Characteristics of ADHD, Access to Health Care and Impact of School and Community Involvement on Rule and Law Breaking Among Adolescents in Rural Areas

Cindy Glass
University of Kentucky
Department of Sociology
Community-based Research Education in Eastern Kentucky

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Abstract

Purpose: The purpose of this study is to compare self-reported rule and law breaking between adolescents who do and do not report having a medical diagnosis or behavior suggestive of Attention Deficit Hyperactivity Disorder, to explore whether students who are actively engaged in school or community activities have lower levels of rule and law breaking behavior than those who are not actively involved, to determine if youth in rural areas report having ADHD at the same rate that is found in national samples, to determine if students who report having ADHD encounter discrimination, and to determine if these students have access to health services for ADHD.

Method: The author developed a 23-question survey designed to address the study questions. Invitations to participate in the survey were distributed to every 10th grade student in a rural county of Northeastern Kentucky in the late fall of 2008. The University-approved study protocol required signed parental consent for the students to participate. Of the 410 invitations distributed, a total of 78 parents gave permission for their children to participate in the study. On the dates of data collection in early 2009, 73 students were available to complete the survey.

Results: Data will be summarized using frequencies and cross-tabulations. Initial data analysis indicates that the ADHD group shows higher levels of rule and law breaking and less extracurricular involvement than their peers who do not share the characteristics of ADHD. Additionally, students in the ADHD group have lower GPAs than students without the characteristics of ADHD. The rate of ADHD is consistent with national averages. Access to health services for ADHD may be limited by ability to pay for services and by stereotypes surrounding individuals with characteristics of ADHD.

Conclusions: The results of the survey will be distributed to the participating high schools with the hope that the information will be used to address the needs of children who demonstrate the characteristics of ADHD. Goals could include reducing levels of rule and law breaking, mentoring and tutoring for higher levels of academic success, greater integration into school activities, and helping families understand ADHD and obtain health services for ADHD.

INTRODUCTION

A vast amount of literature is available on the topic of Attention Deficit Hyperactivity Disorder (hereinafter “ADHD”), yet most studies do not specifically address whether people living in rural areas understand ADHD as a health-care issue or whether they have adequate access to health services for behavior disorders. Similarly, it is not known whether the characteristics of ADHD that are often linked with rule and law breaking delinquent behaviors are applicable in rural settings. This study seeks to remedy that gap in the literature by researching those issues.

REVIEW OF LITERATURE

Attention Deficit Hyperactivity Disorder (hereinafter "ADHD") is the most widely recognized and diagnosed pediatric psychiatric condition in the United States, affecting an estimated 3 to 5% of children, based upon the estimate found within the Diagnostic and Statistical Manual (the DSM-IV-TR) used by the American Psychiatric Association (Schlachter, 2008). ADHD is most commonly diagnosed in boys, although it can affect girls as well. Studies have indicated that up to 90% of cases of ADHD are boys (Schlachter, 2008; Regoli, 2008). Within the medical profession, a distinction is often made between Attention Deficit Disorder and Attention Deficit Hyperactivity

Disorder, the latter characterized predominantly by extreme levels of activity while the former is primarily defined by inattentiveness; some children are classified as a combined typed, displaying high levels of both inattention and activity (Schlachter, 2008).

The behavior characteristics that are now currently classified as a medical disorder were recognized as far back as 1845 and have undergone a series of name changes as time has passed (Schlachter, 2008; Glass, 2001, 1999). Schlachter (2008, p. 155), quoting Gomez, et al., notes: "no other childhood psychopathology has undergone as much renaming and reconceptualization as the hyperactive disorder." Numerous studies indicate that the characteristics commonly described as indicative of ADHD are correlated with other types of behavior problems, namely Conduct Disorder and Oppositional Defiant Disorder (Schlachter, 2008; Sondeijker, 2005; Sthouthamer-Loeber, 2002). The argument has also been made that a distinction should not be made between these disorders; rather, that a common term should be used. For example, Stouthamer-Loeber uses the term "Disruptive Behavior Disorder" in her 2002 study, describing it as an "overarching term covering three disorders", those three being ADHD, ODD and CD. Meanwhile, these disorders continue to be characterized as separate in the most recent version of the psychiatric diagnostic manual, the DSM-IV-TR, used by

the American Psychiatric Association. (For a full discussion of diagnostic criteria for all three disorders, see Stouthamer-Loeber, 2002; for information specific to the diagnostic criteria for ADHD, see Schlachter, 2008; for general information on co-morbidity, see Sondeijker, 2005. The present study focuses primarily on ADHD, although the survey includes one question related to a diagnosis of any of the three aforementioned disorders).

In the early days of recognition, children who displayed the characteristics common to ADHD, such as excessive talkativeness, fidgeting, impulsivity and disorganization (Regoli, 2008; Brancaccio, 2000) were viewed as disobedient children and were often seen as in need of physical discipline (Brancaccio, 2000). Brancaccio also asserts that as public schooling was implemented for the masses, teachers needed to be able to control the large numbers of children in the classroom. At this point, physicians became an ally with educators, declaring the children to be suffering from a variety of mental health disorders (Brancaccio, 2000). However, medication in the early days of the disorder did not exist; it was not until the 1930s that medication was first utilized to combat the disruptive characteristics of ADHD (Regoli, 2008). Prior to having the option of medication, children with these disruptive behaviors could be removed from the regular classroom, into a specialized classroom, thereby

causing less disruption to the school as a whole. In other instances, children were placed in an institutional setting in an effort to control their undesirable behavior (Brancaccio, 2000).

During the course of the next several decades, parenting and educational strategies transitioned due to changes in medical and social beliefs. Physical punishment in the schools within the United States underwent radical transformation, with some states passing laws to prevent the use of corporal punishment and others foregoing the practice even without a legal mandate to do so. This, Brancaccio argues, coincided with the advent of pharmaceutical options to control children's behavior. If schools could no longer control a child with the threat of punishment, the child could be controlled with the threat of a pill (Brancaccio, 2000). (While medication may have existed as far back as the 1930s, it was not commonly used. Ritalin, the drug most commonly used for ADHD today, first became available in 1961. Use of Ritalin and other competing formulas have skyrocketed during the past four decades, totaling nearly $1 billion in sales annually (Regoli, 2008; Glass, 1999). The medications for ADHD offered up by the medical profession are not without side effects, ranging from tics, lethargy, depression and hallucinations to reports of brain damage and cancer (Henslin, 2008).

