuals admire, identify, and have ties with other people (Hirschi, 1969). The assumption is that a lack of attachment to a conventional group or

society may lead to anti-social behavior. The relationship with parents may be most important for adolescents to gauge attachment because it can explain an individual's respect for authoritative figures (Hirschi, 1969). The presumption is that a person who does not have a strong attachment to his or her parent(s) will not respond well to other adult figures.

Commitment refers to the extent to which individuals are invested in conforming to conventionality in society (Hirschi, 1969). The assumption is that an individual who is invested in the norms of society will not engage in delinquent acts that would risk their place in society. Conversely, an individual who is not committed to success in society may engage in delinquent acts.

Involvement is the amount of engagement in conventional activities that promote positive social behavior, such as those involving school, recreation, and family (Hirschi, 1969; Siegel & Welsh, 2012). The expectation is that the more a person is involved in these activities then the less likely they are to engage in delinquent behavior (Siegel & Welsh, 2012). The underlying assumption of the involvement element is that participation in such activities prevents students from offending because they are too busy. The final key element of social bond theory is beliefs, which refers to endorsement of conventional norms and values (Hirschi, 1969; Siegel & Welsh., 2012).

Hirschi (1969) suggests that all of these social bond elements are interconnected and influence resulting behavior. An example is positive attachment to adults can lead to strong commitment to success. Another example is displaying beliefs consistent with conventional norms can influence whether an adolescent is heavily involved in positive social activities.

In testing social bond theory's usefulness in explaining delinquency, Hirschi (1969) looked at high school students in California and found support. The key finding was that

adolescents who held positive and strong attachments to their parents, friends, school, and religious institutions were less likely to be delinquent than those who did not have such attachments (Hirschi, 1969). Another finding of the study was that adolescents who display commitment to positive societal norms were also likely to exhibit positive social behavior in society (Hirschi, 1969). Hirschi (1969) also found that adolescents who were involved in activities promoting pro-social behavior were less susceptible to commit delinquent acts. Conversely, adolescents who were involved in anti-social and risky behaviors were more susceptible to commit delinquent acts. However, Hirschi (1969) did not study involvement in extracurricular activities specifically, but noted that leisure activities are not designed to prevent delinquency. Hirschi theorized that this development results from the fact that leisure activities are designed solely for fun and not boosting conventional beliefs of participants. Finally, Hirschi (1969) found that societal beliefs were moderated by delinquent activity. Adolescents who engaged in delinquent activities held similar beliefs that were inconsistent with moral conventions and societal norms. Adolescents who did not engage in delinquent activities held similar beliefs that were consistent with societal norms and moral conventions.

Several other studies have successfully used elements of social bond theory to explain delinquency (Hart & Mueller, 2013; Hass, 2001; Taylor, Nanney, Welch, & Wamser-Nanney, 2016). Hart and Mueller (2013) found that the relationship between the social bond elements and school delinquency varied according to gender. For the males included in the sample, all of the social bond elements were found to have a significant and positive impact in safeguarding against delinquency (Hart & Mueller, 2013). For the females surveyed, the attachment, involvement, and commitment elements were found to have a significant and positive impact in preventing school delinquency. Hass (2001) used the involvement element of social bond theory

to assess the relationship between sports involvement and delinquency. He found that there was support for the element in explaining the relationship, which will be discussed later. Taylor, Nanney, Welch, and Wamser-Nanney (2016) used the theory to assess the relationship between sports participation, gang association, and delinquency. The authors found in the sample that sports participation had an inverse relationship with gang association. They also found that sports participation leads to lower delinquency rates in some instances. Based on these studies, social bond theory can be used as an effective tool in explaining delinquency.

Critiques of social bond theory. While there has been support for Hirschi's social bond theory, there exist several critiques of the theory's usefulness. The first critique relates to the implication that delinquent adolescents are aloof without strong ties to family and friends (Siegel et al., 2012). While Hirschi (1969) would contend that delinquents are opportunistic when it comes to friendship, there also exists support for the notion that delinquent adolescents have strong ties to fellow adolescents (Siegel & Welsh, 2012; Giordano, Cernkovich, & Pugh, 1986). The second critique deals with the idea that involvement in pro-social activities, especially sports, leads to both an increased and decreased chance of committing delinquent acts. That is, in some instances participation in activities may reduce the likelihood of delinquency, yet in other contexts increase the risk of delinquency. Indeed, there is support for the notion that adolescents who participate in activities lacking parental supervision are more likely to engage in delinquency than those who remain uninvolved (Burton, Cullen, Evans, Dunaway, Kethineni, & Payne, 1995). The final critique addresses Hirschi's notion that weak attachment causes delinquency. Support for the opposing causal relationship—delinquency may lead to weak attachment to society—exists (Liska & Reed, 1985). Thus, it is possible that some social bonds

increase the likelihood of delinquency. This is particularly relevant for understanding how recreational activity may influence the risk of delinquency.

Social bond, recreation, and delinquency. The application of social bond theory in explaining the relationship between recreation and delinquency is not a new development. Several studies have produced mixed findings in testing how social bond theory can explain the relationship between recreational activity and delinquency. There has generally been a lot of support for the social bond element of involvement; that is, those who are involved in pro-social recreational activities that are supervised are less likely to engage in delinquency (Siegel et al., 2012). Cassino and Rogers (2016) found support for Hirschi's traditional model of social bond theory in explaining how each element, including involvement in conventional recreation activities, impacts delinquency. Cassino and Rogers (2016) found that higher involvement in extracurricular activities leads to increased rates of general delinquent activities. This finding is aided by Hirschi's notion that extracurricular activities do not adequately protect against delinquency. Furthermore, Hass (2001) found that involvement in school-sanctioned sports programs may increase delinquency in some cases, which further casts doubt on the involvement element of Hirschi's theory as a protective factor.

The relationship between recreation and delinquency

The findings about the relationship between recreational activity and juvenile delinquency have produced mixed results. Moreover, this relationship varies by the type of recreational activity in which juveniles participate. In one of the earliest studies on the relationship, Solomon (1948) found that recreational activity has no effect on delinquency. However, Solomon did not actually construct a scientific study to examine the relationship or specific types of recreation. Consequently, the study lacked empirical evidence from which

further analysis could develop. The author primarily constructed his argument based on contemporary sentiments and wisdoms regarding the relationship. Nonetheless, the study does provide a foundation for how the literature has evolved in evaluating the relationship between recreational activity and delinquency.

Several studies have found that organized recreational activity reduces rates of delinquency (Burgess, Shanas, & Dunning, 1942; Landers & Landers, 1978; Agnew & Petersen, 1989; Yin, Katims, & Zapata, 1999; Crean, 2012). Burgess et al. (1942) were among the first to examine the relationship between recreational activity and delinquency. Recreation was defined as “leisure-time activity”, which referred to “all activity taking place at any location that was under the supervision of some recreation leader” (Burgess et al., 1942, p.8). The study produced several key findings worth noting. First, most importantly, participating in organized recreation reduced juvenile delinquency—delinquents who did not participate in recreation were 30 times more likely to be repeat offenders than delinquents who did participate. Second, when delinquents do participate in recreational activity they prefer competitive sports and non-supervised activities, such as games. Finally, the rate of first-time delinquency for non-delinquents who did not participate in recreational activities was 3 times greater than that of those who participated in recreational activities.

Other studies examining this relationship have found similar results. Landers and Landers (1978) concluded that the negative relationship between recreation and delinquency exists for male students who participate in organized athletics and extracurricular activities, such as service and leadership tasks. Agnew and Petersen (1989) found that the negative relationship exists in their sample of adolescents in a major Southern metropolitan area. They specifically found that the negative relationship exists for those who participated in noncompetitive sports, organized

recreational activities, and passive entertainment (Agnew & Petersen, 1989). Yin, Katims, and Zapata (1999) found that higher rates of delinquency were associated with lower rates of involvement in organized recreational activities for Mexican-American adolescents.

Crean (2012) found mixed evidence regarding the relationship between organized recreational activity and delinquency rates. In a sample urban middle school adolescents, Crean (2012) found that widespread participation in neighborhood-based recreational activity may indirectly lead to lower delinquency rates. This is due to the fact that widespread participation in neighborhood-based activities exposed adolescents to higher levels of adult support which positively impacted adolescent decision-making (Crean, 2012). However, the more involved an adolescent became in an activity then the more likely they were to engage in delinquency. Crean (2012) attributed his mixed findings to the fact that his study measured neighborhood-based activities rather than measuring activities in educational and religious institutions. Crean (2012) noted that intensity of participation in recreation activity, in terms of vigorously pursuing one activity as opposed to several activities, may not have been tied to increased delinquent behavior in educational or religious settings as it was in a neighborhood setting. This may be attributable to an increased chance of meeting delinquent adults and peers and engaging in delinquent acts within a neighborhood setting.

