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School Attachment And The Use Of Alcohol Among Rural High School Students

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School Attachment and the Use of Alcohol Among Rural High School Students

BY

Michelle L. Weiler

THESIS


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Running Head: School Attachment and Alcohol Use

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Abstract

The present study examined the relationship between school attachment and alcohol use in rural communities to determine if students with high levels of school attachment were less likely to participate in alcohol use. Participants included 4,768 high schools students in the largest rural geographic educational region in the state of Illinois. The students participated in a program called *I Sing the Body Electric* and completed a survey which asked questions including how well students are attached to their school and alcohol use. Chi square goodness of fit tests were used to analyze student's reporting of school attachment, how old they were when they began drinking alcohol, on how many of the past 30 days they had at least one drink of alcohol or 5 or more drinks of alcohol in a row. The results indicated that the majority of the students who reported feeling a sense of attachment to their school are also those students who reported little or no alcohol consumption.

School Attachment and the Use of Alcohol Among Rural High School Students

Introduction

The abuse of alcohol and other drugs during adolescence and early adulthood is a serious public health problem and there are personal and societal level consequences of alcohol use (Hawkins, Catalano, & Miller, 1992). Hawkins et al. (1992) stated that developing adolescents' drug and alcohol use weakens motivation, interferes with the ability to process cognitively, contributes to debilitating mood disorders, and increases risk of accidental injury or death of this population. Additionally, at the societal level, adolescent substance and alcohol use can result in high health care costs, educational and academic failure, potential mental health services, drug and alcohol treatment, and juvenile crime (Hawkins et al., 1992).

Alcohol Use Among Adolescents

According to Henry and Slater (2007), alcohol is the drug of choice among adolescents. The Monitoring the Future: National Survey Results on Drug Use (2009) study, a nationally representative survey of adolescent drug use, found that alcohol use is more widespread than the use of any other illegal drug (Johnston, O'Malley, Bachman, & Schulenberg, 2009). According to survey results, 72% of high school seniors have at least tried alcohol, with over 43% reporting that they had used alcohol in the 30 days prior to the survey. Furthermore, 37% of sophomore students and 55% of seniors reported they had been intoxicated at least once in their lifetime. In addition, 14% of sophomores and 28% of seniors self-reported that they had been intoxicated during the 30 days immediately preceding the survey (Johnston et al., 2009). What Johnston et al., (2009) found to be most alarming is on how many occasions during the two weeks prior

to the survey that students had consumed five or more drinks consecutively, with 16% of sophomores and 25% of seniors reporting this. As noted by Henry and Slater (2007), alcohol obviously is a commonly used drug by early adolescents. Considering this, Henry and Slater (2007) ascertain that measures which are effective in preventing adolescent alcohol use, or at least delaying the onset of use, are definitely needed. As previously noted, the use of alcohol by adolescents is a concern which affects individuals nationwide. One way the education system can aid in preventing or delaying onset of use is to do a better job affording students sufficient opportunities to develop positive school attachment.

The school is the primary institution outside the family which can shape behaviors of adolescents (Simons-Morton, Crump, Haynie, & Saylor, 1999). Within this context, adolescent problem behavior can be seen in part as the failure of schools to capture students' sense of social affiliation, provide educational experiences, and offer prosocial situations which thereby afford adolescents the opportunity to develop and experience proper social competence (Simons-Morton et al., 1999). Young adolescents who have a bad start in middle school are subsequently more at risk for academic underachievement and problem behavior in coming years (Simons-Morton et al., 1999). For example, Hawkins et al. (1992) indicated that a low degree of commitment to school and academic success appears to be related to adolescent drug use. Further, other factors such as how much students dislike school, minimal time spent on homework, and students' low perception on relevance of course work are related to frequent levels of alcohol use, thereby indicating a negative relationship between commitment to education and frequent alcohol use among junior and senior high school students (Hawkins et al. 1992). There

are several models that contribute to the understanding of the relationship between at risk behaviors such as alcohol consumption and protective factors in adolescents. The following models offer theoretical frameworks to describe ways in which an adolescent's positive school attachment may protect him or her from participating in alcohol use.

Models

Social control theory

The social control theory, which was originally proposed by Hirschi (1969), explains the relationship between at-risk behaviors and the attachment an individual maintains with important elements of society. Hirschi's theory focuses on what prevents individuals from participating in delinquent behavior or violating the law (Maddox & Prinz, 2003). As described by Henry, Stanley, Edwards, Harkabus, and Chapin (2009) and Maddox & Prinz (2003), the social control model theorized that children and adolescents learn patterns of behavior from primary socialization sources, such as their school, family, and peer groups. Henry et al. (2009) indicated that children and adolescents who are more positively attached to prosocial primary socialization sources have less involvement in problem behavior, such as drug and alcohol use, because they are motivated to conform to the norms, expectations, and values of the positive prosocial sources. For example, Shears, Edwards, and Stanley (2006) stated that adolescents who are attached to positive social ties and positive experiences in school are less likely to participate in deviant behavior, such as illegal substance use. The social control theory also maintains that adolescents who do well in school and care about their academic education will not be as likely to participate in unlawful behavior, such as illegal drug and alcohol use, because they do not want to jeopardize their school-related

accomplishments and positive relationships (Shears et al., 2006). As a result, for these students who do care a great deal about their academic and social success, the school may serve as a protective factor from at-risk behaviors (Shears et al., 2006).

Social development model

The social development model, as outlined by Catalano and Hawkins (1996), is a social psychological theory, which expands on the social control theory by attempting to explain both positive behavior and problem behavior. This model hypothesizes that bonds to prosocial peers inhibit delinquency and problem behavior (Maddox & Prinz, 2003). The model also hypothesizes that all behaviors, whether positive or antisocial, are learned (Shears et al., 2006). The social development model focuses on three essential factors in establishing positive social bonds, which are opportunities, skills, and reinforcement for involvement (Maddox & Prinz, 2003).

Opportunities for involvement refer to potential interaction opportunities that a student might participate in with others, such as clubs, activities, etc. Social skills which allow adolescents to establish and maintain positive relationships are referred to as skills for involvement. Finally, reinforcement for involvement refers to the rewards and incentives that youth receive as a result of initiating and maintaining involvement in social situations (Maddox & Prinz, 2003). The social development model suggests that positive experiences, interactions, and involvement with others are vital in establishing strong and positive social attachment (Shears et al., 2006). Students who demonstrate a positive attachment to school are less likely to be involved in delinquency (Henry & Slater, 2007). On the other hand, negative or weak attachment to prosocial sources and strong attachment to antisocial sources prevent adolescents from adhering to the norms

that discourage delinquent behavior such as alcohol use. These youth are, therefore, more likely to follow the norms, expectations, and values of antisocial peers who are also not well attached to the school (Henry et al., 2009).

