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THEORY FOR EXPLAINING THE CIGARETTE SMOKING  
AND ALCOHOL DRINKING BEHAVIOR OF AFRICAN  
AMERICANS AND MEXICAN AMERICANS**

presented by

Jessica Shovette Davis

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ASSESSING THE EFFICACY OF THE SOCIAL CONTROL THEORY FOR  
EXPLAINING THE CIGARETTE SMOKING AND ALCOHOL DRINKING  
BEHAVIOR OF AFRICAN AMERICANS AND MEXICAN AMERICANS

BY

Jessica Shovette Davis

A DISSERTATION

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## **ABSTRACT**

ASSESSING THE EFFICACY OF THE SOCIAL CONTROL THEORY FOR  
EXPLAINING THE CIGARETTE SMOKING AND ALCOHOL DRINKING  
BEHAVIOR OF AFRICAN AMERICANS AND MEXICANS

BY

Jessica Shovette Davis

This research addressed the efficacy of the social control theory in explaining the cigarette smoking and alcohol drinking behavior of African American and Mexican youth as well as it explains these behaviors for white youth. This is a secondary data analysis that utilizes the National Educational Longitudinal data (NELS:88).

Results from the data analyses indicate that the drinking and smoking behavior of females was significant. In addition, findings indicate the model was a better explanation of the smoking and drinking behavior of whites than African Americans and Mexicans. Also, the model was a better explanation of the smoking and drinking behavior of Mexicans than African Americans. Finally, the social control model is a better explanation of the smoking behavior of all adolescents than it is of their drinking behavior.

Future research utilizing the social control variable should (1) include original data collection to address the

limitations of having to compute variables from data that has already been collected. This would insure the exact specification of the social control indicators as well as the control variables (i.e., race and class); and (2)

Include social indicators that are conceptualized taking into account cultural differences. This would require the researcher to understand what cultural differences might exist when considering the conceptualization of attachment, commitment, involvement, and belief.

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This is dedicated to my parents for their unwavering love and support throughout this process and throughout my life. They are the cornerstone of my foundation and my shelter in time of storm, for this, I thank them.

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## **CHAPTER I**

### **INTRODUCTION/PROBLEM STATEMENT**

There is a dearth of evidence that the social control theory is a viable explanation of delinquent behavior for youth of color. This paper will examine previous research utilizing the social control theory and their findings on race/ethnicity and test the applicability of the social control theory to explain the cigarette smoking and alcohol drinking behavior for African American and Mexican youth. Specifically, this research examines (a) the current research using the social control theory to explain delinquency; (b) the use of the social control theory as it pertains to African American and Mexican American youth; and (c) the extent to which the social control theory explains the cigarette smoking and the drinking of alcohol among African American and Mexican American youth.

#### **The Social Control Theory**

The purpose and usefulness of any delinquency theory is related to the extent to which it can explain delinquency. Since the inception of Hirschi's (1969) social control theory there has been a vast amount of research that has examined its ability to explain juvenile delinquency. Hirschi's (1969) control theory has been

tested and has received a wealth of empirical support (Hepburn, 1977; Hindelang, 1973; Johnson, 1979; Krohn and Massey, 1980; Wiatrowski, Griswold and Roberts, 1981).

The theory's explanatory power has been described as moderate to good depending on its use (Gardner and Shoemaker, 1989). One of the main tenets that Hirschi (1969) posited is the social control theories' applicability to explain the behavior of youth across all socio-economic categories. However, much of the research that has utilized social control theory has tended to gloss over the applicability of the model to youth of color. Prior research has indicated the social control theory loses its explanatory power when race is introduced into the equation (Gardner and Shoemaker, 1989; Covington, 1988; Liska and Reed, 1985; Weber, et. al., 1995; Cerkonvich and Giordano, 1992). In addition, the amount of variance the model explains in regression analyses is far less for youth of color than for majority youth (Gardner and Shoemaker, 1989; Covington, 1988; Liska and Reed, 1985; Weber, et. al., 1995; Cerkonvich and Giordano, 1992).

In addition to the problems with the efficacy of social control theory to explain juvenile delinquency relative to race or ethnicity, much of the research that

does address race tends to focus mostly on the racial dichotomy of African Americans and White Americans (Covington, 1988; Liska and Reed, 1985; Cerkorvich and Giordano, 1992; Gardner and Shoemaker, 1989). The Black/White dichotomy does not address issues pertinent to many racial/ethnic groups that find themselves within the criminal justice system. Hence, there is a need to broaden the research to include other racial and ethnic groups including immigrant populations.

### **Hispanics and the Social Control Theory**

Research utilizing the social control theory has shown there is a dearth of information assessing the utility of the theory to explain the delinquent behavior of Hispanic youth. There is very little published where any Hispanic ethnicity is included in the analyses. The scant social control research including Hispanics and more specifically Mexican Americans is problematic, as Mexican Americans are over represented in the criminal justice system as well as African Americans. Data from the Office of Juvenile Justice and Delinquency Prevention indicate that Hispanics commit delinquent and deviant acts in proportion to their numbers in the general population (12.5%) (OJJDP, 1998). However, arrest, adjudication, and detention data indicate they are

over represented in the criminal justice system (OJJDP, 1998).

The rapid growth of the Hispanic population in general requires attention across all major institutions including the criminal justice system. The Hispanic population in the United States has increased dramatically since the 1990 census. The 1990 census indicates Hispanics represented approximately 9% of the population (US Census, 1999). In contrast, the 2000 census indicates Hispanics represent 12.5% of the total United States population (US Census, 2000). This increase makes Hispanics the largest minority group in the United States out numbering African Americans. The increase in the Hispanic population also affects their presence in the criminal justice system (Note: there are only recent data available on Hispanics in the criminal justice system that allows comparison across all races). Overall, the data illustrate Hispanics are over represented at key points in the criminal justice system (i.e., arrest, adjudication, and placement). Data suggests that Hispanic males and Black males were more likely to be arrested than white males (OJJDP, 1999; NLSY, 1997). In addition, a greater proportion of Black and Hispanic males were arrested more than white males (OJJDP, 1999; NLSY, 1997).

Hispanics represented 18% of all people in residential placement in 1997 (OJJDP, 1999; NLSY, 1997). In addition, Hispanics represented 15% of the overall population of those who were admitted to adult prisons in 1997 (OJJDP, 1999).

It is pertinent to understand the extent to which the social control theory explains the behavior of Hispanic youth in order to effectively address the issue of overrepresentation of Mexican American youth overrepresentation in the criminal justice system.

### **Smoking Cigarettes and Drinking Alcohol**

The research on cigarette smoking and drinking alcohol indicate that participation in these delinquent acts varied by race. The data indicate African American males and females were less likely to drink alcohol or smoke cigarettes in the 30 days prior to being interviewed than white or Hispanic youth.

The research on adolescent cigarette smoking and drinking focuses mainly on two themes. First, parents and peers have the most influence over adolescent cigarette smoking and alcohol use than any other factors. Secondly, is the differential smoking and drinking of youth in reference to race/ethnicity.



### **SIGNIFICANCE OF THE PROBLEM**

It is important that theories used as basis for policy and programs address the specific and cultural differences of youth of color. The social control theory is one such theory that influences policy and programs for all youth; however, current research lacks compelling evidence the social control theory is a viable explanation of the delinquent behavior for youth of color.

In addition, the social control research that does address issues of race/ethnicity primarily focuses on the Black/White race dichotomy and ignores the issues of Mexican youth. Hawkins (1995) suggests much of the research in criminal justice tend to focus mostly on the racial dichotomy of African Americans and white Americans. The Black/White dichotomy does not address the specifics of many racial/ethnic groups that find themselves in contact with the criminal justice system. There needs to be a broadening of the research to include other racial and ethnic groups.

The current research will examine previous findings on the social control theory and race, as well as, test the applicability of the social control theory in explaining

cigarette smoking and alcohol drinking behavior of African American and Mexican youth.

Does the social control theory explain the cigarette smoking and alcohol drinking behavior of African American and Mexican youth as well as it explains these behaviors for white youth? This study aims to answer this question by:

- a) examining the race findings from previous research,
- b) examining the traditional conceptualization and operationalization of the social control theory in the literature to understand how the traditional treatment might affect research findings, and
- c) conducting analyses that include whites, African Americans and Mexican Americans from a national data set.

## **CHAPTER II**

### **LITERATURE REVIEW**

The literature review addresses three themes: (a) a critique of the social control theory (b) the evidence of the efficacy of social control theory to explain the delinquency of youth of color; and (c) a review of the literature on the cigarette smoking and alcohol drinking behavior of youth.

#### **THEORETICAL FRAMEWORK: SOCIAL CONTROL THEORY**

Since the inception of Hirschi's (1969) social control theory there has been a plethora of research that has examined its ability to explain juvenile delinquency overall. Hirschi's (1969) social control theory has been tested and has received a wealth of empirical support (Hepburn, 1977; Hindelang, 1973; Johnson, 1979; Krohn and Massey, 1980; Wiatrowski, Griswold and Roberts, 1981). The theory's explanatory power has been described as moderate to good depending on its use (Gardner and Shoemaker, 1989). One of the tenets that Hirschi (1969) posited about social control theory is its applicability across all socio-economic categories. However, much of the research that has utilized social control theory has tended to gloss over the applicability of the model to youth of color. This, despite the fact that the social control theory loses its

explanatory power or mixed results are obtained when race is introduced into the equation (Gardner and Shoemaker, 1989; Covington, 1988; Liska and Reed, 1985; Weber, et. al., 1995; Cerkonvich and Giordano, 1992). In addition, the amount of variance the model explains in regression analyses is far less for adolescents of color than for majority youth (Gardner and Shoemaker, 1989; Covington, 1988; Liska and Reed, 1985; Weber, et. al., 1995; Cerkonvich and Giordano, 1992).

In addition to the problems with the efficacy of social control theory to explain juvenile delinquency relative to race or ethnicity, much of the research that does address race tends to focus mostly on the racial dichotomy of African Americans and white Americans (Covington, 1988; Liska and Reed, 1985; Cerkonvich and Giordano, 1992; Gardner and Shoemaker, 1989). The Black/White dichotomy does not address issues pertinent to many racial/ethnic groups that find themselves within the criminal justice system. There needs to be a broadening of the research to include other racial and ethnic groups including immigrant populations.

The underlying assumption of the social control theory is that everyone has tendencies to commit criminal acts. However, the desire to act upon those criminal tendencies are suppressed by the bonds they form in society to individuals (i.e., parents, teachers, peers) as well as to

socially accepted norms (i.e., completing high school, attending to college, getting married) (Hirschi, 1969).

Elements of the social bond as explained by Hirschi (1969) are attachment, commitment, involvement and belief. Attachment is considered the most affective element of all the social bonds and attachment to parents is the most important bond within this element because parents are viewed as the primary influence over behavior as well as socializing youth to the acceptable norms in society. The attachment element also consists of attachments to other family members, friends, and the community at large (i.e., teachers, clergy, etc.). Commitment to conventional attitudes or conformity is the second element in social control theory. Hirschi (1969) specifically addressed conventional attitudes such as going to college and attaining a high status job upon graduating as indicative of a juvenile committed to conventional attitudes. The element of involvement refers to participation in conventional activities such as school related (i.e., sports, band, clubs, etc.) and other extracurricular activities. Involvement assumes a person who is involved in "conventional" activities will be too busy to engage in illicit activities. The belief bond suggests an individual's belief in the rules of society as a common value system,

within the society, whose norms are being violated (Hirschi, 1969).

The bonds of the social control theory have a negative effect on delinquency, the stronger the bonds the more likely delinquency will decrease and vice versa. In addition, Hirschi (1969) suggests the influence of the bonds on delinquency is not equally distributed among the four bonds. In fact, he suggests that attachment to parents is seen as the most affective bond. If parental attachment is strong then this lessens the influence of the other bonds on delinquency. However, if the affects of parental attachment or attachment in general is not strong, then one of the other bonds would have to be strong in order to prevent or reduce the likelihood of delinquent behavior. For example, there are youth who grow up in environments where there is not a strong parental influence as the result of the parents' absence due to drug use, imprisonment, abandonment, etc. However, these youth may not grow up to be delinquents because they have been influenced by other members of their community. These youth may have formed an attachment to clergy, teachers, coaches, etc. Moreover, the youth may be involved in sports and other school-related activities and realizes that his/her involvement in these activities is important. In these examples, attachment to other community members and/or involvement in conventional activities has

the affect that parental attachment should have had on the behavior of the youth. Attachment to other community members and/or involvement in conventional activities becomes a stronger determinate for the youth when parental attachment fails to be the most affective element.

### **Limitations of the Social Control Theory**

Previous research indicates the social control is limited in the types of delinquent behaviors it can explain and for whom it can explain delinquent behaviors. Research shows that the social control model predicts status or less serious offenses better than more serious types of crimes (Krohn and Massey, 1980; Agnew, 1985). This is important because adolescents with ties to conventional others and institutions may perceive that committing certain types of delinquent acts will not affect their future whereas, other forms of delinquency will have more serious consequences (Friedman and Rosenbaum, 1988).

Age is another variable that limits the applicability of the social control model. Age is perceived as the strongest predictor of delinquent activity. Certain components of the bonding process become less effective as deterrents against delinquent activity as adolescents get older. Older adolescents may begin to emphasize more career-oriented goals (Friedman and Rosenbaum, 1988). Gender may

also limit the social control theory's explanatory power. Males and females encounter different experiences during their growth due to unique socialization processes and role expectations.

The social control theory may also be limited in explaining delinquency depending on the initiation, intensity, and cessation of delinquency (Akers, 1991). Consequently, there may be differences in the factors that determine a) whether an adolescent starts offending, b) the rate at which an adolescent offends, and c) whether an adolescent stops offending (Akers, 1991). Paternoster and Triplett (1988) argue that social control theory is better able to explain the initiation of offending than the intensity of offending. That is, the social control theory seems to explain why youth may begin to smoke but it does not explain why one youth may smoke very little or a lot. Research findings on these findings however are mixed (Agnew, 1987; Agnew, 1991; Paternoster and Triplett, 1988; Skinner, Massey, Krohn, and Lauer, 1985; Krohn, Skinner, Massey, and Akers, 1985)

In short, previous research has offered support for the social control model as an explanation for delinquent behaviors. However, there is also evidence to support the idea that the theory may need further specification of the conditions under which the theory holds. One such condition



(in addition to the ones already mentioned) is the efficacy of the social control theory to explain the delinquency of youth of color.

### **The Social Control Theory and Race**

Race, ethnicity, and crime are topics that are often debated in the public/political arena (Junger and Marshall, 1997). Unresolved questions concerning the race/ethnicity and crime link continue to capture the attention of criminological studies in the United States (e.g., Tonry, 1995). The search for a theoretical framework that can accommodate race/ethnicity as a variable continues (e.g., Georges-Abeyie, 1989; Hawkins, 1986). A more common approach is to just include race/ethnicity as one of many variables in a model that may be related to criminal behavior. Some theorists argue that there should be a theory specifically designed to explain the criminal behavior for people of color (Harris and Meidlinger, 1995; Mann, 1993). This is consistent with literature that stresses the importance of understanding how specific ethnic groups' sociocultural situations influence their adolescents' delinquent experiences (Rodriguez and Weisburd, 1991). The opposing perspective, however, suggests that concepts derived from mainstream criminological theories should be able to account for delinquency among all people of color (e.g., Sampson and

Laub, 1993). Hirschi (1969) concluded in his findings on the social control theory that the elements of the bond are found in every section of society and therefore social control theory can help explain crime across all socio-economic lines including race/ethnicity. There is however, evidence to suggest the social control theory does not explain delinquency, comparably, in all sections of society, particularly for youth of color (Gardner and Shoemaker, 1989).

Gardner and Shoemaker (1989) concluded that race explains as much of the delinquency as does community context. The study by Gardner and Shoemaker (1989) is a multivariate analysis of social bonding theory of delinquency, which includes an analysis of urban and rural locations. The sample consisted of 733 eighth and twelfth grade students from Virginia. Resource limitations necessitated the use of a convenience sampling method in the selection of schools and students. Subjects in the study ranged in age from 13-20 and were evenly distributed in categories on gender and race (White and Black). The sample was divided into two categories of urban and rural. A total of 277 youth were classified as urban and 456 were considered from a rural area. Most of the urban sample consisted of African Americans and the rural consisted mostly of whites.

The results of the multivariate analysis indicate there was very little support of the social bond model from the urban sample as compared to the rural sample. The amount of explained variance was much lower for the urban sample than the rural sample where there were several significant associations with delinquency and the amount of explained variance was very high (Gardner and Shoemaker, 1989).

This study provides helpful information on the ability of the social control theory to explain the delinquent behaviors of African Americans and Whites. This study however does have limitations. The sample drawn for the study was not randomly selected and did not contain national representation of subjects, as the subjects were all from Virginia. In addition, Hispanics were not selected as a separate ethnic group for the analyses.

The research conducted by Liska and Reed (1985) examines the reciprocal effects of the social bond elements on delinquency. Specifically, this study examines the effects of the social bonds on delinquency and the effects of delinquency on the social bonds. The data used for this study was from the Youth in Transition Study, which is a four-wave, multistage, national probability sample of boys from 87 high schools. The researchers used the first and second wave of the data to conduct their analyses. The

sample was divided into four sub-samples of social class and race.

Their findings suggest that the causal structure is not contingent on class and pattern of delinquency, but on race. The analysis suggests there is a reciprocal effect of the social control variables. Specifically the findings suggest that for whites parental attachment affects delinquency, delinquency affects school attachment, and school attachment affects parental attachment. The reciprocal effects were different however for African Americans in the analysis. Specifically, two compelling differences for African Americans were, school attachment is affected by parental attachment, whereas for whites parental attachment is affected by school attachment. Moreover, for African Americans, school attachment affects delinquency, whereas, for Whites, delinquency affects school attachment. The researchers concluded that the social bond model could not ignore social categories such as race because differences that were race-based were found.

The findings of Liska and Reed's (1985) suggest once again that the use of the social control model to explain delinquency does have different effects for different race groups. The study was limited however in that not all of the elements of the social control model were examined for their reciprocal effects on delinquency. In addition, the

researchers limited their study of race effects to African American males and White males excluding the race effects of other race/ethnic groups.

Cerkonvich and Giordano (1992) researched how different levels of attachment, commitment, involvement and belief in school activities may vary across race. They hypothesized that African American youth would be less attached to school than white youth because being involved in school would be seen among African American peers as going along with the establishment or in essence "acting white" (Cerkonvich and Giordano, 1992).

The researchers obtained a cross-section of youth between 12 and 19 years of age in the Toledo, Ohio metropolitan area. They achieved their objective of sampling equal numbers of males, females, African Americans and Whites by using a multistage, modified probability sampling design in which geographically defined area segments were selected with known probability. A total of 942 face-to-face interviews were successfully completed. Delinquency was measured by a modified version of Elliott and Ageton's (1980) self-report delinquency scale. Seven dimensions of school attachment were used in the model. The seven dimensions are: a) school attachment; b) attachment to teachers; c) school commitment; d) perceived risk of arrest;

e) school involvement; f) parental communication; and, g) perceived opportunity.

One-way analysis of variance was used to analyze the data, as the researcher was particularly interested with in-group effects. The results indicate there were no race-based differences but the amount of explained variance was lower for African-Americans than for Whites. The researchers concluded that although the racial differences were not found for school attachment and delinquency, the way school attachment variables were conceptualize may have influenced the outcomes of their research.

The researcher's conclusions are however contrary to what they present in their article. Cernkovich and Giordana conclude school bonding plays the same role in the delinquency involvement of African Americans and whites. However, an alternative explanation of the findings suggests that African Americans are more strongly attached to school than whites. Moreover, the model explained more variance for African American males ( $R^2=.154$ ) than for white males ( $R^2=.133$ ). In addition, school attachment, school commitment, and school involvement were all significant predictors for delinquency for African American males; whereas, only school commitment was a significant predictor of delinquency for white males. These findings suggests that the way in which the social control model is conceptualized

may influence the ability of the model to explain the behavior of youth of color, in this case African American youth. Limitations of this research are the fact that the researcher's focused only on school-related variables. In addition, this study did not include a national sample, and again the research focused on the Black/white dichotomy.

Research conducted by Weber, Miracle and Skehan (1995) examined the predictive power of the social control theory for African Americans, Hispanics and Whites. The research specifically focused on the elements of social bond in the context of family bonding among African American, Hispanic and White adolescents. The sample consisted of sixth and eighth graders who attended school in a single attendance zone at three regional diverse urban sites representing the American southwest, Midwest, and southeast. The researchers administered the survey in a structured interview setting where the interviewer read the questions out loud and the youth circled answers on a separate sheet of paper (Weber, et al., 1995).

The delinquency measures were derived from self-report data. The attachment bond was a measure of three components 1) affection for and sensitivity towards others; 2) intimacy of communication (i.e., the extent to which a youth shares his or her mental life with significant others); and, 3) the respect, love, or affection the individual has for

significant others (Weber et al., 1995). The commitment bond was measured in terms of the strength of an emotional response to an identity, which should be reflected in actual behavior. Involvement was measured in terms of the time spent in conventional activities (Weber et al., 1995). Finally, belief was measured in terms of the extent to which one feels obliged to conform to the rules of society, is made possible by the absence of beliefs that prohibit delinquency (Weber et al., 1995).

The data analysis consisted of the researchers investigating the reliability and validity of the social bonding constructs. Next, they investigated the relationship between the independent and dependent variables in the analysis. Finally, the relationship between the social bonding constructs and delinquency was analyzed and compared across racial/ethnic groups. The reliability analysis supported the use of the social bond constructs in racially or ethnically diverse groups. The validity analysis provided limited support for Hirschi's (1969) theoretical proposition that the elements of the social bonds are distinct components. Other findings from this study indicate that researchers should be cautious in the utilization of the social bond elements in diverse populations. The reason being, measures that may be valid indicators of the bonding components for one group may be an indicator of another



social bond component in another group (Weber, et al., 1995).

Weber et al., (1995) found that family pride exerts influence over delinquency for Whites and Hispanics. Conversely, caretaker supervision exerts influence over delinquency for Whites and African Americans. In addition, female caretaker communication exerts influence over delinquency for Hispanics (Weber et al., 1995). Family identity had an influence over delinquency for Whites and Hispanics. The influence of the female caretaker varied across all three groups, but female supervision appears to have more influence over delinquency for Whites and African Americans. However, female communication has an influence over delinquency for Hispanics (Weber et al., 1995).

The aforementioned research is important because the researchers analyzed the independence of the control components by using factor analysis. The loadings were the same for the male attachment indicators across all racial groups. However, loadings were different for the female attachment indicators. The data indicated that female supervision indicators loaded on a discrete factor for Whites, however, other indicators were included for Blacks and Hispanics. For African Americans the female supervision factor also included the youths' acknowledgement that one should follow the rules of the family. For the Hispanics

female supervision was related to the number of school-week afternoons and weekend-time spent with families (Weber et al., 1995).

Weber et al., (1995) also found that the family commitment variables loaded differently for each of the sub-samples. This difference in loading could have been a difference in culture. Family involvement also was different for the racial groups. Time spent with family seem to have relevance for African Americans and white. Time spent with family is associated with female supervision for Hispanics. The belief component was only relevant for Hispanics. The indicators for belief did not load high on any factor for the White sub-sample and for the African American sub-sample it was associated with female supervision. The researchers then created social bonding indices from indicators that would be valid across all racial categories. The overall results from the social bond elements indicate that age and sex account for 28.4% of the variance in delinquency for Whites, 22.2% for African Americans and 26.5% for Hispanics (Weber et al., 1995).