Unlike organized recreation, unorganized recreation has been found to potentially increase the chances for delinquency (Burgess et al., 1942; Yin et al., 1999). Indeed, Burgess et al. (1942) concluded that delinquent adolescent preferred participating in competitive sports and unsupervised activities. Similarly, Yin et al. (1999) observed that delinquent Mexican-American adolescents were more likely to participate in unorganized activities with their peers.

Landers and Landers (1978) contributed two more key findings with regard to how lack of participation and participation in service and leadership activities affect delinquency. No participation in extracurricular activities was positively related to increased rates of delinquency. Participation in service and leadership-related extracurricular activities was related to lower rates of delinquency in comparison with athletics and no involvement in extracurricular activities.

Several studies have observed that sports participation has little to no effect on delinquency and illegal behavior for adolescents (Hass, 2001; Veliz & Shakib, 2012; Davis & Menard, 2013; Taylor, Nanney, Welch, & Wamser-Nanney, 2016). Hass (2001) found that sports participation may in fact slightly increase chances for delinquency related to drug offenses only. The authors argued that the media and aggressive coaching could explain the finding and that media and such coaching foster rebellious and aggressive behaviors, which leads to increased deviance related to drug activity. Veliz and Shakib (2012) found that schools with higher levels of sports participation reported no effect on the number of minor criminal incidents. Davis and Menard (2013) concluded that sports participation has little to no effect on long-term and short-term illegal behavior. Finally, a study on the effects of sports participation on female gang involvement and delinquency yielded no consistent findings (Taylor et al., 2016).

Studies have also examined the role that combat and physical sports have on delinquency and have produced mixed results. For instance, Endresen and Olweus (2005) observed that physical sports—such as combat sports—can lead to increased chances for anti-social behavior, delinquency, and violence. Gardner, Roth, and Brooks-Gunn (2009) found that sports participation is related to increased rates of nonviolent delinquency for boys when compared with boys who participate in nonathletic activities, but not for boys who do not participate in either type of activity. Conversely, Jenkins and Ellis (2011) found evidence that combat sports

participation can remove individuals from situations where they could commit delinquent acts. Similarly, Davis and Menard (2013) concluded that participation in contact sports may reduce the likelihood of engaging in illegal behavior. Veliz and Shakib (2012) found that sports participation may lead to decreased chances of serious crime and suspensions.

Vigorous physical activity is shown to be positively related to delinquency among boys. In surveying Canadian adolescents, Faulkner, Adlaf, Irving, Allison, Dwyer, and Goodman (2007) found support for this relationship. Similarly, Roman, Stodolska, Yahner, and Shinew (2013) observed that vigorous physical activity that occurred outdoors was related to delinquent behavior for adolescent Latino boys more so than adolescent Latino girls. Regardless of gendered differences, the authors concluded that outdoor recreation was generally related to increased rates of delinquency.

The relationship between sports participation and academic performance and stress has been found to vary according to demographics, such as race and gender. Recreational activity, such as sports participation, can have an effect on academic performance, which, if negative, could have an impact on the likelihood of committing delinquent actions. Zeiser (2011) found some support for the notion that sports participation impacts academic performance and is moderated by race and gender. Participation on the varsity football team was found to impact the grade point averages (GPA) of 12th grade African-American males negatively, but not 12th grade Caucasian male participants (Zeiser, 2011). Participation on the varsity basketball team was found to boost the GPA of 12th grade Caucasian females while not having a similar effect for African-American females.

Lastly, researchers have examined the relationship between leisure activities and delinquency. Agnew and Petersen (1989) found that leisure activities with peers are related to

increased chances for delinquency. This is likely because leisure activities are typically unsupervised, which provides youth with the opportunity to engage in delinquency with their peers. Furthermore, when parents engage in recreational activity that is the least favorite of their adolescent children then the chances for delinquency also increase. In contrast to Agnew and Petersen's (1989) findings on parental involvement, Caldwell and Smith (2012) found that parental knowledge of leisure interests of children may serve as a protective factor against delinquent involvement. The authors argue that this symbolizes a strong bond between the parent and child, which promotes pro-social behavior and discourages delinquency.

Current Study

The proposed study will examine the relationship between recreational activity and delinquency. Specifically, this study looks at how social bond theory could explain how organized and unorganized recreation differs in its relationship with criminal activity. Prior literature has produced mixed findings with regard to the relationship between recreation and delinquency. The relationship between recreation, in general, and delinquency is somewhat equivocal. There is some evidence that organized recreational activities lead to decreased chances for delinquency. This finding also extends to sports participation and non-athletic extracurricular activities, such as leadership and service-related endeavors. However, there is also evidence that recreational activity has no effect on juvenile delinquency. In fact, there were some studies suggesting that organized recreational activities, including sports participation, could lead to increased chances of delinquency. This also extends to sports participation. Furthermore, there appears to be strong evidence suggesting that unorganized recreational activity could be positively related to delinquency. This is especially true when these activities are done with peers as opposed to parents and family members.

This study aims to further our understanding of the relationship between recreational activity and delinquency and whether different types of activities have differential impact on delinquency. It also aims to test the tenets of social bond theory, especially in relation to unorganized recreational activity and delinquency. This study also aims to look at how recreation impacts educational outcomes, which could have implications for delinquency outcomes. Thus, this study addresses the following research questions:

1. Are organized and unorganized recreational activity participation levels associated with delinquency inside and outside of school?
2. Is unorganized recreational activity related to increased delinquency outcomes?
3. Does social bond theory explain the relationship between recreational activity and delinquency?
4. How do other influences—such as demographics, school performance, and stress-related health outcomes—impact delinquency involvement?
5. How do recreation and types of delinquency affect adult offending? Is there any support for the school-to-prison pipeline?

CHAPTER 3. METHODOLOGY

Design and data collection procedure

This study will use data from the first wave of the National Longitudinal Study of Adolescent to Adult Health (hereafter, ADD Health). The study used a national sample of American adolescents in grades 7-12 interviewed during the 1994-1995 school year (Harris & Udry, 2017). The longitudinal study tracked these adolescents into adulthood and assessed four more waves of in-home interviews over the course of the following 13 years. ADD Health measures a variety of factors including school achievement, school ties, adolescent health, adolescent wellness in social, economic, psychological, and physical areas. It also measures family, neighborhood, community, school, friend, peer, and romantic bonds. Wave I was specifically focused on what factors affect and encourage healthy and risky behaviors. The unique feature of the Wave I data is the inclusion of organized recreational involvement in school. This variable was not measured in any of the subsequent waves of the study.

The first wave of this study incorporated an in-school questionnaire and in-home interview (Harris & Udry, 2017). The in-school questionnaire was given to over 90,000 students within the grade range and the in-home interview was administered to 27,000 of those students. The in-school questionnaire was administered according to a stratified, random sample of every high school in the country. Eligible schools were those that enrolled at least 30 students and had an 11th grade level. The in-school questionnaire measured variables related to the following concepts: social and demographic characteristics of adolescent respondents, education and

occupation of parents, household structure, expectations for the future, self-esteem, health status, risk behaviors, friendships, and school-year extracurricular activities. The in-home interview was provided to students who were selected from the eligible sample for the in-school questionnaire based on responses to the questionnaire. The response rate for the first wave of the study was 79 percent.

Several measures looking at involvement in the criminal justice system (section 27) from Wave 3 were also analyzed. Wave 3 data were collected from August 2001 to April 2002 when respondents were between 18 and 26 years old (Harris & Udry, 2017). The data were collected through in-home interviews and partner interviews with over 15,000 respondents from Wave 1 participating. The response rate for the third wave of the study was 77.4 percent.

Measures

Dependent variables. The dependent variable is delinquency, which included the following types of offenses: community offenses, home offenses, school offenses, and criminal justice (CJ) System Involvement. Community offenses included the following delinquency measures: battery, burglary, disorderly conduct, drug trafficking, fighting, theft, and vandalism. Home offenses included the following delinquency measures: lying about whereabouts to parents & running away from home. School offenses included the following delinquency measures: carrying a weapon to school, expulsion, out-of-school suspension, and skipping school. All of the measures for community offenses, home offenses, and school offense were selected from Wave 1 of the ADD Health study. CJ System Involvement captured whether participants offending in adulthood and included the following measures from Wave 3 of the ADD Health study: ever been arrested and ever been convicted/pled guilty to a crime.