In the United States, the estimates of the percentage of children who have the characteristics commonly termed ADHD vary widely by study, with the DSM-IV-TR putting the incidence rate between 3 and 5% (Schlachter, 2008). Other notable groups have their own estimated rates: the American Academy of Pediatrics estimates 4 to 12%, while worldwide estimates vary from 1.7 to 6.7% (Schlachter, 2008) and 4 to 10% (Sahakian, 2007). Incredibly, some studies have shown rates as high as 20 to 24% (Schlachter, 2008)! It is generally accepted that this wide variation occurs due to a variety of reasons, including the subjectivity of the diagnostician and lack of specificity of severity of the criteria listed in the DSM-IV-TR (Schlachter, 2008). The problems of diagnosis notwithstanding, some scholars question these high rates, pointing out that the "disorder" was believed to affect a much smaller percentage of children even in the early 1990s, and has undergone such a rapid rate of increase in diagnosis or suspected diagnosis that one logical conclusion is that ADHD is being over-diagnosed (Schlachter, 2008; Rose, 2008; Glass, 2000, 1999). Scholars also are not in agreement as to whether ADHD is truly a medical disorder, a behavioral disorder or simply an extreme manifestation of otherwise "normal" childhood behavior (Glass, 2000, 1999).

Regardless of whether the disorder is "real" in the medical or biological sense, "real" in the social or behavioral sense, "real" based on a gene and environment interaction or even "real" as an extreme "normal" behavior, it is clear that children who have the characteristics commonly associated with ADHD often experience problems in the academic setting (Regoli, 2008; Hirschfield, 2006; Glass, 2001, 2000, 1999). Access to health care is essential to insure that children who are in need of assistance have the opportunity to receive it, either in the form of medication or behavioral counseling options. This is vital to a successful outcome for a child who has these characteristics. According to Stouthamer-Loeber (2002), some parents may feel treatment is unnecessary, or may not be able to afford it, even if they do recognize the need for treatment. Her study found that:

> Almost half of the boys who eventually became a persistent serious offender [had] an onset of their serious delinquent behavior by age 12 . . . however, less than half of the persistent serious delinquents had received any help from either mental health professionals or from personnel in schools (Stouthamer-Loeber, 2002, p. 69).

Stigma is often attached to mental disorders, and ADHD is no exception. Fear of being judged inadequate as a parent, along with distrust of authority figures, may act a barrier to seeking help; this may be especially pronounced in economically depressed areas (Owens, 2007).

Labeling Theory serves a dual role in the study of ADHD and delinquency. First, the label of a medical disorder can impact how others see the child. As Henslin notes, there is nothing new about teachers and parents complaining about difficult children; what is new is defining those behaviors as a sickness (Henslin, 2008).

> When a child's unacceptable behavior is given a name -- perhaps attention deficit-hyperactivity disorder (ADHD, or hyperkinesis or hyperactivity) -- it sounds as though the child *has* something (Henslin, 2008, p. 97). (Italics in original).

The label of mental illness then causes the child to be seen (and possibly treated) by others as different or abnormal, which can impact the child's self-perception. As the child's self-esteem suffers from the burden of being seen as "ill" with a disorder, negative behaviors in the form of rule-breaking and deviant activity may result, which may result in a second label ("delinquent") being applied.

> This is the chief insight of labeling theory -- that deviance results not just from the actions of the deviant but also from the responses of others, who define some actions as deviant and others actions as normal. If an adolescent misbehaves in high school a few times, teachers and the principal may punish him. However, his troubles really begin if the school authorities and the police label him a "delinquent." Surveillance of his actions will increase. Actions that authorities would normally not notice or would define as of little consequence are more likely to be interpreted as proof of his delinquency. (Brym and Lie, 2003, p. 159).

This process of labeling can become a self-fulfilling prophecy: the child knows that he or she is viewed differently, whether because of

the original label of mental illness or the newer label of delinquent, and he or she responds accordingly. Both labels have the potential to become a master status (the primary social identity) for the child, and both have the potential for negative outcomes.

The characteristics of ADHD in a child can lead to a variety of outcomes, including the negative outcomes of academic failure or poor school performance and engagement in delinquent activities. Children with ADHD have high rates of delinquent behavior (Regoli, 2008; Hirschfield, 2006; Stouthamer-Loeber, 2002). Regoli (2008), citing various studies, notes that in one study of 110 children with ADHD and 88 normal children, the ADHD children were "more likely to be arrested for a serious crime and were 21 times more likely to be institutionalized for antisocial behavior" (Regoli, 2008, p. 158, citing Satterfield). A meta-analysis of 20 studies on ADHD and delinquency found a "consistent relationship between the disorder and crime" (Regoli, 2008, p. 158, citing Pratt). Hirschfield (2006) documents this correlation, as does a study of 435 boys by Moffitt (1990).

It is recognized that certain influences can serve as a barrier or constraint to engaging in delinquent acts, including school activities and participation in religious activities. Working with Hirschi's (1969) control theory, a "Differential Involvement Approach" has been identified by Siu Kwong Wong of Brandon University (2005). Control

Theory posits that "individuals who have developed a strong bond to society, in terms of attachment, commitment, involvement and belief are more likely to conform" (Wong, 2005, p. 321). Wong explains each term in the form of a hypothesis. The attachment hypothesis suggests that the closer the bond between an individual and a significant other, the less likely that person is to be delinquent, out of a desire to please that person by respecting their opinions (Wong, 2005). (This appears to operate on the assumption that the significant others are not themselves delinquent). Commitment relates to the desire to be successful, while beliefs relate to respect for social and legal norms. "Involvement" hypothesizes that people who are involved in conventional activities will have less time to be engaged in delinquent conduct (Wong, 2005). Compared to the other three variables, involvement appears to have a weaker correlation with delinquency (Wong, 2005). This weak correlation forms the basis of Wong's reformulation of the involvement hypothesis. Hirschi (1969) first revised the involvement hypothesis himself, stating that involvement alone was not a constraint to deviance -- rather, the type of activity involvement must also be taken into consideration (Wong, 2005). Studies have found that involvement in school activities act as a barrier to delinquency, although involvement in a school activity could also be an indication of commitment and attachment to school

(Wong, 2005). Wong argues that involvement should be seen as a social setting variable and a differential factor which could impact delinquency through a control process. "Involvement in certain activities strengthens the social bond, and the social bond in turn reduces the likelihood of engagement in delinquency" (Wong, 2005, p. 322). Studies have also indicated the positive influence of religious activities in reducing various forms of delinquency, including drug and alcohol use, academic performance problems and general delinquency (Regoli, 2008; Regnerus, 2003).