The social development model purports that one reasonably well-studied variable that may help to prevent and/or delay adolescent use of alcohol is school attachment. Research indicates that at an individual level, school attachment does act as a protective factor against the use of alcohol by adolescents (Henry & Slater, 2007). Basically, the social development model, as described by Hawkins and Weis (1985), offers a theoretical framework to describe the mechanisms by which school bonding may affect substance use. The model maintains that prosocial bonds (including attachment to the school) preclude problem behavior, and proposed that weak school bonds thus prevent adolescents from adhering to conventional norms that discourage problematic behaviors (Henry & Slater, 2007). Henry and Slater (2007) state, a “strong attachment to school in general is characterized by a commitment to conventional academic and social endeavors at school, attachment to prosocial peers, attachment to teachers and other school staff, and belief in established prosocial norms” (pg. 68).

In sum, students with a strong prosocial attachment to their school are more likely to delay or refrain from the use of alcohol and those students who have weak prosocial attachment to their school are more likely to use alcohol (Maddox & Prinz, 2003; Shears et al., 2006). In general, as previously described by the aforementioned models, adolescents learn behaviors, both positive and negative, from socialization sources such as their family, school, and peer groups. Positive school attachment experienced by adolescents results in less delinquency, whereas at-risk behavior, such as the use of

alcohol during adolescents is enhanced when students do not develop positive school attachment.

School Attachment

While the primary focus of the school system is to educate youth, students attending public schools receive much more than just an academic education while at school. In addition to providing an education, the school is a primary context for many domains such as social interaction, development of interpersonal skills, formation of peer groups, self-expression, and self-development (Henry & Slater, 2007). To further emphasize that schools provide more than just an academic experience for students, researchers indicate that schools represent one of the most important natural milieus for determining prosocial development among adolescents (Henry & Slater, 2007). The school environment has been described as one of the most influential socialization domains in an adolescent's life (Catalano, Hagerty, Oesterle, Fleming, & Hawkins, 2004). Simons-Morton et al. (1992) provide evidence that students who develop positive social bonds with their school are more likely to perform well academically and refrain from misconduct and other antisocial behavior. The literature refers to school attachment in a variety of ways, including school bonding, school adjustment, and school connectedness. While these words all have slightly different meanings, they all incorporate aspects of how good students feel about their school.

School attachment is a feeling of connectedness that youth have to their school, school personnel, and various aspects of their academic lives (Henry & Slater, 2007; Maddox & Prinz, 2003). As conceptualized by Simons-Morton et al. (1999), attachment to the school includes attachment to prosocial peers, commitment to conventional

academic and social activities at school, and belief in the established norms for school behavior. The extent to which a student likes or enjoys school and is attached to teachers is a very commonly considered aspect of school attachment (Eccles, Early, Frasier, Belansky, & McCarthy, 1997; Simons-Morton and Crump, 2003). Attachment to school personnel refers to the interpersonal relationships youth have with educators, staff, and administrators at their school and is reflected in youths' respect, behavior towards, and admiration of these individuals (Maddox & Prinz, 2003).

Henry, et al. (2009) defined school adjustment as the extent to which a student likes or enjoys school and is attached to his or her teachers. Friends' school bonding was also considered in Henry et al.'s (2009) research because the social development model as described by Catalano et al. (2004) indicates the importance of bonding to peers during adolescence. Specifically, prosocial behaviors are more likely to develop if an adolescent is positively bonded with peers, specifically those peers who have prosocial attitudes, including positive attitudes toward school (Henry et al., 2009).

School commitment includes the personal investment adolescents have in school activities and how high of a priority students hold their school involvement to be. To explain, youth who are highly committed to their schools accept the goals, norms, and morals that their school puts forth (Maddox & Prinz, 2003). The importance of peer bonding is also included in the definition of school attachment. As described by Catalano et al. (2004) and Henry et al. (2009) the social development model clearly indicates the importance of bonding to peers.

Additionally, Henry and Slater (2007) suggest adolescents demonstrate the best behavioral outcomes when they identify with the norms and goals of their school. This

identification is more “likely” to occur when the school environment is pleasant, there are positive bonds between students and teachers, faculty and students regularly participate in activities together, students frequently serve in leadership roles and students are high achievers” (Henry and Slater, 2007, pg. 72). As noted by Henry and Slater (2007) there is importance of the school environment and how it lends itself to behaviors observed by adolescents as well as their level of school attachment.

Henry and Slater’s (2007) research demonstrated that regardless of a student’s own level of school attachment, he or she will be less likely to use alcohol if he or she attends a school where pupils overall tend to be well attached to school. These well-attached students also have less motivation to use alcohol, are aware that fewer of their peers at school use alcohol, and are more likely to hold ambitions that are strongly inconsistent with the use of alcohol (Henry & Slater, 2007). These findings, along with the findings of related studies, provide support for the hypothesis that upon the improvement of the school climate, students will be less likely to participate in illegal substance use, including the use of alcohol (Henry & Slater, 2007).

To illustrate, according to Henry and Slater (2007) school attachment had a significant negative effect on five dependent variables in their study (recent use of alcohol, intention to use alcohol, normative beliefs about peer use of alcohol, attitudes toward alcohol use, and aspirations consistent with alcohol use). These findings demonstrate that the students who were better attached to their schools were also the students who were less likely to have recently used alcohol. Furthermore, results from Henry and Slater’s (2007) research showed that students reported lower intentions to use alcohol in the future, perceived that fewer of their peers from school used alcohol, had

more desirable attitudes toward alcohol use (i.e., they did not think it was cool to use alcohol), and more strongly held aspirations that were inconsistent with alcohol use. Henry and Slater's (2007) research helped illustrate that the social context of an adolescent's school environment does play an important role in determining his or her behavior.