The researchers concluded that the reliability analysis of the social bond constructs support the use of these constructs and the social control theory to explain delinquency in ethnically or racially diverse groups. The reliabilities ranged from .68 to .95 (Weber et al., 1995).

However, the reliabilities were consistently higher for Whites than for Blacks and Hispanics (Weber et al., 1995). In addition, the amount of explained variance for all three groups was low.

Rodriguez and Weisburd (1991) tested social control theory on a sample of Puerto Rican males. The researchers hypothesized that the Puerto Rican family would have a strong influence over delinquency. Therefore, peer involvement was expected to be less important and the strong influence of the family was expected to be at the expense of other involvements (i.e., school, church, activities, etc.). The data for this research were gathered from a longitudinal survey of male Puerto Rican adolescents residing in South Bronx, New York. The survey, which was administered as a two-wave panel, examined a representative sample of the South Bronx's Puerto Rican male adolescent population, aged 12 to 19 years. The researchers compared their findings with the National Youth Survey analyses.

The social bond measures included involvement with delinquent peers, attitudes towards delinquency, family and school normlessness, family and school involvement, and home and school strain. Involvement with delinquent peers was measured in terms of the amount of time spent with peers and how many of the respondents' friends had been involved in delinquent acts during the past year (Rodriguez and

Weisburd, 1991). Attitudes toward delinquency were measured in terms of how wrong six delinquent acts were (Rodriguez and Weisburd, 1991). High scores reflect a conventional orientation.

Family and school normlessness was measured in terms of the extent the subject views his relationship to his family and school as governed by conventional norms or as requiring a transgression of these norms (Rodriguez and Weisburd, 1991). Family and school involvement were measured in terms of the amount of time spent with the family and in academic activities at school (Rodriguez and Weisburd, 1991). Home and school strain were measured in terms of reported discrepancy between aspirations and expectations in each of five aspects of family and school life (Rodriguez and Weisburd, 1991).

The results from this study indicate family involvement was significant for the Puerto Rican youth but it was not significant for the National Youth Survey. Also, peer involvement was almost half as important in the Puerto Rican sample as it was in the national sample. The finding of the importance of family was predicted as well as the lack of peer influence.

Rodriguez and Weisburd (1991) concluded that the social bond model was applicable to Puerto Rican American males. However, they found that school variables did not have a

direct effect on delinquency for Puerto Ricans as it did for their comparison group. This research best illustrates how the elements of the social bond model will vary in significance among different racial and ethnic groups -- this was also demonstrated in the research conducted by Weber et al. (1995).

The research by Junger and Marshall (1997) tested the social bond model on a population of juveniles in the Netherlands. The study included individuals who were Turks, Moroccans, Surinamese and Dutch. There were four hypotheses tested: a) the social control theory predicts variations in general delinquent involvement among varying ethnic male youth; b) the social control theory predicts variations in a variety of types of delinquency involvement and deviance among varying ethnic male youth; c) Delinquent friends play the same role in the causation of general delinquency among varying ethnic male youth; and, d) The dimensions of the social bonds are interrelated in the same manner among all four ethnic groups (Junger and Marshall, 1997).

The data was obtained in a stratified random sample of Moroccans, Turks, Surinamese, and Dutch boys. A total of 1,231 potential respondents were identified and 814 completed surveys. The instruments were conducted by a professional survey agency and the respondents received

about five dollars (American) to complete the survey (Junger and Marshall, 1997).

Multiple regression analysis was conducted to test the first three hypotheses; the fourth hypothesis was tested using LISREL analysis. The amount of explained variance is consistently higher for the Dutch population than for the other ethnic/racial groups except in the case of the family bond. The amount of explained variance for the family bond is higher for Moroccans than for all other ethnic/racial groups. However, the overall analysis of the combined social control index indicates that social control helps explain delinquent acts better for Dutch youth. Junger and Marshall (1997) conclude that there was high compatibility of the social bond elements and the entire model for each of the ethnic/racial groups.

The study by Junger and Marshall (1997) is further evidence that when the elements of the social control model are operationalized in a manner that reflects the values of the majority group (in this case the Dutch), the model works best to explain the behavior of the majority and less for all other groups who are represented in that society.

The literature presents evidence that the social control theory works less effectively to explain crime for people of color than the majority group. Researchers for the most part concluded that social bond was a viable theory to

help explain delinquency in racially different populations even though in all cases the amount of explained variance was consistently higher for the majority population. In addition, the research by Weber et al., (1995) and Rodriguez and Weisburd (1991) illustrate the point that although bonds exist for all groups in society all groups bonds' are not the same. In the Weber et al., (1995) research, the results indicated that female supervision was associated with different indicators for all racial groups. In addition, the other indicators for attachment, commitment, and involvement showed differences as well. The research by Rodriguez and Weisburd (1991) also illustrated the differences in the bond elements among Puerto Rican males.

#### **Traditional Conceptualization of Social Control Elements**

This section is a discussion on how the social control model has been traditionally specified and the effects this has on the explanatory power of the social control model for people of color. This discussion is important because it does not dismiss the use of the social control model for people of color; however, it does highlight the fact that the traditional way in which the social control model has been conceptualized does not work for people of color. The research presented, indicates the number of variables used in a social control model will vary across research depending on the level of specification a researcher chose.

The variables common in the research include attachment to parents, peers and teachers, involvement in traditional activities, commitment to traditional ideas, and beliefs. Only two of these variables are used for the following discussion. The two variables that will be highlighted for discussion are attachment to parents and involvement in traditional activities.

In the research by Gardner and Shoemaker (1989) there were eleven variables that represented the social control elements: 1) involvement in school; 2) involvement in community; 3) attachment to parents; 4) attachment to peers; 5) attachment to teachers; 6) attachment to church; 7) commitment to church; 8) commitment to school; 9) conventionality to parents; 10) conventionality to peers; and 11) beliefs. The following discussion will involve the variables "attachment to parents" and "involvement in school."

Involvement in school was conceptualized as involvement in school-related activities and the amount of time spent in the school related activities (Gardner and Shoemaker, 1989). Involvement in school related activities was conceptualized as attendance at meetings involving the Scouts, 4-H, YMCA, YWCA, or other youth groups and how often was the respondent involved in religious services. The attachment to parents was conceptualized in terms of the communication level of



the respondent and their parents (Gardner and Shoemaker, 1989). Meaning, do parents know where the respondent is when s/he is not at home, whether the respondent feels comfortable talking to their parents about goals, as well as the respondent's general thoughts and feelings about his/her parents.

The findings indicate that attachment to parents was significant for African Americans and not for Whites. Also, the school involvement variable was significant for Whites and not for African Americans.

Liska and Reed (1985) sought to understand the causal path of delinquency using the social control model. The researchers incorporated the elements of attachment to parents and school for their analysis. Keeping with traditional conceptualization of parental attachment, Liska and Reed's parental attachment variable emphasized parent adolescent communication and affectivity. Parent adolescent communication was conceptualized with questions such as "How often do your parents listen to your side of the arguments?" and affectivity was conceptualized with questions such as "How often do your parents act as if they don't care about you anymore?"

School attachment was conceptualized as immediate satisfaction with the school experience and the belief in the long-term value of school (Liska and Reed, 1985). The

element of immediate satisfaction was conceptualized with questions such as, "School is satisfying to me because it gives me a sense of accomplishment." The element of "belief in the long-term value of school" was conceptualized with questions such as, "School is boring to me."

The results of structural equation modeling indicate for Whites, three major causal effects underlie the relationships between delinquency, school attachment, and parental attachment. The findings indicate parental attachment affects delinquency, which affects school attachment, which in turn affects parental attachment. For African Americans the causal structure is different. For African Americans delinquency is affected by both school attachment and parental attachment, in addition, parental attachment affects school attachment, which can also affect delinquency. The causal models for whites show a circular one-way path to delinquency where as, the causal model for African Americans does not. The African American causal model of delinquency indicate that parental attachment directly affects delinquency and it is also an intervening variable that affects school attachment, which in turn, affects delinquency for African Americans. In addition, the amount of explained variance was consistently higher for Whites than African Americans in each of the models tested in this research.

The research of Cernkovich and Giordano (1992) assessed what roles school bonding and race play in delinquency. Parental communication and school involvement were two of the social control variables the researchers used in their research. Parental communication was a measure of the level of parental interest in, and support for, school related activities. Parental communication was conceptualized in terms of questions that asked frequency of communication between a parent and adolescent on school related problems. School involvement was conceptualized in terms of the amount of behavioral participation in various school activities. In other words, how much time the adolescent spend participating in a particular activity during the week.

The results of this research indicate that African Americans are bonded to school in much the same way as whites. The model explained more of the variance for Whites at mixed schools ( $R^2 = .156$ ) then African Americans at mixed schools ( $R^2 = .094$ ).

These three studies illustrate how the conceptualization of the social control variables have varied and also how they impact the way the social control model can explain the delinquent behaviors of youth of color.

Overall, the literature review examines the efficacy of the social control model to explain delinquency in general

and more importantly and specifically for youth of color. Although there is a plethora of research using the social control model there is no definitive research that examines the usefulness of the social control model for youth of color using national data. In addition, there is no clear understanding of the usefulness of the social control model for other race/ethnic groups (e.g., Hispanics) to explain their delinquent behavior. The following section outlines the research on alcohol drinking and cigarette smoking behaviors of youth.

#### **Cigarette Smoking and Alcohol Drinking: A Review of the Literature**

Nationally, 82% of high school seniors indicate they have drank alcohol at least once in their lifetime and approximately 66% indicate they have tried cigarettes at least once in their lifetime (U.S. Department of Health and Human Services, 1997). National data also indicates about 1 million youth start smoking each year (Institute of Medicine, 1994). Data from the Bureau of Labor Statistics in 1999 indicate that 55% of male youth and 47% of female youth indicated they had smoked cigarettes within the 30 days prior to be interviewed. Specifically, the data indicate that 22% of white male youth, 14% of African American male youth, and 19% of Hispanic male youth indicated they had

smoked within the 30 days prior to being interviewed.

Similarly, 23% of white female youth, 9% of African American female youth and 15% of Hispanic female youth indicated they had smoked cigarettes during the 30 days prior to being interviewed.

Additionally, data from the Bureau of Labor Statistics (1999) also indicate that 58% of male youth and 56% of female youth indicated that they had drank alcohol during the 30 days prior to be interviewed. Specifically, 23% of white males, 13% of African American males, and 22% of Hispanic males indicated they had drank during the 30 days prior to being interviewed. Similarly, 23% of white females, 9% of African American females, and 15% of Hispanic females indicated they had drank alcohol during the 30 days prior to being interviewed.

The statistics presented illustrate the extent of the problem of drinking alcohol and cigarette smoking for all adolescents. The following section is a review of the literature on adolescent cigarette smoking and alcohol drinking. The literature focuses on the factors or correlates (i.e., family and peer associations) that predict which adolescents will turn to smoking cigarettes and drinking alcohol. In addition, some of the research also focuses on the racial/ethnic differences in those predictors of smoking and drinking behavior of adolescents.

## **Factors that affect Cigarette Smoking and Drinking Alcohol for Adolescents**

The research of Foshee and Bauman (1992), examines the smoking behavior of adolescents in the context of social control and social learning theories. Specifically, Foshee and Bauman's (1992) research has to do with how parental and peer behaviors and attitudes modify bond/behavior relationships. Foshee and Bauman sought to expand the social control theory by including elements of social learning theory. They suggest that not only the bond elements should be considered but that parental and peer behaviors and attitudes should be considered when assessing the cigarette smoking behaviors of youth.

Foshee and Bauman (1992) formulated two models. The first model examines the interaction of weak bonds and a social environment conducive to smoking. Therefore, youth who are susceptible to initiation are the ones with weak bonds to society and one with parental or peer smoking models present in their environment. The second interaction model looks at the interaction of the social control theory and social learning theory and suggests that for adolescents with parents who do not smoke, the likelihood of smoking decreases as the social bonds increases.

The data for this study was gathered from ten metropolitan statistical areas throughout the southeast

United States in two waves. The sample was attained from the first wave by those respondents who indicated they had not smoked at all prior to being interviewed and who also indicated they lived with both parents/guardians.

The results indicate that for adolescents with parents who smoke, smoking increases as attachment to that parent increases. Similarly, adolescents with parents who do not smoke, the adolescents' smoking behavior decreases as attachment to the parent increases. Overall, the results indicate cigarette smoking might be a learned behavior that is mediated by an adolescent's attachment to his/her parents.

The research by Ennett and Bauman (1993) examined how peer group structures effects adolescent cigarette smoking. Prior research indicates there is compelling evidence that the peer group plays an important role in the initiation and maintenance of smoking (Oetting and Beauvais, 1986; Friedman, Lichtenstein, and Biglan, 1985; Bauman et al., 1984; McAlister, Krosnick, and Milburn, 1984; Huba and Bentler, 1980; Levitt and Edwards, 1970). The purpose of Ennett and Bauman's (1993) research was to determine whether memberships in *particular* peer group structures i.e., clique members, liaisons, and/or isolates vary the prevalence of cigarette smoking.

Ennett and Bauman (1993) recognize three peer group structures that are the "regularized patterns of interactions among adolescents in a social system" (Ennett and Bauman, 1993, p.227). The three peer group structures are: cliques, liaisons, and isolates. Cliques are clusters of adolescents who spend more time with each other than with other adolescents, and they also share the same attitudes and beliefs (Ennett and Bauman, 1993). Liaisons interact extensively with peers but not as members of cliques. Liaisons tend to have friendships with members of different cliques (Ennett and Bauman, 1993). Isolates have very little or no interaction with peers (Ennett and Bauman, 1993).

The data were obtained from a county school system in North Carolina. Friendship networks were defined based on an adolescent identifying an individual as their friend and the other friend also identifying that same individual as their friend. The peer group structures (i.e., cliques, liaisons, and isolate) were then identified through these associations. The findings indicate that isolates tended to smoke more often than clique members or liaisons. In addition, although isolates have fewer friends overall, proportionally more of their friends are smokers as compared to the other two groups. The researchers offer four explanations for their findings. The first explanation is that social isolation may cause cigarette smoking. The



second explanation is that cigarette smoking causes social isolation. Third, the relationship between social isolation and cigarette smoking might be spurious meaning that both social isolation and cigarette smoking might be caused by the same factors. The final explanation for the findings is that isolates are actually members of cliques made up of adolescents outside the school that are dropouts or truants who may encourage smoking. Overall, the findings of this research add to the understanding of how peer group associations affect the smoking behavior of adolescents.

Unger and Rohrbach (2002) examined how adolescents' estimates of their peers' smoking prevalence can influence their own smoking behavior. Specifically, Unger and Rohrbach (2002) wanted to understand the correlates of the prevalence estimates for youth and why adolescents overestimate their peers' smoking prevalence. It is believed that adolescents' form their estimates of peer smoking prevalence based on the adolescent's own smoking behavior and intentions, inferences based on close friends' behavior, inferences based on social comparison with similar others, accurate observations of the true smoking prevalence in the school, observations of smoking the media, perceived access in cigarettes, cigarette offers (meaning when an adolescent is offered a cigarette by a peer).

The data for this study were gathered from a representative sample of 8<sup>th</sup> graders in California. The results indicate that higher prevalence estimates or those variables associated with overestimating the prevalence of smoking among peers are age, female, non-Pacific Islander ethnicity, low academic performance, school smoking prevalence, best friends' smoking, cigarette offers, perceived access to cigarettes, and perceptions of smoking in the media.

The results indicate adolescents' observations of their best friends' and schoolmates' smoking behavior may account for a considerable amount of the variance in their peer smoking prevalence estimates. Unger and Rohrbach (2002) concluded that prevention and intervention programs should demonstrate to adolescents that their perceptions of their peers' smoking prevalence tend to be inflated.

The research of Alexander, Piazza, Mekos, and Valente (2001) focused on the importance of school environments for understanding peer group influences on adolescent cigarette smoking. Specifically, their research examined the associations of popularity, having a best friend who smokes, and the prevalence of smoking within the friendship network on adolescents' current smoking behavior (Alexander et al., 2002).

The data source for this study was the Longitudinal Study of Adolescent Health (Add Health). The Add Health data is a nationally representative sample of all public and private high schools in the United States. Results indicated that having best friends who smoked meant that respondents were twice as likely to smoke as well. School smoking prevalence was positively associated with being a current smoker. For every 10% increase in school smoking prevalence, there was a 73% increase in the likelihood of current smoking (Alexander et al., 2002). The results also indicated that there was a significant risk of being a current smoker for youth who were more popular and who had a school smoking prevalence.

Overall, the results indicate popularity has a differential risk for cigarette smoking. In schools with low smoking prevalence, higher levels of popularity are associated with reduce likelihood of smoking (Alexander et al., 2002). In contrast, popular students in schools with high smoking rates are more likely to smoke cigarettes (Alexander et al., 2002). The findings from this study add to the body of research that has found strong correlations between adolescent and peer smoking.

The research of Ennett, Flewelling, Lindrooth, and Norton (1997) examined school and neighborhood characteristics associated with school rates of alcohol,

cigarette, and marijuana use. The data source was 36 elementary schools in a midwestern state. The measures for this study were substance use (lifetime and current); school characteristics (i.e., substance use norms in the school and school climate); attitude toward substance use; perceived acceptability of alcohol use; perceived acceptability of cigarette use and marijuana use; availability of alcohol; availability of cigarettes; school attachment; neighborhood characteristics (climate and socioeconomic characteristics); neighborhood attachment; neighborhood safety; and, neighborhood drug activity.

The results indicate that rates of alcohol use are higher in schools where there is a perception among students there are higher levels of acceptability of use among peers, where alcohol is more readily available, and where students report lower attachment to school (Ennett et al., 1997). The results also indicate there are higher rates of alcohol in schools located in areas where parents report higher neighborhood attachment and safety and where neighborhood population density and mobility are lower. These results contradict the expectations of the research where neighborhood cohesiveness was thought to be associated with lower rates of alcohol use (Ennett et al., 1997).

The findings for the lifetime cigarette use mirrored the findings on lifetime alcohol use. Rates of lifetime

cigarette use are higher in schools in low-density neighborhoods and where parents reported high neighborhood attachment (Ennett et al., 1997). The results of the current cigarette use indicate that neighborhood drug activity, attitude toward drug use, perceived acceptability of cigarette use, and availability of cigarettes are significantly associated with school rates of current cigarette smoking (Ennett et al., 1997). In addition, school rates of current cigarette smoking are higher in neighborhoods that parents described as supporting illegal drug sales and availability.

The research of Scheer, Borden, and Donnermeyer (2000) examined the relationship between family factors and adolescent substance use (i.e., cigarette smoking, alcohol drinking and marijuana use) in rural, suburban, and urban settings. Specifically, the researchers wanted to understand how families might differ in communication, sanctions, and involvement according to their geographic location.

The source for the data was a stratified random sample of 11<sup>th</sup> grade students in public high schools in a midwestern state. The measures used included a 34-point drug involvement scale as well as measures for family communication, family sanctions, family involvement in school, and family care. The 34-point drug scale

specifically assessed the cigarette smoking, alcohol drinking and marijuana use of the adolescents.

The results indicate there is no significant difference between substance involvement and location (Scheer et al., 2000). The data also indicate for rural and suburban adolescent substance abuse, that youth who reported that their parents talked to them about the dangers of smoking and drinking alcohol were less involved in substance use (Scheer et al., 2000). The family care and family involvement in school was significant across all geographic locations. Adolescents whose families were involved in school events and activities were less likely to be involved in substance use. In the multivariate analyses, family involvement in schools, belief that their families cared about them, and family talking about the dangers of cigarettes predicted lower substance use in the regression models.

Overall, the results indicate that location status does not determine how family factors are related to adolescent substance use. Specifically, there were no differences found for location in relationship to substance use, in addition, location did not significantly influence how the family variables predicted substance use.

## **Cigarette Smoking and Alcohol Drinking: Race/Ethnic Differences**

The research of Flay, Hu, Siddiqui, Day, Hedeker, Petraitis, Richardson, and Sussman (1994), examined the differential influence of parental smoking and friends' smoking on adolescent initiation and escalation of smoking. Research indicates that the influence of parents and peers over alcohol drinking and cigarette smoking varies depending on the type of drug. Prior research indicates parents and peers tend to influence adolescent use of alcohol equally (Chassin et al., 1986). However, peer influence tends to be a better predictor of cigarette smoking (Alexander et al., 1983; Chassin et al., 1986; McCaul et al., 1982).

Flay et al., (1994), propose a model of smoking influence that examines the causal links of factors associated with adolescent smoking behaviors such as initiation and escalation (Flay et al., 1994).

The results indicate that friends smoking had both direct and indirect effects on smoking initiation. Parental smoking had only an indirect effect on smoking initiation. The results also indicate that neither friends' smoking nor parental smoking had direct effects on escalation. The gender results indicate that the effects of parental smoking are stronger for females than males. Ethnic group comparisons showed differences in friends' influences all

having to do with smoking initiation. There were no significant findings on the influence of parents or peers on smoking escalation (Flay et al., 1994).

The research of Guthrie, Young, Boyd, and Kintner (2001), examined the relationship between cigarette use and daily life hassles among African American females. Previous research indicates that although African American women generally initiate smoking at a later age during adolescence, African American women's rates of smoking increase with age. In addition, African American women have high rates of recidivism for smoking than white women as well as higher death rates for smoking-related diseases than most other women.

The data source for the study was the Female Adolescent Substance Experience Study (FASES). The results indicate there were no significant differences found between the group that indicated they had smoked in the past 30 days and those who indicated they had not smoked in the past 30 days on items such as age, primary means of support, social class, religious preference, presence of mother or father in home.

Further analyses indicate there was significant difference in the number of daily hassles for girls who indicated they had never smoked compared to those who indicated they had ever smoked. Those who indicated they had



never smoked were significantly lower on daily hassles. Finally analyses were conducted to determine whether there was a significant difference in specific daily hassles and whether a respondent indicated they had never smoked and those who indicated they had ever smoked. Results indicate there were significant differences on school/academic hassles and family/economic hassles, which meant girls who indicated they had ever smoked, were significantly higher on those indicators. There were no significant differences in social/peer and personal safety hassles between the two groups.

Ellickson and Morton (1999) examined early risk factors for initiation of hard drug use by 10<sup>th</sup> grade and compared their results across race/ethnicity. Research indicates that alcohol drinking and cigarette smoking are considered gateway drugs. Cigarette smoking, alcohol drinking and marijuana use are the most commonly used substances that typically precede the use of hard drugs.

The data source for Ellickson and Morton's (1999) study were middle schools in California and Oregon. Results indicate that major risk factors for initiation of hard drug use include early marijuana and cigarette use, deviant behavior, pro-drug attitudes and intentions, being offered drugs, and poor parent-child communication. Findings indicate white adolescents had the most risk factors,

followed by Hispanics, Asians, and African Americans. For all groups except African Americans, early marijuana use was the strongest predictor of hard drug use followed by early smoking. Overall, the findings indicate that addressing early initiation of cigarette and marijuana use might have an impact on reducing the risk for hard drug use.

Overall findings of the cigarette smoking and drinking alcohol behavior of adolescents indicate that adolescent peers have a strong influence on the initiation and overall use of cigarettes and alcohol by adolescents followed by parental influence. The research also indicates that there are differential influences on the smoking and drinking behavior of adolescents when race/ethnic differences are considered.

### **Significance of this Dissertation and Study**

There is no definitive evidence on the usefulness of the social control theory to explain the delinquent behaviors for youth of color. All research using the social control theory has been cautious in reporting findings where race may have significantly contributed to the theory's (in)ability to explain the differences found. In addition, the literature review illustrates the dearth of information that addresses the relationship between the social bonds, Hispanic populations and delinquency. Also, much of the

previous literature lacks an examination of the social bonds using a national data set; instead majority of the research has been done in specific regions of the country or localized in a particular city.