Vandalism was operationalized through asking respondents how many times, in the last year, they either painted graffiti on a private property or public location or if they deliberately damaged property. The response options were as follows: never, 1-2 times, 3 or 4 times, 5 or more times, refused, don't know, and not applicable. Several variables were operationalized similarly to vandalism: Lying to parents about whereabouts; shoplifting; fighting; Battery; Running away from home; car theft; theft, more than \$50; burglary; Robbery; Drug trafficking; theft, less than \$50; group fighting; and loud, unruly behavior in public. The community offenses measure was created using several of these variables (see Table 1), which were re-coded into a single measure. The variables were combined into a single binary measure (0 = no, 1 = yes) that captures whether respondents participated in at least one community-based offense. The home offenses measure was operationalized similarly into a yes/no binary capturing whether respondents participated in one of the two offenses.

For the skipping school measure, respondents were asked to provide the number of times that they engaged in such behavior. Out-of-school suspension and expulsion were operationalized through asking respondents to list whether or not (choices: yes, no) the action was applied to them in the past. Carrying a weapon to school was operationalized through asking respondents to list how many days within the prior 30 days that they engaged in the activity. The response options were as follows: none, 1 day, 2 or 3 days, 4 or 5 days, 6 or more days. The 'school offenses' measure combined these variables into a yes/no binary (0 = no, 1 = yes) capturing whether respondents participated in at least one of these offenses.

The arrested and convicted measures from Wave 3 were both asked whether participants had been arrested or convicted of a crime at Wave 3. The CJ system involvement measure

combined these two measures into a yes/no binary (0 = no, 1 = yes) assessing whether respondents had contact with the system in at least one of the scenarios.

Independent variables. The independent variables of interest included recreational activity and attachment to parents. Attachment to parents and recreational activity captured the attachment and involvement elements of the social bond theory.

Recreational Activity. Organized recreational activities are measured as those activities that are run by primarily by a school. The question in the survey provided respondents with a listing of clubs, organizations, and teams found at most high schools. Respondents were asked to indicate which activities they participated during the school year. The list of organized activities included 33 variables covering sports, academic clubs, language clubs, music clubs, yearbook, student counsel, and honor society. The organized recreation measure combined all 33 variables into a yes/no binary (0 = no, 1 = yes) assessing whether respondents participated in at least one of the activities. The organized sport recreation measure combined 12 of the 33 variables into a similar yes/no binary (0 = no, 1 = yes) assessing whether respondents participated in at least one of the organized sports. The types of organized sports included are the following: baseball/softball, basketball, field hockey, football, ice hockey, soccer, swimming, tennis, track, volleyball, wrestling, and other sport. The organized non-sport recreation measure combined the remaining 21 variables into a similar binary capturing whether respondents participated in at least one non-athletic organized recreational activity (e.g., academic clubs, music, etc...).

Unorganized recreational activities are noted as those that are organized by individuals outside of school. These activities are also generally without any supervision of an adult or coach. Respondents were asked to disclose how many times they participated in an unorganized activity within the past week. The options were as follows: not at all, 1 or 2 times, 3 or 4 times, 5

or more times. The list of activities is as follows: hobbies, such as card collecting, reading, playing an instrument, or arts and crafts; watching television; roller-blading, skateboarding, or bicycling; exercising; and hanging out with friends. The unorganized recreation measure combined these measures into a low/high binary (0 = low, 1 = high) assessing the level of such activity in which respondents participate. This measure was created by dichotomizing it into a low/high binary at the median with levels above the median classifying as high levels of involvement and levels below the median classifying as low levels of involvement.

Attachment to parents. Attachment to parents was operationalized using two variables asking how close respondents felt to his or her mom and dad. Both variables had the same answer choice options: not at all, very little, somewhat, quite a bit, and very much. The attachment to parents measure combines both variables into a low/high binary (0 = low, 1 = high) assessing the level of attachment respondents had for their parents. The measure was dichotomized in a similar method as ‘Unorganized recreation’ into the low/high binary at the median. Levels above the median are classified as high attachment and levels below the median are classified as low attachment.

Control Variables. The control variables of interest included the following variables: breakfast, demographics, stress, most recent grade in English, most recent grade in Math, and nutrition. The operationalization of each variable will be explained below. In addition to recreation and parental attachment, demographic measures were also included in the analyses, as done in previous research. Several studies (Cassino & Rodgers, 2016; Hass, 2001; Taylor et al, 2016; Vazyonyi et al, 2016; Veliz & Shakib, 2012) have included measures of demographics in their assessment of this relationship. For this study, the measures of demographics included the following: gender, government assistance, and race.

Gender was operationalized as the biological sex of the respondent. The gender measure in the current study was coded in the following manner: 1 = male, 2 = female. Race was operationalized through asking respondents to mark whether or not they identify as part of the White racial group. The race measure in the current study has the following coded responses: 0 = non-White, 1 = White. The government assistance measure combines several measures into a yes/no binary (0 = no, 1 = yes) assessing whether respondents received assistance in at least one of the programs such as, social security or railroad retirement, Supplemental Security Income, Aid to Families with Dependent Children, food stamps, unemployment or worker's compensations, and a housing subsidy or public housing.

This section also included measures of pro-social behaviors related to school and stress-related health variables, which can help assess the toll of the demands of life. Grades were operationalized through asking respondents to list their most recent grade in the following: English/Language Arts and Mathematics. English and Math were selected because these subjects are the benchmark of assessing 'adequate yearly progress' under the 2001 No Child Left Behind Act ("Editorial Projects", 2011). The answer options were as follows: A; B; C; D or lower; didn't take this subject; took the subject, but it wasn't graded this way; refused; legitimate skip; or don't know. These measures were re-coded to only include the first four categories (1= D or Lower, 2 = C, 3 = B, and 4 = A).

The stress measure attempts to capture an indication of the level of stress in respondents' lives. This measure used a variable asking respondents to disclose how often was it true in the past week that they felt bothered by things that usually don't bother them. The answer choices were the following: never or rarely, sometimes, a lot of the time, most of the time or all of the

time. The stress measure in the current study was re-coded into a yes/no binary (0 = no, 1 = yes) assessing whether respondents reported at least some level of stress.

The breakfast measure combined several variables into a yes/no binary (0 = no, 1 = yes) assessing whether or not respondents ate at least one item for breakfast. The measure used the following 10 variables from Wave 1 of the ADD Health study: milk; coffee or tea; cereal; fruit, juice; eggs; meat; snack foods; bread, toast, or rolls; other items; and nothing. The survey question asked respondents to mark what they usually have for breakfast on a weekday morning.

Lastly, the 'nutrition' measure combined several variables into a good/bad binary (0 = good, 1 = bad) assessing whether respondents' dieted well overall. The measure used the following five variables: milk, yogurt, cheese; fruit or fruit juice; vegetables; bread, cereal, etc.; and cookies, pie, etc. The nutrition measure in the current study combined 'yes' values in 'good nutrition' with 'yes' values in 'bad nutrition'.

Table 1*Study Measures*

	Original Variable Name(s)	Wave
<i>Dependent Variables</i>		
	H1DS1-H1DS2, H1DS4-H1DS6, H1DS8-	1
Community-related Offenses	H1DS15	1
Home-related Offenses	H1DS3, H1DS7	1
School-related Offenses	H1FV9, H1ED2, H1ED7, H1ED9	1
CJ System Involvement	H3CJ3, H3CJ86	3
<i>Independent Variables</i>		
		1
Organized Recreation	S44A1 - S44A33	1
Organized Sport Recreation	S44A18 - S44A29	1
Organized Non-Sport Recreation	S44A1 - S44A17, S44A30 – S44A33	1
Unorganized Recreation	H1DA2 - H1DA4, H1DA6 - H1DA7	1
Attachment to Parents	H1WP9, H1WP13	1
<i>Control Variables</i>		
		1
Government Assistance	PA57A - PA57F	1
Breakfast	H1GH23A - H1GH23J	1
Stress	H1FS1	1
Nutrition	H1GH32 - H1GH36	1
Race - White	H1G16A	1
Gender	BIO_SEX	1
English--Most Recent Grade	H1ED11	1
Math--Most Recent Grade	H1ED	1

Analytical procedure

The data collected from the study will be analyzed using IBM's Statistical Packaging for the Social Sciences. The relationship between the variables will be statistically analyzed using regression. The statistical analyses were conducted in three stages. First, univariate statistics were examined for each variable. Second, the bivariate relationship between the outcome and independent/control variables was examined. Finally, a series of binary logistic regression models were run to test whether the relationships observed at the bivariate level remain.