Research has widely affirmed that school attachment is a protective factor for adolescent substance use (Shears et al., 2006). That is, when adolescents have positive experiences, relationships, and ties to school, they are less likely to participate in illegal behaviors, such as drug and alcohol use (Bryant, Schulenberg, O'Malley, Bachman, & Johnson, 2003; Guo, Hawkins, Hill, & Abbott, 2001; McNeely, Nonnemaker, & Blum, 2002). Researchers, such as Simons-Morton et al. (1999), point out that adolescents' school attachment can be bettered by helping students develop social skills and social competence, improving school climate, and encouraging authoritative parenting practices.

While the effect of school attachment as a protective and preventative factor for problem behavior has been well studied at an individual level, little research has assessed the effect of school attachment on problem behavior at the school level, that is, considering all the students in a given school (Henry & Slater, 2007). However, several theories suggest that the school environment, with regard to school attachment, should be an important predictor of delinquency (Henry and Slater, 2007). For example, the theoretical framework of the Child Development Project, as outlined by Henry & Slater (2007), interprets the connection of social bonding and the school community. The program developers maintain adolescent prosocial development is highly influenced by

the sense of attachment and sense of community that students feel toward their classroom and school (Henry & Slater, 2007). The Child Development Project proposes that students who develop a sense of community and attachment to their schools are those students whose needs are met. These students are independent, influential, competent, and connected with and accepted by others in their school. Further, students whose needs are met and who do feel attached to their school are able to identify and feel committed to their school which in turn motivates them to abide by the rules, standards, norms, expectations, and values stressed by the school, including abstinence from drug and alcohol use (Schaps and Solomon, 2003).

School climate and teachers

As described by Simons et al. (1999), the climate of the school has an important influence on adolescents and their development of school attachment. Researchers found that students are motivated by an authoritative teaching style that is demanding, but is also supportive and fair (Simons et al., 1999). Further, students are more likely to be attached to their school if they enjoy their classes, have good relationships with their teachers and peers, believe their teachers are supportive and fair, and accept their school's mission, values, and standards (Simons et al., 1999).

To expand, research has "shown that schools with a strong sense of community have teachers who are warm and supportive, emphasize prosocial values, promote cooperation, facilitate cooperative learning opportunities, provide opportunities for students to serve in leadership roles, and encourage classroom decision making about factors that affect the students' environment" (Henry & Slater, 2007, pg 73).

Further, Henry et al. (2009) included behavior at school in their research because school-related misbehavior or disruptive behavior is an element that has been used in past research to understand a student's overall level of school attachment (Ryan & Patrick, 2001). As reviewed by Henry and Slater (2007), some studies have demonstrated that the school's social context and atmosphere have important implications for determining whether an adolescent will follow a prosocial path through adolescence or become involved in delinquent behavior. Henry and Slater (2007) found that school climate factors, such as school attachment and a sense of community at school, have an effect on students' behavior and indicate that schools with negative climates have a negative influence on students' behavior, resulting in troublesome and problematic behavior. These findings provide support for the hypothesis that improvement of school climate may result in less substance use among students.

In addition to the Child Development Project, other studies have reported that the school context is an important predictor of delinquency (Henry & Slater, 2007). According to Gottfredson (2001, in Henry & Slater, 2007), negative school climate factors have a moderate effect (effect sizes ranging from .58 to .85) on several problem behaviors including victimization, involvement in delinquent activities, substance use, school misbehavior, suspension, school failure, truancy, and dropout. Gottfredson (2001) found that the effect sizes of negative school climate variables are somewhat larger than the average effect sizes demonstrated by prevention and intervention programs. Therefore, Gottfredson suggests that improving school climate factors will improve students' attachment to school, resulting in important and beneficial outcomes on student behavior (Henry & Slater, 2007).

Protective factors

Strong empirical evidence demonstrates that students' attachment and commitment to their school are significant protective factors in lowering the risk of drug and alcohol use (Bryant, et al., 2003; McNeely et al., 2002). According to Maddox and Prinz (2003), both theory and research have correlated poor school attachment to a variety of negative life outcomes including delinquency, substance abuse, school dropout, and teen pregnancy. On the other hand, positive school attachment may be important in the prevention of the aforementioned negative life outcomes (Maddox & Prinz 2003).

For example, in a meta-analysis of experimental and quasi-experimental studies of school based preventive interventions, Najaka, Gottfredson, and Wilson (2001) found that prevention interventions resulted in positive changes in attachment and commitment to school. They also found, that with the increase of attachment and commitment to school, students' exhibition of problem behaviors decreased. Furthermore, among the three factors assessed (school attachment, academic achievement, and social competence) the level of school attachment consistently evidenced the relationship between school factors and problem behavior, with negative attitudes toward school and weak school attachment resulting in more instances of problematic behavior (Najaka et al., 2001).

As noted by Simons et al. (1999), in theory, those students who are attached to their school and have developed a positive association with their school are also those students who are more likely to become and remain engaged in their academics. Further, students who are positively attached to their school are also less likely to become involved in misconduct and other antisocial behaviors at school than are their counterparts who have developed a negative affiliation with school. Moreover, research

has found that students who are positively attached to their schools are protected from the loss of motivation to perform well academically and are also more sheltered against the inclination toward antisocial behavior and misconduct (Simons et al., 1999).

Attachment and Refraining from Alcohol Use

Other evidence suggests that school attachment and a feeling of connectedness to the school is a protective factor in regards to adolescent substance use (Henry & Slater, 2007). Ample evidence suggests that an adolescent's own positive school attachment is a protective factor with respect to alcohol use (Henry et al., 2009). However, an individual student's alcohol use may not only be affected by his or her own degree of school attachment, but, as previously mentioned, may also be influenced by that of peers and how well attached their peers are to the school (Henry et al., 2009). In their study, Henry et al. (2009) found that in schools where the overall level of school attachment was higher, students reported lower levels of alcohol use. These results reveal not only the importance of a student's own level of school attachment, but also the overall level of school attachment among students in the school, and how these attachments affect an adolescent's use of alcohol (Henry et al., 2009).

School Attachment, Alcohol Use, and Rurality

Little research has been given to the complex interactions between students and the school environment, especially those schools in rural communities (Simons-Morton, et al, 1999). Although Henry et al. (2009) and Shears et al. (2006) touched on the relationship between school attachment and alcohol use in rural schools, very few other studies have focused on understanding the relationship between school attachment and alcohol use among rural students. The relationship between school attachment and the

use of alcohol in rural populations is an important research question “in a time when many rural schools are facing difficult challenges that could negatively affect students’ attachment to their schools” (Shears et al., 2006, pg. 6). Some of these challenges include consolidation and long travel/busing times for students, a shortage of experienced teachers due to difficulties in attracting and retaining teachers, declining enrollment, inadequate funding, and declining facilities (Beeson, 2001; Haas, 2000; Mathis, 2003; Collins, 1999; Killeen & Sipple, 2000).