The majority of children who exhibit characteristics of a mental health disorder do not receive any help, even though a significant amount of resources within the mental health service industry are devoted to children with disruptive behaviors (Stouthamer-Loeber, 2002). It is recognized that minor forms of disruptive behavior do not turn into serious delinquency overnight. Typically this is a process that can take several years (Stouthamer-Loeber, 2002). Moffitt (2006) predicts persistent criminal offending beyond adolescence for delinquent boys with ADD. At the same time, it is important to remember that a certain amount of deviance is generally considered "normal": a large number of juveniles commit acts of delinquency and then go on to live crime-free adult lives (Regoli, 2008; Stouthamer-Loeber, 2002). Nonetheless, is important to identify problems as

early as possible in order to offer the proper intervention, which could take a variety of forms, including classroom guidance sessions devoted to ADHD and delinquency.

The present study offers the particular schools involved the opportunity to identify whether adolescents in their school are committing many acts of rule breaking and community delinquency of which they may not currently be aware. The study considers whether the adolescents involved in the delinquent activities have a diagnosis of ADHD or have the characteristics of it, but are not receiving help due to a lack of information or resources. Information of this type could help the schools implement new policies to make members of the community aware of the available resources within the community. The present study also considers whether involvement in school activities and religious activities are correlated with levels of delinquency and gives consideration to the impact of close attachments on delinquent behavior.

To answer these research questions, the following methods were used:

The author conducted the study using a non-random, purposive sample of high school sophomores in public school in one non-randomly selected county of Northeastern Kentucky. The schools were chosen based upon the researcher's personal history and knowledge of this particular county. The age group to study (sophomores) was selected based upon information derived from the literature suggesting this to be the most effective age at which to conduct this line of questioning. In an effort to achieve responses that could be generalized to the Appalachian population as a whole, all sophomores within the county were invited to participate in the survey process. At the time the study was proposed, no discussion was held with the particular schools as to whether the identity of the participating county should remain anonymous. Therefore, this researcher has chosen not to disclose the participating county, but rather to identify it by its region of Kentucky (northeast) and to arbitrarily refer to the schools as West County and East County. This decision is based upon the sensitive nature of certain survey questions.

Four hundred ten letters of invitations to participate in the survey were distributed to the sophomore students at the high schools, 255 at East County and 155 at the smaller West County. Based upon criteria set forth by the researcher's Institutional Review Board, direct parental consent in the form of written signatures were

to be obtained prior to administering the survey to any student. Due to the difficult nature of procuring such written instruments, of the 410 letters of invitation distributed, a total of 78 were returned. On the dates of survey administration, 73 of the 78 students were present to participate, and of those, four chose not to answer the question regarding ADHD status, thus leading to exclusion from data analysis. Thus, the ability to generalize the results of this study will be limited due to (1) the non-random nature of the study, and (2) the low participation rate of the intended subjects.

SURVEY INSTRUMENT

The survey (attached as Appendix A) seeks to elicit information from sophomores in order to reach conclusions regarding the following issues:

(1) Rate of students formally identified with a behavior disorder, specifically Attention Deficit Hyperactivity Disorder ("ADHD"), Oppositional Defiant Disorder ("ODD"), and Conduct Disorder ("CD"), as well as rate of students potentially identified with these disorders;

(2) Whether students formally or potentially identified have adequate access to services, medical and/or behavioral, to address these disorders;

(3) Rate of students (both with and without a behavior disorder) reporting violations of school codes of conduct,

(4) Rate of students (both with and without a behavior disorder) reporting violations of community laws;

(5) Whether participation in extracurricular activities and community involvement might be related to delinquent behavior; and

(6) Whether students formally or potentially identified with a behavior disorder have ever felt he or she was discriminated against, at school, within the family or in the community because of the disorder.

RESULTS

A total of 73 students participated in the study; however, four students did not provide responses to the two primary questions related to behavior problems. Therefore, the results that are reported reflect the responses of the 69 students who were able to be classified based upon their health status. Of those 69, some students chose not to answer certain questions. The reported results reflect the responses of students who chose to answer the particular item being discussed.

41.1% of the respondents were male, 58.9% were female. All were in the tenth grade, with the majority (61.6%) being 15 years old. An additional 28.8% were 16, and the remainder was either 14 or 17. The two participating schools were almost equally represented, with

West County having one more respondent than East County (50.7% and 49.3% respectively).

Sixty-two students indicated they did not have a formal diagnosis of ADHD, nor had anyone suggested in a serious manner to them that they might have ADHD. Three students, representing 4.2% of the respondents (two females and one male), acknowledged a formal medical diagnosis of ADHD, and an additional four (5.4%, two females and two males) indicated they had been told they might have ADHD. Because of the small numbers reporting a formal or potential diagnosis of ADHD, these two groups have been collapsed to form a single group with which comparisons can be made against the much larger group of students who did not indicate having the characteristics commonly associated with ADHD. For purposes of this study, these two groups will be referred to as the "ADHD group" and the "non-ADHD group."

A higher percentage of students (47.5%)in the non-ADHD group reported having GPAs within the highest category (3.5 or higher on a 4.0 scale) compared with 28.6% of the ADHD reporting this GPA range. For the remaining students in the non-ADHD group, 37.7% reported a 3.0 to 3.4, 11.5% reported a 2.1 to 2.9 and 3.3% reported a 1.5 to 2.0 GPA. Among the ADHD group, 57.1% reported a 3.0 to 3.4 and 14.3% reported a 1.5 to 2.0 GPA. Thus, while approximately

85% of students in both the ADHD and non-ADHD groups had at least a 3.0 GPA, a much higher percentage of non-ADHD students were clustered in the highest category (See Figure 1).

Students in the non-ADHD group also reported higher rates of participation in extracurricular activities. 74.2% reported being involved in extracurricular activities, with the majority (66.0%) being involved in two to three activities annually. Only 42.9% of the ADHD group reported involvement in extracurricular activities (See Figure 2).

Church involvement differed only slightly between the two groups. 64.5% of the non-ADHD group reported attending church either regularly or occasionally, and 36.7% were involved with a church youth group. For the ADHD group, 57.1% reported church attendance either regularly or occasionally, and 28.6% participated in a youth group. Due to the similarity between the groups, this variable was not further explored.