CHAPTER 4. RESULTS

Table 2 displays the descriptive statistics for the variables in the study. Among the dependent variables, there were 6,405 cases related to community offenses with 68 percent of the sample reporting involvement in at least one form of community-based offense. Approximately 54 percent of the sample ($N = 6438$) reported engaging in at least one type of home-based offense. Furthermore, nearly 45 percent of the 6,321 cases reported engaging in some type of school delinquency. Lastly, there were nearly 11 percent ($M = 0.108$) of cases reporting some involvement in the CJ system in wave 3 ($N = 4838$).

Among the independent variables, the frequency for organized recreation ($N = 4751$) revealed that nearly 79 percent of respondents reported some participation. About 56 percent participated in an organized sport and 57.7 percent participated in an organized non-sport activity. There was a larger number of participants for unorganized recreation ($N = 6497$). Similarly, the cases for attachment to parents ($N = 4306$) skewed slightly towards lower levels of attachment.

Among the control variables, government assistance ($N = 5528$) showed that among the sample, one average participants reported no assistance ($M = 0.268$). The majority of the sample reporting eating breakfast ($M = 0.803$). Approximately 40 percent of the sample reporting that they felt some stress. The poor nutrition variable indicated a slight majority ($M = 0.539$) reporting a poor diet. Sixty-six percent of the sample ($N = 6485$) reporting being White. Fifty-two percent of the sample was female. For most recent grade in English, the average ($M = 2.836$)

grade was about a B grade. Similarly, the average grade among the sample was a B grade ($M = 2.684$).

Table 2

Descriptive Statistics

	N	Min	Max	M	SD
<i>Dependent Variables</i>					
Community Offenses	6405	0	1	0.680	0.466
Home Offenses	6438	0	1	0.541	0.498
School Offenses	6321	0	1	0.453	0.497
CJ System Involvement	4838	0	1	0.108	0.311
<i>Independent Variables</i>					
Organized Recreation	4751	0	1	0.794	0.404
Organized Sport	4751	0	1	0.563	0.496
Organized Non-Sport	4751	0	1	0.577	0.494
Unorganized Recreation	6497	0	1	0.419	0.493
Attachment to Parents	4306	0	1	0.482	0.499
<i>Control Variables</i>					
Government Assistance	5528	0	1	0.268	0.443
Breakfast	6496	0	1	0.803	0.397
Stress	6482	0	1	0.396	0.489
Poor Nutrition	6476	0	1	0.539	0.498
Race - White	6485	0	1	0.660	0.473
Gender	6503	1	2	1.520	0.500
English--Most Recent Grade	6183	1	4	2.836	0.949
Math--Most Recent Grade	5922	1	4	2.684	1.030

Tables 3 and 4 display the results of the bivariate relationship between the predictors and two types of offenses: Community offenses and home offenses. The bivariate analyses of community offenses in Table 3 showed significant results for several predictors at the $p < .001$ level: organized sport recreation, organized non-sport recreation, unorganized recreation, and attachment to parents. Breakfast was also found to have a significant relationship with community offenses at the $p < .01$ level.

The analyses of home offenses in Table 3 revealed a significant relationship at the $p < .001$ level for several predictors: breakfast and attachment to parents. Organized sport recreation was also found to have a significant relationship with home offenses, but at the $p < .05$ level.

Table 3*Chi-Square Results Examining Relationship Between Categorical Predictors and Types of Offenses*

Variable		Community Offenses		χ^2	Home Offenses		χ^2
		No % (N)	Yes % (N)		No % (N)	Yes % (N)	
Organized Recreation	No	33.1 (318)	66.9 (644)	0.670	47.4 (458)	52.6 (508)	1.668
	Yes	31.7 (1185)	68.3 (2556)		45.1 (1695)	54.9 (2064)	
Organized Sport Recreation	No	35.4 (726)	64.6 (1325)	19.783***	47.3 (974)	52.7 (1084)	4.560*
	Yes	29.3 (777)	70.7 (1875)		44.2 (1179)	55.8 (1488)	
Organized Non-Sport Recreation	No	29.2 (578)	70.8 (1403)	12.175***	46.3 (922)	53.7 (1069)	0.764
	Yes	34.0 (925)	66.0 (1797)		45.0 (1231)	55.0 (1503)	
Unorganized Recreation	Low	34.2 (1268)	65.8 (2444)	20.513***	46.7 (1743)	53.3 (1987)	3.044
	High	28.8 (776)	71.2 (1917)		44.5 (1206)	55.5 (1502)	
Government Assistance	No	32.6 (1304)	67.4 (2692)	3.790	45.9 (1842)	54.1 (2174)	1.069
	Yes	29.9 (435)	70.1 (1022)		47.4 (695)	52.6 (770)	
Breakfast	No	28.8 (364)	71.2 (899)	6.946**	39.9 (507)	60.1 (763)	22.125***
	Yes	32.7 (1680)	67.3 (3461)		47.3 (2442)	52.7 (2725)	
Attachment to Parents	Low	27.2 (601)	72.8 (1606)	72.831***	36.6 (811)	63.4 (1403)	189.246***
	High	39.6 (812)	60.4 (1241)		57.6 (1189)	42.4 (874)	

Note. *p< .05. **p< .01. ***p< .001

The analysis of community offenses in Table 4 also showed significant results for more predictors at the $p < .001$ level: stress, gender, most recent grade—English, and most recent grade--Math. Race was also found to have a very significant relationship with community offenses, but at the $p < .01$ level.

The analysis of home offenses in Table 4 also revealed a very significant relationship at the $p < .001$ level for a few more predictors: stress, most recent grade—English, and most recent grade--Math. Gender was also found to have a significant relationship with home offenses, but at the $p < .01$ level.

Table 4*Chi-Square Results Examining Relationship Between Categorical Predictors and Types of Offenses*

Variable		Community Offenses		χ^2	Home Offenses		χ^2
		No % (N)	Yes % (N)		No % (N)	Yes % (N)	
Stress	No	36.1 (1396)	63.9 (2467)	81.105***	52.2 (2026)	47.8 (1853)	162.652***
	Yes	25.4 (645)	74.6 (1893)		36.0 (920)	64.0 (1633)	
Nutrition	Good	32.8 (964)	67.2 (1977)	1.839	46.5 (1375)	53.5 (1579)	1.046
	Bad	31.2 (1072)	68.8 (2365)		45.3 (1565)	54.7 (1892)	
Race - White	Non-White	29.8 (640)	70.2 (1507)	6.661**	44.7 (967)	55.3 (1196)	1.695
	White	33.0 (1400)	67.0 (2843)		46.4 (1977)	53.6 (2282)	
Gender	Male	26.1 (805)	73.9 (2274)	90.779***	47.6 (1478)	52.4 (1627)	7.780**
	Female	37.3 (1239)	62.7 (2087)		44.1 (1471)	55.9 (1862)	
English--Most Recent Grade	A	42.2 (716)	57.8 (979)	192.142***	50.2 (853)	49.8 (846)	43.440***
	B	32.6 (773)	67.4 (1597)		46.2 (1098)	53.8 (1278)	
	C	24.8 (350)	75.2 (1064)		43.8 (623)	56.2 (800)	
	D/ Lower	15.9 (101)	84.1 (533)		35.5 (228)	64.5 (415)	
Math--Most Recent Grade	A	38.1 (585)	61.9 (949)	92.020***	50.0 (771)	50.0 (770)	40.643***
	B	33.4 (629)	66.6 (1255)		48.1 (908)	51.9 (979)	
	C	29.0 (436)	71.0 (1065)		42.9 (648)	57.1 (862)	
	D/Lower	20.4 (190)	79.6 (742)		38.5 (362)	61.5 (579)	
Community Delinquency	No	n/a	n/a	n/a	n/a	n/a	n/a
	Yes	n/a	n/a		n/a	n/a	
Home Delinquency	No	n/a	n/a	n/a	n/a	n/a	n/a
	Yes	n/a	n/a		n/a	n/a	
School Delinquency	No	n/a	n/a	n/a	n/a	n/a	n/a
	Yes	n/a	n/a		n/a	n/a	

Note. *p< .05. **p< .01. ***p< .001

Tables 5 and 6 display the results of the bivariate analysis between predictors and the two remaining types of offenses: school offenses and CJ System Involvement. The analyses of school offenses in Table 5 found significant results for many predictors at the $p < .001$ level, including the following: organized recreation, organized sport recreation, organized non-sport recreation, government assistance, breakfast, and attachment to parents. The analysis of CJ System Involvement in Table 5 also revealed significant relationships at the $p < .001$ level for the following predictors: organized non-sport recreation, unorganized recreation, and government assistance. Organized recreation and organized sport recreation were also found to have a significant relationship with CJ System Involvement, but at the $p < .05$ and $p < .01$ levels, respectively.