Although Henry et al. (2009) did consider the relationship between alcohol use and school attachment in rural communities, their focus was on middle schools students, instead of high school students. For example, Henry et al.’s (2009) research used a sample of 43,465 male and female 8th grade students in 349 rural communities across the United States to examine students’ self-reported use of alcohol in relationship to their own school attachment, as well as the contextual level of school attachment. The contextual level of school adjustment refers to the overall level of school adjustment felt by the majority of students in a school. The attachment variables Henry et al. (2009) considered were school attachment, behavior at school, and friend’s levels of school attachment. The researchers found that school attachment, friend’s school attachment, and behavior at school were all significant predictors of alcohol use both within and between schools.

Henry et al. (2009) gave their participants the Community Drug and Alcohol Survey (CDAS), which is a 99-item survey that asks a multitude of questions related to substance abuse, school attachment, relationship with family members and peers, as well as other individual risk factors for substance abuse. The dependent variable, alcohol use,

was measured with four indicators: 1. How often in the last month have you had alcohol to drink? (none, 1-2 times, 3-9 times, 10-19 times, 20 or more time), 2. How often in the last month have you gotten drunk? (scale same as previous item), 3. In using alcohol, are you a...? (non user, very light user, light uses, moderate user, heavy user, very heavy user), and 4. How do you like to drink? (I don't drink, just a glass or two, enough to feel a little, enough to feel a lot, until I get really drunk). The independent variable included three school adjustment constructs of school bonding, friend's bonding to school, and behavior at school. Control variables such as age, gender, and race/ethnicity were used at each level.

Henry et al. (2009) used multilevel models to assess the data. Specifically, they used an analytic method called multilevel latent covariate modeling in which the compositional manifestation of each school adjustment variable was modeled as a latent variable. This approach models the between-unit variable as a latent variable. As explained by Henry et al. (2009), the between-unit variable, such as the school bonding variable, is latent in the sense that it exists, yet cannot be directly measured. Rather, the school bonding variable must be inferred from the data, that is, inferred from the individual reports of school bonding from each surveyed student. Henry et al. (2009) found that a student's experiences at school and his or her lack of attachment to school can have negative influences on his or her development and can lead to antisocial development such as early involvement with alcohol use.

As previously mentioned, the research involving adolescent alcohol use in rural communities is limited; however, adolescent substance use in rural communities in the United States is now equal to or greater than alcohol use in the nation's urban areas

(Shears et al., 2006). For example, Shears et al. (2006) noted findings from the National Center on Addiction and Substance Abuse that combined data from national surveys, students, and interviews with experts and found that the use of drugs, such as marijuana and alcohol was as prevalent in rural communities as it was in urban and suburban communities. Further, the substance use rates in for rural 10th graders for every drug, except ecstasy and marijuana, exceeded the rates of use of substances of their urban counterparts (Shears et al., 2006). Even with this data, much research related to substance abuse still focuses on adolescents in urban and suburban areas, while relatively little attention is focused on researching adolescent substance use in the nation's more rural populations (Shears et al., 2006).

The focus on more urban areas in the research raises doubts as to the generalizability of data of substance use to rural populations (Botvin, Malgady, Griffin, Scheier, & Epstein, 1998). Given this, Shears et al. (2006) examined the relationship between school attachment and use of drugs and alcohol by adolescents and whether this relationship depended on the level of rurality of the community in which they live. Data were collected between 1996 and 2000 from a sample of junior and senior high schools in 193 predominately white communities, which were stratified by region. Shears et al. (2006) classified the communities in their research into four levels which we based on miles from, and level of accessibility to, a metropolitan area. Remote communities were defined as those with a population of less than 2,000 and located more than two hours driving time from a metropolitan area. Medium-rural communities were defined as those having a population between 2,000 and 20,000 or communities with a population less than 2,000, but located within two hours driving time from a metropolitan area. Large-

rural communities were defined as having a population between 20,000 and 50,000. Metro communities were defined as having a population of 50,001 or more. Shears et al. (2006) found that no matter the level of rurality, there was a strong negative relationship between school attachment and substance use. They also found that students who lived in remote communities were more likely to have become intoxicated than their counterparts. Further, peer intoxication was more prevalent in medium-rural communities than in the other communities. In regard to school attachment, Shears et al. (2006) found that regardless of substance, greater school attachment was significantly correlated with smaller likelihood of lifetime substance use. Further, Shears et al. (2006) found that greater school attachment resulted in less overall use of substances, even for those students who had tried a substance. That is, students with strong school attachment had lower overall substance use, even if they had tried a substance. Shears et al. (2006) note that *most* of the results from their study do not indicate that school attachment is more or less of a protective factor against substance use in isolated rural areas, such as compared to more populated urban areas. However, the level of rurality does have a relationship between school attachment and marijuana and alcohol use in remote communities. Specifically, results from Shear et al.'s (2006) study suggest that in regards to students in the most remote communities, school attachment might be a protective factor against marijuana use and drunkenness.

Rurality, protective factors, and substance use

Based on the existing literature, as reviewed by Shears et al. (2006) it is difficult to conclude whether school attachment may be more, less, or equally important in protecting against substance use in rural areas. Shears et al. (2006) hypothesized that in

rural areas where out-of-school and extra-curricular activities and other opportunities for involvement for youth are slim, that school attachment may be more protective against substance use than compared to counterparts in urban areas where there are multiple opportunities for attachment to occur to other domains, such as clubs, groups, sports teams, etc. (Shears et al., 2006). Parker (2001) points out that in rural communities, there is a much greater focus on schools and how in these areas, schools and communities often rely on each other. Schools in rural communities are often a very important part of the community and often serve as a center for many community activities.