Finding out the ways in which the social control theory can or cannot explain the delinquent behavior of youth of color, will help policy makers and program planners make better policy and create better programs that effectively address the needs of adolescents of color in the criminal justice system.

Similarly, the literature on the cigarette smoking and drinking behavior of adolescents illustrate (1) the prevalence and incidence of the problem; (2) the impact that families and peers have on the prevalence and incidence of cigarette smoking and alcohol drinking of adolescents; and (3) the differential effects of correlates of smoking and drinking on youth of color. Therefore, the current study is important in the following aspects:

1. It contributes to the current body of research by clearly examining the social bond constructs in relation to African American and Mexican Americans.
2. It makes the findings generalizeable to the population as a result of the utilization of a national data set.
3. It applies the principles of social bond theory to the explanation of the smoking and drinking behavior for whites, African Americans and Mexican youths in the United States. The dichotomy of whites and

African Americans in the research literature has always limited the generalizeability of results to other groups.

### **Hypothesis**

This study will test the following hypothesis, comparing white, African American and Mexican youth:

H<sub>0</sub>: There is no relationship between attachment (to parents, teachers, peers), commitment (to school and furthering education or getting a job), involvement (in sports related activities and other school-related activities) and belief (in committing mild and serious infractions in school) in regards to smoking cigarettes and drinking alcohol. Moreover, these relationships will be conditioned by gender, SES, and race.

### **CHAPTER III METHODOLOGY**

This section will outline the research strategy used to answer the research hypothesis stated in Chapter II. Included in this chapter is a description of the research design, the sample population, the data collection method, data analysis, and limitations.

#### **Research Design, Data and Sample**

This study uses secondary data from the National Educational Longitudinal Study 1988-1994 (NELS:88). The NELS:88 is the first nationally representative longitudinal study of eighth grade students in public and private schools. This study is sponsored by the National Center for Education Statistics in conjunction with the Department of Education (NCES). The NCES is mandated to "collect and disseminate statistics and other data related to education in the United States" and to "conduct and publish reports on specific analyses of the meaning and significance of such statistics" (Education Amendments of 1974-Public Law 93-380, Title V, Section 501, amending Part A of the General Education Provisions Act).

The general aim of the NELS program is to study the educational, vocational, and personal development of students at various grade levels, and the personal, familial, social, institutional, and cultural factors that may affect that development (NCES, First Follow-up Final Technical Report, October 1994).

These data were collected for the purpose of (1) providing longitudinal data on the critical transitions experienced by young people as they develop, attend school, and start their careers; (2) informing decision makers, practitioners, and parents about the changes in the operation of the educational system over time, and the effects of various elements of the system on the lives of the individuals who pass through it (NCES, October 1994).

### **Data Collection**

The NELS:88 uses a two-stage stratified probability sampling design that selected a nationally representative sample of 24,599 students from 1,052 randomly selected schools. The first stage of the sampling method constituted schools, which was the primary sampling unit. The target

sample for the schools was 1, 032. The original sampling schema produced 1,032 schools but 30 of the schools were ineligible for participation. Of the 1,002 eligible to participate only 698 actually participated. An additional, 359 schools were then selected from a replacement pool (NCES, October, 1994).

The purpose of the second stage of the data collection was to obtain the student sample. The sampling schema produced 26,432 students among participating sampled schools, resulting in the participation of 24,599 eighth grade students. On average, 23 student participants represented each of the participating schools.

For the first follow-up another sampling strategy was employed for the purpose of "freshening the sample". The sample was freshened in order to provide a representative sample of students enrolled in the tenth grade during the 1989-90 school year. The first stage of sampling involved the selection of 21,474 students who were in the 8<sup>th</sup> grade for the Base Year data collection. For the first follow-up these students were referred to as core students. The core student sample was then augmented through freshening, which added 1,043 eligible tenth graders who were not contained in the base year sampling frame, either because they were

not in the country, or were not in the eighth grade in the spring term of 1988 (NCES, October 1994).

All of the samples for NELs:88 contain an over-sample of Latinos, Asian-Pacific Islanders, and Native American students, which was sponsored by the U.S. Department of Education's Office of Bilingual Education and Minority Languages Affairs (OBEMLA). As a result of the over-sampling, an additional 2,400 students were added to the study.

Three follow-up surveys since the base year has been conducted, the first in 1990, when most respondents were in the tenth grade, the second in 1992, when the majority of students were in twelfth grade, and the third in 1994. The NELs:88 also interviewed respondents' parents in 1988 and in 1992, two of the respondents' teachers, as well as a school administrator. For the purpose of the present study, the first follow-up is utilized when respondents were in the tenth grade at the time that they were interviewed. Research indicates the peak ages for delinquency are between the ages of 14 and 18. The tenth grade sample is when majority of the respondents were age 15.



## **Specification of Variables Under Study**

### ***Dependent Variables***

The dependent variables for this study are smoking cigarettes and drinking alcohol.

***Cigarette Smoking:*** This dependent variable is conceptualized in terms of whether the respondent indicated they had smoked cigarettes in the 30 days prior to being interviewed. This is a dichotomous variable where one (1) is equal to those respondents who indicated they had smoked cigarettes during the 30 days prior to being interviewed and where zero (0) is equal to those respondents who indicated they had not smoked cigarettes during the 30 days prior to being interviewed. This dependent variable is operationalized in Appendix A.

***Drinking Alcohol:*** This dependent variable is conceptualized in terms of whether the respondent indicated they had drank alcohol in the 30 days prior to being interviewed. This is a dichotomous variable where one (1) is equal to those respondents who indicated they had drank alcohol during the 30 days prior to being interviewed and where zero (0) is equal to those respondents who indicated they had not drank alcohol during the 30 days prior to being interviewed. This dependent variable is operationalized in Appendix A.

### ***Independent Variables***

The independent variables for this study are attachment (parents, peer, and teachers), involvement (in sports related activities and involvement in other school related activities), commitment (to school, to marriage and success, to furthering education or getting a job) and

belief (it is not okay to commit mild and serious infractions in school). These variables are conceptualized and operationalized according to traditional conceptualizations and operationalizations in the literature (see Hepburn, 1977; Hindelang, 1973; Johnson, 1979; Krohn and Massey, 1980; Wiatrowski, Griswold and Roberts, 1981; Agnew, 1985 and 1991; Gardner and Shoemaker, 1989; Covington, 1988; Liska and Reed, 1985; Matseuda and Heomer, 1987; Friedman and Rosenbaum, 1988; Rodriguez and Weisburd, 1991; Weber, et. al., 1995; Cerkonvich and Giordano, 1992). All of the social bond indicators were divided into three categories (low, medium, and high), as indicated below in the "Composite Measures" portion of this methods section.

**Attachment to Parents:** Attachment to parents is conceptualized as the respondent's feelings about his/her parents. The more positive responses indicate higher attachment to parents. This variable is operationalized in Appendix A.

**Attachment to Peers:** Attachment to peers is conceptualized as how the respondent feels s/he is thought of by his/her peers. The more positive responses indicate higher peer attachment. This variable is operationalized in Appendix A.

**Attachment to Teachers:** Attachment to teachers is conceptualized as how the teacher feels about the respondent. The more positive responses indicate higher teacher attachment. This variable is operationalized in Appendix A.

***Involvement in Sports-Related Activities:*** This variable is conceptualized in terms of the types of sports the respondent participated while in school. The more positive responses indicate greater participation and therefore greater involvement in the sports related activities. This variable is operationalized in Appendix A.

***Involvement in other School-Related Activities:*** This variable is conceptualized in terms of the respondent's level of participation in school related activities such as band, orchestra, plays, and school clubs. Therefore, greater participation indicated greater involvement in the other school-related activities. This variable is operationalized in Appendix A.

***Commitment to School:*** Commitment to school is conceptualized in terms of whether the respondent comes to class prepared. Therefore, more positive responses indicate higher levels of commitment to school. This variable is operationalized in Appendix A.

***Commitment to Further Education or Going to Trade School:*** This variable is conceptualized in terms of whether the respondent plans to take college entrance exams or skill tests. Therefore, more positive responses indicate higher levels of commitment to further education. This variable is operationalized in Appendix A.

***Believing it is not okay to Commit Mild Infractions in School:*** This variable is conceptualized in terms of moral issues that involves whether the respondent believes it is okay to skip school, cheat on tests, be late for class, to copy someone's homework, etc. The more positive responses indicate it is not okay to commit mild infractions in school. This variable is operationalized in Appendix A.

***Believing it is not okay to Commit Serious Infractions***

**in School:** This variable is conceptualized in terms of moral issues that involves whether the respondent believes it is okay to get into physical fights at school, belong to gangs, steal belongings, and destroy school property. The more positive responses indicate the respondent believes it is not okay to commit serious infractions in school. This variable is operationalized in Appendix A.

### **The Control Measures**

#### ***Race/Ethnicity***

The analyses for this study will include analyses where white youth are compared to African American youth and Mexican youth. The Mexican youth variable includes only third generation Mexican Americans. Third generation Mexican youth were chosen so that the effects of acculturation/assimilation would have taken affect by this point. In addition, the cultural effects of recent Mexican immigrants would not confound the analyses. Consequently, any cultural effects that may be detected in the analyses would not be confounded by recent immigrants in the sample.

Third generation Americans were selected by selecting the parent of the youth who indicated their parents were born in the United States. For youth who indicated their parents were born in the United States, and who also indicated they were born in the United States, these youth were labeled as third generation Americans. It was assumed

that these youth had grandparents that were either born in the United States or immigrated to the United States, in which case, their grandparents were no less than first generation Americans, which would make their grandchildren no less than third generation Americans.

The race variable is a nominal level variable that contains all groups (i.e., whites, African Americans, and Mexican Americans).

### **Socio-Economic Status Indicators**

There are two socio-economic status (SES) indicators utilized in the data analyses. The first SES indicator used was the SES Quartile. This variable was constructed by the National Center for Education Statistics (NCES) by using available parent data. The variables used to construct the SES quartile were the father's education level, mother's education level, father's occupation, mother's occupation, and family income (BYP30, BYP31, FYP34B, BYP37B and BYP80). Occupational data were recoded using the Duncan SEI scale. Parent data were used to construct F1SES if at least one component was not missing (NELS:88).

The second social economic indicator used in the data analyses was parent's education level. This variable is an indicator of the highest level of education attained by either of the parents of the respondent. It was

constructed using the parent questionnaire data (BYP30 and BYP31). Base year student data (BYS34A & BYS34B) were used for Base Year respondents whenever parent data were missing. For Base Year non-respondents with missing parent data and First follow-up freshened students, the New Student Supplement questions F1N20A and F1N20B were used. That is, the First follow-up composite starts with the base year parent education variable. If the base year parent education variable was missing or the case is a freshened student, the follow up New Student Supplement data were used. These measures were taken to reduce the amount of potential missing data (NELS:88).

## **DATA CLEANUP**

### ***Missing Data***

There were two types of missing data for this data set. The first type of missing data was the result of matriculation problems from the first round data collection to the second round data collection. There were 1,153 missing cases that did not matriculate from the first round data collection to the second round data collection. The 1,153 cases were selected and demographic data (race and sex) were used to compare the missing data from the group

that did not matriculate to the first follow-up. Table A in the Appendix displays the data on missing respondents.

The missing data indicate that African Americans and Mexican Americans are overrepresented in the missing respondents from the base year sample to the first follow-up sample. In addition, whites are overrepresented in the not missing category. Also, males are slightly overrepresented in the missing category whereas females are underrepresented in the missing category. Although there are discrepancies in the missing data as compared to the first follow-up. The percentages, for the most part, are representative of the census estimates for the year 1990 when this data were gathered (see Appendix B). This missing data was dropped from the sample, as no other data was available for these respondents beyond demographic data.

The second type of missing data were data missing within the variables used for data analyses. Potential biases in missing data were explored. For each variable, a dummy variable was created that scored 1 if data were missing, and zero if not. This dummy variable was then correlated with race and sex as covariates to assess bias. No significant correlations were detected, suggesting that the data were missing at random rather than representing systematic biases.

As for the range of missing data, the minimum number of missing cases for a single variable was 73 (0.5%), and the maximum number of missing data for a single variable was 1182 (8.6%). This missing data was given the value of the mean category so as not to lose any data in the analyses.

### **Composite Measures**

Composite measures were created for the social control indicators. These indicators were created from a series of steps, which included factor analyses, reliability analyses and finally computing the measure. Factor analyses were conducted in order to determine the way in which variables grouped themselves statistically and to ensure the indicators for each of the social control elements were unidimensional. A factor analysis is a multivariate analysis used to discover the patterns among the variations in values of several variables. These patterns are discovered through the computer generation of factors that correlate highly with other variables and that are independent of one another.

A confirmatory factor analyses was performed to create the social bond measures, as many of the social bond indicators were computed from scales and indices that were



used in the original data collection. Once a set of indicators were determine to represent a component of social control then the indicators were placed in a reliability analysis in order to get a reliability score. All reliabilities for the composite measures were at or above 73% (the reliability scores for each composite measure is located beside each composite measure in Appendix A).

The composite measures were reduced from interval level data to ordinal level data to indicate high, medium and low attachments, commitments, involvements, and beliefs. The categories of high, medium and low for all the social bond measures were determined from the data. Once each of the elements was computed the higher numbers indicated more positive responses or higher attachment, commitment, involvement, and belief. Lower numbers indicated more negative responses or low attachment, commitment, involvement, belief. Respondents who clustered around the middle response range were placed in the medium category. For example, if 8 items represented a computed variable and each item contained 5 response categories from 0 to 1, once the variable was computed the range of the variable was from 8 to 40. Individuals who fell into the 8 category were clearly individuals who had low attachment,

commitment, involvement, and belief. Similarly, individuals who were in the 40 category were clearly individuals who had high attachment, commitment, involvement, and belief. After determining this, the next step was to get the middle category and disperse the other respondents in a category of low, medium, or high. This was done by taking the range and dividing by three. In the above the example the range is 32 ( $8 - 40 = 32$ ), therefore 32 divided by 3 gives a category range of approximately 10. Meaning there should be a range of 10 points included in each category from the range of the original computed variable. Therefore, utilizing the above example, the low category will include individuals who fall in the range of 8-17; the medium category will include the individuals who fall in the range of 18-28, and the high category will include the individuals who fall in the range of 29-40. This method was checked with the data of previous researchers and was believed to have face validity. This was surmised, because a larger proportion of the respondents fell into the medium categories for all of the computed social bond elements, whereas the high and low categories had lower proportions of respondents represented in these categories. The pattern found in this study was consistent with prior research when these categories were compared to the frequency of

respondents who represented these categories in prior research.

## **Data Analysis Strategy**

### ***Univariate Analyses***

Descriptive statistics were used to describe the sample in terms of the frequency in which respondents smoked cigarettes and drank alcohol, as well as, the frequency of the respondents in the categories of the independent and control variables. The result of this analysis is summarized in Table 1.

### ***Bivariate Analyses***

The bivariate analyses were used to assess the relationship between the social control indicators and the dependent variables. In addition, bivariate statistics were used to assess the relationship between the dependent variables, social control variables, race/ethnicity, gender, and income. There were two purposes for subgroup comparisons, the first was to describe the data while also including the element of comparison. The second purpose was to describe the relationships among variables. The measure of association that was used for the analysis was gamma, as all the independent variables were ordinal level measures.

A Chi-square test was used in conjunction with the measures of association to test whether the significance of the relationship between two variables observed in the sample could be inferred to the population. The Chi-square is a test of significance that is based on the null hypothesis that there is no relationship between two variables in the total population. The measures of association allows a researcher to test whether there is a relationship between two variables in the sample and the Chi-square test allows inferences from the observed relationship in the sample to the population (Agresti and Finlay, 1986; Babbie, 1995).

### ***Logistic Regression***

Logistic regression was used to analyze the effect of the independent variables on the dependent variables smoking cigarettes and drinking alcohol. A logistic regression analysis allows the researcher to describe how the proportion of responses in one of the two categories in a dichotomous dependent variable depends on the independent variable (Agresti and Finlay, 1986). The equation for Logistic Regression is:

$$\log\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta X$$

Where,

1. The function  $\log\left(\frac{\pi}{1-\pi}\right)$  is called the logistic transformation or logit.
2. As  $\pi$  increases from 0 to 1, the logit increases from  $-\infty$  to  $\infty$ .
3. The probability  $\pi = \frac{1}{2}$  corresponds to a logit of 0, and  $\pi$ -values above  $\frac{1}{2}$  correspond to positive logits.  $\pi$ -values below  $\frac{1}{2}$  correspond to negative logits.

Several logistic regression analyses were conducted because of the nature of the question under review. There are two dependent variables and analyses were conducted for each of the race groups for each of the independent variables. Therefore there were 8 logistic regression analyses conducted in total. The results of the analyses are in Tables 14-21 and the discussion of these findings are in the next chapter.

### **Strengths and Limitations of the Study**

Using the NELS:88 data set has some limitations. First, the analysis of secondary data always carries with it inherent limitations. The data collected, at best approximates the kind of data a researcher would prefer for testing a hypothesis, frequently affecting the study

design, question wording and sequence, and details of the interviews (Nachmias and Nachmias, 1994).

Second, there is a slight bias as a result of the missing respondents as a result of some respondents not matriculating from the base year data collection to the first follow-up. As mentioned however, the sample that remains does approximate the proportions for the categories of race and gender from the 1990 census.

Third, there are measure limitations, for example, the data did not contain a variable to clearly indicate the class of the respondents. As a result, the variable used as a proxy for class represents the education level of the respondent's parents as well as a SES quartile variable.

This section outlined the methods that will be employed to test the efficacy of the social control model to explain the smoking and drinking behaviors of youth of color. This methodology was guided by the plethora of research on the social control theory. This methodology included a plan to situate race/ethnicity as key independent variables in order to test the efficacy of the social control model to explain the smoking and drinking behavior of youth of color.

## **CHAPTER IV FINDINGS AND DISCUSSION**

### **FINDINGS**

#### **Univariate Analysis**

The study sample comprised an estimated 11,038 respondents, who indicated they were in the tenth grade at the time the first follow-up to the NELS:88 data was collected. Table 1 represents the frequency distribution of the dependent variables, the control variables, and the social control indicators. The data indicate that less than 20% of the respondents indicated they had smoked cigarettes 30 days prior to being interviewed. However, more respondents indicated they drank alcohol in the past 30 days (42.4%). The sample comprised of 51.4% females and 48.6% males. Indicating there are more females in the sample than males. There are more whites in the sample (78.4%) than African Americans (12.0%) and Mexican Americans (9.6%) combined. Consequently, the smoking and drinking behavior of white respondents drive the results for the analyses conducted using the entire sample.

There are approximately the same percentages for the income quartiles. Because the variable is a measurement of quartiles, it is expected that equal proportions would be in each of the quartiles. Parent's highest level of

Table 1. Frequencies of Dependent Variables, Gender, Race/Ethnicity, Income, Parent's Education and Social Bond Indicators (N=11, 038)

DEPENDENT VARIABLES		Frequency	%
Smoking Cigarettes	Yes	1782	17.1%
	No	8619	82.9%
Drinking Alcohol	Yes	4019	42.6%
	No	5418	57.4%
CONTROL VARIABLES			
Gender	Males	5362	48.6%
	Females	5676	51.4%
Race/Ethnicity	White	8653	78.4%
	African American	1324	12.0%
	Mexican	1058	9.6%
Income	Quartile 1 (Low)	2735	24.8%
	Quartile 2	2766	25.1%
	Quartile 3	2797	25.3%
	Quartile 4 (High)	2740	24.8%
Parent's Highest Education Level	Did not finish high school	1059	9.6%
	High school graduate	2391	21.8%
	Some college	4557	41.5%
	College graduate	1563	14.2%
	Master's or Equivalent	917	8.4%
	Ph.D., M.D. or other	493	4.5%

Table 1 (cont'd).



SOCIAL BOND INDICATORS		Frequency	%
<b>Attachment to Parents</b>			
	low attachment	478	4.7%
	medium attachment	9348	92.8%
	high attachment	242	2.4%
<b>Attachment to peers</b>			
	low attachment	2118	20.7%
	medium attachment	6725	65.6%
	high attachment	1411	13.8%
<b>Attachment to teachers</b>			
	low attachment	1065	10.5%
	medium attachment	6810	67.0%
	high attachment	2290	22.5%
<b>Commitment to school</b>			
	low commitment	278	2.6%
	medium commitment	1513	13.9%
	high commitment	9066	83.5%
<b>Commitment to continuing education or going to trade school</b>			
	low commitment	5091	51.3%
	medium commitment	3986	40.2%
	high commitment	850	8.6%
<b>Commitment to marriage and success</b>			
	low commitment	287	2.6%
	medium commitment	3277	29.9%
	high commitment	7412	67.5%
<b>Involvement in school sports</b>			
	low involvement	8510	87.6%
	medium involvement	1078	11.1%
	high involvement	124	1.3%

Table 1 (cont'd).

	Frequency	%
Involvement in other school activities		
low involvement	1507	14.7%
medium involvement	8742	85.1%
high involvement	18	0.2%
Belief: It is not okay to commit mild		
infractions in school		
low_it's okay to commit mild	279	2.6%
medium_it is somewhat okay to commit		
mild infractions in school	2292	21.0%
high_it is not okay to commit mild		
infractions in school	8348	76.5%
Belief: It is not okay to commit low_it is okay to commit serious		
serious infractions in school		
medium_it is somewhat okay to commit	47	0.4%
serious infractions in school	324	3.0%
high_it is not okay to commit serious		
infractions in school	10543	96.6%

education reveals that majority of the respondents' parents had some college education. In addition, 9.6% did not finish high school, 21.8% completed high school, 14.2% were college graduates, 8.4% indicated their parents' had earned a Master's degree or equivalent, and 4.5% indicated their parents' had earned a Ph.D. or M.D.

The social bond indicators for attachment were attachment to parents, peers, and teachers. The results indicate 92.8% of the respondents had a medium attachment to their parents, in addition, 65.6% had a medium attachment to their peers and another 20.7% respondents had a low attachment to their peers. Also, 67.0% of respondents had a medium attachment to their teachers and 22.5% had a high attachment to their teachers.

The social bond indicators for commitment were commitment to school, commitment to continuing one's education or going to trade school, and commitment to marriage and success. The results indicate a majority of the respondents were high on their commitment to school (83.5%). Over half of the respondents (51.3%) had a low commitment for continuing their education or going to trade school after they graduated from high school another 40.2% had a medium commitment on continuing their education or going to trade school after completing high school.

There are two social bond indicators for involvement, they are involvement in school related sports or involvement in other school related activities (i.e., band, clubs, etc.). The results for involvement in school related sports indicate that 87.6% of respondents had low involvement in school related sports. In addition, 11.1% of the respondents had medium involvement in school related sports. Similarly, there were 85.1% of the respondents who had medium involvement in other school related activities. Another 14.7% had low involvement in other school related activities.

The social bond indicators for belief are, believing it is not okay to commit mild and serious infractions in school. There were 76.5% of the respondents who were high on belief. Meaning 76.5% of the respondents believed it was not okay to commit mild infractions in school. Another 21.0% of the respondents were medium on belief, meaning, these respondents believed it was somewhat okay to commit mild infractions in school. Finally, an overwhelming majority (96.6%) of the respondents felt it was not okay to commit serious infractions in school.