Reported rule and law violations were much higher among the ADHD group, with 28.6% responding affirmatively to the choice "I have not violated any school rules", while 70.7% of the non-ADHD group reported having not violated any school rules. 57.1% of the ADHD group reported they had not broken any community laws within the past year, compared to 76.7% of the non-ADHD group. The most commonly reported school violations among the non-ADHD group was

skipping class (17.2%) and general classroom disruption (13.8%), while the most commonly reported law violation was underage drinking (20%). Skipping class was also most common among the ADHD group (71.4%), while the second most commonly reported school violation was disrespectful behavior toward teachers (42.9%), a category that was reported at a much lower rate in the non-ADHD group (8.6%). Underage drinking, use of illegal drugs and "other law violations" were equally common among the ADHD group, with 28.6% reporting having engaged in these behaviors. Each of these three categories was higher than the percentage found in the non-ADHD group, which was reported at 20%, 10% and 5% for those three activities, respectively. (See Figures 3 through 9). Although the survey contained an item asking how frequently the rule and law violations occurred, the majority of students chose not to answer this question.

Students in the non-ADHD group with few close attachments were more likely to report being engaged in delinquent activities than their peers who reported several close attachments. In the ADHD group, this finding was reversed, with students with more close attachments being more likely to engage in delinquent activities than those with few close attachments. (See Tables 1 through 4). This finding will be examined more closely in the following conclusions section.

As noted earlier, only three students reported a formal medical diagnosis of ADHD. Of those three, one was taking medication while the other two were not. The survey contained an item asking students to indicate why they were not taking medication if they had a medical diagnosis. The two non-medicated students indicated a variety of reasons including "my parents didn't think I needed medication," "I tried it but it had too many side effects," "I tried medication but have since discontinued it," and "I didn't want to take medication." (The survey allowed students to choose more than one response).

Among the four students who had been told he or she might have ADHD, one indicated that treatment had not been sought because the family could not afford it, while two reported that their parents did not feel they needed to see anyone. The remaining student chose not to answer this question.

One of the three ADHD-diagnosed students reported that he or she felt discriminated against, in the classroom and in the home, while one reported no discrimination and the third chose not to answer the question.

CONCLUSIONS

The rate of students diagnosed with ADHD (4.3%) among the respondents is consistent with the national average of estimates of

rates of ADHD. Assuming the four students who were suggested to have ADHD actually would meet the medical criteria for ADHD (for a total of 10.1% of the respondents), this rate would be only slightly higher than the accepted national averages, and even within some of the more liberal estimates of rates of ADHD in the overall population.

Among the respondents to this survey, results indicate that students who share the characteristics of ADHD (with or without a formal diagnosis) have lower rates of participation in extracurricular activities at the school, lower overall Grade Point Averages and higher rates of school rule and community law violations. Church involvement does not appear to significantly differ between the two groups. The types of rule and law violations are somewhat similar, with both groups reporting high rates of skipping class and underage drinking. However, the ADHD group reported a much higher rate of disrespect toward teachers, as well as higher levels of illegal drug use and "other law violations" than the non-ADHD group.

The issue of whether having a formal diagnosis of ADHD (and thus a label) impacts delinquent behaviors cannot be fully addressed as the number of students reporting a medical diagnosis is too low (3) to make comparisons between them and the potentially-diagnosed (unlabeled) students (4). It may be that having the characteristics associated with the disorder becomes the defining issue, rather than

the label itself, as peers may cluster themselves together based upon similar personality characteristics.

An understanding of the characteristics and of the social and academic problems associated with ADHD may be lacking within the family units in this community due to the answers provided by students in the ADHD group, such as "My parents didn't think I needed to see anyone" and "My parents didn't think I needed medication," as well as the one reported case of discrimination within the family. Access to health care is also a cause for concern, as one of the four who had been told he or she might have ADHD indicated the family could not afford to seek treatment.

The attachment and involvement aspects of Hirschi's control theory suggests that students with low levels of attachment (to the community or to others) will be more likely to engage in delinquent behaviors, with or without the characteristics of ADHD. However, this study does not fully support that theory, as similar levels of attachment were found in both groups even as levels of rule-breaking varied. For example, 42.9% of the ADHD group indicated having at least five or more persons to whom they could turn for assistance if it were needed, compared to 42.6% of the non-ADHD group, yet the ADHD group had higher rates of delinquent behaviors. Interestingly, however, when cross-tabulating the number of significant friends or

mentors the students reported by the reports of delinquent acts and the types of delinquent acts, a difference is seen. For example, in the ADHD group, as the number of close attachments increased to four or five people, more types of law violations were reported and higher percentages of school violations were noted (See Table 1 and 2). However, among the non-ADHD group, the students who reported no or few significant attachments were the ones most likely to report rule and law violations (See Tables 3 and 4). While no direct conclusions can be drawn from this limited sample, it would appear that if attachments are correlated with delinquent behaviors, for the ADHD students it is a positive correlation, while for the non-ADHD students it is a negative correlation. The personality characteristics that are associated with ADHD may be acting as a factor to bind these students together in their delinquent activities, while the lack of close attachments among the non-ADHD group may provide their incentive for delinquent conduct. Further studies into this finding are warranted.

When considering participation in extracurricular activities, another substantial difference appeared, with 74.2% of the non-ADHD group involved in extracurricular activities compared to only 42.9% of the ADHD group. At the same time, 70.7% of the non-ADHD group had not violated any school rules compared to 28.6% of the ADHD group. Although an overall correlation in this small study has been

demonstrated – as extracurricular participation increases, delinquent behaviors decrease -- causation cannot be inferred. While rule breaking was much lower in the more involved non-ADHD group, it is not clear what role, if any, extracurricular involvement played in the reduction of violations. Specifically, among the non-ADHD group, for those who did report rule violations, many of the rule violators were involved in extracurricular activities (See Table 5). However, the reverse was found among the ADHD group: while rule breaking was higher and involvement was lower, many of the rule violators were not involved in extracurricular activities (See Table 6). Follow-up studies could continue to look at this issue to see if these patterns persist.

DISCUSSION

This study was conducted at two high schools in Northeastern Kentucky. The initial contact was made by the researcher to the County Superintendent, who advised the researcher to contact the individual principals to determine their interest in participation. The researcher had a personal connection to one of the county high schools, having lived in the community for the entirety of her childhood and graduating from the local high school. Although the researcher had no immediate connections to the remaining county high school, upon inquiry it was learned that the current principal of that high school had been a childhood friend of the researcher.

Therefore, introduction to both of the high schools was relatively straightforward and proceeded without any difficulty.

The study protocol approved by the Institutional Review Board called for an "oral recruitment," at which time a letter would be provided to the selected population (all 10th graders in the county) to take home to obtain parental or guardian consent to participate. The researcher would then return to the schools at a later date to administer the survey instrument to students who had returned a signed consent letter, after obtaining a separate student assent to participate.