Therefore, in rural areas, especially in the most remote locations where opportunities outside of school for adolescents are scarcer, the relationship between school attachment and substance use might be stronger. That is, students in rural areas might be less likely to be involved in substance use because they primarily attached to their school and school norms since they have little other opportunities for attachment (Shears et al., 2006). On the other hand, Shears et al. (2006) found that being involved in school activities, being attached to their school, and achieving well academically may be perceived by rural adolescents and their families as less important to their future well-being. This is because, sometimes, both rural adolescents and their parents have lower expectations for youth continuing their education after high school and earning high incomes. Considering this, students attending schools in rural communities might be those who are less likely to become attached to their school, primarily because they are less likely to accept school norms that encourage accepted behavior (Shears et al., 2006). The refusal to adopt school norms, which help adolescent develop positive and prosocial behavior, again suggests that the negative relationship between school attachment and

substance use may be stronger for adolescents attending schools in rural communities than for their urban counterparts (Shears et al., 2006).

Significance of the Present Study

The present study sought to further examine the relationship between school attachment and alcohol use in rural high school students using the *I Sing the Body Electric* Youth Risk Behavior Survey data base. The present study was centered on school attachment and alcohol use because since 1998, when the program began, east central Illinois youth consistently identified their number one health risk as alcohol. The findings of this study are especially important so that future preventative measures can focus on enhancing school attachment among rural high school students. Further, as noted by Centers for Disease Control, health-risk behaviors, which are defined as behaviors that contribute to the leading causes of mortality among youth, are often established during adolescence, and are in fact, preventable.

Hypothesis

Considering little research has focused on the relationship between school attachment and alcohol use in rural high school students, the present study investigated this relationship. The main hypothesis is that those students who are well attached to their school will be the students who report little or no alcohol consumption. The hypothesis for the present study has support from the social control theory and the social development model, both of which ascertain that students who are positively attached to their school typically are less likely to participate in deviant behavior, such as alcohol use. The purpose of the present investigation was, therefore, to examine the relationship between school attachment and alcohol use in rural high school students.

Research Questions

1. Are rural high school students who are positively attached to their school less likely to use alcohol while in high school?
 - a. Do students who feel a sense of belonging to their school begin drinking alcoholic beverages regularly (at least once or twice a month) at an older age?
 - b. During the past 30 days, on how many days did students who feel a sense of belonging to their school have at least one drink of alcohol?
 - c. During the past 30 days, on how many days did students who feel a sense of belonging to their school have 5 or more drinks of alcohol in a row, that is within a couple of hours?

Method

Participants

Participants were 4,768 students from various high schools in the largest rural geographic educational region in the state of Illinois. This area included Douglas, Moultrie, Coles, Edgar, Shelby, Cumberland, and Clark counties in East-Central Illinois. Out of the total sample, 1,302 (26.9%) were freshmen, 1,336 (27.6%) were sophomores, 1,098 (22.7%) were juniors, and 1,041 (21.5%) were seniors. There were 57 (1.2%) of responses which were “ungraded or other grade.” Of the sample, 2,327 (48.8%) of the students were female, while 2,441 (51.2%) were male. Further analysis of the demographics of the participants will be conducted during the data analysis phase of the study.

Materials

Youth Risk Behavior Survey (YRBS). Each student completed the YRBS in 2010 during the first phase of the *I Sing the Body Electric* program. Most of the questions in the survey came from the Centers for Disease Control Youth Risk Behavior Survey, which was developed to monitor priority health-risk behaviors which “contribute markedly to the leading causes of death, disability, and social problems among youth in the United States” (Centers, 2004). Other questions come from other surveys or are based on local information needs.

There were a total of 150 questions in the 2010 survey. Some questions were asked on a Likert type scale, while others required a specific response from two to ten choices. Questions in the survey covered a variety of topics including personal safety, emotions, suicide, depression, alcohol, methamphetamine use, other drugs and risk

behaviors, technology and cyber safety, sexual behavior, body weight, food and drink, and physical activity. For example, “How often do you wear a seat belt when riding in a car driven by someone else?” with the response choices of “never wear a seatbelt, rarely, sometimes, most of the time, always” was a Likert scale question. An example of a question that required student to choose a specific response was, “During the past 12 months, on how many sports teams did you play?” with response choices of “0 teams, 1 team, 2 teams, or 3 or more teams.” All 150 questions were not utilized for the present study.

Reliability. The Center for Disease Control (CDC) has conducted two test-retest reliability studies of the YRBS questionnaire. These studies were conducted in 1992 and 2000. In 1992, the questionnaire was administered two times, 14 days apart to a sample of 1,679 students in grades 7 – 12. The CDC found that approximately three fourths of the items were rated as having a kappa of 61% - 100% with no statistically significant differences observed. In 2000, the questionnaire was administered to 4,619 high school students. Again, this was administered twice, 14 days apart. Approximately one of five items (22%) had significantly different prevalence estimates for the first and second times that the questionnaire was administered. Ten items (14%) had kappas <61% and had significantly different prevalence estimates for the first and second times that the questionnaire was administered. Therefore, the reliability of these 10 items was questionable. Certain items have been revised or deleted from later versions of the questionnaire (Centers, 2004).

Validity. According to the CDC, no study has been completed to determine the validity of the self-reported behaviors that are included in the YRBS questionnaire.

However, in 2003, the CDC did conduct a review of existing literature to assess factors such as cognitive and situational issues which might affect the validity of adolescent self-reporting on the YRBS questionnaire. Results from this assessment indicated that although cognitive and situational factors affect self-reports of behaviors, these factors do not threaten the validity of self-reporting of behaviors measured by the YRBS questionnaire (Centers, 2004).

Program

The data used in the present study were collected from *I Sing the Body Electric*, which is a fine arts and health promotion coalition that supports activities that combines the arts and prevention and connect youth with health and education communities. The program began in 1998 and has been collecting data on a biennial basis from seven participating counties in east central Illinois including, Douglas, Moultrie, Coles, Edgar, Shelby, Cumberland, and Clark. The program consists of three phases that take two years to complete. Upon completion of the third phase, the program starts over again. The three phases include:

Phase one. Students in the seven participating counties complete the YRBS which includes questions from Centers for Disease Control Youth Risk Behavior Survey, Prevention Youth Risk Behavior Surveillance Survey, The Illinois Youth Survey, Monitoring the Future Survey, and custom designed questions based on local information needs. The YRBS establishes the health concerns of youth such as substance abuse, drinking and driving, teen sexuality, suicide, and body image.

Phase two. Phase Two is named the “project production phase.” Through the funding of grants for purchase of materials and equipment, during this phase, students

produce arts/health projects. The top concerns that were uncovered in phase one are represented in the projects. At the end of the year, the art projects are showcased in an Arts and Health Festival.