Table 5*Chi-Square Results Examining Relationship Between Delinquency and Categorical Predictors*

Variable		School Offenses		χ^2	CJ System Involvement		χ^2
		No % (N)	Yes % (N)		No % (N)	Yes % (N)	
Organized Recreation	No	43.7 (419)	56.3 (539)	89.631***	88.6 (612)	11.4 (79)	4.302*
	Yes	60.7 (2253)	39.3 (1458)		91.1 (2649)	8.9 (258)	
Organized Sport Recreation	No	53.8 (1094)	46.2 (939)	17.171***	92.3 (1419)	7.7 (118)	9.017**
	Yes	59.9 (1578)	40.1 (1058)		89.4 (1842)	10.6 (219)	
Organized Non-Sport Recreation	No	47.2 (927)	52.8 (1038)	140.088***	86.8 (1274)	13.2 (193)	41.906***
	Yes	64.5 (1745)	35.5 (959)		93.2 (1987)	6.8 (144)	
Unorganized Recreation	Low	53.8 (1969)	46.2 (1688)	2.338	90.4 (2512)	9.6 (266)	11.753***
	High	55.8 (1486)	44.2 (1178)		87.3 (1797)	12.7 (261)	
Government Assistance	No	60.4 (2389)	39.6 (1569)	104.353***	90.1 (2798)	9.9 (306)	12.369***
	Yes	44.7 (637)	55.3 (788)		86.2 (909)	13.8 (145)	
Breakfast	No	45.5 (560)	54.5 (672)	52.233***	89.3 (824)	10.7 (99)	0.035
	Yes	56.9 (2894)	43.1 (2194)		89.1 (3484)	10.9 (428)	
Attachment to Parents	Low	55.2 (1202)	44.8 (975)	65.328***	90.0 (1554)	10.0 (173)	3.824
	High	67.4 (1376)	32.6 (667)		91.9 (1470)	8.1 (129)	

Note. *p< .05. **p< .01. ***p< .001

The analysis of school offenses in Table 6 found significant results for more predictors at the $p < .001$ level, including the following: Stress, Race, Gender, most recent grade—English, and most recent grade—Math. Nutrition was also found to be a significant predictor of school offenses, but at the $p < .01$ level.

The analysis of CJ System Involvement in Table 6 also revealed significant relationships at the $p < .001$ level for the following predictors: gender, most recent grade—English, and most recent grade—Math. The three offense types in wave 1 (community, home, and school) were also found to be significant predictors of CJ System Involvement in wave 3.

Table 6*Chi-Square Results Examining Relationship Between Delinquency and Categorical Predictors*

		School Offenses		χ^2	CJ System Involvement		χ^2
		No	Yes		No	Yes	
Stress	No	59.5 (2276)	40.5 (1548)	93.108***	89.3 (2618)	10.7 (313)	0.429
	Yes	47.1 (1174)	52.9 (1316)		88.7 (1683)	11.3 (214)	
Nutrition	Good	52.7 (1520)	47.3 (1366)	9.188**	88.9 (1958)	11.1 (245)	0.215
	Bad	56.5 (1925)	43.5 (1483)		89.3 (2336)	10.7 (280)	
Race - White	No	48.3 (1023)	51.7 (1097)	52.875***	89.0 (1424)	11.0 (176)	0.024
	Yes	57.9 (2425)	42.1 (1763)		89.1 (2875)	10.9 (350)	
Gender	Male	45.6 (1394)	54.4 (1662)	195.260***	81.6 (1817)	18.4 (411)	242.801***
	Female	63.1 (2061)	36.9 (1204)		95.6 (2494)	4.4 (116)	
English--Most Recent Grade	A	71.7 (1221)	28.3 (482)	465.302***	93.8 (1263)	6.2 (83)	79.473***
	B	57.2 (1360)	42.8 (1018)		90.3 (1603)	9.7 (172)	
	C	43.6 (621)	56.4 (803)		84.7 (888)	15.3 (161)	
	D or Lower	27.6 (177)	72.4 (464)		82.0 (368)	18.0 (81)	
Math--Most Recent Grade	A	68.6 (1061)	31.4 (486)	286.768***	92.4 (1094)	7.6 (90)	24.289***
	B	59.2 (1117)	40.8 (770)		89.8 (1280)	10.2 (146)	
	C	50.3 (761)	49.7 (751)		87.0 (985)	13.0 (147)	
	D or Lower	35.5 (333)	64.5 (606)		86.4 (591)	13.6 (93)	
Community Delinquency	No	n/a	n/a	n/a	94.0 (1434)	6.0 (91)	55.492***
	Yes	n/a	n/a		86.8 (2838)	13.2 (430)	
Home Delinquency	No	n/a	n/a	n/a	91.3 (2022)	8.7 (192)	21.248***
	Yes	n/a	n/a		87.2 (2260)	12.8 (333)	
School Delinquency	No	n/a	n/a	n/a	94.0 (2527)	6.0 (160)	153.202***
	Yes	n/a	n/a		82.7 (1683)	17.3 (351)	

Note. *p< .05. **p< .01. ***p< .001

Table 7 shows the logistic regression results for predicting community offenses. This model only predicts 11.7 percent of the variance in community offenses. In the model, several variables were significant, including the following: organized sport recreation, unorganized recreation, attachment to parents, stress, gender, and most recent grade—English. Organized sport recreation was found to have a positive relationship in predicting community offenses. Those who participated in unorganized recreation were more likely to engage in community offenses. Lower attachment to parents was found to be a significant predictor of community offense engagement. Those who report some level of stress were more likely to engage in community offending. Males were more likely to engage in community offenses. Lastly, lower academic performances in English were found to be a significant predictor of an increased likelihood of engaging in community offenses.

Table 7*Logistic Regression Results for Predicting Community Offenses*

Independent Variable	b	S.E.	Wald.	Sig.
Organized Recreation	0.077	0.184	0.177	0.674
Organized Sport Recreation	0.358	0.117	9.418	0.002**
Organized Non-Sport Recreation	0.052	0.128	0.162	0.687
Unorganized Recreation	0.344	0.09	14.635	0.000***
Government Assistance	-0.105	0.121	0.756	0.385
Breakfast	-0.194	0.124	2.441	0.118
Attachment to Parents	-0.598	0.090	43.794	0.000***
Stress	0.556	0.097	32.625	0.000***
Nutrition	0.013	0.090	0.021	0.884
Race - White	-0.137	0.104	1.755	0.185
Gender	-0.516	0.096	28.962	0.000***
English--Most Recent Grade	-0.345	0.057	37.250	0.000***
Math--Most Recent Grade	-0.071	0.050	2.079	0.149

Nagelkerke $R^2 = .117$ Note. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 8 shows the logistic regression results for predicting home offenses. This model only predicts 10.9 percent of the variance in home offenses. In the model, there were several significant predictors, including the following: organized sport recreation, unorganized recreation, breakfast, attachment to parents, stress, gender, and most recent grade—Math. Participation in organized sport recreation was found to be a significant predictor in predicting home offenses. Those who reported higher levels of unorganized recreation were found to be more likely to engage in home offenses. Individuals who did not eat breakfast were more likely to engage in home offenses. Lower attachment to parents was found to be a significant predictor of increased home offenses. Those who reported experiencing stress were found to have greater chances of engaging in home offenses. Females were more likely to engage in home offenses. Lower performance in Math was associated with higher odds to engage in home offenses.