## **BIVARIATE ANALYSES: THE SOCIAL CONTROL INDICATORS AND GENDER**

### *Attachment and Gender*

The next sets of findings are the results of bivariate analyses that compare the social control indicators on gender (Table 2) and race (Table 3). The findings are very similar when comparing males and females on the attachment indicators of attachment to parents, peers, and teachers. Comparing males and females on attachment to parents the findings indicate 92.3% of males and 93.4% of females have a medium attachment to their parents. In addition, the findings indicate there are slightly more males (3.5%) who have high attachment to their parents than females (1.4%). In addition, there are more females who have low attachment to their parents than males. This finding is significant ( $\chi^2 = 51.011$ ;  $df=2$ ;  $p<.01$ ), which indicates the slight differences with attachment to parents for males and females can be inferred to the population with a 99% accuracy.

The findings on attachment to peers indicate that males (14.8%) have a higher attachment to their peers than females (12.8%). More females (66.7%) have a medium attachment to their peers than males (64.4%) and males and females are nearly identical on their percentages on low

Table 2. Results of Bivariate Analysis of Gender and Social Control Indicators

	Gender				$\chi^2$
	Males		Females		
	frequency	%	frequency	%	
Attachment to Parents (N=10,068)					
Low	203	4.2%	275	5.2%	51.011**
Medium	4445	92.3%	4903	93.4%	
High	168	3.5%	74	1.4%	
Attachment to Peers (N=10,254)					
Low	1019	20.8%	1099	20.5%	9.232*
Medium	3154	64.4%	3571	66.7%	
High	724	14.8%	687	12.8%	
Attachment to Teachers (N=10,165)					
Low	543	11.2%	522	9.8%	5.02
Medium	3221	66.3%	3589	67.6%	
High	1094	22.5%	1196	22.5%	
Involvement in Sports-Related Activities (N=9,712)					
Low	3908	85.5%	4602	89.5%	38.741**
Medium	603	13.2%	475	9.2%	
High	61	1.3%	63	1.2%	
Involvement in Other School-Related Activities (N=10,267)					
Low	668	13.5%	839	15.8%	12.232*
Medium	4280	86.3%	4462	84.1%	
High	11	0.2%	7	0.1%	

\*\*Chi-square is significant at  $p < .001$

\*Chi-square is significant at  $p < .05$

Table 2 (cont'd).

	Gender				$\chi^2$
	Males frequency	%	Females frequency	%	
Commitment to School (N=10,857)					
Low	165	3.1%	113	2.0%	180.70**
Medium	961	18.3%	552	9.9%	
High	4132	78.6%	4934	88.1%	
Commitment to Continuing Education or Going to Trade School (N=9,927)					
Low	2518	52.9%	2573	49.8%	32.245**
Medium	1783	37.5%	2203	42.6%	
High	456	9.6%	394	7.6%	
Commitment to Marriage and Success (N=10,976)					
Low	181	3.4%	106	1.9%	63.696**
Medium	1726	32.4%	1551	27.5%	
High	3420	64.2%	3992	70.7%	
Belief - it is not okay to Commit Mild Infractions in School (N=10,919)					
Low	208	3.9%	71	1.3%	159.115**
Medium	1288	24.3%	1004	17.9%	
High	3803	71.8%	4545	80.9%	
Belief - it is not okay to Commit Serious Infractions in School (N=10,914)					
Low	43	0.8%	4	0.1%	143.839**
Medium	249	4.7%	75	1.3%	
High	5001	94.5%	5542	98.6%	

\*\*Chi-square is significant at  $p < .001$ \*Chi-square is significant at  $p < .05$

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attachment (20.8% and 20.5%, respectively). These findings are significant ( $\chi^2 = 9.232$ ;  $df=2$ ;  $p<.05$ ), which indicates the differences observed with attachment to peers for males and females can be inferred to the population with a 95% accuracy.

The findings on attachment to teachers indicate that males (11.2%) have a lower attachment to teachers than females (9.8%). In addition, females (67.6%) have a higher medium attachment to teachers than males (66.3%). Both males and females have the similar percentages of high attachment to teachers (22.55). The findings on teacher attachment were not significant.

#### *Involvement and Gender*

The findings on involvement are again similar for males and females, however, there are slightly more males involved in school related sports and other school related activities than females. The findings on involvement in school related sports indicate that more females (89.5%) had low involvement than males (85.5%). More males (13.2%) had medium involvement in school related sports than females (9.2%). Both males (1.3%) and females (1.2%) have nearly the same rate of high involvement in school related sports. The differences observed were significant ( $\chi^2 =$

38.741;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between males and females in regards to involvement in school related sports can be inferred to the population with a 99% accuracy.

The findings on involvement in other school related activities indicate again that more females (15.8%) are higher on low involvement in other school related activities than males (13.5%). In addition, males (86.3%) are higher on medium involvement in other school related activities than females (84.1%). The percentages for high involvement for males and females were almost nonexistent (.1% and .2%, respectively). The differences observed were significant ( $\chi^2= 12.232$ ;  $df=2$ ;  $p<.05$ ), which indicates the differences observed between males and females with involvement in other school related activities can be inferred to the population with a 95% accuracy.

#### *Commitment and Gender*

The findings for commitment to school, commitment to continuing one's education or going to trade school, and commitment to marriage and success indicate females are more committed to school and marriage and success than males. In addition, there are mixed results for males and females on continuing one's education or going to trade

school. Specifically, the findings on commitment to school indicate that more females (88.1%) have a high commitment to school than males (78.6%). The findings are significant ( $\chi^2 = 180.70$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed in the findings can be inferred to the population with a 99% accuracy. The results for commitment to continuing one's education beyond high school or going to trade school were mixed. There are more males (52.9%) who are low on commitment to continuing their education or going to trade school than females (49.8%), but, at the same time, there are more males (9.6%) who are high on their commitment to continuing their education or going to trade school than females (7.6%). The findings indicate that the males in the sample are least likely to continue their education or go to trade school after graduation, on the other hand more males indicated they are slightly more likely than females to continue their education or go to trade school after completing high school (see Table 2). The differences observed were significant ( $\chi^2 = 32.245$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between males and females with commitment to continuing one's education or going to trade school after graduation can be inferred to the population with a 99% accuracy.

The findings for commitment to marriage and success indicate that more females are committed to marriage and success than males. Specifically, the findings indicate there are more females (70.7%) high on their commitment to marriage and success than males (64.2%). There are more males (32.4%) who are medium on their commitment to marriage and success than females (27.5%). In addition, there are more males (3.4%) who are low on commitment to marriage and success than females (1.9%). The differences observed with these findings were significant ( $\chi^2 = 63.696$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between males and females with commitment to marriage and success can be inferred to the population with a 95% accuracy.

#### *Belief and Gender*

Finally, the findings on whether the respondent believed it was not okay to commit mild and serious infractions in school indicate that a majority of the respondents believed it was not okay to commit mild or serious infractions in school with only a slight difference between males and females. The first belief indicator on whether it is not okay to commit mild infractions in school indicate more females (80.9%) were high on this variable as

compared to males (71.8%). This indicates that more females believed it was not okay to commit mild infractions in school than males. More males (3.9%) were low on believing it was okay to commit mild infractions in school than females (1.3%). The differences observed were significant ( $\chi^2 = 159.115$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between males and females in regards to believing it was not okay to commit mild infractions in school can be inferred to the population with a 99% accuracy.

#### **BIVARIATE ANALYSES: THE SOCIAL CONTROL INDICATORS AND RACE/ETHNICITY**

##### *Attachment and Race/Ethnicity*

Table 3 displays the findings from the bivariate analyses with the social control indicators and race/ethnicity. Overall, the findings are very similar among the racial/ethnic groups for the social control indicators.

The findings on attachment to parents, peers, and teachers are similar for whites, African Americans and Mexican Americans. There are more African Americans (5.4%) who are high on parental attachment than whites (2.1%) or Mexican Americans (1.7%). Whites and Mexican Americans have higher percentages of medium attachment than African

Table 3. Results of Bivariate Analysis of Race/Ethnicity and Social Control Indicators

	Race/Ethnicity				$\chi^2$
	White frequency	African American frequency	Mexican frequency	%	
Attachment to Parents (N=10,068)					
Low	367	64	47	5.3%	52.626**
Medium	7528	989	831	93.1%	
High	167	60	15	1.7%	
Attachment to Peers (N=10,254)					
Low	1647	235	236	25.8%	26.026**
Medium	5406	734	585	64.0%	
High	1137	181	93	10.2%	
Attachment to Teachers (N=10,165)					
Low	884	106	75	8.4%	32.973**
Medium	5509	715	586	65.5%	
High	1742	314	234	26.1%	
Involvement in Sports-Related Activities (N=9,712)					
Low	6761	957	792	88.3%	23.01**
Medium	867	120	91	10.1%	
High	80	30	14	1.6%	
Involvement in Other School-Related Activities (N=10,267)					
Low	1211	203	93	9.8%	25.080**
Medium	6904	980	858	90.1%	
High	14	3	1	0.1%	

\*\*Chi-square is significant at  $p < .001$

\*Chi-square is significant at  $p < .05$

Table 3(cont'd) .

	Race/Ethnicity				$\chi^2$
	White frequency	African American frequency	African American %	Mexican frequency	Mexican %
<b>Commitment to School (N=10,857)</b>					
Low	187	45	2.2%	46	4.5%
Medium	1190	165	13.9%	158	15.5%
High	7190	1061	83.9%	815	80.0%
					29.073**
<b>Commitment to Continuing Education or Going to Trade School (N=9,927)</b>					
Low	4037	498	51.0%	556	60.3%
Medium	3267	447	41.3%	272	29.5%
High	607	149	7.7%	94	10.2%
					93.438**
<b>Commitment to Marriage and Success (N=10,976)</b>					
Low	221	31	2.6%	35	3.3%
Medium	2505	416	29.1%	356	33.8%
High	5893	856	68.4%	663	62.9%
					16.374*
<b>Belief - it is not okay to Commit Mild Infractions in School (N=10,919)</b>					
Low	244	17	2.8%	18	1.7%
Medium	1880	195	21.9%	217	21.0%
High	6467	1083	75.3%	798	77.3%
					48.565**
<b>Belief - it is not okay to Commit Serious Infractions in School (N=10,914)</b>					
Low	44	1	0.5%	2	0.2%
Medium	279	10	3.3%	35	3.4%
High	8259	1286	96.2%	998	96.4%
					31.456**

\*\*Chi-square is significant at  $p < .001$ \*Chi-square is significant at  $p < .05$

Americans (93.4%, 93.1%, and 88.9%, respectively). The differences observed were significant ( $\chi^2 = 52.626$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between whites, African Americans, and Mexican Americans in terms of parental attachment can be inferred to the population with a 99% accuracy.

The findings on attachment to peers indicate that more African Americans (15.7%) are high on attachment to peers than whites (13.9%) or Mexican Americans (10.2%). The findings also indicate that whites (66.0%) have a higher rate of medium attachment to peers than African Americans (63.8%) and Mexican Americans (64.0%). There are more Mexican Americans who are low on attachment to peers than African Americans (20.4%) and whites (20.1%). The differences observed were significant ( $\chi^2 = 26.026$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between whites, African Americans, and Mexican Americans in terms of peer attachment can be inferred to the population with a 99% accuracy.

The findings on attachment to teachers indicate that more African Americans (27.7%) are high on attachment to teachers than whites (21.4%) or Mexican Americans (26.1%). Whites (67.7%), African Americans (63.0%), and Mexican Americans (65.5%) are all high on medium teacher attachment



with only slight differences. Whites (10.9%) have the highest percentages of low attachment to teachers than African Americans (9.3%) or Mexican Americans (8.4%). The differences observed were significant ( $\chi^2 = 32.937$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between whites, African Americans, and Mexican Americans in terms of teacher attachment can be inferred to the population with a 99% accuracy.

#### *Involvement and Race/Ethnicity*

The next findings are the results of race/ethnicity and involvement in school related sports activities and involvement in other school related activities other than sports. Majority of the respondents were not involved in any sports related activities. Mexican Americans (88.3%) had the highest rate of low involvement in school related sports activities than African Americans (86.4%) or whites (87.7%). There were similar percentages of medium involvement for all groups. However, African Americans (2.7%) had higher percentages of high involvement in school related sports activities than whites (1.0%) or Mexican Americans (1.6%). The differences observed were significant ( $\chi^2 = 26.01$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between whites, African Americans, and Mexican

Americans in terms of involvement in sports related activities can be inferred to the population with a 99% accuracy.

African Americans (17.1%) had the highest rate of low involvement for other school related activities followed by whites (14.9%) and Mexican Americans (9.8%), respectively. Mexican Americans (90.1%) had the highest percentages of medium involvement in other school related activities than African Americans (82.6%) and whites (84.9%). The differences observed were significant ( $\chi^2 = 25.08$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between whites, African Americans, and Mexican Americans in terms of involvement in other school related activities can be inferred to the population with a 99% accuracy.

#### *Commitment and Race/Ethnicity*

The indicators for the social bond of commitment are commitment to school, commitment to continuing one's education or going to trade school, and commitment to marriage and success. The results indicate that all groups have a high commitment to school, but African Americans (83.5%) and whites (83.9%) have higher commitment to school than Mexican Americans (80.0%). The differences observed were significant ( $\chi^2 = 29.073$ ;  $df=2$ ;  $p<.01$ ), which indicates

the differences observed between whites, African Americans, and Mexican Americans in terms of commitment to school can be inferred to the population with a 99% accuracy.

The findings on commitment to continuing one's education or going to trade school indicates that majority of the respondents had low or medium commitment to continuing their education or going to trade school. African Americans (13.6%) had the highest commitment to continuing their education or going to trade school upon graduation from high school than whites (7.7%) or Mexican Americans (10.2%). The differences observed were significant ( $\chi^2 = 93.438$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between whites, African Americans, and Mexican Americans in terms of commitment to continuing one's education or going to trade school upon graduation can be inferred to the population with a 99% accuracy.

Majority of the respondents were either high or medium on commitment to marriage and success. Whites (68.4%) had the highest rating on high commitment to marriage and success than African Americans (65.7%) and Mexican Americans (62.9%). The differences observed were significant ( $\chi^2 = 16.374$ ;  $df=2$ ;  $p<.05$ ), which indicates the differences observed between whites, African Americans, and Mexican Americans in terms of commitment to marriage and

success can be inferred to the population with a 95% accuracy.

#### *Belief and Race/Ethnicity*

The indicators for the social bond belief are believing it is not okay to commit mild infractions in school and believing it is not okay to commit serious infractions in school. The findings indicate that majority of the respondents were high on believing it was not okay to commit mild infractions in school. However, African Americans (83.6%) had the highest percentage of respondents who believed it was not okay to commit mild infractions in school as compared to whites (75.3%) and Mexican Americans (77.3%). The differences observed were significant ( $\chi^2 = 48.565$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between whites, African Americans, and Mexican Americans in terms of believing it is not okay to commit mild infractions in school can be inferred to the population with a 99% accuracy.

An overwhelming majority of the respondents indicated it was not okay to commit serious infractions in school. However, African Americans (99.2%) represented the highest percentage of respondents who believed that it was not okay to commit more serious infractions in school as compared to

whites (96.2%) and Mexican Americans (96.4%). The differences observed were significant ( $\chi^2 = 31.456$ ;  $df=2$ ;  $p<.01$ ), which indicates the differences observed between whites, African Americans, and Mexican Americans in terms of believing it is not okay to commit serious infractions in school can be inferred to the population with a 99% accuracy.

### **Bivariate Analyses with Smoking Cigarettes and the Independent Variables**

The bivariate analyses of the dependent variable smoking cigarettes and the independent variables are displayed in Table 4. The data indicates that most of the variables are significant at  $p\leq.001$  or  $p\leq.05$ . Attachment to peers and involvement in other school related activities were the only two measures that did show a significant relationship with smoking cigarettes.

#### *Smoking Cigarettes and Control Variables*

The first group of analyses compared smoking cigarettes to the control variables (i.e., race, gender, and SES). The data on cigarette smoking indicates that more females (18.0%) than males (16.1%) smoke ( $\chi^2 = 6.671$ ;  $df=2$ ;  $p<.05$ ). The data also indicate that more Whites (19.3%) smoke than African Americans (4.8%) and Mexican Americans

**Table 4. Bivariate Analysis of the Dependent Variable Smoking Cigarettes with Independent Variables**

	Smoking Cigarettes				$\chi^2$
	Yes frequency	%	No frequency	%	
<b>Gender (N=10,401)</b>					6.671*
Males	798	16.1%	4149	83.9%	
Females	984	18.0%	4470	82.0%	
<b>Race (N=10,401)</b>					160.171**
White	1602	19.3%	6705	80.7%	
African American	56	4.8%	1100	95.2%	
Mexican	124	13.3%	811	86.7%	
<b>Parent's Education Level (N=10,349)</b>					38.822**
Did not finish					
high school	175	18.5%	771	81.5%	
High school					
graduate	457	20.3%	1794	79.7%	
Some college	745	17.3%	3553	82.7%	
College graduate	223	14.9%	1278	85.1%	
Master's or					
Equivalent	111	12.6%	773	87.4%	
Ph.D., M.D. or					
other	66	14.1%	403	85.9%	

\*\*Chi-square is significant at  $p < .001$

\*Chi-square is significant at  $p < .05$

Table 4 (cont'd).

	Smoking Cigarettes				$\chi^2$
	Yes frequency	%	No frequency	%	
<b>Income Quartile (N=10,401)</b>					
Quartile 1 (Low)	466	18.6%	2043	81.4%	21.384**
Quartile 2	484	18.6%	2115	81.4%	
Quartile 3	451	17.0%	2201	83.0%	
Quartile 4 (High)	381	14.4%	2260	85.6%	
<b>Attachment to Parents (N=9,780)</b>					19.123**
High	51	22.7%	174	77.3%	2.313
Medium	1513	16.6%	7580	83.4%	
Low	108	23.4%	354	76.6%	
<b>Attachment to Peers (N=10,053)</b>					
High	239	17.2%	1147	82.8%	212.670**
Medium	1105	16.7%	5494	83.3%	
Low	376	18.2%	1692	81.8%	
<b>Attachment to Teachers (N=9,951)</b>					
High	267	11.9%	1971	88.1%	31.105**
Medium	1098	16.5%	5569	83.5%	
Low	337	32.2%	709	67.8%	
<b>Involvement in Sports-Related Activities (N=9,257)</b>					
High	22	19.6%	90	80.4%	
Medium	114	11.2%	908	88.8%	
Low	1472	18.1%	6651	81.9%	

\*\*Chi-square is significant at  $p < .001$

\*Chi-square is significant at  $p < .05$

Table 4(cont'd).

Smoking Cigarettes				$\chi^2$
Yes		No		
frequency		%	frequency	%
Involvement in Other School-Related Activities (N=9,780)				
High	7	38.9%	11	61.1%
Medium	1439	17.3%	6895	82.7%
Low	246	17.2%	1182	82.8%
5.875				
Commitment to School (N=10,321)				
High	1293	15.0%	7340	85.0%
Medium	404	28.4%	1020	71.6%
Low	75	28.4%	189	71.6%
189.885**				
Commitment to Continuing Education or Going to Trade School (N=9,533)				
High	108	13.1%	716	86.9%
Medium	505	13.1%	3348	86.9%
Low	1016	20.9%	3840	79.1%
102.722**				
Commitment to Marriage and Success (N=10,376)				
High	1038	14.7%	6000	85.3%
Medium	653	21.3%	2415	78.7%
Low	85	31.5%	185	68.5%
104.655**				
Belief - it is not okay to Commit Mild Infractions in School (N=10,334)				
High	975	12.4%	6912	87.6%
Medium	665	30.5%	1517	69.5%
Low	129	48.7%	136	51.3%
586.236**				

\*\*Chi-square is significant at  $p < .001$ \*Chi-square is significant at  $p < .05$



Table 4(cont'd).

		Smoking Cigarettes		$\chi^2$
		Yes	No	
		frequency	frequency	
Belief - it is not okay to Commit Serious Infractions in School (N=10,331)				593.145**
High	1535	15.4%	8441	84.6%
Medium	204	66.0%	105	34.0%
Low	26	56.5%	20	43.5%

\*\*Chi-square is significant at  $p < .001$

\*Chi-square is significant at  $p < .05$

(13.3%) ( $\chi^2 = 160.171$ ;  $df=2$ ;  $p<.01$ ). The percentage of African Americans who smoke is much less than the other two groups. In addition, respondents whose parents were high school graduates had the highest percentages of smoking (20.3%) than the other parental education levels followed by respondent's parents who did not complete high school (18.5%). The lowest percentages of smoking were among respondents whose parents had a Master's degree or equivalent (12.6%) ( $\chi^2 = 38.822$ ;  $df=2$ ;  $p<.01$ ). The findings on the income quartile indicate that respondents who were part of the high SES quartile had low percentages of smoking (14.4%) than the other SES quartiles ( $\chi^2 = 38.822$ ;  $df=2$ ;  $p<.01$ ).

#### *Attachment and Cigarette Smoking*

The next group of analyses assessed the relationships between the social control measures and smoking cigarettes. Some of the results do not follow the expected pattern, that is, youth who are highly bonded will refrain from smoking cigarettes. The findings on attachment to parents indicate that youth with high attachment (22.7%) have nearly the same percentage of smoking to youth with low attachment (23.4%) ( $\chi^2 = 21.384$ ;  $df=2$ ;  $p<.01$ ). The findings

on attachment to teachers indicate students who have a low attachment to teachers have a significantly higher percentage of smoking (32.2%) than students with high (11.9%) or medium (16.5%) teacher attachment ( $\chi^2 = 212.67$ ;  $df=2$ ;  $p<.01$ ).

#### *Involvement and Cigarette Smoking*

The findings on involvement and smoking cigarettes indicate that respondents who were more involved in sports related activities, meaning, they were high on involvement, indicated a higher percentage of smoking cigarettes than those who were medium or low on involvement ( $\chi^2 = 31.11$ ;  $df=2$ ;  $p<.01$ ).

#### *Commitment and Cigarette Smoking*

The findings on commitment and smoking cigarettes indicate that respondents who were low on commitment displayed a higher percentage of smoking cigarettes than the other respondents. Specifically, respondents who were low (28.4%) or medium (28.4%) on commitment to school were almost twice as likely to smoke than students who had high (15.0%) school commitment ( $\chi^2 = 189.89$ ;  $df=2$ ;  $p<.001$ ). Respondents who were low on commitment to continuing their education or going to trade school had a higher percentage

of smoking (20.9%) than respondents who were medium (13.1%) or high (13.1%) on commitment to continuing their education or going to trade school ( $\chi^2 = 102.722$ ;  $df=2$ ;  $p<.01$ ). The findings on the last commitment indicator indicate respondents who were low on commitment to marriage and success were over twice as likely to indicate they smoked cigarettes (31.5%) than respondents who were high on commitment to marriage and success (14.7%) ( $\chi^2 = 104.66$ ;  $df=2$ ;  $p<.01$ ).

#### *Belief and Cigarette Smoking*

The final social control indicator, belief, showed overwhelming support that respondents who were low on the belief indicators had a high percentage of smoking than respondents who were high on belief. Specifically, respondents who believed it was okay to commit mild infractions in school were four times more likely to smoke than (48.7%) those who believed it was not okay to commit mild infractions in school (12.4%) ( $\chi^2 = 586.24$ ;  $df=2$ ;  $p<.01$ ). In regards to the second belief indicator, the results indicate that respondents who were medium (66.0%) or low (56.5%) on whether it was okay to commit serious infractions in school had a high percentage of smoking than respondents who were high on belief (15.4%), which

indicated they did not think it was okay to commit serious infractions in school ( $\chi^2 = 593.15$ ;  $df=2$ ;  $p<.01$ ).