Phase three. Finally, the art projects that were developed in Phase Two are taken on a region-wide tour which brings the projects to schools and communities in the seven county region. Student-created messages are also developed and broadcasted via media in the counties. Lesson plans are created and distributed to teachers who are encouraged to use them to facilitate and enrich the tour experience. The coalition activities focus community attention on the health risks identified in the survey with a focus on parent impact and environmental prevention initiatives (taken from ISBE packet).

Procedure

Data for the present study were collected by the *I Sing the Body Electric* staff in East Central Illinois. The staff first approached school administrators in each of the seven counties asking them if they would be willing to have their students fill out the questionnaire. If the administrators agreed, they were asked to fill out an “Intent to Participate” form. Next, students received “Parent Permission Letters” and only those students who returned the consent form were allowed to take the survey. The surveying took place from February 2010 to April 2010. Before filling out the survey, students were informed via booklet instructions and in the Parent Permission Letter that their answers would remain confidential. Students took the survey, which takes about 40 minutes to complete in classrooms, study halls, or gymnasiums. After the students were finished with the survey, *I Sing the Body Electric* staff collected the surveys and took

them in confidential envelopes to be processed by Eastern Illinois University Testing and Assessment. The report was then sent to Gaye Harrison, *I Sing the Body Electric* program director, who then had the data specialist at Sarah Bush Lincoln Health Center create tables for each question.

Independent Variable

The independent variable for the present study was school attachment. This question on the Youth Risk Behavior Survey was: Do you agree or disagree that you feel a sense of belonging to this school? The answer choices were on a Likert scale and choice options included: Strongly agree, Agree, Not sure, Disagree, Strongly disagree. In the analysis, the student responses were coded as follows: 1=Strongly agree, 2=Agree, 3=Not sure, 4= Disagree, and 5=Strongly disagree.

Dependent Variables

The dependent variables pertained to alcohol use. The questions on the Youth Risk Behavior Survey were: How old were you when you began drinking alcoholic beverages regularly (at least once or twice a month)?, with answer choices being nominal of Never drank, 8 years old or younger, 9 to 10 years old, 11 or 12 years old, 13 or 14 years old, 15 or 16 years old, 17 years or older. In the analysis, the student responses were coded as follows: 1= Never drank, 2=8 years old or younger, 3=9 to 10 years old, 4=11 or 12 years old, 5=13 or 14 years old, 6=15 or 16 years old, 7=17 years or older.

Another question was: During the past 30 days, on how many days did you have at least one drink of alcohol? Answer choices were also nominal for this question and were 0 days, 1 or 2 days, 3-5 days, 6-9 days, 10-19 days, 20-29 days, or all 30 days.

Answer choices were coded in the analysis as follows: 1=0 days, 2=1 or 2 days, 3=3-5 days, 4=6-9 days, 5=10-19 days, 6=20-29 days, 7= all 30 days.

The last question was: During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple hours? Answer choices were again nominal of 0 days, 1 day, 2 days, 3-5 days, 6-9 days, 10-19 days, or 20 or more days. In the analysis, answer choices were coded as: 1=0 days, 2=1 day, 3=2 days, 4=3-5 days, 5=6-9 days, 6=10-19 days, 7=20 or more days.

Design and Data Analysis

Because these analyses involve nominal (school attachment and alcohol consumption) data, a chi square goodness of fit will be used to analyze student's self reporting of school attachment, how old they were when they began drinking alcoholic beverages, on how many of the past 30 days they had at least one drink of alcohol, and on how many of the past 30 days they had 5 or more drinks of alcohol in a row. A test of goodness of fit establishes whether or not an observed frequency distribution differs from a theoretical distribution.

Results

In this study, it was hypothesized that those students who are well attached to their school will be the students who report little or no alcohol consumption. To answer the research questions for the current student, the data were analyzed by three chi square goodness of fit tests for each of the variables: how old students were when they first began drinking alcoholic beverages, on how many of the past 30 days they had at least one drink of alcohol, and on how many of the past 30 days they had 5 or more drinks of alcohol in a row.

A chi square goodness of fit was performed to determine if students who had a sense of attachment to their school started drinking alcohol at an older age. The results indicate that ages when students began drinking alcohol were not equally distributed in the population, $X^2(24, N = 4726) = 285.695, p < .001$ (see Table 1).

Results indicated that of the 2,580 students who reported that they have never drank alcohol, 68.72% (N= 1,773) also reported that they strongly agreed or agreed to having a sense of belonging to their school. Of the 939 students who reported that they were 15 or 16 years old before they began drinking alcohol regularly, 63.9% (N = 600) reported that they strongly agreed or agreed to feeling a sense of belongingness to their school.

Additionally, of the 224 students who reported they were 17 years old or older when they began drinking alcohol regularly, 62.05% (N = 139) reported they strongly agreed or agreed to have a sense of belonging to their school. These results indicate that over half of the students surveyed reported that they not only strongly agreed or agreed to having a sense of belonging to their school, but also reported that they had never consumed alcohol, thereby supporting the hypothesis of the present study.

Another chi square goodness of fit test was performed to determine if students who reported a sense of attachment to their school consumed alcohol less frequently during the 30 days prior to the study. Results indicate that on how many of the past 30 days students had at least one drink of alcohol were not equally distributed in the population, $X^2(24, N = 4743) = 343.860, p < .001$ (see Table 2).

When considering the relationship between students' sense of school belonging and on how many days in the past 30 days they had at least one drink of alcohol, of those

students who reported that they strongly agreed or agreed to have a sense of belonging to their school, 67.08% (N = 2,206) had not consumed any alcohol over the past 30 days. Of the 720 students who reported that they had consumed alcohol on 1 or 2 days, 62.78% (N = 452) reported that they strongly agreed or agreed to have a sense of belonging to the school.

When considering those students who reported consuming alcohol on all 30 days of the past month, of the 108 students, 30.55% (N = 33) reported that they strongly agreed or agreed to feel a sense of belonging to their school. On the other hand, 49.08% (N=53) of these 108 students reported that they disagreed or strongly disagreed to have a sense of belonging to their school. These results indicate that almost half of the students surveyed reported that they not only strongly agreed or agreed to having a sense of belonging to their school, but also reported that they had not consumed any alcohol over the past 30 days. Again, considering this data, the hypothesis is supported in that those students who feel a sense of belonging to their school also report little or no alcohol consumption.