The oral recruitment occurred in mid-November 2008, reaching both high schools on the same date. Letters were first distributed to students at East County. The students were gathered via intercom announcement in the cafeteria, at which time the principal of the school provided a generous introduction of the researcher to the students. This introduction included telling the students that he had known the researcher for many years during childhood, that the researcher was now enrolled in the University of Kentucky Department of Sociology doctoral program, and that the school should feel honored to have been chosen to participate in a community-based research study. At that time, the researcher briefly explained the nature of sociological inquiry, specifically the voluntary nature of the study and

the importance of social science inquiry, and asked that the students give careful consideration to whether he or she would like to participate. The survey was only briefly described, with an explanation that it would seek to identify health and behavioral concerns of students in rural Kentucky. The survey was then distributed to the 10th grade students who were present, and additional letters were given to the principal to be distributed to one class which was on a field trip at the time of the researcher's visit to the school. A total of 255 10th graders attend East County; ultimately, 36 students participated in the study.

West County, the smaller of the two schools, was visited immediately following East County. At this school, the principal also called for 10th grade students to convene in the cafeteria. However, Rather than providing a direct introduction of the researcher to the students, he first took a few minutes to congratulate the students on a recent class-wide achievement and then announced that a "guest" was present that day, and that she [the researcher] would like to talk to them for a few minutes and that he would let her explain the rest. At this time, the researcher provided her own introduction, explaining that she was a former graduate of the school and was quite glad to be back at her home school to carry out a community-based research project which would seek to determine levels of behavioral problems

and how those problems were being addressed, or could be addressed in the future. As before, a brief discussion of the voluntary nature and importance of social science research was provided, which was then followed by a time for students to ask questions about the research. A total of 153 10th grade students attend West County; ultimately, 37 students participated in the study.

Although the raw number of participants from each school was roughly equivalent, the rates of participation differ. With 255 students in the 10th grade class at East County, 36 respondents represent 14% of the sample population. With 153 students in the 10th grade at West County, 37 respondents represent 24% of the sample population. Consideration should be given to the low response rate found at both schools. Although the mode of introduction differed between the two schools, both principals were equally supportive of the research and the researcher, and each conveyed that in his own personal style to the students. Thus, it is the researcher's ultimate conclusion that the fact that West County represented her "home base" is probably the most important factor in determining the higher response rate. The parental letter of consent contained the researcher's full name, both maiden and married. The community is fairly small, and it is likely that name recognition, either of the researcher herself or her family name, resulted in a higher level

of participation. A close review of signed parental consent letters from West County by the researcher reveals that four of the 37 parents were classmates or acquaintances of the researcher. It is possible that the actual number of acquaintances may be higher but unknown to the researcher due to name changes, given that most of the forms were signed by the mothers of the participating students. This conclusion is further supported by the fact that the researcher's mother was approached in the community during December 2008 by an acquaintance, who acknowledged that she had received a parental consent letter and that she would gladly sign it for her son to participate.

Aside from the reasons why parents chose to allow students to participate, reasons for *not* participating are also of interest. For example, the easiest and most direct route to non-participation was simply to not return the form letter. However, two parents, one at each school, chose to return the letter with the option of "I DO NOT WANT MY CHILD TO PARTICIPATE" selected. This choice may simply represent conscientiousness on the part of the parent, given that the form did include a positive assent option or the opt-out option. However, given the negative attention that social science research in rural areas of Appalachia has sometimes drawn, it may represent skepticism on the part of the parent as to the nature or intent of the

research project. This, of course, cannot be conclusively determined without follow-up with the two parents, which is not part of the research protocol. This skepticism, nonetheless, has widespread roots, reaching even the principal at West County. On the date of survey administration, he inquired of the researcher what aspects of the study had not been disclosed to him. When the researcher responded that the study protocol was straightforward and did not contain any hidden purposes, he seemed genuinely surprised, but accepted the researcher's explanation as truthful. Thus, social scientists, especially those working in areas that have often been the target of negative publicity, should take their ethical responsibilities of truthfulness seriously, lest social scientists eventually be excluded from many avenues of inquiry. Community-based research, at its very core, is meant to be a partnership between the researcher and the community, not a one-way avenue with blind alleys and deceptive turns.

The honesty of the students should be assumed, as the students had nothing to gain or to lose by participating due to the anonymous nature of the survey. Nonetheless, some students may have been hesitant to participate, ultimately deciding not to request parental permission due to the assumption that their answers, specifically about rule and law violations, might somehow be used against them.

Evidence of this line of thought and overall skepticism by the students is suggested by the young male at West County who, after completing the survey, advised the researcher that he had chosen to leave some questions unanswered. The researcher responded by telling him that it was completely acceptable to leave items blank, to which he responded "There was just some things on there I didn't think you needed to know." While it cannot be definitely determined to which items he was referring, it can be inferred through a process of elimination that he was not referring to general demographic data, but most likely to items that inquired about rule and law violations in which he may have participated. Thus, although the students were told their participation was anonymous, it is likely that some did not actually believe that to be true.

The self-report data gathered from the survey indicates that the amount of serious rule violations is higher than that detected by the school personnel. According to the School Report Card released by the Kentucky Department of Education for the 2007-2008 school year, East County reported only one incident of a drug violation. No weapons violations or first degree assaults were reported. Similarly, West County reported only two incidents of drug violations, and no weapons violations or first degree assaults during the most recent school year. This data reflects the entire student body at each school,

757 students and 635 students, respectively. However, among only the 73 sampled students, one student reported carrying a weapon to school or school activities, two reported using alcohol at school or school activities, two reported using marijuana at school or school activities, one reported using "other illegal substances" at school or school activities, and three reported fighting at school or school activities. Because this sample was not randomly selected, it cannot be assumed to be generalizable to the entire student body. However, it does point to discrepancies in the official data versus the self-reported data. Thus, while a small amount of deviance among adolescents is considered normal behavior by most social scientists, the amount of deviance within the two schools is greater than that being detected.

The differences demonstrated between the two groups with regard to (1) close attachments and delinquent activities and (2) extracurricular involvement and delinquent activities, discussed in the conclusions above, are also of interest and warrant further research.

RECOMMENDATIONS

A follow-up study with the current 10th grade class could be made at a future time prior to graduation from high school to determine if levels of delinquency have changed and what factors

might have impacted the change, if any. A follow-up study could also document whether the potentially-diagnosed students ever sought medical attention for their behavior problems. Finally, a follow-up study that involves parents could also be useful, particularly in light of the low rate of return of parental consent forms in the present study. However, it should be kept in mind that any follow-up studies would likely not represent the same sample due to the anonymous nature of this research protocol.