### **Bivariate Analyses with Drinking Alcohol and the Independent Variables**

#### *Drinking Alcohol and the Control Variables*

The data presented in Table 5 are the bivariate analyses with drinking alcohol as the dependent variable. The data indicate there are less of the independent measures that are significant or as significant as compared to the analyses where smoking cigarettes was the dependent variable. This observation is the first inclination that the social control model is better used to explain less serious behaviors, as indicated in the literature review (Akers, 1991). In this case, the social control model may be a better model to explain the cigarette smoking behavior of youth than it is to explain their drinking behavior.

The data in table 5 indicate that more youth overall indicated they had drank alcohol 30 days prior to interviewing than those who indicated they had smoked cigarettes 30 days prior to being interviewed. Specifically, the data indicate more males (45.3%) drank alcohol in the 30 days prior to being interviewed than females (40.2%) ( $\chi^2 = 24.698$ ;  $df=2$ ;  $p<.01$ ). The data is also

Table 5. Bivariate Analysis of the Dependent Variable Drinking Alcohol with all Independent Variables

	Drinking Alcohol				$\chi^2$
	Yes frequency	%	No frequency	%	
Gender (N=10,401)					24.698**
Males	1994	40.2%	2968	59.8%	
Females	2025	45.3%	2450	54.7%	
Race (N=10,401)					154.488**
White	3437	45.2%	4170	54.8%	
African American	242	24.5%	745	75.5%	
Mexican	340	40.3%	503	59.7%	
Parent's Education Level (N=10,349)					18.342*
Did not finish high school	317	38.0%	518	62.0%	
High school graduate	901	44.4%	1128	55.6%	
Some college	1683	43.1%	2224	56.9%	
College graduate	586	42.3%	799	57.7%	
Master's or Equivalent	310	38.7%	491	61.3%	
Ph.D., M.D. or other	202	46.7%	231	53.3%	
Income Quartile (N=10,401)					10.290*
Quartile 1 (Low)	884	39.7%	1343	60.3%	
Quartile 2	1030	43.7%	1326	56.3%	
Quartile 3	1066	43.7%	1373	56.3%	
Quartile 4 (High)	1039	43.0%	1376	57.0%	

\*\*Chi-square is significant at p<.001

\*Chi-square is significant at p<.05

Table 5 (cont'd).

Drinking Alcohol						$\chi^2$
		Yes frequency	%	No frequency	%	
Attachment to Parents (N=9,780)						
	High	93	47.4%	103	52.6%	16.450**
	Medium	3490	42.2%	4775	57.8%	
	Low	220	51.6%	206	48.4%	
Attachment to Peers (N=10,053)						
	High	641	51.2%	611	48.8%	71.015**
	Medium	2583	43.1%	3413	56.9%	
	Low	677	36.1%	1200	63.9%	
Attachment to Teachers (N=9,951)						
	High	655	32.5%	1361	67.5%	160.818**
	Medium	2676	44.2%	3383	55.8%	
	Low	532	56.1%	416	43.9%	
Involvement in Sports-Related Activities (N=9,257)						
	High	48	46.6%	55	53.4%	2.371
	Medium	422	44.7%	523	55.3%	
	Low	3132	42.4%	4253	57.6%	
Involvement in Other School-Related Activities (N=9,780)						
	High	11	61.1%	7	38.9%	2.578
	Medium	3226	42.7%	4332	57.3%	
	Low	565	43.2%	744	56.8%	

\*\*Chi-square is significant at  $p < .001$ \*Chi-square is significant at  $p < .05$

Table 5 (cont'd).

Smoking Cigarettes						$\chi^2$
		Yes		No		
		frequency	%	frequency	%	
Commitment to School (N=10,321)						
High	3121	39.8%	4723	60.2%	153.528**	
Medium	756	57.8%	553	42.2%		
Low	116	50.0%	116	50.0%		
Commitment to Continuing Education or Going to Trade School (N=9,533)						
High	314	41.8%	438	58.2%	8.279*	
Medium	1449	40.9%	2091	59.1%		
Low	1929	44.1%	2445	55.9%		
Commitment to Marriage and Success (N=10,376)						
High	2666	41.6%	3745	58.4%	9.275*	
Medium	1229	44.4%	1537	55.6%		
Low	115	47.9%	125	52.1%		
Belief - it is not okay to Commit Mild Infractions in School (N=10,334)						
High	2495	35.1%	4613	64.9%	695.273**	
Medium	1305	64.4%	721	35.6%		
Low	197	79.4%	51	20.6%		
Belief - it is not okay to Commit Serious Infractions in School (N=10,331)						
High	3731	41.2%	5314	58.8%	197.673**	
Medium	228	79.2%	60	20.8%		
Low	39	84.8%	7	15.2%		

\*\*Chi-square is significant at  $p < .001$ \*Chi-square is significant at  $p < .05$



indicative of the pattern observed in table 4 in regards to race and smoking cigarettes. In table 5 more whites indicated that they drank in the 30 days prior to being interviewed as compared to African Americans (24.5%) and Mexican Americans (40.3%). However, the data suggests that African Americans drink less than all the groups, which is the same pattern observed in table 4 with the smoking behaviors. This pattern of behavior is similar to the observations in national trend data on the behaviors of youth by race. The data indicated that African Americans tended to participate less often in smoking cigarettes, drinking alcohol, and/or drug use. However, the data did suggest African American youth tend to participate more often in other risky behaviors such as having more sex than any of the other race/ethnic groups as well as participating in other more serious behavior more often than other race/ethnic groups (i.e., property crimes) (OJJDP, 2002).

Overall, percentages of drinking were very similar for all groups when compared to respondents' parents' education level in this sample. The highest percentages of drinking were among respondents' whose parents' had Ph.D.'s or M.D.'s (46.7%). This is contrary to the predicted pattern of behavior. In fact the lowest rate of drinking (38.0%)

was among respondents' who indicated their parents had not completed high school. Again, when the highest SES quartile and lowest SES quartile are compared, the respondents who are in the highest SES quartile have a higher percentage of drinking (43.0%) than respondents who are in the lowest SES quartile (39.7%) ( $\chi^2 = 18.342$ ;  $df=2$ ;  $p<.05$ ).

#### *Attachment and Drinking Alcohol*

Focusing on the attachment indicators, the findings indicate that youth who have low attachment to parents (had a higher percentage of drinking alcohol (51.6%) than youth who were medium (42.2%) or high (47.4%) on attachment to parents ( $\chi^2 = 71.02$ ;  $df=2$ ;  $p<.01$ ). Respondents who were high on attachment to peers had a higher percentage of alcohol use (51.2%) than respondents who were low on peer attachment (36.1%) ( $\chi^2 = 71.015$ ;  $df=2$ ;  $p<.01$ ). The findings on attachment to teachers indicate that respondents who are low on teacher attachment drink alcohol at a higher rate than respondents who are medium (44.2%) or high (32.5%) on attachment to teachers ( $\chi^2 = 160.82$ ;  $df=2$ ;  $p<.01$ ).

### *Commitment and Drinking Alcohol*

The findings on the commitment indicators illustrate that high commitment was related to low percentages of drinking. Specifically, the findings on commitment to school indicate that low or medium commitment to school corresponds to a high percentage of drinking ( $\chi^2 = 153.53$ ;  $df=2$ ;  $p<.01$ ). Similarly, low commitment to continuing one's education or going to trade school corresponds to a high percentage of drinking (44.1%) as compared to a high percentage of commitment to continuing one's education or going to trade school (41.8%). The differences observed are significant ( $\chi^2 = 8.279$ ;  $df=2$ ;  $p<.05$ ). Finally, in regards to commitment, low percentages of commitment to marriage and success corresponds to high percentages of alcohol drinking (47.9%) as compared to high commitment to marriage and success (47.9%) ( $\chi^2 = 9.28$ ;  $df=2$ ;  $p<.05$ ).

### *Belief and Drinking Alcohol*

The final social control indicator of belief shows the most dramatic differences between the levels of belief and percentages of drinking alcohol. Specifically, findings indicate that believing it is okay to commit mild infractions in school (low belief) corresponds to percentages of drinking alcohol (79.4%) that are more than double the percentages of respondents who believe that it

is not okay to commit mild infractions in school (high belief; 35.1%) ( $\chi^2 = 695.27$ ;  $df=2$ ;  $p<.01$ ). The final belief indicator, which indicates whether a respondent believes it is okay to commit serious infractions in school has similar findings as the first belief indicator. Specifically, high percentages of drinking alcohol (84.8%) correspond to low belief meaning the respondent believes it is okay to commit serious infractions in school. This is compared to low percentages of alcohol drinking and high percentages of belief meaning the respondent believes it is not okay to commit serious infractions in school ( $\chi^2 = 197.673$ ;  $df=2$ ;  $p<.01$ ).

### **Gamma Measures of Association and Smoking Cigarettes**

#### *Attachment Indicators*

The next sets of bivariate analyses explore the relationship of the dependent variables more closely with the independent measures by race. These tables present the first evidence that the social control model, as it has been traditionally constructed, may be a model best suited to explain the behavior of whites than for African Americans or Mexican Americans (Note: the intercorrelations among the social control variables are presented in Appendix C). Table 6 presents the gamma measures for the

**Table 6. Gamma Measures of Smoking Cigarettes and the Attachment Indicators for the Entire Sample, Whites, African Americans, and Mexicans**

Attachment Indicators	Entire Sample	Race/Ethnicity		
		Whites	African Americans	Mexicans
<i>Attachment to Parents</i>	-.017 (n=9,780)	-.016 (n=7889)	.003 (n=1042)	-.023 (n=849)
<i>Attachment to Peers</i>	-.009 (n=10,053)	-.010 (n=8063)	.021 (n=1097)	-.027 (n=893)
<i>Attachment to Teachers</i>	-.130** (n=9,951)	-.135** (n=7997)	-.012 (n=1084)	-.134** (n=870)

Significant levels:  $p < .05^*$  and  $p < .001^{**}$

attachment indicators and cigarette smoking for the entire sample, whites, African Americans, and Mexican Americans. The findings indicate attachment to teachers show the only significant association to smoking cigarettes for the entire sample, whites and Mexican Americans. There was no significant association between attachment to parents and peers for any of the groups. In addition, none of the attachment indicators were significant for African Americans. The gamma associations show a moderate association between attachment to teachers and smoking. The findings indicate error is reduced when predicting the smoking behavior of the respondents about 13% of the time knowing their levels of attachment to teachers. In addition, the relationship between attachment to teachers and smoking cigarettes is negative which indicates that as the percentages of smoking cigarettes increase, attachment to teachers decreases.

#### *Commitment Indicators*

The relationship between commitment to school, continuing one's education, and commitment to marriage and success and cigarette smoking is better than attachment and smoking cigarettes as indicated in Table 7. The commitment indicators are stronger predictor of the smoking behavior

**Table 7. Gamma Measures of Smoking Cigarettes and the Commitment Indicators for the Entire Sample, Whites, African Americans, and Mexicans**

Commitment Indicators	Race/Ethnicity		
	Entire Sample	Whites	African Americans
Commitment to School	-.124** (n=10,321)	-.136** (n=8263)	-.019 (n=1132)
Commitment to Continuing Education or Going to Trade School	-.095** (n=9,533)	-.102** (n=7675)	-.036 (n=1003)
Commitment to Marriage and Success	-.100** (10,376)	-.107** (n=8291)	-.075* (n=1149)
			Mexicans
			-.154** (n=926)
			-.029 (n=855)
			-.094** (n=936)

Significant levels:  $p < .05^*$  and  $p < .001^{**}$

of whites than African Americans and Mexican Americans. Specifically, commitment to school is significantly associated with smoking cigarettes for the entire sample ( $\gamma = -.124$ ;  $p < .01$ ;  $n = 10,321$ ) and whites ( $\gamma = -.136$ ;  $p < .01$ ;  $n = 8,263$ ) only. In fact, the findings indicate it is a better measure of association for whites overall. The findings indicate that knowing the respondents level of commitment to school error is reduced when predicting smoking behavior about 14% for whites and 12.4% for the entire sample. In addition, the relationship is negative, meaning that as percentages of smoking increases the level of commitment to school decreases. Commitment to continuing one's education or going to trade school is significantly associated to smoking cigarettes for the entire sample ( $\gamma = -.095$ ;  $p < .01$ ;  $n = 9,533$ ) and whites ( $\gamma = -.102$ ;  $p < .01$ ;  $n = 7,675$ ). Again, the findings indicate that commitment to continuing one's education or going to trade school is a better predictor of respondents' smoking behavior for whites than the entire sample. Additionally, the findings indicate that knowing the respondents' commitment to continuing their education or going to trade school error is reduced when predicting their smoking behavior about 9.5% of the time for the entire sample and 10.2% of the time for whites. Finally, there is a negative relationship between



continuing one's education or going to trade school and smoking cigarettes, meaning, as the percentages of smoking increases, commitment to continuing one's education or going to trade school decreases.

Commitment to marriage and success is significantly associated to smoking cigarettes for the entire sample ( $\gamma = -.100$ ;  $p < .01$ ;  $n = 10,376$ ), whites ( $\gamma = -.107$ ;  $p < .01$ ;  $n = 8,291$ ), African Americans ( $\gamma = -.075$ ;  $p < .05$ ;  $n = 11,491$ ) and Mexican Americans ( $\gamma = -.094$ ;  $p < .01$ ;  $n = 936$ ). The findings indicate that commitment to marriage and success is a better predictor of the smoking behavior for whites followed by Mexican Americans, and then African Americans. In addition, the findings indicate that knowing a respondents level of commitment to marriage and success helps to reduce the error of predicting smoking behavior of respondents by 10.0% for the entire sample, 10.7% for whites, 7.5% for African Americans and 9.4% for Mexican Americans. Finally, there is a negative relationship between commitment to marriage and success. Meaning, that as commitment to marriage and success decreases, the percentage of smoking increases.

#### *Involvement and Smoking Cigarettes*

The two involvement indicators are involvement in sports related activities and involvement in other school

related activities (i.e., band, clubs, drama, etc.). The findings from the gamma measures are presented in Table 8. The results indicate that involvement in sports related activities was significantly associated with smoking cigarettes for the entire sample ( $\gamma = -.044$ ;  $p < .01$ ;  $n = 9,257$ ), whites ( $\gamma = -.051$ ;  $p < .01$ ;  $n = 7,440$ ), African Americans ( $\gamma = -.084$ ;  $p < .01$ ;  $n = 995$ ) and Mexican Americans ( $\gamma = -.070$ ;  $p < .05$ ;  $n = 822$ ). Involvement in other school related sports was not significantly associated with smoking cigarettes for any group. Involvement in sports related activities is a better predictor of behavior for African Americans, followed by Mexican Americans, and whites. There is a positive association between smoking cigarettes and involvement in sports related activities for African Americans. This indicates that as involvement in sports related activities increases for African Americans so does their percentage of smoking. Conversely, there is a negative relationship between smoking cigarettes and involvement in sports related activities for whites and Mexican Americans. This indicates that as involvement in sports related activities increase for whites and Mexican Americans their percentage of smoking decreases.

**Table 8. Gamma Measures of Smoking Cigarettes and the Involvement Indicators for the Entire Sample, Whites, African Americans, and Mexicans**

Involvement Indicators	Race/Ethnicity			
	Entire Sample	Whites	African Americans	Mexicans
Involvement In Sports Related Activities	-.044** (n=9257)	-.051** (n=7440)	.084** (n=995)	-.070* (n=822)
Involvement in Other School Related Activities	.004 (n=9780)	.009 (n=7849)	-.047 (n=1062)	-.023 (n=869)

Significant levels:  $p < .05^*$  and  $p < .001^{**}$

## *Belief and Smoking Cigarettes*

The two indicators for belief are (1) believing it is not okay to commit mild infractions in school and (2) believing it is not okay to commit serious infractions in school the gamma associations are presented in Table 9. The results indicate there is a moderately strong, significant, negative association between believing it is not okay to commit mild infractions in school and smoking cigarettes for the entire sample ( $\gamma = -.238$ ;  $p < .01$ ;  $n = 10,334$ ), whites ( $\gamma = -.235$ ;  $p < .01$ ;  $n = 8,265$ ), African Americans ( $\gamma = -.187$ ;  $p < .01$ ;  $n = 1,141$ ) and Mexican Americans ( $\gamma = -.256$   $p < .01$ ;  $n = 928$ ). Believing it is not okay to commit mild infractions in school is a better predictor of Mexican Americans behavior followed by whites then African Americans. The negative relationship between smoking cigarettes and believing it is not okay to commit mild infractions in school indicate that the higher the respondent is on this belief indicator their percentage of smoking decreases.

The results indicate there is a moderately strong, significant, negative association between believing it is not okay to commit serious infractions in school and smoking cigarettes for the entire sample ( $\gamma = -.224$ ;  $p < .01$ ;  $n = 10,331$ ), whites ( $\gamma = -.221$ ;  $p < .01$ ;  $n = 8,258$ ), African Americans ( $\gamma = -.199$ ;  $p < .01$ ;  $n = 1,144$ ) and Mexican Americans

**Table 9. Gamma Measures of Smoking Cigarettes and the Belief Indicators for the Entire Sample, Whites, African Americans, and Mexicans**

Belief Indicators	Race/Ethnicity		
	Entire Sample	Whites	African Americans
Belief: It is not okay to commit mild infractions in school	-.238** (n=10,334)	-.235** (n=8,265)	-.187** (n=1,141)
Belief: It is not okay to commit serious infractions in school	-.224** (n=10,331)	-.221** (n=8,258)	-.199** (n=1,144)
			-.256** (n=928)
			-.227** (n=929)

Significant levels:  $p < .05^*$  and  $p < .001^{**}$

(  $\gamma = -.227$   $p < .01$ ;  $n = 929$ ). Again, believing it is not okay to commit serious infractions in school is a better predictor of Mexican Americans behavior followed by whites then African Americans. The negative relationship between smoking cigarettes and believing it is not okay to commit serious infractions in school indicate that the higher the respondent is on this belief indicator their percentage of smoking decreases.

### **Gamma Measures of Association and Drinking Alcohol**

#### *Attachment Indicators*

The next sets of bivariate analyses explore the relationship of the independent measures and drinking alcohol by race. The gamma measure of association is again used to determine statistical significance, strength and direction of the association. The overall results indicate that the social bond measures appear to be better suited to predict the smoking behavior of adolescents than it is to predict their drinking behavior as evidenced by the number of statistically significant associations that were observed in the smoking data as compared to the drinking data. Table 10 presents the gamma measures for the attachment indicators and drinking alcohol for the entire sample, whites, African Americans, and Mexican Americans.

Table 10. Gamma Measures of Drinking Alcohol and the Attachment Indicators for the Entire Sample, Whites, African Americans, and Mexicans

Attachment Indicators	Entire Sample	Race/Ethnicity		
		Whites	African Americans	Mexicans
Attachment to Parents	-.025* (n=8,887)	-.031** (n=7226)	.012 (n=897)	.028 (n=764)
Attachment to Peers	-.088** (n=9,125)	-.101** (n=7380)	.001 (n=941)	-.072* (n=804)
Attachment to Teachers	-.133** (n=9,023)	-.136** (n=7321)	-.075* (n=922)	-.122** (n=780)

Significant levels:  $p < .05^*$  and  $p < .001^{**}$

The findings indicate attachment to parents, peers and teachers show significant associations for the entire sample and whites. In addition, the findings indicate that attachment to peers ( $\gamma=.072$ ;  $p<.05$ ;  $n=804$ ) and teachers ( $\gamma=-.122$ ;  $p<.01$ ;  $n=780$ ) were significantly associated to drinking alcohol for Mexican Americans. Finally, attachment to teachers was the only significant attachment association for African Americans ( $\gamma=-.075$ ;  $p<.05$ ;  $n=922$ ). The findings show that for whites attachment to teachers is the strongest attachment indicator of the three indicators. In addition, the findings indicate a negative weak to moderate strength in association ( $\gamma=-.136$ ;  $p<.01$ ;  $n=7,321$ ) for whites, meaning that knowing the level of teacher attachment for white respondents reduces the error in predicting drinking alcohol by 13.6%. Attachment to teachers was a stronger measure of association for whites, followed by Mexican Americans then African Americans.

#### *Commitment and Drinking Alcohol*

The association between commitment to school, continuing one's education or going to trade school, and commitment to marriage and success and drinking alcohol indicates commitment is a stronger predictor of the drinking behavior of whites than African Americans and



Mexican Americans as indicated in Table 11. Specifically, commitment to school is significantly associated with drinking alcohol for the entire sample ( $\gamma = -.112$ ;  $p < .01$ ;  $n = 9,385$ ), whites ( $\gamma = -.128$ ;  $p < .01$ ;  $n = 7,575$ ) and African Americans ( $\gamma = -.111$ ;  $p < .01$ ;  $n = 975$ ). However, the findings indicate it is a better measure of association for whites overall. The findings indicate that knowing the respondents level of commitment to school, error is reduced when predicting drinking behavior about 13% for whites and 11% for the entire sample and 11% for African Americans. In addition, the relationship is negative, meaning that as percentage of drinking increases, the level of commitment to school decreases. Commitment to continuing one's education or going to trade school is significantly associated to drinking alcohol for the entire sample ( $\gamma = -.026$ ;  $p < .05$ ;  $n = 8,666$ ) and whites ( $\gamma = -.026$ ;  $p < .05$ ;  $n = 7,030$ ). Again, the findings indicate that commitment to continuing one's education or going to trade school is a better predictor of respondents' drinking behavior for whites than the entire sample. Additionally, the findings indicate that knowing the respondents' commitment to continuing their education or going to trade school, error is reduced when predicting their drinking behavior about 3% of the time for the entire sample and for whites. Finally, there is a

Table 11. Gamma Measures of Drinking Alcohol and the Commitment Indicators for Entire Sample, Whites, African Americans, and Mexicans

Commitment Indicators	Race/Ethnicity		
	Entire Sample	Whites	African Americans Mexicans
Commitment to School	-.112** (n=9,385)	-.128** (n=7575)	-.111** (n=975)
Commitment to Continuing Education or Going to Trade School	-.026* (n=8,666)	-.026* (n=7030)	-.024 (n=866)
Commitment to Marriage and Success	-.031** (n=9,417)	-.032** (n=7593)	-.072* (n=982)
			-.018 (n=835)
			.030 (n=770)
			-.012 (n=842)

Significant levels:  $p \leq .05^*$  and  $p \leq .001^{**}$

negative relationship between continuing one's education or going to trade school and drinking alcohol, meaning, as the percentage of drinking increases, commitment to continuing one's education or going to trade school decreases.

Commitment to marriage and success is significantly associated to drinking alcohol for the entire sample ( $\gamma = -.031$ ;  $p < .01$ ;  $n = 9,417$ ), whites ( $\gamma = -.032$ ;  $p < .01$ ;  $n = 7,593$ ), and African Americans ( $\gamma = -.072$ ;  $p < .05$ ;  $n = 982$ ). The findings indicate that commitment to marriage and success is a better predictor of the drinking behavior for African Americans followed by whites. In addition, the findings indicate that knowing a respondents level of commitment to marriage and success helps to reduce the error of predicting drinking behavior of respondents by 3% for the entire sample and whites and 7% for African Americans. Also, there is a negative relationship between commitment to marriage and success. Meaning, that as commitment to marriage and success decreases, the percentage of smoking increases. Finally, there was no significant relationship found between the commitment indicators for Mexican Americans and drinking alcohol. This is contrary to the findings on smoking cigarettes where commitment to marriage was significantly associated to smoking for Mexican Americans. This finding reiterates the idea the social

control model might be a better model to explain the smoking behavior of all adolescents than it is to explain their drinking behavior.