A final chi square goodness of fit test was performed to determine if students who reported a sense of belonging to their school had fewer than five drinks of alcohol in a row over the past 30 days. Results revealed that on how many of the past 30 days students had five or more drinks of alcohol were not equally distributed in the population, $\chi^2(32, N = 4728) = 312.393, p < .001$. (See Table 3).

Finally, the present study examined students' sense of school attachment and how many of the past 30 days they consumed 5 or more drinks of alcohol in a row. Of the 3,559 students who reported that they had not consumed 5 or more drinks of alcohol in a

row over the past 30 days, 66.76% (N = 2,376) reported that they strongly agree or agree to have a sense of belonging to their school. Of the 341 students who reported having had 5 or more drinks in a row on one day of the past 30 days, 63.64% (N = 217) reported that they strongly agreed or agreed to have a sense of belonging to their school. When considering the 103 students who reported having had 5 or more drinks of alcohol in a row on 20 or more days of the past 30 days, 36.9% (N = 38) reported that they strongly agree or agree to have a sense of belonging to their school. Of those 103, 49.51% (N = 51), reported that they disagree or strongly disagree to have a sense of belonging to their school. These results reveal that over half of the students surveyed reported that they strongly agreed or agreed to have a sense of belonging to their school and had consumed 5 or more drinks of alcohol in a row on 0 of the past 30 days. Therefore, considering this data, the hypothesis of the present study is correct in predicting that those students who are well attached to their school are also those students who report little or no alcohol consumption.

Discussion

The primary purpose of this study was to examine the relationship between school attachment and alcohol use in rural high school students. The basis of the present study was centered on data collected by the ISBE program. The program was interested in this data because since the program began over ten years ago, youth in East Central Illinois have consistently identified their number one health risk as alcohol.

The results from the present study indicated that the majority of the students who reported feeling a sense of attachment to their school are also those students who reported little or no alcohol consumption. These results may lend some ancillary support to the

social control theory, which purports that adolescents learn patterns of behavior from primary socialization sources such as their family, school and peer groups. (Henry et al., 2009). Further, Henry et al. (2009) maintain that students who are motivated to conform to the norms, expectations, and values of positive prosocial sources are also those students who have less involvement in problem behavior such as drug and alcohol use. As explained by Shears et al. (2006), adolescents who have positive experiences in school and who are attached to positive social ties are less likely to participate in deviant behavior.

Another indication the results are supported by the social control theory is that it also upholds that adolescents who care about school and perform well academically will not be as likely to participate in unlawful behavior because they do not want to jeopardize their school related accomplishments and positive relationships (Shears et al., 2006). Although it was not specifically asked if the participants in the present study care about their school, one potential characteristic of the school attachment definition (a feeling of connectedness that youth have to their school, school personnel, and various aspects of their academic lives), is that the participants who reported a strong sense of attachment to their school also care about their school and their academics and therefore, probably do not want to put at risk their positive relationship with their school or their academic and school related accomplishments. As concluded by Shears et al. (2009), schools may serve as a protective factor from at-risk behaviors for those students who do care about their academic and social success.

The results are also possibly supported by the social development model, which expands on the social control theory by explaining both positive and problem behavior.

As explained by Maddox and Prinz (2003) and Shears et al. (2006), the social development model hypothesizes those bonds to prosocial peers, positive experiences and interactions in the school, and involvement with others all lead to establishing strong and positive attachment in schools which thereby leads to inhibiting delinquency and problem behavior.

Although the results indicated that the majority of students who reported feeling a sense of attachment to their school are those students who also reported little to no alcohol use, it is still important to consider that there are youth in East Central Illinois reporting that they do not feel a sense of attachment to their school and do consume alcohol. Of the students surveyed, 393 students reported that they disagreed or strongly disagreed that they felt a sense of attachment to their school and began drinking alcoholic beverages regularly somewhere between the ages of ≤ 8 to 17 years old or older.

Further, of the students surveyed who reported that they consumed at least one drink of alcohol over 1 to 30 of the past 30 days, 335 reported that they disagreed or strongly disagreed that they felt a sense of belonging to their school. Finally, of the students surveyed who reported that they consumed 5 or more drinks of alcohol in a row over the past 1 to 20 or more days, 264 students reported that they disagreed or strongly disagreed to feeling a sense of belonging to the school.

These results are supported by the social development model, which as previously mentioned, attempts to explain both positive and problem behavior. The theory maintains that negative or weak attachment to prosocial sources and strong attachment to antisocial sources prevent adolescents from adhering to the norms and expectations of schools that discourage delinquent behavior such as alcohol use (Henry et al., 2009).

Therefore, as explained by Henry et al. (2009), these youth are more likely to follow the norms, expectations, and values of antisocial peers who are also not well attached to their school.

When considering the ISBE's interest in the results of this study, and the assumption that schools serve as a protective factor from at-risk behaviors, such as the use of alcohol (Shears et al., 2009, Henry and Slater, 2007), it is important to consider that one reasonably well-studied variable that may help prevent and/or delay the use of alcohol is school attachment. The school districts that participate in the ISBE program may benefit from implementing programs that help their students develop and maintain positive prosocial bonds. Districts may wish to employ programs that enhance a sense of school attachment in their students by setting goals to improve commitment to conventional academic endeavors, enhance positive prosocial relationships between and among students, teachers, and staff, and develop strong beliefs in established norms of the school (Henry and Slater, 2007).

Limitations

Although results of this study were significant and have meaningful implications, a few limitations exist. Measures of self-report are often suspect to participants giving responses that they feel are socially desirable or appropriate or "fake negative" in reporting negative feelings when in fact they do not actually feel this way. Further, inaccurate recall of past events (i.e., how old were you when you started drinking?) is difficult to control for when collecting data via self-report. In addition, if students had enough drinks to be inebriated, they may not remember how many drinks they actually consumed.

Another limitation has to do with the measure itself in that only test-retest reliability studies have been conducted and no validity studies. There are no results pertaining to item consistency, internal consistency, factor structure, etc. In addition, the results obtained must be cautiously interpreted as the items may not measure what they purport to measure (i.e., validity). The questionnaire only has one item measuring “belongingness.” The item of school belongingness may be interpreted differently or have many definitions; thus, the findings need to be viewed in light of these limitations. Also, the middle answer choice on the question, “Do you agree or disagree that you feel a sense of belonging to this school?” is “Not sure,” which is not a good item. This is not a valued item because students who marked this answer do not actually indicate having an opinion about their sense of attachment to their school. Thereby, this answer choice does not contribute to obtaining an accurate sense if these students are attached to their school or not. Therefore, the results on the answer choice “Not sure” need to be cautiously interpreted because it is uncertain what, if anything, it is measuring.