In order to facilitate a greater understanding of ADHD, it would be helpful for the schools to provide resource material to all families regarding the nature of ADHD and the problems associated therewith. These resources could include information about services available in the local and surrounding community for behavior problems, as well as social service agencies that could possibly assist families in covering the costs associated with medical intervention. The information could also include material demonstrating that "medical intervention" does not necessarily mean the use of pharmaceuticals.

At the school level, teachers and counselors should familiarize themselves with students who have a Section 504 or Individual Education Plan, if that has not already been done. The teachers and counselors could work with students who have been formally diagnosed with ADHD, and with those who exhibit the characteristics

of ADHD but lack a formal diagnosis, to assist them in choosing extracurricular activities that match their areas of interest or to cultivate new areas of interest. Similarly, the teachers and counselors could work closely with these students, perhaps during regularly-scheduled advising times, in an effort to help the students perform at a higher academic level. Suggestions for this would include tutoring in specific subject areas or matching a high-achieving peer mentor with the ADHD students.

FIGURE 1 -- SELF-REPORTED GRADE POINT AVERAGES

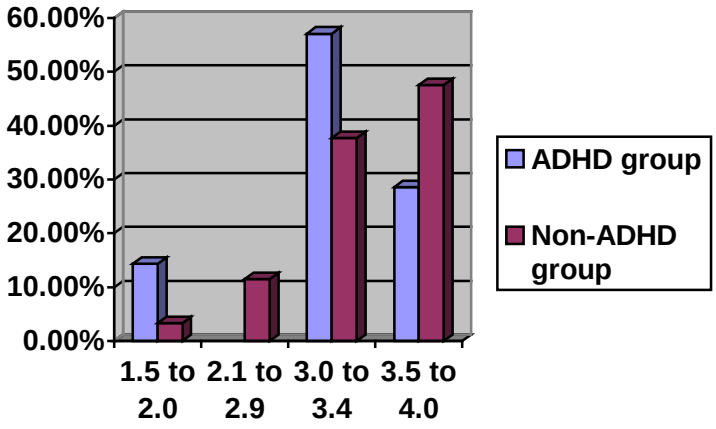

FIGURE 2 – SELF-REPORTED RATE OF EXTRACURRICULAR ACTIVITY PARTICIPATION

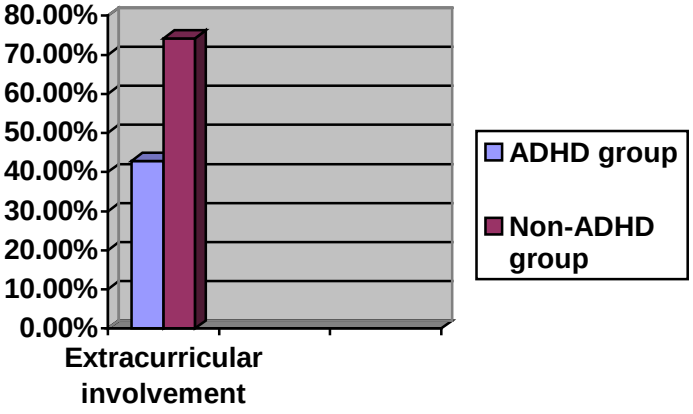

FIGURE 3 – GENERAL CLASSROOM DISRUPTION

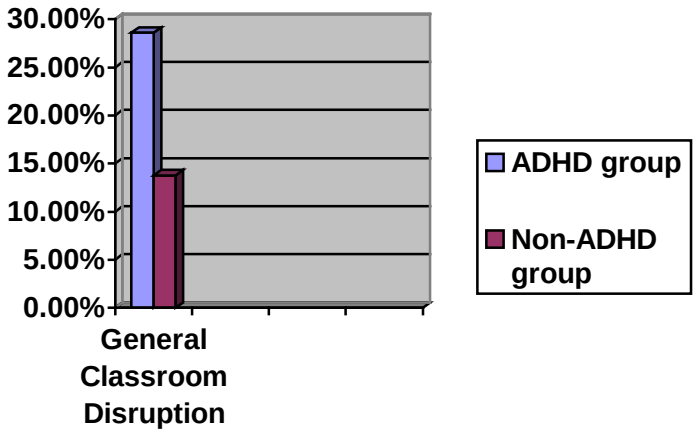

FIGURE 4 – DISRESPECTFUL TOWARD TEACHER

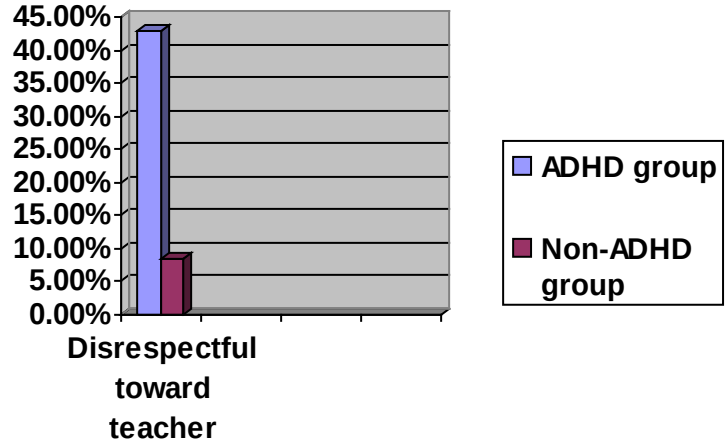

FIGURE 5 – SKIPPING CLASS

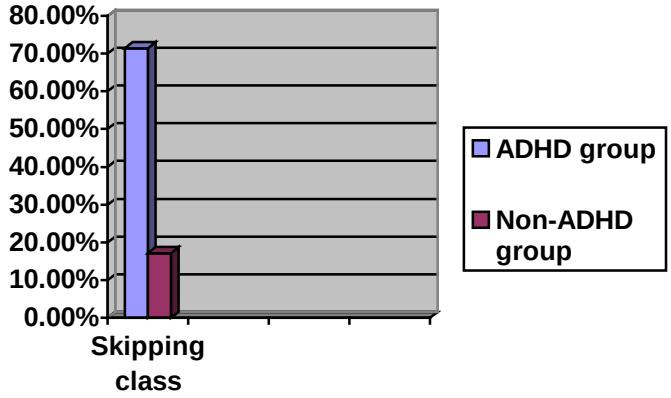

FIGURE 6 – ALCOHOL USE (OFF SCHOOL PROPERTY)