#### *Involvement and Drinking Alcohol*

The two involvement indicators are involvement in sports related activities and involvement in other school related activities (i.e., band, clubs, drama, etc.). The findings from the gamma measures in Table 12 indicate that involvement in sports related activities was significantly associated with drinking alcohol for whites ( $\gamma=.037$ ;  $p<.01$ ;  $n=7,440$ ) and Mexican Americans ( $\gamma=-.100$ ;  $p<.05$ ;  $n=742$ ) only. Involvement in other school related sports was not significantly associated with drinking alcohol for any of the groups. Involvement in sports related activities is a better predictor of behavior for Mexican Americans than for whites. There is a positive association between drinking alcohol and involvement in sports related activities for whites. This indicates that as involvement in sports related activities increases for whites so do their percentage of drinking. Conversely, there is a negative relationship between drinking alcohol and involvement in sports related activities for Mexican Americans. This indicates that as involvement in sports related activities

**Table 12. Gamma Measures of Drinking Alcohol and the Involvement Indicators for Entire Sample, Whites, African Americans, and Mexicans**

Involvement Indicators	Race/Ethnicity			
	Entire Sample	Whites	African Americans	Mexicans
Involvement In Sports Related Activities	.017 (n=8,433)	.037** (n=6832)	-.009 (n=859)	-.100* (n=742)
Involvement in Other School Related Activities	-.001 (n=8,885)	-.005 (n=7196)	-.021 (n=910)	.037 (n=779)

Significant levels:  $p \leq .05^*$  and  $p \leq .001^{**}$

increase for Mexican Americans their percentage of smoking decreases.

#### *Belief and Drinking Alcohol*

The two indicators for belief are (1) believing it is not okay to commit mild infractions in school and (2) believing it is not okay to commit serious infractions in school. The results in Table 13 indicate there is a moderately strong, significant, negative association between believing it is not okay to commit mild infractions in school and drinking alcohol for the entire sample ( $\gamma = -.270$ ;  $p < .01$ ;  $n = 9,382$ ), whites ( $\gamma = -.277$ ;  $p < .01$ ;  $n = 7570$ ), African Americans ( $\gamma = -.152$ ;  $p < .01$ ;  $n = 978$ ) and Mexican Americans ( $\gamma = -.242$   $p < .01$ ;  $n = 834$ ). Believing it is not okay to commit mild infractions in school is a better predictor of white respondents' behavior followed by Mexican Americans then African Americans. The negative relationship between drinking alcohol and believing it is not okay to commit mild infractions in school indicate that the higher the respondent is on this belief indicator their percentage of drinking decreases.

The results indicate there is a moderately strong, significant, negative association between believing it is not okay to commit serious infractions in school and drinking alcohol for the entire sample ( $\gamma = -.141$ ;  $p < .01$ ;

**Table 13. Gamma Measures of Drinking Alcohol and the Belief Indicators for the Entire Sample, Whites, African Americans, and Mexicans**

Belief Indicators	Race/Ethnicity			
	Entire Sample	Whites	African Americans	Mexicans
Belief: It is not okay to commit mild infractions in school	-.270** (n=9,382)	-.277** (n=7570)	-.152** (n=978)	-.242** (n=834)
Belief: It is not okay to commit serious infractions in school	-.141** (n=9,379)	-.140** (n=7562)	-.108** (n=980)	-.125** (n=837)

Significant levels:  $p \leq .05^*$  and  $p \leq .001^{**}$

n=9,379), whites ( $\gamma=-.140$ ;  $p<.01$ ; n=7562), African Americans ( $\gamma=-.108$ ;  $p<.01$ ; n=980) and Mexican Americans ( $\gamma=-.125$   $p<.01$ ; n=835). Again, believing it is not okay to commit serious infractions in school is a better predictor of whites respondents' behavior followed by Mexican Americans then African Americans. The negative relationship between drinking alcohol and believing it is not okay to commit serious infractions in school indicate that the higher the respondent is on this belief indicator their percentage of drinking decreases.

#### **LOGISTIC ANALYSES AND CIGARETTE SMOKING**

The multivariate analyses were conducted using logistic regression, as both dependent variables are dichotomous variables. The purpose of the multivariate analyses is to understand the ability of the social control model to explain the smoking and/or drinking behavior of African American and Mexican youth as compared to white youth. Tables 14-17 display the results of the logistic analyses with cigarette smoking as the dependent variable for the entire sample, white youth, Mexican youth and African American youth. Tables 15-21 display the results of the logistic analyses with drinking alcohol as the



dependent variable for the entire sample, white youth, Mexican youth and African American youth.

H<sub>0</sub>: There is no relationship between attachment (to parents, teachers, peers), commitment (to school and furthering education or getting a job), involvement (in sports related activities and other school-related activities) and belief (in committing mild and serious infractions in school) in regards to smoking cigarettes and drinking alcohol. Moreover, these relationships will be conditioned by gender, SES, and race.

### ***Entire Sample and Smoking Cigarettes***

Table 14 displays the results of the logistic regression analyses for the entire sample. The results indicate that the model was significant (Chi-square = 796.490; df=14; p<.01; n=7,804). Majority of the variables and social control indicators were also significant. The variables that were not significant were the SES quartile, attachment to parents and peers and involvement in other school related activities. The relationships between the social control variables were mostly negative; therefore, the results indicate that a one unit increase in the social control indicators that were significant, results in a

**Table 14. Logistic Regression Results for the Entire Sample with the Dependent Variable Smoking Cigarettes**

<b>VARIABLES:</b>	<b>Odds Ratio</b>	<b>S.E.</b>	<b>Exp(B)</b>	<b>SIG.</b>
Race	.4756	.0646	1.6090	.0000**
Gender	.4543	.0674	1.5750	.0000**
SES Quartile	-.0312	.0463	.9693	.5003
Parent's Education	-.1003	.0435	.9046	.0213*
Attachment to Parents	.1024	.1195	1.1078	.3915
Attachment to Peers	.0603	.0570	1.0622	.2902
Attachment to Teachers	-.2906	.0612	.7478	.0000**
Commitment to School	-.3353	.0671	.7151	.0000**
Commitment to Furthering Education or Going to Trade School	-.2769	.0552	.7581	.0000**
Commitment to Marriage and Success	-.2760	.0587	.7588	.0000**
Involvement in Sports-related Activities	-.3312	.1013	.7181	.0011**
Involvement in Other School-related Activities	.0486	.0896	1.0498	.5876
Belief: It is not okay to commit mild infractions at school	-.7414	.0640	.4764	.0000**
Belief: It is not okay to commit serious infractions at school	-1.2738	.1417	.2798	.0000**
Constant	5.0958	.5412		.0000

Chi-square = 796.490\*\*

N=7804

**Significant levels:  $p \leq .05^*$  and  $p \leq .001^{**}$**

decrease in the likelihood that the respondents would smoke cigarettes by a multiplicative factor of the data displayed in the  $\text{Exp}(B)$  column. Race is positive as indicated by the odds ratio and significant in this model (odds ratio=.4756;  $\text{Exp}(B)= 1.6090$ ;  $p<.01$ ). This finding indicates that for each unit increase in race there is a positive increase in smoking behavior. Specifically, this finding indicates that controlling for all other variables, the model explains the smoking behavior of whites more than it does for African Americans or Mexican Americans.

The relationship between gender and smoking was a positive significant relationship as indicated by the odds ratio in this model (odds ratio=.4543;  $\text{Exp}(B)= 1.575$ ;  $p<.01$ ). This indicates that for each unit increase in gender there is a positive increase in smoking behavior. Specifically, this finding indicates that females are more likely to smoke than males, controlling for all other variables.

Parent's education had a significant negative effect on smoking as indicated by the odds ratio (odds ratio=-.1003;  $\text{Exp}(B)=.9046$ ;  $p<.05$ ). This indicates for each unit increase in the parent's education level there is a decrease in smoking behavior. Specifically, this finding indicates that the more education a respondent's parent has

the less likely that individual is to smoke, controlling for all other variables.

Attachment to teachers also shows a significant effect. Attachment to teachers has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.2906$ ;  $\text{Exp}(B)=.7478$ ;  $p<.01$ ). This indicates for each unit increase in the attachment to teachers there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is attached to a teacher a respondent is less likely to smoke, controlling for all other variables.

Commitment to school also shows a significant relationship to smoking. Commitment to school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.3353$ ;  $\text{Exp}(B)=.7151$ ;  $p<.01$ ). This indicates for each unit increase in commitment to school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is committed to school, s/he is less likely to smoke, controlling for all other variables.

Commitment to furthering education or going to trade school shows a significant relationship to smoking. Commitment to furthering education or going to trade school has a significant negative effect on smoking as indicated

by the odds ratio (odds ratio=  $-.2769$ ;  $\text{Exp}(B)=.7581$ ;  $p<.01$ ). This indicates for each unit increase in the Commitment to furthering education or going to trade school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is committed to furthering his/her education or going to trade school s/he is less likely to smoke, controlling for the other variables.

Commitment to marriage and success shows a significant relationship to smoking. Commitment to marriage and success has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.2760$ ;  $\text{Exp}(B)=.7588$ ;  $p<.01$ ). This indicates for each unit increase in the commitment to marriage and success there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is committed to marriage and success s/he is less likely to smoke, controlling for the other variables.

Involvement in sports-related activities shows a significant relationship to smoking. Involvement in sports-related activities has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.2760$ ;  $\text{Exp}(B)=.7588$ ;  $p<.01$ ). This indicates for each unit increase in involvement in sports-related activities there is a

decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is involved in sports-related activities s/he is less likely to smoke, controlling for all other variables.

Believing it is not okay to commit mild infractions in school shows a significant relationship to smoking.

Believing it is not okay to commit mild infractions in school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.7414$ ;  $\text{Exp}(B)=.4764$ ;  $p<.01$ ). This indicates for each unit increase in believing it is not okay to commit mild infractions in school there is a decrease in smoking behavior.

Specifically, this finding indicates that the more a respondent believes it is not okay to commit mild infractions in school the less likely s/he will smoke, controlling for all other variables.

Believing it is not okay to commit serious infractions in school shows a significant relationship to smoking.

Believing it is not okay to commit serious infractions in school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-1.2738$ ;  $\text{Exp}(B)=.2798$ ;  $p<.01$ ). This indicates for each unit increase in believing it is not okay to commit serious infractions in school there is a decrease in smoking behavior.

Specifically, this finding indicates that the more a respondent believes it is not okay to commit serious infractions in school the less likely s/he will smoke, controlling for all other variables.

In sum, females, low parental education, and respondents who were low on the social control indicators were more likely to smoke. Belief in committing mild infractions in school had the most effect on the smoking behavior of youth in the sample as indicated by the Wald statistic (Wald = 134.0372), which was highest among the social control indicators.

### ***Whites and Smoking Cigarettes***

Table 15 displays the results of the logistic regression analyses for whites. The results for the white respondents indicate that the model was significant (Chi-square = 630.604; df=13;  $p < .01$ ;  $n=6,390$ ). Gender and many of the social control indicators showed significance for the white respondents. Attachment to parents and peers and involvement in other school related activities were the social control indicators that were not significant. The relationships between the social control variables and smoking cigarettes were all negative; therefore, the results indicate that a one unit increase in the social

**Table 15. Logistic Regression Results for Whites and Smoking Cigarettes as the Dependent Variable**

<b>VARIABLES:</b>	<b>Odds Ratio</b>	<b>S.E.</b>	<b>Exp(B)</b>	<b>SIG.</b>
Gender	.4720	.0714	1.6031	.0000**
SES Quartile	-.0623	.0490	.9396	.2030
Parent's Education	-.0781	.0460	.9249	.0898
Attachment to Parents	.1687	.1310	1.1837	.1978
Attachment to Peers	.0760	.0606	1.0790	.2098
Attachment to Teachers	-.2673	.0655	.7654	.0000**
Commitment to School	-.3532	.0739	.7024	.0000**
Commitment to Furthering Education or Going to Trade School	-.2826	.0590	.7538	.0000**
Commitment to Marriage and Success	-.2695	.0626	.7638	.0000**
Involvement in Sports-related Activities	-.3378	.1089	.7134	.0019*
Involvement in Other School-related Activities	.0538	.0947	1.0553	.5699
Belief: It is not okay to commit mild infractions at school	-.6927	.0683	.5002	.0000**
Belief: It is not okay to commit serious infractions at school	-1.2353	.1503	.2907	.0000**
Constant	5.1883	.5999		.0000

Chi-square = 630.604\*\*

N=6,390

**Significant levels:  $p \leq .05^*$  and  $p \leq .001^{**}$**



control indicators that were significant, results in a decrease in the likelihood that the respondents would smoke cigarettes by a multiplicative factor of the data displayed in the  $\text{Exp}(B)$  column.

The relationship between gender and smoking was a positive significant relationship as indicated by the odds ratio (odds ratio=.4720;  $\text{Exp}(B)$ = 1.6031;  $p<.01$ ) in this model. This indicates that for each unit increase in gender there is a positive increase in smoking behavior. Specifically, this finding indicates that females are more likely to smoke than males, controlling for other variables.

Attachment to teachers show a significant relationship to smoking. Attachment to teachers has a significant negative effect on smoking as indicated by the odds ratio (odds ratio= -.2673;  $\text{Exp}(B)$ =.7654;  $p<.01$ ). This indicates for each unit increase in the attachment to teachers there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is attached to a teacher a respondent is less likely to smoke, controlling for all other variables.

Commitment to school also shows a significant relationship to smoking. Commitment to school has a significant negative effect on smoking as indicated by the

odds ratio (odds ratio=  $-.3532$ ;  $\text{Exp}(B)=.7024$ ;  $p<.01$ ). This indicates for each unit increase in commitment to school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is committed to school a respondent is less likely to smoke, controlling for all other variables.

Commitment to furthering one's education or going to trade school shows a significant relationship to smoking. Commitment to furthering one's education or going to trade school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.2826$ ;  $\text{Exp}(B)=.7538$ ;  $p<.01$ ). This indicates for each unit increase in the commitment to furthering education or going to trade school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is committed to furthering his/her education or going to trade school s/he is less likely to smoke, controlling for all other variables.

Commitment to marriage and success shows a significant relationship to smoking. Commitment to marriage and success has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.2695$ ;  $\text{Exp}(B)=.7638$ ;  $p<.01$ ). This indicates for each unit increase in the commitment to marriage and success there is a decrease in

smoking behavior. Specifically, this finding indicates that the more a respondent is committed to marriage and success s/he is less likely to smoke, controlling for all other variables.

Involvement in sports-related activities shows a significant relationship to smoking. Involvement in sports-related activities has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.3378$ ;  $\text{Exp}(B)=.7134$ ;  $p<.05$ ). This indicates for each unit increase in involvement in sports-related activities there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is involved in sports-related activities s/he is less likely to smoke, controlling for all other variables.

Believing it is not okay to commit mild infractions in school shows a significant relationship to smoking. Believing it is not okay to commit mild infractions in school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.6927$ ;  $\text{Exp}(B)=.5002$ ;  $p<.01$ ). This indicates for each unit increase in believing it is not okay to commit mild infractions in school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent believes it is not okay to commit mild

infraction in school the less likely s/he will smoke, controlling for all other variables.

Believing it is not okay to commit serious infractions in school shows a significant relationship to smoking. Believing it is not okay to commit serious infractions in school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio= -1.2353;  $\text{Exp}(B)=.2907$ ;  $p<.01$ ). This indicates for each unit increase in believing it is not okay to commit serious infractions in school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent believes it is not okay to commit serious infractions in school the less likely s/he will smoke, controlling for all other variables.

In sum, the social control model controlling for white respondents indicate females and respondents who were low on the social control indicators were more likely to smoke. Belief in committing mild infractions in school had the most effect on the smoking behavior of youth in the sample as indicated by the Wald statistic (Wald = 102.912), which was highest among the social control indicators.

### ***African American Youth and Cigarette Smoking***

Table 16 displays the results of the logistic regression analyses for African Americans and cigarette smoking. The results for the African American respondents indicate the model was significant for African American youth (Chi-square = 44.062; df=10; n=1,324;  $p < .01$ ). This significant result for the model is not unusual given the sample size. However, there is a marked difference in the significant findings of the social control indicators for African American youth as compared to white youth. For African American youth only three of the social control indicators were significant for smoking cigarettes, as compared to white youth, where all, but three, were significant.

Involvement in other school related activities shows a significant relationship to smoking. Involvement in other school related activities has a significant negative effect on smoking as indicated by the odds ratio (odds ratio = -.9126;  $\text{Exp}(B) = .4015$ ;  $p < .05$ ). This indicates for each unit increase in involvement in other school related activities there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is involved in other school related activities s/he is less likely to smoke, controlling for all other variables.

**Table 16. Logistic Regression Results for African Americans with Cigarette Smoking as the Dependent Variable**

<b>VARIABLES:</b>	<b>Odds Ratio</b>	<b>S.E.</b>	<b>Exp(B)</b>	<b>SIG.</b>
Gender	.7069	.4344	2.0278	.1036
SES Quartile	.0490	.2682	1.0503	.8549
Parent's Education	-.3490	.2656	.7054	.1888
Attachment to Parents	-.2589	.5583	.7719	.6429
Attachment to Peers	.5301	.3452	1.6990	.1247
Attachment to Teachers	-.0926	.3198	.9116	.7722
Commitment to School	.5667	.4816	1.7625	.2393
Commitment to Furthering Education or Going to Trade School	-.1637	.3032	.8490	.5894
Commitment to Marriage and Success	-.2488	.3385	.7798	.4624
Involvement in Sports-related Activities	.5661	.3371	1.7614	.0931
Involvement in Other School-related Activities	-.9126	.4155	.4015	.0281*
Belief: It is not okay to commit mild infractions at school	-1.6183	.3537	.1982	.0000**
Belief: It is not okay to commit serious infractions at school	-1.6545	.7415	.1912	.0257*
Constant	5.6453	2.7359		.0391

Chi-square = 49.477\*\*

N = 758

**Significant levels: p<.05\* and p<.001\*\***

Believing it is not okay to commit mild infractions in school shows a significant relationship to smoking. Believing it is not okay to commit mild infractions in school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio= -1.6183;  $\text{Exp}(B)=.1982$ ;  $p<.01$ ). This indicates for each unit increase in believing it is not okay to commit mild infractions in school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent believes it is not okay to commit mild infraction in school the less likely s/he will smoke, controlling for all other variables.

Believing it is not okay to commit serious infractions in school shows a significant relationship to smoking. Believing it is not okay to commit serious infractions in school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio= -1.6545;  $\text{Exp}(B)=.1912$ ;  $p<.05$ ). This indicates for each unit increase in believing it is not okay to commit serious infractions in school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent believes it is not okay to commit serious infractions in school the less likely s/he will smoke, controlling for all other variables.

In sum, the social control model controlling for African American respondents indicate those who were low on the involvement in other school related activities and low on the belief indicators were more likely to smoke. Belief in committing mild infractions in school had the most effect on the smoking behavior of African American youth as indicated by the Wald statistic ( $Wald = 20.931$ ), which was highest among the social control indicators.

### ***Mexican American Youth and Cigarette Smoking***

Table 17 displays the results of the logistic regression analyses for Mexican youth. The findings on Mexican Americans indicate that the model was statistically significant ( $Chi\text{-}square = 82.486$ ;  $df=13$ ;  $n=656$ ;  $p<.01$ ). Again, this was expected, as the sample size for Mexican youth is large ( $n=656$ ). The findings indicate there were five social control indicators that were statistically significant (i.e., attachment to teacher, commitment to school, involvement in sports related activities, Believing it is not okay to commit mild infractions in school, and Believing it is not okay to commit serious infractions in school). Overall, the model explains the behavior of Mexican youth better than African American youth. However,



Table 17. Logistic Regression Results for Mexicans with Cigarette Smoking as the Dependent Variable

VARIABLES:	Odds Ratio	S.E.	Exp(B)	SIG.
Gender	.3180	.2559	1.3744	.2141
SES Quartile	.0794	.2015	1.0826	.6937
Parent's Education	-.0746	.1750	.9281	.6699
Attachment to Parents	-.1290	.4205	.8790	.7591
Attachment to Peers	-.2064	.2177	.8135	.3432
Attachment to Teachers	-.6221	.2337	.5368	.0078*
Commitment to School	-.5463	.1982	.5791	.0058*
Commitment to Furthering Education or Going to Trade School	-.0172	.2008	.9830	.9318
Commitment to Marriage and Success	-.3843	.2105	.6810	.0679
Involvement in Sports-related Activities	-1.2636	.6100	.2826	.0383*
Involvement in Other School-related Activities	.0836	.4433	1.0872	.8504
Belief: It is not okay to commit mild infractions at school	-.8866	.2401	.4121	.0002**
Belief: It is not okay to commit serious infractions at school	-1.2470	.4803	.2874	.0094*
Constant	9.2691	1.9792		.0000

Chi-square = 82.486\*\*

N = 656

Significant levels: p< .05\* and p< .001\*\*

the model does not explain the behavior of Mexican youth as well as it does for white youth.

Attachment to teachers shows a significant relationship to smoking. Attachment to teachers has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.6221$ ;  $\text{Exp}(B)=.5368$ ;  $p<.05$ ). This indicates for each unit increase in the attachment to teachers there is a decrease in smoking behavior. Specifically, this finding indicates the more a respondent is attached to a teacher a respondent is less likely to smoke, controlling for all other variables.

Commitment to school also shows a significant relationship to smoking. Commitment to school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio=  $-.5463$ ;  $\text{Exp}(B)=.57914$ ;  $p<.05$ ). This indicates for each unit increase in commitment to school there is a decrease in smoking behavior. Specifically, this finding indicates the more a respondent is committed to school s/he is less likely to smoke, controlling for all other variables.

Involvement in sports-related activities shows a significant relationship to smoking. Involvement in sports-related activities has a significant negative effect on smoking as indicated by the odds ratio (odds ratio= -

1.2636;  $\text{Exp}(B) = .2826$ ;  $p < .05$ ). This indicates for each unit increase in involvement in sports-related activities there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent is involved in sports-related activities s/he is less likely to smoke, controlling for all other variables.

Believing it is not okay to commit mild infractions in school shows a significant relationship to smoking. Believing it is not okay to commit mild infractions in school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio =  $-.8866$ ;  $\text{Exp}(B) = .4121$ ;  $p < .01$ ). This indicates for each unit increase in believing it is not okay to commit mild infractions in school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent believes it is not okay to commit mild infraction in school the less likely s/he will smoke, controlling for all other variables.

Believing it is not okay to commit serious infractions in school shows a significant relationship to smoking. Believing it is not okay to commit serious infractions in school has a significant negative effect on smoking as indicated by the odds ratio (odds ratio =  $-1.2470$ ;  $\text{Exp}(B) = .2874$ ;  $p < .05$ ). This indicates for each unit increase

in believing it is not okay to commit serious infractions in school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent believes it is not okay to commit serious infractions in school the less likely s/he will smoke, controlling for all other variables.

In sum, the social control model controlling for Mexican respondents indicate respondents who were low on the social control indicators were more likely to smoke. Belief in committing mild infractions in school had the most effect on the smoking behavior of youth in the sample as indicated by the Wald statistic (Wald = 13.6298), which was highest among the social control indicators.