Table 8*Logistic Regression Results for Predicting Home Offenses*

Independent Variable	b	S.E.	Wald.	Sig.
Organized Recreation	0.172	0.172	1.007	0.316
Organized Sport Recreation	0.286	0.111	6.632	0.010**
Organized Non-Sport Recreation	-0.099	0.116	0.737	0.391
Unorganized Recreation	0.214	0.083	6.607	0.010**
Government Assistance	-0.123	0.113	1.171	0.279
Breakfast	-0.290	0.114	6.399	0.011*
Attachment to Parents	-0.831	0.083	99.321	0.000***
Stress	0.581	0.088	43.831	0.000***
Nutrition	0.140	0.084	2.797	0.094
Race - White	0.026	0.095	0.073	0.787
Gender	0.183	0.089	4.209	0.040*
English--Most Recent Grade	-0.092	0.051	3.307	0.069
Math--Most Recent Grade	-0.099	0.046	4.647	0.031*

Nagelkerke $R^2 = .109$ Note. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 9 shows the logistic regression results for predicting school offenses. This model only predicts 16.2 percent of the variance in school offenses. In the model, several variables produced results that were significant, including the following: government assistance, breakfast, attachment to parents, stress, race, gender, most recent grade—English, and most recent grade—Math. Those individuals who reported receiving government assistance were more likely to engage in school offenses. Individuals who reported not having breakfast were more likely to engage in school offenses. Lower levels of attachment to parents were associated with an increased likelihood of school offenses. Experiencing stress was found to lead to greater odds of school offenses. Participants who were White were less likely to engage in school offenses than non-White participants. Males were more likely to engage in school offenses than females. Lower levels of performance in both English and Math were significantly associated with an increased likelihood of engage in school offenses.

Table 9*Logistic Regression Results for Predicting School Offenses*

Independent Variable	b	S.E.	Wald.	Sig.
Organized Recreation	-0.314	0.181	3.026	0.082
Organized Sport Recreation	0.027	0.122	0.050	0.823
Organized Non-Sport Recreation	-0.190	0.121	2.472	0.116
Unorganized Recreation	0.089	0.089	0.995	0.319
Government Assistance	0.313	0.117	7.144	0.008**
Breakfast	-0.454	0.116	15.301	0.000***
Attachment to Parents	-0.482	0.090	28.651	0.000***
Stress	0.497	0.092	29.348	0.000***
Nutrition	-0.174	0.089	3.816	0.051
Race - White	-0.315	0.099	10.129	0.001***
Gender	-0.670	0.096	49.033	0.000***
English--Most Recent Grade	-0.333	0.053	39.819	0.000***
Math--Most Recent Grade	-0.157	0.048	10.697	0.001***
Nagelkerke $R^2 = .162$				

Note. * $p < .05$. ** $p < .01$. *** $p < .001$

Table 10 shows the logistic regression results for predicting CJ System Involvement. This model only predicts 16.2 percent of CJ System Involvement in wave 3. In the model, organized sport recreation, gender, and school offenses produced results that were significant. Participating in organized sport recreation in Wave 1 had an increased likelihood of CJ system involvement, compared to those who did not participation is sports. Males were more likely to have CJ system involvement than females. Lastly, reporting school offenses in wave 1 was positively linked to involvement in the CJ system in wave 3.

Table 10*Logistic Regression Results for Predicting CJ System Involvement (Wave 3)*

Independent Variable	b	S.E.	Wald.	Sig.
Organized Recreation	-0.486	0.390	1.558	0.212
Organized Sport Recreation	0.650	0.302	4.624	0.032*
Organized Non-Sport Recreation	-0.011	0.219	0.002	0.961
Unorganized Recreation	0.190	0.176	1.160	0.281
Government Assistance	0.188	0.235	0.635	0.425
Breakfast	-0.124	0.243	0.259	0.611
Attachment to Parents	-0.333	0.181	3.377	0.066
Stress	-0.146	0.192	0.581	0.446
Nutrition	0.162	0.181	0.798	0.372
Race - White	0.158	0.210	0.572	0.449
Gender	-1.725	0.239	51.850	0.000***
English--Most Recent Grade	-0.123	0.105	1.376	0.241
Math--Most Recent Grade	0.004	0.095	0.001	0.970
Community Offenses	0.243	0.230	1.118	0.290
Home Offenses	0.151	0.189	0.642	0.423
School Offenses	0.727	0.188	14.999	0.000***

Nagelkerke $R^2 = .162$

Note. * $p < .05$. ** $p < .01$. *** $p < .001$

CHAPTER 5. DISCUSSION

A great deal of attention has been focused on understanding the factors associated with juvenile delinquency. In particular, researchers have examined the link between recreation and delinquency. Previous research has generally found mixed results regarding the relationship between organized recreation and delinquency. Some studies have suggested that participation in organized recreation is associated with decreased likelihood of delinquency (Burgess et al., 1942; Agnew & Petersen, 1989; Crean, 2012), while others have suggested that organized recreation is either associated with no change or increases chances for delinquency (Hass, 2001; Veliz & Shakib, 2012; Davis & Menard, 2013). For unorganized recreation, several studies have linked increased participation with increased rates of delinquency (Burgess et al., 1942; Yin et al., 1999).

This study set out to examine the relationship between organized and unorganized recreation and types of delinquency using Hirschi's (1969) social bond theory as the theoretical framework. The focus of the current study is to better understand the link between (1) recreation and various types of offending, and (2) juvenile delinquency and later offending in adulthood. Additionally, the current study tests social bond theory as an explanation of delinquency. Third, it draws conclusions from data gathered from a nationally representative sample with many relevant measures. Finally, the study includes data captured longitudinally, which allows for the determination of how behavior at one stage is associated with behavior at a successive stage.

This study has several key findings. The first key finding is that the relationship between recreation and delinquency varies by type of recreation and offense. Those who reported engaging in organized recreation were less likely to have school offenses or involvement in the CJ system later in life. Organized sport recreation was significantly related to community and home offenses as well as CJ system involvement. Those individuals who participated in organized sport recreation were more likely to be involved in the CJ system and engage in community and home offenses. However, participants in organized sport recreation were less likely to engage in school offenses. Unorganized recreation was associated with an increased likelihood of delinquency for only some types of offending, such as community and home offenses. Participants involved in unorganized recreation were more likely to commit community and home offenses than their counterparts.

This finding has some precedent in previous research, but also presents some new empirical knowledge. First, the finding that organized sports participation was associated with an increased risk of community offending supports the literature (Hass, 2001). Hass (2001) put forth one possible explanation and theorized that organized sport participation increases offending because participants are coached to disregard rules when those rules diminish chances of winning during competition. This attitude then translates to society when the rules are not in the favor of those who participate in sports. Hass (2001) also theorized that the media fosters rebellious attitudes, which manifests in increased drug delinquency. While Hass' (2001) explanation is possible, there are more possible explanations. Organized sports participation comes with dreams of collegiate opportunity, glory, and professional careers. However, when those dreams do not manifest, sometimes it is difficult for individuals to find new passions and opportunities in life. Furthermore, if organized sports are an opportunity to change the economic

trajectory of a family and it does not work out then individuals may engage in delinquency. This may be due to exercising frustration or seeking economic gain. This is supported by strain theory, which holds that not realizing a positively valued goal can lead to justification and pressure to engage in crime (Agnew, 1992). Second, the overall sense that organized sports produces mixed results with regard to delinquency also supports earlier findings (Veliz & Shakib, 2012; Davis & Menard, 2013; Taylor, Nanney, Welch, & Wamser-Nanney, 2016). Organized sport was found to increase the risk of community offenses, home offenses, and involvement in the CJ system. This could be due to similar reasoning explaining the positive relationship used by Hass. However, it was also found to be not significant in predicting school offenses. This could be due to the fact that participation in organized sports offers positive social bonds, but also has minimal effect on associations with delinquent peers in school (Taylor et al., 2016). It is also possible that participation in organized sports exposes adolescents to bonding opportunities with teammates who engage in delinquency, especially when aggressive coaching is a factor (Hass, 2001). Another possible explanation is that minor, nonviolent criminal activity is so prevalent in adolescent culture that organized sports may not affect rates of offending (Veliz & Shakib, 2012). So while organized sports could reduce more serious offenses, such as suspension, it may not have much impact on less serious offenses that are viewed as cultural norms.

Lastly, the finding that unorganized recreation leads to increased chances of offending supports previous studies (Burgess et al., 1942; Yin et al., 1999). This could be explained by the fact that unorganized recreation usually involves unsupervised time with friends, especially friends who engage in delinquent behavior (Yin et al, 1999). Thus, participation in unorganized recreation provides the opportunity to engage in delinquency. The unique findings of this study

centers on how delinquency is separated into types based on location and eventual involvement in the criminal justice apparatus (community, home, school, and CJ system involvement).

Previous studies generally operationalized delinquency offenses under one or more categories (i.e., violent crimes, drug crimes, etc.) or looked at offenses on an individual basis.