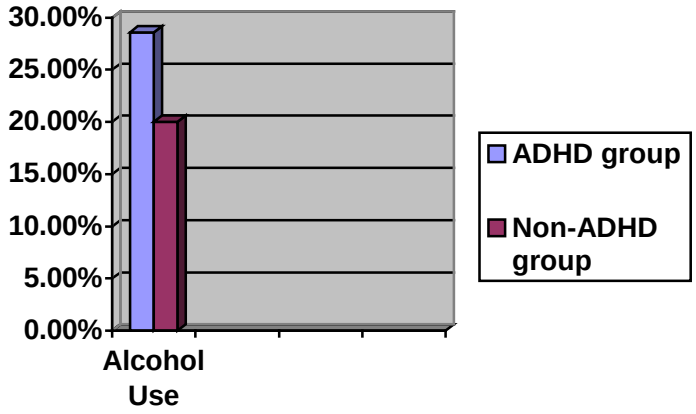

FIGURE 7 – ILLEGAL DRUG USE (OFF SCHOOL PROPERTY)

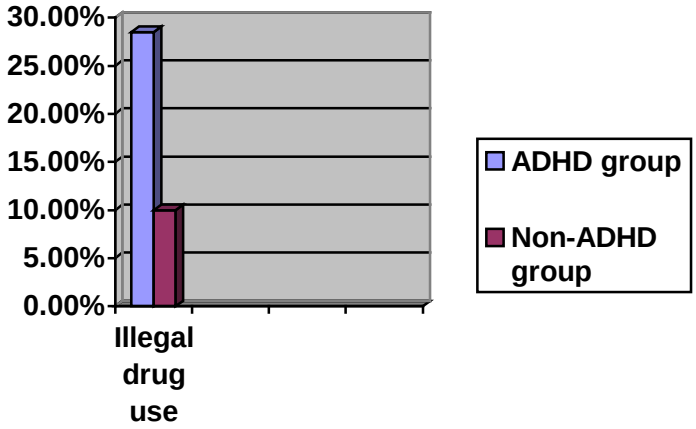

FIGURE 8 – OTHER LAW VIOLATIONS (OFF SCHOOL PROPERTY)

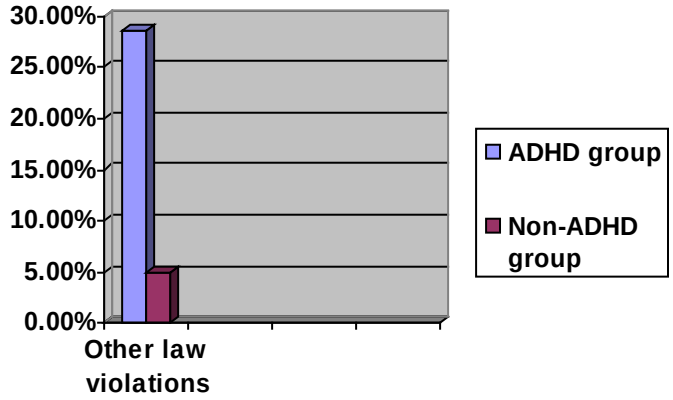

TABLE 1 – ADHD GROUP, SCHOOL RULE VIOLATIONS AND CLOSE ATTACHMENTS

If you have violated the School's Code of Conduct within the past year, which of the following have you done? Choose all that apply. How many people do you have in your life that you could turn to if you have a problem, need advice or some other type of help?

	No one	One	Two or three	Four or five	More than five	Response Totals
Weapons at school or school activities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fighting at school or school activities	0.0%	0.0%	0.0%	**50.0%**	0.0%	14.3%
Use of alcohol at school or school activities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Use of marijuana at school or school activities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Use of other drugs at school or school activities	0.0%	0.0%	0.0%	0.0%	**33.3%**	14.3%
Skipping class	0.0%	0.0%	**50.0%**	**100.0%**	**66.7%**	71.4%
Disrespectful behavior toward teachers	0.0%	0.0%	0.0%	**100.0%**	**33.3%**	42.9%
General classroom disruption	0.0%	0.0%	0.0%	**50.0%**	**33.3%**	28.6%

TABLE 2 – ADHD GROUP, LAW VIOLATIONS AND CLOSE ATTACHMENTS

If you have violated any community laws within the past year, which of the following have you done? Please do not include violations that have occurred at school or school activities -- only violations that have happened in other settings. Choose all that apply.

How many people do you have in your life that you could turn to if you have a problem, need advice or some other type of help?

	No one	One	Two or three	Four or five	More than five	Response Totals
Underage drinking	0.0%	0.0%	**50.0%**	**50.0%**	0.0%	28.6%
Use of illegal drugs	0.0%	0.0%	**50.0%**	**50.0%**	0.0%	28.6%
Vandalism	0.0%	0.0%	0.0%	**50.0%**	0.0%	14.3%
Theft/Shoplifting	0.00%	0.0%	0.0%	0.0%	0.0%	0.0%
Weapons violations	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other violations	0.0%	0.0%	**50.0%**	0.0%	**33.3%**	28.6%

TABLE 3 – NON-ADHD GROUP, SCHOOL RULE VIOLATIONS AND CLOSE ATTACHMENTS

If you have violated the School's Code of Conduct within the past year, which of the following have you done? Choose all that apply. How many people do you have in your life that you could turn to if you have a problem, need advice or some other type of help?	No one	One	Two or three	Four or five	More than five	Response Totals
Weapons at school or school activities	0.0%	0.0%	0.0%	0.0%	**4.0%**	1.7%
Fighting at school or school activities	**50.0%**	0.0%	0.0%	0.0%	0.0%	3.4%
Use of alcohol at school or school activities	**50.0%**	0.0%	0.0%	0.0%	0.0%	3.4%
Use of marijuana at school or school activities	**50.0%**	0.0%	0.0%	0.0%	0.0%	3.4%
Use of other drugs at school or school activities	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Skipping class	**75.0%**	50.0%	0.0%	**45.5%**	**4.0%**	17.2%
Disrespectful behavior toward teachers	**50.0%**	0.0%	0.0%	**9.1%**	**8.0%**	8.6%
General classroom disruption	**50.0%**	0.0%	**6.3%**	**9.1%**	**16.0%**	13.80%

TABLE 4 – NON-ADHD GROUP, LAW VIOLATIONS AND CLOSE ATTACHMENTS

If you have violated any community laws within the past year, which of the following have you done? Please do not include violations that have occurred at school or school activities -- only violations that have happened in other settings. Choose all that apply.

How many people do you have in your life that you could turn to if you have a problem, need advice or some other type of help?

	No one	One	Two or three	Four or five	More than five	Response Totals
Underage drinking	**75.0%**	0.0%	**18.8%**	**33.3%**	**8.0%**	20.3%
Use of illegal drugs	**75.0%**	0.0%	**6.3%**	**8.3%**	**4.0%**	10.2%
Vandalism	0.0%	0.0%	**6.3%**	0.0%	0.0%	1.7%
Theft/Shoplifting	0.0%	0.0%	0.0%	0.0%	0.00%	0.0%
Weapons violations	**25.0%**	0.0%	0.0%	0.0%	**4.0%**	3.4%
Other violations	**75.0%**	0.0%	0.0%	0.0%	0.0%	5.1%

TABLE 5 – NON-ADHD GROUP, EXTRACURRICULAR INVOLVEMENT AND DELINQUENT ACTIVITIES, SELECTED VIOLATIONS

Do you participate in any extra-curricular activities, such as basketball, football, baseball, cheerleading, clubs, etc?
If you have violated the School's Code of Conduct within the past year, which of the following have you done? Choose all that apply.

	Use of alcohol at school or school activities	Use of marijuana at school or school activities	Skipping class	Disrespectful behavior toward teachers	General classroom disruption	Response Totals
Yes	100.0%	100.0%	80.0%	80.0%	75.0%	81.3%
No	0.0%	0.0%	20.0%	20.0%	25.0%	18.8%

TABLE 6 – ADHD GROUP, EXTRACURRICULAR INVOLVEMENT AND DELINQUENT ACTIVITIES, SELECTED VIOLATIONS

Do you participate in any extra-curricular activities, such as basketball, football, baseball, cheerleading, clubs, etc?
If you have violated the School's Code of Conduct within the past year, which of the following have you done? Choose all that apply.

	Fighting at school or school activities	Use of other drugs at school or school activities	Skipping class	Disrespectful behavior toward teachers	General classroom disruption	Response Totals
Yes	0.0%	100.0%	20.0%	33.3%	50.0%	20.0%
No	100.0%	0.0%	80.05	66.7%	50.0%	80.0%

APPENDIX A

Health and Behavior Survey of Adolescents in Rural Kentucky

1. What is your sex?
   _____ Male
   _____ Female

2. What is your age?
   _____ 14
   _____ 15
   _____ 16
   _____ 17

3. What is your grade level?
   _____ 9th
   _____ 10th
   _____ 11th
   _____ 12th

4. What is your current GPA range?
   _____ Less than 1.5
   _____ 1.5 to 2.0
   _____ 2.1 to 2.9
   _____ 3.0 to 3.4
   _____ 3.5 or above

5. Have you ever been diagnosed by a doctor or nurse practitioner with any type of behavior disorder?
   _____ Yes
   _____ No

6. If you answered "yes" to the previous question, was it called any of the following:
   _____ ADHD (Attention Deficit Hyperactivity Disorder)
   _____ CD (Conduct Disorder)
   _____ ODD (Oppositional Defiant Disorder)

7. Even if you have not been medically diagnosed by a doctor or nurse practitioner with a behavior disorder, has any teacher or family member ever mentioned to you, in a serious manner, that you might have ADHD or another behavior disorder?

_____ Yes
_____ No

8. If you answered "yes" to the previous question, why did you not seek medical attention? (You may choose more than one answer).

_____ My parents or guardian couldn't afford it
_____ My parents or guardian didn't have any health insurance
_____ My parents or guardian didn't think I needed to see anyone
_____ My parents or guardian didn't know where to take me for treatment

9. If you have a diagnosis of a behavior problem, are you currently taking any medication for it?

_____ Yes
_____ No

10. If you have a diagnosis and are not taking medication, what is the reason? (You may choose more than one answer).

_____ My parents or guardian couldn't afford it
_____ My parents or guardian don't believe I need medicine
_____ I tried medication, but have since chosen not to use any medication
_____ Medication had too many side effects
_____ I didn't want to use medication
_____ Medication isn't needed for behavior problems

11. If you have a diagnosis of a behavior problem, do you feel that you have ever been treated unfairly because of that problem? (You may choose more than one answer).

_____ Yes, at school in the classroom
_____ Yes, at extracurricular activities
_____ Yes, by school or community authorities
_____ Yes, by my family
_____ No, I don't think I've been treated unfairly

12. If you answered "yes" to the previous question, how often has the unfair treatment occurred? (Only choose one answer).

_____ It happens often
_____ It happens sometimes, but not regularly
_____ It has only happened a few times
_____ It has only happened once or twice
_____ This question doesn't apply to me

13. Do you participate in any extra-curricular activities, such as basketball, football, baseball, cheerleading, etc?

_____ Yes
_____ No

14. If so, how many activities are you involved in during the course of a year?

_____ Only one
_____ Two or three
_____ Four or five
_____ More than five

15. Do you attend church?

_____ Yes, regularly
_____ Yes, occasionally
_____ No

16. Are you involved in a church youth group?

_____ Yes, regularly
_____ Yes, occasionally
_____ No

17. How many people do you have in your life that you could turn to if you have a problem, need advice or some other type of help?

_____ No one
_____ One
_____ Two or three
_____ Four or five
_____ More than five

18. If you have violated the School's Code of Conduct within the past year, which of the following have you done?

_____ Weapons at school or school activities
_____ Fighting at school or school activities
_____ Use of alcohol or drugs at school or school activities
_____ Skipping class
_____ Disrespectful behavior toward teachers
_____ General classroom disruption
_____ I have not violated any school rules

19. If you have violated any community laws within the past year, which of the following have you done?

_____ Underage drinking
_____ Use of illegal drugs
_____ Vandalism
_____ Theft
_____ Weapons violations
_____ I have not broken any laws

20. If you violated any school rules within the last year, how many times did it occur (regardless of whether you were "caught" and punished or not)?

_____ Only once
_____ Two or three times
_____ Four or five times
_____ More than five times

21. If you violated any community laws within the last year, how many times did it occur (regardless of whether you were "caught" and punished or not)?

_____ Only once
_____ Two or three times
_____ Four or five times
_____ More than five times

22. What is your family's annual household income?

_____ Less than $15,000
_____ $15,001 to 25,000
_____ $25,001 to 35,000
_____ $35,001 to 45,000
_____ Greater than $45,000
_____ I do not know my family income level

23. Which school do you attend?

_____ West County High School*

_____ East County High School*

THANK YOU FOR PARTICIPATING IN THIS SURVEY

* School name deleted for reporting purposes