## **LOGISTIC ANALYSES AND DRINKING ALCOHOL**

### ***Entire Sample and Drinking Alcohol***

Table 18 displays the results of the logistic analyses for the entire sample. The results indicate that the model was significant (Chi-square = 796.490; df=14;  $p < .01$ ;  $n=7,804$ ). Many of the social control indicators were significant. The relationships between the social control variables were mostly negative; therefore, the results indicate that a one unit increase in the social control indicators that were significant, results in a decrease in

**Table 18. Logistic Regression Results for the Entire Sample with Drinking Alcohol as the Dependent Variable**

<b>VARIABLES:</b>	<b>Odds Ratio</b>	<b>S.E.</b>	<b>Exp(B)</b>	<b>SIG.</b>
Gender	-.0445	.0514	.9565	.3863
SES Quartile	-.0524	.0365	1.0538	.1506
Parent's Education	-.0545	.0331	.9469	.0999
Attachment to Parents	-.1834	.0992	.8324	.0646
Attachment to Peers	.3465	.0455	1.4141	.0000**
Attachment to Teachers	-.2818	.0479	.7544	.0000**
Commitment to School	-.1589	.0598	.8531	.0079*
Commitment to Furthering Education or Going to Trade School	-.0407	.0409	.9601	.3199
Commitment to Marriage and Success	-.0162	.0498	.9839	.7448
Involvement in Sports-related Activities	.0330	.0689	1.0336	.6315
Involvement in Other School-related Activities	-.0651	.0699	.9370	.3519
Belief: It is not okay to commit mild infractions at school	-1.0050	.0586	.3660	.0000**
Belief: It is not okay to commit serious infractions at school	-.4870	.1567	.6145	.0019*
Constant	4.2454	.5433		.0000

Chi-square = 691.549\*\*  
N=7,136

**Significant levels:  $p < .05^*$  and  $p < .001^{**}$**

the likelihood that the respondents would drink alcohol by a multiplicative factor of the data displayed in the Exp(B) column, for the negative relationships. None of the control variables displayed any significant relationships to drinking alcohol.

Attachment to peers shows a significant positive relationship to drinking alcohol as indicated by the odds ratio (odds ratio= .3465; Exp(B)= 1.4141;  $p < .01$ ). This indicates for each unit increase in the attachment to peers there is an increase in drinking behavior. Specifically, this finding indicates that the more a respondent is attached to peers the more likely s/he is to drink, controlling for all other variables.

Attachment to teachers shows a significant relationship to drinking alcohol. Attachment to teachers has a significant negative effect on drinking alcohol as indicated by the odds ratio (odds ratio= -.2818; Exp(B)=.7544;  $p < .01$ ). This indicates for each unit increase in the attachment to teachers there is a decrease in drinking behavior. Specifically, this finding indicates that the more a respondent is attached to a teacher a respondent's is less likely to drink alcohol, controlling for all other variables.

Commitment to school also shows a significant relationship to drinking. Commitment to school has a significant negative effect on drinking as indicated by the odds ratio (odds ratio=  $-.1589$ ;  $\text{Exp}(B)=.8531$ ;  $p<.05$ ). This indicates for each unit increase in commitment to school there is a decrease in drinking behavior. Specifically, this finding indicates that the more a respondent is committed to school a respondent is less likely to drink alcohol, controlling for all other variables.

Believing it is not okay to commit mild infractions in school shows a significant relationship to drinking. Believing it is not okay to commit mild infractions in school has a significant negative effect on drinking as indicated by the odds ratio (odds ratio=  $-1.005$ ;  $\text{Exp}(B)=.3660$ ;  $p<.01$ ). This indicates for each unit increase in believing it is not okay to commit mild infractions in school there is a decrease in drinking alcohol. Specifically, this finding indicates that the more a respondent believes it is not okay to commit mild infractions in school the less likely s/he will drink alcohol, controlling for all other variables.

Believing it is not okay to commit serious infractions in school shows a significant relationship to drinking alcohol. Believing it is not okay to commit serious

infractions in school has a significant negative effect on drinking alcohol as indicated by the odds ratio (odds ratio= -1.2738;  $\text{Exp}(B)=.2798$ ;  $p<.01$ ). This indicates for each unit increase in believing it is not okay to commit serious infractions in school there is a decrease in drinking alcohol. Specifically, this finding indicates that the more a respondent believes it is not okay to commit serious infractions in school the less likely s/he will drink, controlling for all other variables.

In sum, respondents who were low on the social control indicators (that were significant) were more likely to drink. The exception to this was the attachment to peers, as high indicators of peer attachment were associated with respondents who were more likely to drink. Believing it is not okay to commit mild infractions in school had the most effect on the drinking behavior of youth in the sample as indicated by the Wald statistic ( $\text{Wald} = 294.233$ ), which was highest among the social control indicators.

### ***Whites and Drinking Alcohol***

Table 19 displays the results of the logistic analyses for whites and drinking alcohol. The results for the white respondents indicate that the model was significant ( $\text{Chi-square} = 608.13$ ;  $\text{df}=13$ ;  $p<.01$ ;  $n=5,878$ ). Many of the social



**Table 19. Logistic Regression Results for Whites with Drinking Alcohol as the Dependent Variable**

<b>VARIABLES:</b>	<b>Odds Ratio</b>	<b>S.E.</b>	<b>Exp(B)</b>	<b>SIG.</b>
Gender	-.0048	.0566	.9952	.9324
SES Quartile	.0245	.0403	1.0248	.5427
Parent's Education	-.0462	.0364	.9548	.2039
Attachment to Parents	-.2568	.1135	.7735	.0236*
Attachment to Peers	.4092	.0504	1.5056	.0000**
Attachment to Teachers	-.2923	.0533	.7465	.0000**
Commitment to School	-.2125	.0691	.8086	.0021*
Commitment to Furthering Education or Going to Trade School	-.0405	.0458	.9603	.3759
Commitment to Marriage and Success	-.0087	.0555	.9913	.8755
Involvement in Sports-related Activities	.1503	.0775	1.1622	.0524*
Involvement in Other School-related Activities	-.1079	.0762	.8977	.1567
Belief: It is not okay to commit mild infractions at school	-1.0311	.0648	.3566	.0000**
Belief: It is not okay to commit serious infractions at school	-.4065	.1703	.6660	.0170*
Constant	5.3390	.6088		.0000

Chi-Square = 608.130\*\*

N = 5,878

**Significant levels:  $p < .05^*$  and  $p < .001^{**}$**

control indicators showed significance for the white respondents in relationship to drinking alcohol. However, none of the control variables showed significance. The relationships between the social control variables were mostly negative; therefore, the results indicate that a one unit increase in the social control indicators that were significant, results in a decrease in the likelihood that the respondents would smoke cigarettes by a multiplicative factor of the data displayed in the  $\text{Exp}(B)$  column, for the negative relationships.

Attachment to parents shows a significant relationship to drinking. Attachment to parents has a significant negative effect on drinking alcohol as indicated by the odds ratio (odds ratio =  $-.2568$ ;  $\text{Exp}(B) = .7735$ ;  $p < .05$ ). This indicates for each unit increase in the attachment to parents there is a decrease in drinking alcohol. Specifically, this finding indicates that the more a respondent is attached to a parent a respondent is less likely to drink alcohol, controlling for all other variables.

Attachment to peers shows a significant positive relationship to drinking alcohol as indicated by the odds ratio (odds ratio =  $.4092$ ;  $\text{Exp}(B) = 1.506$ ;  $p < .01$ ). This indicates for each unit increase in the attachment to peers

there is an increase in drinking behavior. Specifically, this finding indicates that the more a respondent is attached to peers the more likely s/he is to drink, controlling for all other variables.

Attachment to teachers shows a significant relationship to drinking alcohol. Attachment to teachers has a significant negative effect on drinking as indicated by the odds ratio (odds ratio=  $-.2923$ ;  $\text{Exp}(B)=.7465$ ;  $p<.01$ ). This indicates for each unit increase in the attachment to teachers there is a decrease in drinking alcohol. Specifically, this finding indicates that the more a respondent is attached to a teacher a respondent is less likely to drink alcohol, controlling for the other variables.

Commitment to school also shows a significant relationship to drinking alcohol. Commitment to school has a significant negative effect on drinking as indicated by the odds ratio (odds ratio=  $-.2125$ ;  $\text{Exp}(B)=.8086$ ;  $p<.05$ ). This indicates for each unit increase in commitment to school there is a decrease in drinking alcohol. Specifically, this finding indicates that the more a respondent is committed to school a respondent is less likely to drink alcohol, controlling for the other variables.

Involvement in sports-related activities shows a significant relationship to drinking alcohol. Involvement in sports-related activities has a significant positive effect on drinking alcohol as indicated by the odds ratio (odds ratio= .1503;  $\text{Exp}(B)=1.1622$ ;  $p<.05$ ). This indicates for each unit increase in involvement in sports-related activities there is an increase in drinking behavior. Specifically, this finding indicates that the more a respondent is involved in sports-related activities s/he is more likely to drink alcohol, controlling for the other variables.

Believing it is not okay to commit mild infractions in school shows a significant relationship to drinking alcohol. Believing it is not okay to commit mild infractions in school has a significant negative effect on drinking as indicated by the odds ratio (odds ratio=-1.0311;  $\text{Exp}(B)=-.3566$ ;  $p<.01$ ). This indicates for each unit increase in believing it is not okay to commit mild infractions in school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent believes it is not okay to commit mild infractions in school the less likely s/he will drink, controlling for all other variables.

Believing it is not okay to commit serious infractions in school shows a significant relationship to drinking alcohol. Believing it is not okay to commit serious infractions in school has a significant negative effect on drinking as indicated by the odds ratio (odds ratio = .4065;  $\text{Exp}(B) = .6660$ ;  $p < .05$ ). This indicates for each unit increase in believing it is not okay to commit serious infractions in school there is a decrease in drinking behavior. Specifically, this finding indicates that the more a respondent believes it is not okay to commit serious infractions in school the less likely s/he will drink, controlling for all other variables.

In sum, the social control model controlling for white respondents indicate females and respondents who were low on the social control indicators were more likely to smoke. Belief in committing mild infractions in school had the most effect on the smoking behavior of youth in the sample as indicated by the Wald statistic (Wald = 253.23), which was highest among the social control indicators.

### ***African American Youth and Drinking Alcohol***

Table 20 displays the results of the logistic regression analyses for African Americans and drinking alcohol. The results for the African American respondents

**Table 20. Logistic Regression Results for African Americans with Drinking Alcohol as the Dependent Variable**

<b>VARIABLES:</b>	<b>Odds Ratio</b>	<b>S.E.</b>	<b>Exp(B)</b>	<b>SIG.</b>
Gender	-.1139	.1918	.8924	.5527
SES Quartile	.0820	.1273	1.0854	.5194
Parent's Education	-.1273	.1243	.8804	.3057
Attachment to Parents	-.1198	.2871	.8871	.6764
Attachment to Peers	.0304	.1606	1.0309	.8499
Attachment to Teachers	-.1273	.1623	.8804	.4328
Commitment to School	-.3345	.1827	.7157	.0671
Commitment to Furthering Education or Going to Trade School	.0330	.1414	1.0336	.8152
Commitment to Marriage and Success	-.1746	.1764	.8398	.3222
Involvement in Sports-related Activities	-.2547	.2364	.7752	.2813
Involvement in Other School-related Activities	-.1885	.2386	.8282	.4296
Belief: It is not okay to commit mild infractions at school	-.7396	.2096	.4773	.0004**
Belief: It is not okay to commit serious infractions at school	-1.1387	.8415	.3202	.1760
Constant	7.0935	2.6553		.0076

Chi-square = 31.149\*

N = 666

**Significant levels: p<.05\* and p<.001\*\***

indicate the model was significant for African American youth ( $\text{Chi-square}=31.149$ ;  $\text{df}=13$ ;  $n=666$ ;  $p<.05$ ). Again, this significant result for the model is not unusual given the sample size. However, there is a marked difference in the significant findings of the social control indicators for African American youth as compared to white youth. For African American youth there was only one social control indicator that was significant for drinking alcohol, as compared to white youth, where there were many more social control indicators significant.

Believing it is not okay to commit mild infractions in school shows a significant relationship to drinking alcohol for African Americans. Believing it is not okay to commit mild infractions in school has a significant negative effect on drinking alcohol as indicated by the odds ratio (odds ratio =  $-1.6183$ ;  $\text{Exp}(B)=.1982$ ;  $p<.01$ ). This indicates for each unit increase in believing it is not okay to commit mild infractions in school there is a decrease in smoking behavior. Specifically, this finding indicates that the more a respondent believes it is not okay to commit mild infractions in school the less likely s/he will drink alcohol, controlling for all the other variables. Belief in committing mild infractions in school had the most effect on the drinking behavior of African American youth as

indicated by the Wald statistic ( $\text{Wald} = 12.46$ ), which was highest among the social control indicators.

### ***Mexican American Youth and Drinking Alcohol***

Table 21 displays the results of the logistic regression analyses for Mexican youth. The findings on Mexican youth indicate that the model was statistically significant ( $\text{Chi-square} = 56.537$ ;  $\text{df}=13$ ;  $n=592$ ;  $p<.01$ ). Again, this was expected, as the sample size for Mexican youth is large ( $n=592$ ). The findings indicate there were two social control indicators that were statistically significant (i.e., involvement in sports related activities and believing it is not okay to commit mild infractions in school). Overall, the model explains the drinking behavior of Mexican youth better than African American youth. However, the model does not explain the drinking behavior of Mexican youth as well as it does for white youth.

Involvement in sports-related activities shows a significant relationship to drinking. Involvement in sports-related activities has a significant negative effect on drinking as indicated by the odds ratio (odds ratio =  $-.5873$ ;  $\text{Exp}(B) = .5558$ ;  $p<.05$ ). This indicates for each unit increase in involvement in sports-related activities there is a decrease in drinking behavior. Specifically, this



Table 21. Logistic Regression Results for Hispanics with Drinking Alcohol as the Dependent Variable

VARIABLES:	Odds Ratio	S.E.	Exp(B)	SIG.
Gender	-.2286	.1777	.7956	.1982
SES Quartile	.0450	.1388	1.0460	.7458
Parent's Education	.1152	.1188	1.1221	.3324
Attachment to Parents	.4023	.3459	1.4953	.2448
Attachment to Peers	.1613	.1600	1.1751	.3132
Attachment to Teachers	-.2262	.1655	.7976	.1716
Commitment to School	.2330	.1764	1.2624	.1864
Commitment to Furthering Education or Going to Trade School	.0372	.1342	1.0379	.7816
Commitment to Marriage and Success	-.0028	.1582	.9972	.9860
Involvement in Sports-related Activities	-.5873	.2572	.5558	.0224*
Involvement in Other School-related Activities	.2621	.3108	1.2997	.3990
Belief: It is not okay to commit mild infractions at school	-.9982	.2133	.3685	.0000**
Belief: It is not okay to commit serious infractions at school	-.4624	.4810	.6297	.3363
Constant	2.6861	1.6555		.1047
Chi-square = 56.537**				
N = 592				

Significant levels: p< .05\* and p< .001\*\*

finding indicates that the more a respondent is involved in sports-related activities s/he is less likely to drink alcohol, controlling for all other variables.

Believing it is not okay to commit mild infractions in school shows a significant relationship to drinking alcohol. Believing it is not okay to commit mild infractions in school has a significant negative effect on drinking alcohol as indicated by the odds ratio (odds ratio =  $-0.8866$ ;  $\text{Exp}(B) = 0.4121$ ;  $p < .01$ ). This indicates for each unit increase in believing it is not okay to commit mild infractions in school there is a decrease in drinking alcohol. Specifically, this finding indicates that the more a respondent believes it is not okay to commit mild infractions in school the less likely s/he will drink alcohol, controlling for all other variables.

In sum, the social control model controlling for Mexican respondents indicate respondents who were low on the social control indicators that were significant were more likely to drink alcohol. Believing it is not okay to commit mild infractions in school had the most effect on the drinking behavior of youth in the sample as indicated by the Wald statistic (Wald = 21.905), which was highest among the social control indicators.

## Discussion

This research seeks to know does the social control theory explain the cigarette smoking and alcohol drinking behavior of African American and Mexican youth as well as it explains these behaviors for white youth? To answer this question the research examined the race findings from previous research, the traditional conceptualization and operationalization of the social control theory to understand how this may affect research findings, and conducted analyses that included whites, African Americans and Mexican Americans from a national data set.

The findings in this study illustrate the extent to which the social control theory is useful to explain the cigarette smoking and alcohol drinking behavior of white youth, African American youth, and Mexican youth. The key finding of this study is that the social control model is limited in explaining the smoking and drinking behavior of Mexican youth and African American youth, especially. This finding is consistent with previous research conducted, research where results would indicate a race difference in the explanatory power of the social control model, but was glossed over or not mentioned in the findings or discussion sections by the researcher (Gardner and Shoemaker, 1989;

Covington, 1988; Liska and Reed, 1985; Weber, *et. al.*, 1995; Cerkonvich and Giordano, 1992).

Other findings are that the social control model explains the smoking behavior of all the youth better than it explains the drinking behavior of the youth. This is consistent with previous research (Agnew, 1985; Gardner and Shoemaker, 1989; Akers, 1991) that suggests the social control model explains less serious behavior better as compared to more serious behavior.

Another finding is that the social control model fit Mexican youth better than African American youth, which is consistent with findings from previous research (Weber, Miracle, and Skehan, 1995; (Rodriguez and Weisburd, 1991). In addition, there were differential findings based on race/ethnicity in the effectiveness of the social control indicators. The social control variables that were significant, differed, for the most part, for each group, for each dependent variable. This finding is consistent with Weber *et al.*, (1995). Weber *et al.*'s research indicates that there should be consideration of cultural differences when constructing the social control indicators. The fact that there is such a marked difference among the social control variables and their effect on the dependent variables by race/ethnicity, suggests that considering the

impact of race/ethnic differences when constructing the social control indicators should be considered as an option to maximize the effect of the social control model for all race/ethnic groups.

Finally, the attachment to parents, attachment to peers, and attachment to teacher variables were not significant in many of the analyses. Attachment to teachers was significant for white youth when smoking cigarettes was the dependent variable. All of the attachment variables were significant for white youth when drinking alcohol was analyzed as the dependent variable. However, none of the attachment variables were significant for African American youth or Mexican youth for either dependent variable. This finding is important because Hirschi (1969) suggests, that the attachment variable, and parental attachment specifically, is the most affective bond. However, in this research there was no significant association between parental and peer attachment and smoking cigarettes.

The literature on smoking and drinking suggests that white youth smoke and drink more often than other youth (i.e., African American and Hispanic youth) (Bureau of Labor Statistics, 1999). The findings in this study confirm previous research (Flay et al., 1994; Ellickson and Morton).

Previous research suggests that parents and peers have the most influence in the smoking and drinking behavior of youth (Foshee and Bauman, 1992; Ennett et al., 1997). The literature suggests that peers probably have the most influence in regards to the drinking and smoking behavior of many adolescents (Ennet and Bauman, 1993; Oetting and Beauvais, 1986; Friedman, Lichtenstein, and Biglan, 1985; Bauman et al., 1984; McAlister, Krosnick, and Milburn, 1984; Huba and Bentler, 1980; Levitt and Edwards, 1970). The results of the current research suggests that parents and peers do not have the influence over the cigarette smoking or alcohol drinking behavior of youth in general. There were significant affects of attachment to parents and peers for white youth but only in reference to their drinking behavior. These results should be assessed with caution do to the limitations of the current research.

## **Chapter V**

### **DISSERTATION SUMMARY**

#### **Purpose and Significance of this Research**

The purpose of this research was to answer the question, does the social control theory explain the cigarette smoking and alcohol drinking behavior of African American and Mexican youth as well as it explains these behaviors for white youth? The question was answered by (1) examining the race findings from previous research, (2) examining the traditional conceptualization and operationalization of the social control theory in the literature to understand how the traditional treatment might affect research findings, and (3) conducting analyses that included whites, African Americans and Mexicans from a national data set.

The significance of this study is to understand the conditions under which the social control theory is useful in explaining delinquency. Specifically, this study is important because (1) it contributes to the current body of research by clearly examining the social bond constructs relative to African American and Mexican youth; (2) it makes the findings generalizeable to the population as a result of the utilization of a national data set; and (3) it applies the principles of social control theory to the

explanation of the smoking and drinking behavior for whites, African Americans and Mexican youth in the United States. The dichotomy of whites and African Americans in the research literature has limited the generalizeability of results to other groups. Understanding the limitations of the social control theory in regards to race/ethnicity, the following hypothesis was tested comparing white, African American and Mexican youth:

H<sub>0</sub>: There is no relationship between attachment (to parents, teachers, peers), commitment (to school and furthering education or getting a job), involvement (in sports related activities and other school-related activities) and belief (in committing mild and serious infractions in school) in regards to smoking cigarettes and drinking alcohol. Moreover, these relationships will be conditioned by gender, SES, and race.

## **SUMMARY OF THE LITERATURE REVIEW**

### **The Social Control Theory**

The social control theory assumes that everyone has the tendency to want to commit crimes but most individuals are deterred from doing so because of the bonds we form to



individuals and/or social institutions in society. Specifically, Hirschi (1969) suggests there are four bonds that individuals form to significant others or to the traditional norms in society that curb their natural tendencies to want to commit crimes and they are: attachment, commitment, involvement, and belief.

Attachment is the bond that is formed for individuals (i.e., parents, peers, teachers, clergy, etc.) in society. Commitment has to do with commitment to the traditional ideas of success in society (i.e., continuing ones, education after high school, finishing school, getting married and being a success). Involvement has to do with the individual's involvement in traditional activities (i.e., sports, clubs, band, drama, etc.). Belief has to do with the belief in the morals and values in society.

The bonds of the social control theory have a negative effect on delinquency, the stronger the bonds the more likely delinquency will decrease and vice versa. In addition, Hirschi (1969) suggests the influence of the bonds on delinquency is not equally distributed among the four bonds. In fact, he suggests that attachment to parents is seen as the most affective bond. If parental attachment is strong, this lessens the influence of the other bonds on delinquency. However, if the affects of parental attachment

or attachment in general is not strong, then one of the other bonds would have to be strong in order to prevent or reduce the likelihood of delinquent behavior.

Previous literature suggests the social control theory is a viable explanation for the delinquent and deviant behavior of some youth. However, there is no clear evidence to suggest that the social control theory is viable explanation for the delinquent behavior of youth of color.

Much of the research that has utilized social control theory has tended to gloss over the applicability of the model to youth of color. Findings from previous literature suggest the social control theory loses its explanatory power or mixed results are obtained when race is introduced into the equation (Gardner and Shoemaker, 1989; Covington, 1988; Liska and Reed, 1985; Weber, *et. al.*, 1995; Cerkonvich and Giordano, 1992). Also, the amount of variance the model explains in regression analyses is far less for adolescents of color than for majority youth (Gardner and Shoemaker, 1989; Covington, 1988; Liska and Reed, 1985; Weber, *et. al.*, 1995; Cerkonvich and Giordano, 1992).

In addition to the problems with the efficacy of social control theory to explain juvenile delinquency relative to race or ethnicity, much of the research that

does address race tends to focus mostly on the racial dichotomy of African Americans and white Americans (Covington, 1988; Liska and Reed, 1985; Cerkonvich and Giordano, 1992; Gardner and Shoemaker, 1989). The Black/White dichotomy does not address issues pertinent to many racial/ethnic groups that find themselves within the criminal justice system.

### **Literature on Smoking and Drinking**

The literature on smoking and drinking suggests that white youth smoke and drink more often than other youth (i.e., African American and Hispanic youth) (Bureau of Labor Statistics, 1999). In addition, previous research suggests that parents and peers have the most influence in the smoking and drinking behavior of youth (Foshee and Bauman, 1992; Ennett et al., 1997). The literature suggests that peers probably have the most influence in regards to the drinking and smoking behavior of many adolescents (Ennet and Bauman, 1993; Oetting and Beauvais, 1986; Friedman, Lichtenstein, and Biglan, 1985; Bauman et al., 1984; McAlister, Krosnick, and Milburn, 1984; Huba and Bentler, 1980; Levitt and Edwards, 1970). The research also indicates that there are differential influences on the

smoking and drinking behavior of adolescents when racial/ethnic differences are considered.

With knowledge of prior research this current project, sought to contribute the current body of research by clearly examining the social bond constructs relative to the cigarette smoking and alcohol drinking behavior of white, African American, and Mexican youth. In addition, the current research sought to make the findings generalizeable to the population by using a national data set.

## **THE METHODOLOGY**

### **The Data**

This study utilized secondary data from the National Educational Longitudinal Study 1988-1994 (NELS:88). The NELS:88 was the first nationally representative longitudinal study of eighth grade students in public and private schools. The NELS:88 uses a two-stage stratified probability sampling design that selected a nationally representative sample of 24,599 students from 1,052 randomly selected schools.

### **Dependent Variables**

The two dependent variables for this study are smoking cigarettes and drinking alcohol. Both dependent variables

were indications of whether the respondent had smoked cigarettes or drank alcohol in the 30 days prior to being interviewed. The variables were coded as one (1) indicating the respondent had smoked or drank 30 days prior to being interviewed or zero (0) where they indicated they had not smoked or drank 30 days prior to being interviewed.

### **Independent Variables**

The independent variables for this study are attachment (parents, peer, and teachers), involvement (in sports related activities and involvement in other school related activities), commitment (to school, to marriage and success, to furthering education or getting a job) and belief (it is not okay to commit mild and serious infractions in school). All of the social bond indicators were computed then recoded into ordinal level measurements with categories of high, medium, and low attachment, commitment, involvement, and belief (see Appendix B for the items that were used to create the social control indicators).

Attachment to parents was conceptualized as the respondent's feelings about his/her parents. Attachment to peers was conceptualized as how the respondent feels s/he is thought of by his/her peers. Attachment to teachers is

conceptualized as how the teacher feels about the respondent. Involvement in sports-related activities is conceptualized in terms of the types of sports the respondent participated while in school. Involvement in other school-related activities is conceptualized in terms of the respondent's level of participation in school related activities such as band, orchestra, plays, and school clubs.

Commitment to school is conceptualized in terms of whether the respondent comes to class prepared. Commitment to further education or going to trade school is conceptualized in terms of whether the respondent plans to take college entrance exams or skill tests. Believing it is not okay to commit mild infractions in school is conceptualized in terms of moral issues that involves whether the respondent believes it is okay to skip school, cheat on tests, be late for class, to copy someone's homework, etc. Believing it is not okay to commit serious infractions in school is conceptualized in terms of moral issues that involves whether the respondent believes it is okay to get into physical fights at school, belong to gangs, steal belongings, destroy school property.

## **The Control Measures**

The control variables consisted of race/ethnicity, gender, parental education level, and SES. The race variable is a nominal level variable that contains all groups (i.e., whites, African Americans, and Mexicans). Parental education is an ordinal level measurement with categories that range from "less than high school" to "Ph.D.". The SES quartile variable was constructed using available parent data that included: father's education level, mother's education level, father's occupation, mother's occupation, and family income.

## **THE FINDINGS**

### **Univariate Analysis**

The data consisted of 11,038 respondents. The sample was almost evenly divided between males (48.6%) and females (51.4%). The race/ethnic categories in the sample were comparable to the national population of whites (78.4%), African Americans (12.0%) and Mexicans (9.6%) for the year 1990 (see Appendix A for comparison). Majority of the respondent's had parents who had completed some college (41.5%). The findings indicate that many of the respondents were medium on most of the social control indicators.

### **Bivariate Analyses**

There were several bivariate analyses conducted comparing the social control indicators to gender, race/ethnicity, smoking cigarettes and drinking alcohol. There were only small differences in the percentages on gender and race/ethnicity as indicated in Tables 3 and 4. However, the small differences were many times significant as indicated in the tables.

#### ***Social Control Indicators and Gender***

In regards to the attachment indicators, males and females were mostly medium on this bond. There was little difference in the involvement indicators as well. Males and females were mostly low on involvement in sports related activities and mostly medium on involvement in other school related activities. Males and females were mostly high on their commitment to school and their commitment to marriage and success. However, males and females were mostly low to medium on their commitment to furthering education or going to trade school. Finally, males and females were mostly high on the belief indicators. Meaning, males and females overwhelmingly believed it was not okay to commit mild or serious infractions in school. The chi-square values were significant for all the relationships except, attachment to



teachers. The significant relationships indicate the associations observed in the sample can be inferred to the population.

### ***Social Control Indicators and Race/Ethnicity***

The bivariate analysis with the social control indicators and race/ethnicity showed very little difference in the levels of the social control indicators and race/ethnicity. Whites, African Americans and Mexicans were mostly medium on the attachment indicators. However, the respondents were mostly low on involvement in sports related activities and mostly medium on their involvement in other school related activities. All three race/ethnic groups were overwhelmingly committed to school as well as to marriage and success as indicated by the fact that most were high on these commitment indicators. In contrast, the respondents were low to medium on their commitment to continuing their education or going to trade school. Whites, African Americans and Mexicans were mostly high on their belief that it is not okay to commit mild or serious infractions in school. The chi-square values were significant for all of the bivariate relationships, which mean the differences observed in the sample can be inferred to the population.

### **Smoking Cigarettes, Control Variables, and Social Control Indicators**

The findings indicate that more females smoke than males. The findings also indicate that more whites smoke than African Americans and Mexicans. In fact African Americans were three times less likely to smoke than Mexicans and almost five times less likely to smoke than whites. The data also suggests that there are marginal differences in the respondents who smoked when parental education is considered. Respondents whose parents had no more than some college, were more likely to smoke than respondents' whose parents had at least a college degree.

The results of the social control indicators show very little difference in those respondents who are high, medium, or low on the social control indicators and their smoking behavior. The exception to this were the belief indicators, where respondents who were low on the belief indicators were over four times more likely to smoke than respondents who were high on the belief indicators. This finding indicates that respondents who believed it was not okay to commit mild infractions in school were less likely to smoke than those who believed it was okay to commit mild infractions in school.

## **Drinking Alcohol, Control Variables, and Social Control Indicators**

The findings indicate that more females drink than males. The findings also indicate that more whites drink than African Americans and Mexicans. In fact African Americans was almost two times less likely to drink than Mexicans and whites. Also the data suggests that there are marginal differences in the respondents who indicated they drank in the 30 days prior to being interviewed when parental education is considered. Respondents whose parents had a Ph.D. or M.D. or equivalent showed the highest percentage of drinking.

The results of the social control indicators show very little difference in those respondents who were high, medium, or low on the social indicators and their drinking behavior. The exception to this were the belief indicators, where respondents who were low on the belief indicators were over two times more likely to drink than respondents who were high on the belief indicators. This finding indicates that respondents who believed it was not okay to commit mild infractions in school were less likely to drink than those who believed it was okay to commit mild infractions in school.

**Gamma Measures of Association for Smoking Cigarettes and the Social Control Indicators for the Entire Sample, African Americans and Mexicans**

The results of the gamma measures of association is the first evidence the social control model might be a better explanation of the smoking and drinking behavior of white youth than African American and Mexican youth. The findings on the attachment variables indicate that attachment to teachers was the only significant association. This association showed a significant negative relationship for all but African Americans. Commitment to school, commitment to continuing one's education or going to trade school, and commitment to marriage and success were significant for the entire sample and whites. Commitment to school and marriage and success was significant for Mexicans. However, only commitment to marriage showed a significant relationship for African Americans, in addition, this commitment was less significant for African Americans ( $p < .05$ ) than it was for whites ( $p < .01$ ) or Mexicans ( $p < .01$ ). All of the significant relationships were negative; meaning the higher the respondent was on commitment the less likely s/he was to smoke.

Involvement in sports related activities showed a significant negative association among whites and Mexicans

and a significant positive relationship for African Americans. The gamma value for this outcome was highest for African Americans, which indicate knowing the level of commitment of an African American respondent a better prediction of their smoking behavior was more likely than for whites or Mexicans.

The belief indicators showed the greatest association among the race/ethnic groups and smoking behavior. The findings indicate a negative, moderately strong, association between the belief indicators and smoking behavior. The negative relationship indicates that as the belief that it is not okay to commit mild or serious infractions in school goes up, smoking cigarettes is reduced.

**Gamma Measures of Association for Drinking Alcohol and the Social Control Indicators for the Entire Sample, African Americans and Mexicans**

The results of the gamma measures of association and drinking alcohol indicates the social control model might be a better explanation of the smoking behavior of youth than it is to explain their drinking behavior. The findings on the attachment variables indicate that attachment to parents, peers and teachers showed a significant, negative association for the entire sample and whites. In addition,

attachment to teachers showed a significant negative association for African Americans and Mexicans. All of the commitment indicators were significant for the entire sample and whites. Commitment to school and marriage and success showed a significant negative relationship for African Americans. However, none of the commitment indicators were significant for Mexicans.

Involvement in sports related activities showed a significant negative association among whites and Mexicans. The belief indicators showed the greatest association among the race/ethnic groups and drinking behavior. The findings indicate a negative, moderately strong, association between the belief indicators and drinking behavior. The negative relationship indicates that as the belief that it is not okay to commit mild or serious infractions in school goes up, drinking alcohol is reduced.

### **Logistic Regression Findings and Smoking Cigarettes**

The logistic regression findings indicate that the social control model explains the smoking and drinking behavior of white youth better than it does for African American and Mexican youth. Specifically, the regression findings indicate there were significant findings for seven (7) of the ten social control indicators controlling for

all other variables for whites as compared to three (3) for African Americans and six (6) for Mexicans. In addition, the social control indicators tended to be more significant for whites than African Americans and Mexicans (see p-values in Tables 15-17). Also, the amount of explained variance was much less for African Americans and Mexicans as compared to whites.

### **Logistic Regression Findings and Drinking Alcohol**

The logistic regression findings indicate that the social control model explains the drinking behavior of white youth better than it does for African American and Mexican youth. Specifically, the regression findings indicate there were significant findings for seven (7) of the ten social control indicators controlling for all other variables for whites as compared to one (1) for African Americans and two (2) for Mexicans. In addition, the social control indicators tended to be more significant for whites than African Americans and Mexicans (see Tables 18-21). Also, the amount of explained variance was much less for African Americans and Mexicans as compared to whites in the model with alcohol drinking in the dependent variable.

Finally, as compared to the model with cigarette smoking as the dependent variable, the social control

theory explains the smoking behavior of all adolescents better than it does their drinking behavior (compare the results of Tables 15-17 and Tables 19-21).

There were several important findings in this study.

- Findings indicate that females have higher percentages of smoking and drinking than males. In addition, the drinking and smoking behavior of females was significant in the logistic regression models. These findings are not consistent with national data that suggests that females smoke and drink at a lower rate than males.
- Overall, the model was a better explanation of the smoking and drinking behavior of whites than African Americans and Mexicans.
- The model was a better explanation of the smoking and drinking behavior of Mexicans than African Americans.
- The social control model is a better explanation of the smoking behavior of all adolescents than it is of their drinking behavior. This is consistent with prior research that suggests the social control model explains the less serious behaviors better than it does more serious behaviors (Akers, 1991).



## **Limitations of Study**

There were some limitations in this study. First, the analysis of secondary data always carries with it inherent limitations. The data collected, at best approximates the kind of data a researcher would prefer for testing a hypothesis, frequently affecting the study design, question wording and sequence, and details of the interviews (Nachmias and Nachmias, 1994).

Second, there is a slight bias as a result of missing respondents data due to some respondents not matriculating from the base year data collection to the first follow-up. However, the sample that remains does approximate the proportions for the categories of race and gender from the 1990 census (see Appendix A).

Third, there are measure limitations, for example, the data did not contain a variable to clearly indicate the class of the respondents. As a result, the variable used as a proxy for class represents the education level of the respondent's parents as well as a SES quartile variable.

Fourth, there were limitations determining the Hispanic ethnic group. Originally, all Hispanic ethnicities were to be used in order to compare findings among the ethnic groups. However, the Cuban and Puerto Rican groups were too small to use in the analyses. In addition, there

was an "other" category that represented all the other Hispanic ethnicities in the United States. This was problematic, as it was not clear what ethnicities these were. As a result this "other" Hispanic ethnicity was removed from the analyses. In the end, the Mexican ethnicity was the only one utilized in the data analysis, as they represented the largest of the Hispanic ethnicities and there was no ambiguity surrounding these respondents.

### **Future Research**

Future research should address the limitations of this study as well as began to build on the findings of this study to address the issues of the limitation of the social control theory as it is traditionally conceptualized to explain the smoking and drinking behavior of youth of color. Specifically future research should,

- Include original data collection to address the limitations of having to compute variables from data that has already been collected. This would insure the exact specification of the social control indicators as well as the control variables (i.e., race and class).
- Include social indicators that are conceptualized taking into account cultural differences. This would require the researcher to understand the specific cultural differences might exist when considering the conceptualization of attachment, commitment, involvement, and belief.

## APPENDICES

## **APPENDIX A**

### **ASSESSING THE EFFICACY OF THE SOCIAL CONTROL THEORY FOR EXPLAINING THE CIGARETTE SMOKING AND ALCOHOL DRINKING BEHAVIOR OF AFRICAN AMERICANS AND MEXICAN AMERICANS**

### **The Dependent Variables**

**How many cigarettes does the respondent smoke per day** (This variable was recoded where 1= respondents who indicated they smoked less than 1 cigarette a day or more and 0 where the respondents indicated they "don't smoke at all")

I don't smoke at all  
Less than 1 cigarette a day  
1-5 cigarettes per day  
About ½ pack per day  
More than ½ pack but less than 2 packs per day  
2 packs per day or more

**In the last 30 days, number of times respondent drank alcohol** (This variable was recoded where 1= respondents who indicated they drank on 1-2 occasions or more and 0 where the respondents indicated they drank on 0 occasions in 30 days prior to being interviewed)

0 occasions  
1-2 occasions  
3-19 occasions  
20+ occasions

### **The Social Control Indicators**

#### **Attachment to Parents (Alpha = .8931)**

How often r does things with mother/father  
Important living close to parents  
Important getting away from parents  
R's parents treat r fairly  
Does not like his parents very much  
R gets along well with parents  
Parents disappointed with what r does  
Parents understand him/her

#### **Involvement in Religious Activities (Alpha = .7365)**

Important to participate in religious activities  
R thinks he is a religious person

#### **Involvement in Sports Related Activities (Alpha = .9774)**

Played baseball/softball at school

Played basketball at school  
Played football at school  
Played soccer at school  
Participated on swim team at school  
Played other team sport at school  
Played an individual sport  
Participated in cheerleading  
Participated on drill-team

**Involvement in Other School Related Activities (Alpha = .9750)**

Participated in school band/orchestra  
Participated in school play or musical  
Participated in student government  
Participated in academic honor society  
Participated in school yearbook, newspaper  
Participated in school service clubs  
Participated in school academic clubs  
Participated in school hobby clubs  
Participated in school fta, fha, ffa

**Commitment to School (Alpha = .8175)**

Often go to class without pencil/paper  
Often go to class without books  
Often go to class without homework done

**Commitment to College or Trade School by Taking Entrance Exams (Alpha = .8958)**

Does r plan to take the Pre-SAT test  
R plans to take college board SAT test  
R plans to take the ACT test  
R plans to take the ASVAB  
R plans to take the PACT

**Commitment to Marriage and Success (Alpha = .61)**

Important being successful in line of work  
Important finding the right person to marry

**Peer Attachment (Alpha = .7258)**

Students think of r as being popular  
Students think r is socially active

Students think of r as being important

**Teacher Attachment (Alpha = .7348)**

Teachers expect r to succeed in school

Teaching is good at school

Teachers are interested in student

When r works hard teachers praise his/her efforts

**Belief it is Okay to Commit Mild Infractions in School  
(Alpha = .8313)**

It's okay to be late for school

It's okay to cut a couple of classes

It's okay to skip school a whole day

It's okay to cheat on tests

It's okay to copy someone else's homework

It's okay to talk back to teachers

It's okay to disobey school rules

**Belief it is Okay to Commit Serious Infractions in School  
(Alpha = .8355)**

Feel its okay to get into physical fights

Feel its okay to steal belongings from school

Feel its okay to destroy school property

Feel its okay to bring weapons to school

## **APPENDIX B**

### **ASSESSING THE EFFICACY OF THE SOCIAL CONTROL THEORY FOR EXPLAINING THE CIGARETTE SMOKING AND ALCOHOL DRINKING BEHAVIOR OF AFRICAN AMERICANS AND MEXICAN AMERICANS**



**Table 22. Comparison of Missing Respondents in Data Sample to Population Parameters in the 1990 Census Data**

<b>Variable</b>	<b>Missing (%) Base Year Respondents</b>	<b>Not Missing (%) First Follow-up</b>	<b>1990 Census (%)</b>
<b><i>Race</i></b>			
African-American	14	11.4	12.1
White	63	74.6	75.6
Mexican American	23	14	9.0
<b><i>Gender</i></b>			
Males	49.9	47.5	48.7
Females	50.1	52.5	51.3

## **APPENDIX C**

## APPENDIX C

### ASSESSING THE EFFICACY OF THE SOCIAL CONTROL THEORY FOR EXPLAINING THE CIGARETTE SMOKING AND ALCOHOL DRINKING BEHAVIOR OF AFRICAN AMERICANS AND MEXICAN AMERICANS

Table 23. Correlations of Smoking Cigarettes and Social Control Measures for Whites

	1	2	3	4	5	6	7	8	9	10	11
1. Drinking Alcohol	1.0										
2. Attachment to Parents	-.016	1.0									
3. Attachment to Peers	.010	-.053**	1.0								
4. Attachment to Teachers	.135**	-.070**	.120**	1.0							
5. Commitment to School	-.136**	.032**	-.029**	-.131**	1.0						
6. Commitment to Furthering Education and/or Career	-.102**	.016	-.161**	-.106**	.065**	1.0					
7. Commitment to Marriage and Success	-.107**	.036**	-.144**	-.118**	.099**	.120**	1.0				
8. Involvement in Sports Related Activities	-.051**	.012	-.146**	-.043**	.005	.069**	.006	1.0			
9. Involvement in Other School-Related Activities	.009	-.001	-.047**	.026**	-.021	.020	.004	.013	1.0		
10. Believe it is Okay to Commit mild infractions in School	-.235**	.038**	.019	-.263**	.290**	.065**	.131**	.009	-.013	1.0	
11. Believe it is Okay to Commit Serious Infractions in School	-.221**	.052**	.003	-.164**	.196**	.050**	.120**	.010	-.012	.397**	1.0

Significant levels:  $p < .05^*$  and  $p < .001^{**}$

Table 24. Correlations of Drinking Alcohol and Social Control Measures for Whites

	1	2	3	4	5	6	7	8	9	10	11
1. Drinking Alcohol	1.0										
2. Attachment to Parents	-.031**	1.0									
3. Attachment to Peers	-.101**	-.053**	1.0								
4. Attachment to Teachers	.136**	-.070**	.120**	1.0							
5. Commitment to School	-.128**	.032**	-.029**	-.131**	1.0						
6. Commitment to Furthering Education and/or Career	-.026*	.016	-.161**	-.106**	.065**	1.0					
7. Commitment to Marriage and Success	-.032**	.036**	-.144**	-.118**	.099**	.120**	1.0				
8. Involvement in Sports Related Activities	.037**	.012	-.146**	-.043**	.069**	.069**	.006	1.0			
9. Involvement in Other School-Related Activities	-.005	-.001	-.047**	.026*	.020	.020	.004	.013	1.0		
10. Believe it is Okay to Commit mild infractions in School	-.277**	.038**	.019	-.263**	.065**	.065**	.131**	.009	-.013	1.0	
11. Believe it is Okay to Commit Serious Infractions in School	-.140**	.052**	.003	-.164**	.050**	.050**	.120**	.010	-.012	.397	1.0

Significant levels:  $p < .05^*$  and  $p < .001^{**}$

Table 25. Correlations of Smoking Cigarettes and Social Control Measures for African Americans

	1	2	3	4	5	6	7	8	9	10	11
1. Smoking Cigarettes	1.0										
2. Attachment to Parents	.003	1.0									
3. Attachment to Peers	-.021	-.065*	1.0								
4. Attachment to Teachers	.012	-.057	.130**	1.0							
5. Commitment to School	-.019	-.017	.020	-.055	1.0						
6. Commitment to Furthering Education and/or Career	-.036	.016	-.193**	-.100**	.083**	1.0					
7. Commitment to Marriage and Success	-.075*	-.004	-.090*	-.045	.087**	.093**	1.0				
8. Involvement in Sports Related Activities	.084**	.076*	-.150**	.027	-.032	.032	-.031	1.0			
9. Involvement in Other School-Related Activities	-.047	.038	-.105**	-.066*	-.016	.079*	.069*	.047	1.0		
10. Believe it is Okay to Commit mild infractions in School	-.187**	.048	-.002	-.118**	.132**	.078**	.127**	-.015	.058*	1.0	
11. Believe it is Okay to Commit Serious Infractions in School	-.199**	-.026	.008	-.030	.046	.035	.103**	-.048	.007	.198**	1.0

Significant levels:  $p < .05^*$  and  $p < .001^{**}$



Table 27. Correlations of Smoking Cigarettes and Social Control Measures for Mexican Americans

	1	2	3	4	5	6	7	8	9	10	11
1. Smoking Cigarettes	1.0										
2. Attachment to Parents	-.024	1.0									
3. Attachment to Peers	.018	-.036	1.0								
4. Attachment to Teachers	.132**	-.105**	.104**	1.0							
5. Commitment to School	-.152**	.050	-.152**	.093**	1.0						
6. Commitment to Furthering Education and/or Career	-.050	.047	-.090**	-.122**	.123**	1.0					
7. Commitment to Marriage and Success	-.105**	.020	-.036	-.105**	.122**	.146**	1.0				
8. Involvement in Sports Related Activities	-.049	-.023	-.089	-.050	.039	.087**	-.027	1.0			
9. Involvement in Other School-Related Activities	-.020	-.056*	-.012	-.002	-.019	.051	.059*	-.010	1.0		
10. Believe it is Okay to Commit mild infractions in School	-.254**	.021	.090**	-.212**	.225**	.063*	.097**	.007	.019	1.0	
11. Believe it is Okay to Commit Serious Infractions in School	-.198**	.022	.048	-.115**	.159**	.045	.116**	-.024	.055*	.383**	1.0

Significant levels:  $p < .05^*$  and  $p < .001^{**}$



Table 28. Correlations of Drinking Alcohol and Social Control Measures for Mexican Americans

	1	2	3	4	5	6	7	8	9	10	11
1. Drinking Alcohol	1.0										
2. Attachment to Parents	.008	1.0									
3. Attachment to Peers	-.059*	-.036	1.0								
4. Attachment to Teachers	.107**	-.105**	.104**	1.0							
5. Commitment to School	-.017	.056*	.006	-.093**	1.0						
6. Commitment to Furthering Education and/or Career	-.021	.050	-.152**	-.122**	.123**	1.0					
7. Commitment to Marriage and Success	-.009	.047	-.090**	-.105**	.122**	.146**	1.0				
8. Involvement in Sports Related Activities	-.060*	.020	-.089**	-.050	.039	.087**	-.027	1.0			
9. Involvement in Other School-Related Activities	.060*	-.023	-.012	-.002	-.019	.051	.059*	-.010	1.0		
10. Believe it is Okay to Commit mild infractions in School	-.216**	.021	.090**	-.212**	.225**	.063*	.097**	.007	.019	1.0	
11. Believe it is Okay to Commit Serious Infractions in School	-.144**	.022	.048	-.115**	.159**	.045	.116**	-.024	.055*	.383**	1.0

Significant levels:  $p < .05^*$  and  $p < .001^{**}$

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