The second key finding is that there is some support for the attachment and involvement elements of social bond theory explaining delinquency. Attachment to parents was found to be a significant predictor of community, home, and school offenses. Higher levels of attachment were associated with a lower likelihood of engaging in community, home, and school offenses. This finding regarding attachment to parents has some support from previous literature (Burton, Cullen, Evans, Dunaway, Kethineni, & Payne, 1995). The support for the involvement element stems from the previously mentioned results for the organized recreation types (organized recreation, organized sport recreation, and organized non-sport recreation). In addition to the other studies finding a link between recreation involvement and delinquency, Cassino and Rogers (2016) supported this finding in their study.

Although the findings indicate that the measures of social bond are predictive of delinquency, the r-squared for the models without controls variables suggests that these elements only explain a small amount of the variance in delinquency. When compared to regression models including the control measures, the regression models with only social bond elements have less explanative power. The model predicting community offenses without control variables (see Appendix A) predicts only 4.6 percent of community offenses compared to the model containing the controls at 11.7 percent (see Table 7). The model incorporating only social bond elements (see Appendix B) predicts only 7.1 percent of home offenses compared to 10.9 percent in Table 8. The school offenses model using only social bond elements (see Appendix C)

predicts only 5.6 percent compared to 16.2 percent in Table 9). While all these models do not explain much of the variance in delinquency, it is important to note the added explanative power of the control measures. The low r-squared suggests the need for future research to include additional measures of social bond. The substantial increase in the r-squared highlights the importance of also accounting for demographic characteristics when examining risk factors of delinquency.

The third key finding is that other influences—demographics, school performance, and stress—have some impact on delinquency involvement. For demographics, participants who were non-White, male, and on government assistance were more likely to engage in delinquency than their counterparts. Race was a significant predictor of school offenses with those who were non-white more likely to engage in delinquency. This finding is not supported by previous evidence, which suggests that there is an insignificant difference among racial groups in self-reporting delinquent behavior (Siegel & Welsh, 2012). However, the finding that race is a significant predictor in school offenses may be explained by economic and social differences. Many minority youth live in areas characterized by high criminal activity and inadequately funded schools, which could increase their likelihood of engaging in delinquency (Siegel & Welsh, 2012). Gender was found to be a significant predictor of delinquency in each regression model. This supports previous findings, which suggest that males are more likely to be delinquent than females (Siegel & Welsh, 2012; Office of Juvenile Justice, 2017).

For each delinquency type, except home offenses, males were found to be more likely to engage in delinquency. This could be explained by differences in socialization where males are encouraged to be more aggressive and demonstrative with their emotions (Siegel & Welsh, 2012), and therefore, may be more apt to engage in delinquency as a means of expressing

frustrations or anger (Adlaf, Irving, Allison, Dwyer, and Goodman, 2007; Roman, Stodolska, Yahner, and Shinew, 2013). The finding also supports Office of Juvenile Justice and Delinquency Prevention (2017) data suggesting that females are more likely to run away (a home offense), whereas males are more likely to engage in violent and property crimes. This could be due to females being more likely to be processed by law enforcement for running away due to protective sentiments that females are defenseless if left alone on the streets (Siegel & Welsh, 2012).

Government assistance was found to be a significant predictor for school offenses, with those reporting receiving some aid being more likely to engage in school delinquency. This finding supports previous literature suggesting that juvenile delinquency is linked to economic hardship (Siegel & Welsh, 2012). A lack of income may lead to delinquency as individuals use unconventional means to earn money. Furthermore, financial hardship can be a source of strain that results in delinquency as individuals attempt to alleviate their frustrations. This may also be linked to difficulties assimilating into society, such as finding work or making friends, due a lack of economic integration. When individuals have difficulty assimilating then the development of different beliefs could lead to delinquency, as explained in Hirschi's social bond theory (1969). As mentioned in previously, the control measures help explain more of the delinquency outcomes when combined to the independent measures than the independent measures alone.

For each delinquency type, as the grade letter worsened then the chances for engaging in delinquency increases. In the regression models, they were both found to be significant predictors of school offenses with lower performances increasing the chances of engaging in school delinquency. Most recent grade in English was found to be a significant predictor of community offenses with lower performances linked to increased chances of offending. Most

recent grade in Math was found to be a significant predictor of home offenses with lower performances linked to increased offending. These findings support previous research linking poor academic performance with increased offending (Siegel & Welsh, 2012). There are several potential explanations for this finding. First, it is possible that recreational activity may be a greater priority for individuals at the expense of their grades. This could raise chances of delinquency if recreational activity does not lead to a desired opportunity, as explained in general strain theory (Agnew, 1992). Second, individuals who are underachieving academically are more likely to drop out of school than their counterparts (2012). This may lead to these individuals to engaging in delinquent behavior. Lastly, individuals who perform poorly in school also are likely to state that they dislike school. These individuals were found to be likely to disclose engaging in delinquent activity (Siegel & Welsh, 2012).

Lastly, stress was found to be a significant predictor for community, home, and school offenses. Those who reported some level of stress were more likely to engage in each delinquency type. This finding supports previous literature, which suggests that delinquency may result from adolescents acting out in response to stressors related to community, family, and personal life (Office of Juvenile Justice, 2015). Thus, delinquency may be the result of maladaptive coping as a way to alleviate experienced strains (Agnew, 1992).

Breakfast was found to be a significant predictor of home and school offenses in the regression models. Those who did not have breakfast were more likely to engage in each type of delinquency. There is some literature examining the link between nutrition and crime, however, previous literature on the current topic has not examined the link between nutrition and eating breakfast to juvenile delinquency. Not eating breakfast may be an indicator of low SES, which may explain the link between breakfast and delinquency (Gaillot, 2014). Furthermore, not eating

breakfast means that adolescents start their days hungry and, as a result, agitated. This could result in adolescents acting out of frustration or engaging in delinquency that could help address their hunger.

The final key finding is that there is some support for recreation and delinquency types impacting adult offending. The model predicting CJ system involvement shows that organized sport, gender, and school offenses were all significant predictors. Organized sport and school offenses were found to have a positive relationship with CJ system involvement. Gender was found to have a negative relationship with CJ system involvement, indicating that males were more likely to have CJ involvement. Furthermore, in the regression model, the delinquency types from wave 1 (community, home, and school) helped add some explanative power to the rest of the measures in the model. The positive relationship between school offenses in youth to CJ involvement in adulthood may be indicative of evidence supporting the school-to-prison pipeline. As individuals engage in delinquency at school, their odds of coming in contact with the CJ system may increase as result of the reliance of CJ agents as control agents (e.g., zero tolerance policies) (Nelson & Lind, 2017).

Limitations/Future Research

There were several limitations of this study. First, the current study relied on data from 1994 -1995 and 2001-2002. This raises issues as to whether the sample is representative of today's demographic realities. It also raises questions as to whether the questions regarding recreation are in line with technological advancements. With the advancements in technology since the data's collection, alternative forms of recreation have surfaced. For example, recent research has examined the impact of cyberbullying, which has increased due to the expansion of cell phone use and advent of social media. More recent data is needed to account for how such

new developments affect the relationship between recreation and delinquency. Future research can help bring modern data and measures into the equation.

Second, the creation of inclusive measures, such as the recreation and delinquency types, weigh all of the included variables the same. For example, under community delinquency, all of the crimes are weighed the same regardless of any differences in severity. Furthermore, the inclusive measures for recreation do not differentiate persons who participated in one type from persons who participated in all types recreation. The single measures of the types of participation were created because of the high number of participants who engages in some sort of recreation. Less than 2% of the sample had not participated in any recreation. Due to the lack of variation in the measure, a single low/high participation measure was created. Future research should include measures of recreation that capture different levels of participation (e.g., a count) in order to better understand whether participation in any recreation matters or if the level of participation affects the risk of offending.

Third, the study did not include a full assessment of social bond theory as two elements—commitment and beliefs—were not measured. Furthermore, the attachment element was not measured completely as bonds with peers were not assessed. Commitment should be measured by asking respondents how committed they are to each organized recreational activity. Beliefs should measure the extent to which participants' views of society are aligned with their family and peers. Attachment to peers should measure how close adolescents feel to their peers and teammates (if participating in an organized activity). This could help improve the explanatory power of the social bond elements, which is missing measures for each of those elements. This could also help our understanding of how well social bond theory explains delinquency.

Fourth, this study only accounts for organized recreational activities that are school-sanctioned. It does not account for the fact that organized recreation can take place in other venues in the community, such as community centers and religious centers. Thus, the location of organized activities should be considered. Similarly, the unorganized recreation measure does not account for where the activities take place and the extent to which such activities are actually unorganized. Future research should include questions that ask questions regarding the location and level of supervision of such activities.