Another limitation is that the results of the data analyses are preliminary and not comprehensive. There may be variables in students’ lives other than feeling a sense of attachment to their school that influence their decision to consume alcohol (e.g. family issues, family history of mental illness, feeling unpopular, etc.). Conversely, there might be variables in students’ lives that influence their decision to not consume alcohol (familial responsibility, spiritual beliefs, etc.).

Also, when dealing with nominal level data and post hoc analysis, the types of designs and manipulations are limited. Nominal level data are not robust in nature and may not be sensitive enough to garner all the information required or desired to answer

questions fully. In addition, when research is conducted post hoc on a data set, there are limitations as what analyses and designs can be done as well as attempting to control for extraneous variables.

Another limitation of the present study is that the majority of participants were of the same racial/ethnic group of Caucasian. While this is a good representation of demographics in East Central Illinois, it is not a good representation of demographics in a wider range. A greater focus on ethnic diversity should be considered in future research.

Additionally, the participants in the present study were limited to a relatively small geographical location of the United States. Therefore, the results of this study are limited to East Central Illinois and other locations similar to the make-up of this area and are not generalizable to other locations.

Implications and Future Research

There are important implications of this study. First, this study identifies that students who do agree or strongly agree to feeling a sense of attachment to their school are the majority of the time the ones who have no to limited alcohol use. Further, those students who reported that they disagree or strongly disagree to feeling a sense of attachment to their school also report consuming alcohol. Therefore, considering that adolescents spend a significant portion of their day in school, it would be highly advisable to educate youth about the risks and dangers of alcohol through prevention programs and to develop programs to help enhance school attachment among rural high school students.

Future research in this area should continue to conclusively identify if having a strong sense of school attachment does in fact lower youths likelihood of initiating and

continuing the use of alcohol. Further, researchers could replicate this study using larger sample sizes, different geographical locations, and more diverse races and ethnicities to improve generalizability of the data. Furthermore, future research could also expand on the types of questions asked about alcohol use as it relates to school attachment.

Examples might include: During the past 30 days, on how many of the days did you have at least one drink of alcohol on school property? Or, have you ever experienced any consequences or injury due to alcohol use, and if so, what was it?). Future research should focus on designing a study that adds specific questions on school attachment, achievement, and consuming alcohol or employ a measure that has good reliability and validity. Finally, future studies should aim to link research results to develop and examine the effectiveness of prevention and intervention programs that help youth become more attached to their schools, thereby delaying or preventing alcohol use.

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Table 1

Sense of belonging by how old were you when you began drinking alcoholic beverages regularly

Age	Level of Attachment				
	Strongly Agree n (%)	Agree n (%)	Not Sure n (%)	Disagree n (%)	Strongly Disagree n (%)
Never Drank	530 (20.54)	1243 (48.18)	522 (20.23)	178 (6.90)	107 (4.15)
≤ 8 years old	18 (12)	43 (28.67)	38 (25.33)	11 (7.33)	40 (26.67)
9 or 10 years old	13 (13.68)	22 (23.16)	34 (35.79)	5 (5.26)	21 (22.11)
11 or 2 years old	23 (13.86)	60 (36.14)	36 (21.69)	19 (11.44)	28 (16.87)
13 or 14 years old	88 (15.38)	223 (38.99)	172 (30.07)	44 (7.69)	45 (7.87)
15 or 16 years old	161 (17.15)	439 (46.75)	199 (21.19)	91 (9.69)	49 (5.22)
17 years old or older	47 (20.98)	92 (41.07)	45 (20.09)	29 (12.95)	11 (4.91)
Total	880 (18.62)	2122 (44.90)	1046 (22.13)	377 (7.98)	301 (6.37)

Table 2

Sense of belonging by during the past 30 days, on how many days did you have at least one drink of alcohol

Days	Level of Attachment				
	Strongly Agree n (%)	Agree n (%)	Not Sure n (%)	Disagree n (%)	Strongly Disagree n (%)
0 days	607 (19.71)	1459 (47.37)	668 (21.69)	215 (6.98)	131 (4.25)
1 or 2 days	113 (15.70)	339 (47.08)	160 (22.22)	67 (9.31)	41 (5.69)
3 to 5 days	64 (16.71)	150 (39.17)	110 (28.72)	28 (7.31)	31 (8.09)
6 to 9 days	48 (19.59)	92 (37.55)	49 (20.00)	35 (14.29)	21 (8.57)
10 to 19 days	33 (20.12)	52 (31.71)	36 (21.95)	17 (10.37)	26 (15.85)
20 to 29 days	2 (4.65)	20 (46.51)	5 (11.63)	3 (6.98)	13 (30.23)
All 30 days	16 (14.81)	17 (15.74)	22 (20.37)	11 (10.19)	42 (38.89)
Total	883 (18.61)	2129 (44.89)	1050 (22.14)	376 (7.93)	305 (6.43)

Table 3

Sense of belonging by during the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row

Days	Level of Attachment				
	Strongly Agree n (%)	Agree n (%)	Not Sure n (%)	Disagree n (%)	Strongly Disagree n (%)
0 days	691 (19.42)	1685 (47.34)	766 (21.52)	254 (7.14)	163 (4.58)
1 day	49 (14.37)	168 (49.27)	74 (21.70)	32 (9.38)	18 (5.28)
2 days	51 (19.92)	86 (33.59)	76 (29.69)	19 (7.42)	24 (9.38)
3 to 5 days	41 (16.47)	86 (34.54)	67 (26.91)	27 (10.84)	28 (11.24)
6 to 9 days	22 (13.75)	55 (34.38)	33 (20.63)	29 (18.12)	21 (13.12)
10 to 19 days	9 (15.52)	19 (32.76)	15 (25.86)	6 (10.34)	9 (15.52)
20 or more days	18 (17.48)	20 (19.42)	14 (13.59)	11 (10.68)	40 (38.83)
Total	881 (18.64)	2119 (44.84)	1045 (22.11)	378 (8.00)	303 (6.41)