Fifth, while there was mixed results regarding the role of recreation in delinquent outcomes, it is important to note that correlation is not causation. Organized sport recreation was found to be a significant predictor of involvement in the CJ system, but school offenses were also found to be a significant predictor. As for school offenses, none of the recreation types was found to be a significant predictor. Instead, attachment to parents, demographics, school performance, and stress were found to be significant predictors of school offenses. Therefore, recreation may not be a part of the problem and may, in fact, be a part of the solution. Future research could assess the link between recreation and delinquency further. Specifically, researchers should examine the extent to which such activity boosted acceptance of conventional norms and influenced delinquent behavior.

A new ADD Health study with modernized constructs would help shed more light on this topic. A new ADD Health study could add questions that assess social media and technology use as potential recreation types. Furthermore, entertainment use—watching TV shows and movies—and video game usage can be assessed to determine whether specific types lead to increases in offending. This could help address the debate as to whether violent media usage leads to increased violent crime. The study could also assess how well students interact with law

enforcement, peers, and teachers, which could provide more insight into the attachment element of social bond theory.

Future research should consider using alternative theories, such as critical and strain oriented theories to address this topic. Government assistance, race, and stress were found to be predictors of some offenses. Previous literature has noted that economic hardship, race, and stress could increase the likelihood for juvenile delinquency. Therefore, research using alternative theory could prove beneficial. For instance, strain theory describes how sources of stress can lead to increased likelihood of committing delinquent acts as coping mechanism (Agnew, 1992). These sources of stress are often viewed as unfair and prevalent. These sources of strain could be economic and racial inequality, which leads to diminished opportunity within some communities. Therefore, the use of strain theory could help understand how government assistance, race, and stress impact the relationship between recreation and delinquency. While useful, social bond theory is limited in a modern sense because its assumptions were developed in the cultural response period following the Civil Rights Movement. Many of its assumptions place the onus on the social environment of individuals to prevent delinquency, which does not offer a complete assessment of the realities. The attachment element holds that if an individual has strong social bonds to pro-social individuals, especially parents, then chances for delinquency are lessened. However, the presence of pro-social individuals is taken for granted as such individuals are not always present as influences. Furthermore, the involvement element holds that participation in conventional activities leads to diminished chances for delinquency. However, the presence of conventional activities is taken for granted as such activities are not always present in the community. Therefore, the social environment of the individual cannot always be expected to be constant and allow for straightforward ways to avoid delinquent

behavior. While the attachment and involvement elements explained some delinquency in this study, the regression models showed that the vast majority of delinquency was left unexplained. This study showed that when demographics, eating habits, and stress were included in the assessment of delinquency that more of the variance in delinquency outcomes could be explained. Therefore, future research should exhaust all potential explanations and theoretical frameworks to address delinquency.

Policy Implications

Policy should continue finding ways to address the school-to-prison pipeline and potential factors proliferating the pipeline. Any policy recommendation involving a role for law enforcement should fully consider the ramifications of such policy. School violence remains a huge issue in society and law enforcement has a role to make school safety a top priority. However, as mentioned in previous literature, minorities often find themselves feeling more vulnerable to the school-to-prison pipeline when law enforcement role has increased, especially in the wake of zero tolerance policies and other regulations. Thus, it is important that any measure considering the expansion of law enforcement takes into consideration the implications for minorities. This is where rapport building and research could yield immense dividends. The Office of Juvenile Justice and Delinquency Prevention (2017) has several initiatives that aid in this particular area.

There are public and private avenues in which recreational activity can supplement missions of schools while addressing some of the other predictors of school offenses. Publically, there are programs hosted by the public organizations such as Alabama Boys and Girls State and the Tuscaloosa County Parks and Recreation Association (PARA) which can benefit citizens. However, these programs cost money to participate, which can exclude many citizens that would

otherwise benefit. Recently, Tuscaloosa County PARA has been dealing with budgetary issues, which have threatened to cause further increases to user fees (Dethrage, 2017). Therefore, an education lottery or fundraising drives may be needed to raise funds to support programs like these.

There could also be a role for private industry to help address the issue. In Armenia, the TUMO center is privately funded and students do not have to pay any user fees (TUMO Center, 2018). The center offers an after-school program, which supplements the education system and offers career and trade development in many interesting fields. For those able to pay in the United States, the YMCA offers a similar program that supplements the mission of our education system to prepare students for the world while offering recreational and stress-relieving opportunities (YMCA, 2018). Having public and private programs that offer recreational opportunities and supplementary education helps address many predictors of school offenses, which is also a predictor of CJ system involvement. None of the recreational activities were predictors of school offenses. However, government assistance, school performance (grades in English & Math), and stress were all predictors of school offenses. Thus, such public and private programs can help adolescents avoid the school-to-prison pipeline by addressing the factors that may increase their risk of exposure.

There are many more programs, public and private, that could help address the school-to-prison pipeline issue as well as general delinquency. Ultimately, an approach that brings businesses, communities, government, families, religious institutions, and schools together will help bring about the needed improvements

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APPENDIX A.

Table 1

Logistic Regression Results for Predicting Community Offenses

Independent Variable	b	S.E.	Wald.	Sig.
Organized Recreation	0.138	0.178	0.602	0.438
Organized Sport Recreation	0.333	0.112	8.843	0.003**
Organized Non-Sport Recreation	-0.297	0.119	6.243	0.012
Unorganized Recreation	0.332	0.087	14.544	0.000***
Attachment to Parents	-0.616	0.086	50.750	0.000***

Nagelkerke R2 = .046

Note. *p< .05. **p< .01. ***p< .001

APPENDIX B.

Table 2

Logistic Regression Results for Predicting Home Offenses

Independent Variable	b	S.E.	Wald.	Sig.
Organized Recreation	0.151	0.168	0.800	0.371
Organized Sport Recreation	0.222	0.108	4.229	0.040*
Organized Non-Sport Recreation	-0.096	0.108	0.798	0.372
Unorganized Recreation	0.175	0.082	4.595	0.032*
Attachment to Parents	-0.916	0.081	127.065	0.000***

Nagelkerke R2 = .071

Note. *p< .05. **p< .01. ***p< .001

APPENDIX C.

Table 3

Logistic Regression Results for Predicting School Offenses

Independent Variable	b	S.E.	Wald.	Sig.
Organized Recreation	-0.215	0.172	1.560	0.212
Organized Sport Recreation	-0.043	0.116	0.136	0.713
Organized Non-Sport Recreation	-0.611	0.111	30.387	.000***
Unorganized Recreation	0.079	0.085	0.865	0.352
Attachment to Parents	-0.518	0.084	37.649	0.000***

Nagelkerke R2 = .056

Note. *p< .05. **p< .01. ***p< .001

APPENDIX D.

Table 4

Logistic Regression Results for Predicting CJ System Involvement (Wave 3)

Independent Variable	b	S.E.	Wald.	Sig.
Organized Recreation	-0.518	0.386	1.798	0.180
Organized Sport Recreation	0.656	0.300	4.787	0.029*
Organized Non-Sport Recreation	-0.032	0.217	0.022	0.882
Unorganized Recreation	0.215	0.174	1.525	0.217
Government Assistance	0.218	0.232	0.885	0.347
Breakfast	-0.188	0.242	0.608	0.436
Attachment to Parents	-0.453	0.176	6.612	0.010**
Stress	-0.012	0.188	0.004	0.951
Nutrition	0.120	0.179	0.445	0.505
Race - White	0.099	0.207	0.229	0.632
Gender	-1.827	0.237	59.362	0.000***
English--Most Recent Grade	-0.203	0.103	3.891	0.049*
Math--Most Recent Grade	-0.016	0.095	0.030	0.863

Nagelkerke R2 = .139

Note. *p< .05. **p< .01. ***p< .001

APPENDIX E.

THE UNIVERSITY OF
ALABAMA

Office of the Vice President for
Research & Economic Development
Office for Research Compliance

April 27, 2018

Tamba Mondeh
Dept. of Criminal Justice
College of A&S
Box 870320

Re: IRB#: 18-OR-155 "Recreation and Delinquency: An Examination of the Relationship between Organized and Unorganized Recreational Activity and Juvenile Delinquency"

Dear Mr. Mondeh:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies

Your application will expire on April 26, 2019. If your research will continue beyond this date, complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, complete the Modification of an Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, complete the appropriate portions of the IRB Request for Study Closure Form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,


Carpantato T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer