AN ANALYSIS OF STRAIN AND SUBSTANCE USE

AMONG YOUTH

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AN ANALYSIS OF STRAIN AND SUBSTANCE USE AMONG YOUTH

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A Thesis

Submitted to

the Graduate Faculty of

Auburn University

in Partial Fulfillment of the

Requirements for the

Degree of

Master of Arts

Auburn, Alabama
May 11, 2006

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THESIS ABSTRACT

AN ANALYSIS OF STRAIN AND SUBSTANCE USE

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Master of Arts
May 11, 2006
(B.A., Auburn University, 2003)

89 Typed Pages

Directed by Dr. Charles E. Faupel

General Strain Theory has been used to test relationships between delinquency and the various types of strains felt by individuals. Although this theory is relatively new, it has been empirically tested in many studies. The purpose of this study is to take the basic concepts of this theory and examine its effectiveness as an explanation for substance use. Different variables, representing various sources of strain, will be used to examine the explanatory power of this theory for this particular expansion of juvenile delinquency.

ACKNOWLEDGMENTS

The author would like to thank Dr. Charles E. Faupel for his continued support and guidance with this thesis, Dr. Greg S. Weaver for assistance with statistical analysis, as well as other important committee members Dr. Conner Bailey, Dr. Joseph J. Molnar, and Dr. Thomas A. Petee. Special thanks are also due to all family members and friends involved for their unwavering support of myself and this thesis; namely, Dennis, Wendy, and Jennifer Mitchell, Jennifer Jenkins and the entire Jenkins family. The support and concern you have all shown me during this period in my life will not soon be forgotten.

Style manual or journal used

ASA (American Sociological Association)

Computer software used

Microsoft Word, Microsoft Excel, and SPSS Statistical Program.

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CHAPTER ONE: INTRODUCTION

General Strain Theory (GST), first introduced by Robert Agnew in 1992, has been a subject of great discussion over the past two decades, and has received some degree of empirical support since its introduction. The theory is based upon other conceptual frameworks, dating back to 1893 when Durkheim first introduced his theory of anomie. GST focuses on negative emotions as reactions to various noxious stimuli (e.g., negative relationships with others, failure to achieve desired goals, and loss of a valued relationship). Negative affective states (e.g., anger and related emotions) arise in reaction to these stimuli which, in turn, gives rise to a need for individuals to find corrective actions as means of managing or alleviating these negative emotions (Agnew 1992).

Studies involving strain theory rely heavily on a set of theories and theorists that laid the groundwork for future adaptations as society changed. Major predecessors to Agnew include: Emile Durkheim (1893), Robert Merton (1938), Albert Cohen (1955), and Richard Cloward and Lloyd Ohlin (1960). The classic strain theories argue that crime stems from the inability of an individual to achieve his or her monetary success goals or middle-class status generally. Agnew's (1992) General Strain Theory is much broader than the classic strain theories. This is because it recognizes that there are several sources of strain beyond the failure to achieve positively valued monetary or status goals, and that there are a wide range of adaptations to these types of strains, including cognitive, behavioral, and emotional adaptation strategies. Some of these

adaptations can involve committing crimes, while others may not. General Strain Theory also attempts to more fully describe factors that influence the individual's choice of either criminal or non-criminal adaptations.

Social Learning and Social Control Theory versus General Strain Theory

Social learning most frequently takes place through the process of modeling, a concept that was first presented by Albert Bandura (1977). It focuses on the learning that occurs within a social context. Of the studies that he is responsible for, the study primarily pertaining to Social Learning Theory came to be known as the "Bobo doll studies." In this study, Bandura made a film of one of his students, a young woman, essentially beating up the bobo doll. The young woman was depicted punching, kicking and hitting the bobo doll with a hammer, shouting aggressive phrases, most notably "sockeroo!" Bandura then showed this film to groups of kindergartners, then they were let out to play in a room with a bobo doll and a few little hammers, just as depicted in the original film. Results of this study showed that not only did the kindergartners model the behavior of the young lady in the film by punching, kicking, and even hitting the doll with the little hammer, they even used the same phrase "sockeroo" when participating in this act. This began Bandura's distinction from standard behavioristic learning theory and towards his theory called Social Learning Theory.

Basic principles of this theory state that people can learn by observing the behaviors of others; this learning can occur without a change in behavior; and the person doing the modeling must have capable cognitive abilities in order to understand the behavior being presented. Bandura (1977) also noted that there are also four conditions necessary before an individual can successfully model the behavior of someone else:

(1) attention, (2) retention – observer must be able to remember the observed behavior, (3) motor reproduction – observer must have the ability to replicate the behavior the model represented, and (4) motivation – the observer must want to demonstrate what they have learned. Although Bandura recognized that individuals, and especially children, can learn aggressive behavior from observing others, notably either personally or through the media and environment, he concluded that aggression reinforced by family members was the most prominent source of behavior modeling (1977).

Travis Hirschi (1969) didn't try to explain why individuals choose to engage in criminal or deviant acts, but rather why they choose or do not choose to conform to conventional norms. He assumes that everyone has the potential to become delinquent and criminal; that social controls are the agents that maintain law and order; and he views delinquents as those individuals that reject social norms and beliefs (1969). Rather than focusing on an individual's personality as a source of criminality, he focused on the role social relationships, which he called social bonds.

Hirschi presented four social bonds which promote socialization and conformity: attachment, commitment, involvement, and belief. He states that the stronger these four bonds are, the least likely an individual would be to become delinquent (1969). Hirschi refers to attachment as the extent to which a person is attached or interested in others, and says that attachment consists of three forms – attachment to parents, to school, and to peers (1969). He noted that out of these three forms of attachment, an individual's attachment to their parents and school outweighs the bond formed with their peers. The second social bond is commitment, which is referred to as "the rational component in conformity" (Hirschi 1996:20). This part of control theory posits that an individual who

build an investment in life, property, and reputation are less likely to engage in criminal acts which will jeopardize their social position. The third social bond is involvement. Hirschi believes that a preoccupation with activities that stress the conventional interests of society doesn't leave an individual time to engage in delinquent or criminal acts (1969). The final social bond, belief, refers to "the existence of a common value system within the society whose norms are being violated" (Hirschi 1969:197). People who live in common social settings are likely to share similar human values, and if those beliefs are weakened or simply not present, one or more of those individual's will be more likely to engage in delinquent or criminal acts.

Most of these previous theories focus on positive relationships, or relationships that individuals find pleasurable or at least acceptable. Social control theory (Hirschi 1969) for example, focuses on how positive relationships with conventional people and institutions strengthen one's ties to conventional society, thus preventing delinquency. Social learning theory (Akers 1998) conversely, is concerned with how positive relationships with deviant others reinforce delinquent values and behavior. In either case, negative relationships and life events are generally ignored. Agnew (1992; 1995) has argued that General Strain Theory's consideration of negative relations, and the resulting negative emotions, fills a void in the previous delinquency theories. Agnew (1992) also noted that negative affective states, such as anger and related emotions, arise in reaction to these negative relations and this forces the individual to find corrective actions as a means of managing or alleviating those emotions. According to General Strain Theory, these emotions are criminogenic because reactions such as crime, deviance, and drug use

may be among the many choices individuals choose as a way to manage the effects of these emotions.

History: Predecessors to General Strain Theory

Durkheim is credited with introducing what is now known as anomie theory. Central to his theory was the concept of anomie, introduced in his book *The Division of Labour in Society*, published in 1893. He used anomie to describe a condition of deregulation that was occurring in society. Durkheim defined anomie as a condition under which social norms are confused or unclear. Durkheim argued that these conditions subsequently lead to deviant behavior (Durkheim 1984).

Durkheim further developed the concept of anomie in his book *Suicide*, published in 1897. Here he classified sources of anomie into two basic categories: social processes and personal experiences. Social processes create the environment necessary for the evolution of structural strain and personal experiences cause individual strain. Structural strain or inadequate regulation at the societal level makes it difficult for individuals to regulate their needs, needs that are defined by society itself. Individual strain, then, refers to the frictions and pains experienced by individuals as they look for ways to meet their needs, as defined by their personal expectations, which have now become poorly defined because of the anomic conditions of the social structure. Durkheim's work was the basis for Merton's ideas, as well as others that came after him. According to Merton (1938:673), anomie is the form that societal incoherence takes when there is significant detachment "between valued cultural ends and legitimate societal means to those ends." Crime may breed in the gap, imbalance, or disjunction between culturally induced aspirations for economic success and structurally distributed possibilities of achievement.

His theory assumes fairly uniform economic success aspirations across social classes and attempts to explain why crime is concentrated among the lower classes that have the least legitimate opportunities for achievement. "It is the combination of the cultural emphasis and the social structure which produces intense pressure for deviation" (Merton 1938:676). The lower classes are the most vulnerable to this pressure, or strain, and will maintain their unfulfilled economic aspirations in spite of frustration or failure.

Merton (1938) identified five specific modes of adaptation to strains caused by the disjunction between culturally defined goals and legitimate means to those ends. "Cultural goals" are culture's definitions of what constitutes success in life; culture's norms defining the appropriate ways to achieve those goals Merton identifies as "institutionalized means." Merton argues that a society should best be considered as an intersection of the "cultural goals" of a society—what it challenges its members to strive for—and the "institutionalized means" that are believed, legally or morally, to be legitimate ways that individuals should attain these goals.

Mode *I*, "conformity", is the only truly non-deviant adaptation. The individual accepts the cultural goals and uses the legitimate means for attempting to realize them. Mode *II*, "innovation", involves an acceptance of cultural goals, but means are unavailable and/or rejected, with the result that new means are "invented" to realize success goals. This is manifested in a variety of property crimes as well as other crimes of profit. "Ritualism", Mode III, is a situation where individuals lose sight of, are ignorant of, are fearful of, or reject cultural success goals, but where legitimate means are accepted and become objects of slavish conformity. Adaptation *IV*, "retreatism", involves rejecting both means and ends with the result that the individual apathetically exists

within the social system. Retreatism, argues Merton, results from loss of, or limited access to, accepted means, coupled with weak internal inhibitions against the use of illegitimate means. This mode has been shown to be a common adaptation strategy among heroin and other drug users. The last mode of adaptation discussed by Merton is "rebellion." Merton views rebellion as distinct from resentment, because, in contrast to resentment, where goals are still held, rebellion involves the rejection of means and ends as well as efforts to substitute new means and ends. These modes of adaptation are represented in Figure 1.

Figure 1. Robert K. Merton's Modes of Adaptation.

Adaptations	Cultural Goals	Structural Means
Conformity	Accept (+)	Accept (+)
Innovation	Accept (+)	Reject(-)
Ritualism	Reject (-)	Accept (+)
Retreatism	Reject (-)	Reject (-)
Rebellion	Accept/Reject (+/-)	Accept/Reject (+/-)

Source: Merton, 1938

Cloward (1959) attempted to show how blocked access to illegitimate as well as legitimate opportunities would be a logical extension of Merton's strain theory. An illegitimate opportunity is more than simply the chance to get away with a criminal or deviant act; it involves learning and expressing the beliefs necessary for deviant or criminal subcultural support. While the form that behavior takes depends on how well criminal beliefs are learned, the causal mechanism is a class-linked sense of injustice from actual or anticipated failure at achieving status by conventional standards.

Cloward and Ohlin (1960) believe that an individual's search for solutions to their adjustment problem will be triggered by a gap between their aspirations and expectations. Cloward and Ohlin (1960) believe that many individuals aspire to a middle class lifestyle

but that many others simply want money without having to improve their lifestyle or change their present social class membership. These latter types (Type III) are then under the most pressure to become criminal or deviant because of their desire for money and need for conspicuous consumption. Thwarted in their materialistic aspirations, they turn to "seeking higher status within their own cultural milieu" (Cloward & Ohlin 1960:96). Because such individuals resent the push for social mobility but are led to believe that money is the means for success, the gap they experience would be predictive of more serious criminal involvement. The effect of this gap will vary depending upon precisely what it is that the individual aspires toward. A summary of these aspirations and the various types they represent is shown in Figure 2.

Figure 2. Cloward and Ohlin's Differential Opportunity Theory.

Type of Youth	Middle Class Orientation	Money Orientation
Type I	+	+
Type II	+	-
Type III	-	+
Type IV	-	-

Source: Cloward and Ohlin, 1960

Cohen (1955), drawing mainly from Merton's theory, uses as his fundamental point that Merton's theory is incapable of explaining purposeless crime. Cohen's focus is on school based achievement status. The institution of the school embodies middle class values for honesty, courtesy, personality, responsibility, and so forth. It is within this milieu that competition for status, approval, or respect takes place. "Group interaction is a sort of catalyst which releases potentialities not otherwise visible" (Cohen 1955:136). Losers in competition for status experience strong feelings of frustration or deprivation. Most of the people who experience these feelings will simply accept their position, but others will turn to crime to try to relieve these feelings. For Cohen, unlike Merton, the

working class (a configurative term including lower, working, and qualitatively similar middle class) are capable or revising their aspirations downward (Cohen 1955).

The popularity of strain/anomie theory declined in the late 1960's due to the lack of empirical evidence put forth by researchers and the political climate of the decade. Another reason for the lack of popularity is the introduction of self-report methodologies, which showed that middle class youth are just as likely to commit crime as lower class youth. The lack of supporting data can be attributed to several flaws in the original research methods employed by the researchers. Inappropriate methodology, oversimplification of theory, and a neglect of the previous revisions resulted in a body of work that misrepresented the original purpose of strain/anomie theory (Agnew and Passas 1997).

The Problem

Although there have been numerous studies that have attempted to empirically test General Strain Theory, there has not been a lot of this research focused specifically on substance use. In possibly the most extensive research on substance use to date, Agnew and White (1992) used eight different measures of strain and several indicators of social control and differential association theories, and found a positive relationship between strain and measures of delinquency and drug use after controlling for other predictor variables. It has been shown that there are a number of coping responses to strain that may be employed by an individual, regardless of age or race or any other demographic characteristic. However, the purpose of this study is to look at substance use as a specific response to a strain, and to see what kind of factors will either increase or deter an individual's chances of using this as an effective coping strategy.

Objective of the Thesis

Three objectives distinguish the present study from previous research, and draw upon some combinations of other studies on GST. First, the data that will be analyzed in this study will be taken from the Monitoring the Future data set. This will allow for the inclusion of some variables that have not been discussed in previous research to determine their affect on substance use. Second, using this data set will allow for a detailed analysis of the age factors that have previously been ignored, represented in the inclusion of twelfth graders in this analysis. Third, the analysis will extend previous research (Agnew 1992; Hoffman and Cerbone 1999) to examine the pathways that are available to adolescents and to determine how selected background and contextual variables will lead to delinquency escalation, and more importantly substance use.

Organization of the Thesis

The present study is divided into four separate chapters, each including a key component of how this study was researched and conducted. In Chapter Two: Conceptual Framework, a detailed presentation of Agnew's General Strain theory will be explained. This section will include how to measure strain, the major types of strain, possible responses to strain, and the hypotheses that were formulated to conduct this study. Chapter Three will include a presentation of the methods and data used to conduct the present study. This section will include information about the 2003 Monitoring the Future data set, the dependent, independent, and control variables used, and the analytical procedure. Chapter Four will present the results of the analytical tests run and then interpret those results in relation to the independent, dependent, and control variables. Chapter Five will present a brief discussion and conclusion as well as an implication

portion which will attempt to explain how the findings in the present study may be incorporated into every day life. In an attempt to further empirically support the General Strain Theory as proposed by Agnew, an examination of youths and their subsequent substance use will be examined to determine if General Strain factors will cause these youths to engage in substance use.

CHAPTER TWO: CONCEPTUAL FRAMEWORK

General Strain Theory

Many theories come to light and then fade away as the societal climate changes. Strain theory is one such theory that has been pushed aside for a time, but it has been given new life by recent developments in criminology. Robert Agnew developed General Strain Theory, thus introducing a new perspective on a theory that was written decades ago. General Strain Theory has developed measures of strain, and identified major types of strain, the links between strain and crime, and coping strategies to strain. It has also suggested policy recommendations that are based on this theory, which will be discussed in further detail in the conclusion.

Robert Agnew's revisions address many of the criticisms of the original strain theory. According to the original strain theory, for example, an increase in aspirations and a decrease in expectations should lead to an increase in delinquency. This is not necessarily the case, however (Agnew 1985). The original strain theory also predicted a concentration of delinquent behavior in the lower class, but research has shown that delinquency was also common in the middle and upper classes (Agnew 1985). Agnew broadened the scope of strain theory to include many more variables that addressed criticisms of the original strain theory. He attempted to explore strain theory from a perspective that accounted for goals other than money and that considered an individual's

position in social class, expectations for the future, and associations with criminal others (Agnew et al. 1996). Agnew's General Strain Theory is based on the general idea that "when people are treated badly they may get upset and engage in crime" (Agnew 1992:63). The General Strain Theory identifies the ways of measuring strain, the different types of strain, and the ways in which people respond to strain, including crime and substance use.

Measuring Strain

Agnew noted two different ways of identifying and measuring strain in an individual's life. The first way is the subjective approach, where the researcher directly asks the "individual whether they dislike the way that they are being treated" (Agnew 1992:61). The second approach is the objective approach, in which the researcher asks individuals about pre-determined causes of strain. The causes of strain are experiences that the researcher determines to be strain-producing. The objective approach is the one most often used in research, and usually involves qualities of relationships with peers, family, and the community. Examples include being picked on in school, being the victim of any child abuse at home, or even in some cases being homeless.

Major Types of Strain

There are three major types of strain according to General Strain Theory. They are: (1) the failure to achieve positively valued stimuli/goals; (2) the loss of positive stimuli; and (3) the presentation of negative stimuli.

Failure to achieve positively valued stimuli/goals

The first type of strain results from an individual's failure to achieve positively valued goals. Agnew noted that there are different types of goals for which members of

the society strive. When an adolescent is faced with certain disjunctions in their life, and these goals are not achieved, this could possibly result in strain. The first of these disjunctions is the one that is the focus of previous strain theories, the disjunction between material aspirations and realizations. This is founded on the principle of culturally bound goals and values that are accepted by everyone but yet not available to everyone. This idea of the American Dream then causes strain and frustration in the individual who cannot achieve this dream through legitimate means.

This disjunction alone, however, cannot explain middle class crime, as it focuses only on monetary goals, which are attainable to the middle class through legitimate means (Agnew 1992). Recent research has found that this traditional view of strain theory is not as predictive of middle class criminality as other theories such as control and differential association theory (Burton et al. 1994). In response, the General Strain Theory cites other sources of strain that can be applied to a broader aspect of an individual's life.

The second type of goal is the achievement of non-monetary expectations. This disjunction between these expectations and actual achievements rests on the outcome of an individual's behavior. Strain is increased when the actual achievements of an individual are less than that which the individual had expected (Agnew 1992). In studies conducted examining the relationships between gender and strain, results tend to show that females are more likely to report that they experience network-related stressors (i.e., stressors involving family and peers) and are more upset when they experience network and interpersonal problems (Compas and Phares 1991; Conger et al. 1993; Kessler and McLoed 1984; Stark et al. 1989; Turner et al. 1995).

A third type of goal is the disjunction that occurs when the actual outcome that an individual faces is not the just/fair outcome that he/she felt was deserved. Individuals do not need to have a specific outcome in mind, but based on their input, they have an idea of what would be a fair outcome. This leaves room for social comparisons for individuals to judge their inputs and outcomes against those of others (Agnew 1992). Previous research (Gilligan 1982; Major and Deaux 1992) shows that males are more concerned about the fairness of outcomes (distributive justice), whereas females seem to be more concerned about the fairness of the procedures by which outcomes are allocated (procedural justice). "Males, then, focus more on the outcomes of interaction, whereas females focus more on how people involved in interactions are treated" (Broidy and Agnew 1997:279).

The loss of positively valued stimuli

Agnew's review of the stress literature led him to the conclusion that the removal of positive stimuli can also cause strain. This loss could manifest itself in the form of a death or a broken relationship with a peer or romantic partner, or it could be a result of the theft of a valued object. According to Agnew (1992), the strain that is felt by the individual could lead the individual to delinquency as the individual attempts to prevent its loss, retrieve what was lost, or seek revenge on those who removed the positive stimuli.

The presentation of negative stimuli

According to Agnew (1992), this type of strain had been largely ignored by criminology. However, some research has been done on adolescent pain-avoidance behavior and the inability of juveniles to legally avoid noxious stimuli (Agnew 1985).

Some examples of negative stimuli that an adolescent might face are child abuse, neglect, adverse relations with parents and teachers, negative school experiences, adverse relations with peers, neighborhood problems, and homelessness (Agnew 1992). A study by Hoffmann and Miller (1998) found that negative life events such as parental unemployment, deaths in the family, and illness increase the likelihood of delinquent behavior in adolescents. In addition to these negative life events, Thaxton and Agnew (2004:764) have also stated in general that "it is unpleasant to regularly interact with people you dislike." Females are more likely to report the following types of negative treatment: gender-based discrimination, low prestige in work and family roles, excessive demands from family members, and restrictions on their behaviors (Bush and Simmons 1987; Campbell 1984; Gove 1978; Mirowsky and Ross 1989; Ogle et al. 1995; Thoits 1991). Finally, data suggest that males are more likely to be the victims of most types of crime – as well as the targets of others' aggression and anger (Eagly and Steffen 1986; Frodi, Macaulay, and Thorne 1977; Frost and Averill 1982).

Responses to Strain

Delinquent behavior has been shown in previous research to occur more frequently and actually escalate during the early adolescent years, peaks around the age of seventeen, and then is followed by a period of decline (Blumstein et al. 1986; Farrington 1986). Agnew and Brezina (1997) explain this phenomenon by arguing that the escalation and peaking of deviant behavior during adolescence can be explained by three general mechanisms. First, early adolescence is a transition period in which youths enlarge their social environments and begin to take on greater responsibility at home as well as in school. With this said, there are potentially more situations in which

adolescents may become the target of being treated poorly by others or experience stressful situations (Hoffman et al. 1992). These findings coincide with the description of General Strain Theory (Agnew 1992), which proposes that poor treatment by others and stressful life events are key antecedents of delinquency.

Second, adolescents are more likely than children or adults to perceive their environment as adverse. "Due to developing cognitive abilities, adolescents' perceptions of their social world are often self-directed and introspective" (Hoffman and Cerbone 1999:343). The stresses and strains felt by these adolescents may tend to be over analyzed, or magnified, beyond what they would be to any other age group. Moreover, there is some empirical evidence that adolescents actually do experience more stressful events than children or adults (Compas et al. 1985; Newcomb et al. 1981). Therefore, the heavier, whether actual or perceived, burden of stress being experienced by these adolescents' leads to a variety of emotional and/or behavioral adaptations, including delinquent behavior (Agnew 1992).

Third, there is a greater inclination among adolescents than adults to react to adversity through delinquency. Given that adolescents are poorly prepared to deal with adversity and lack the power to cope effectively when placed in difficult situations, the anger and frustration felt by these adolescents, which stems from adversity, leads them to delinquency (Agnew 1992; Attar et al. 1994; Guerra et al. 1995). This can also be viewed as more of a coping response because older adolescents and adults have learned more effective coping strategies, become less self-directed in their thinking and perceptions, and have gained the relative independence and power to escape adverse conditions (Aldwin et al. 1996; Banez and Compas 1990). Based on this, Agnew and

Brezina (1997) would say that these older adolescents and adults would be less likely to engage in criminal or delinquent behaviors even when stressful events occur. To support Agnew's assertions about adolescent strain, recent studies have shown that adolescents who experience a high number of adolescent strains tend to be involved in drug use, aggression, and delinquency (Agnew and White 1992; Guerra et al. 1995; Hoffman and Miller 1998; Hoffman and Su 1997; Paternoster and Mazerolle 1994; Su et al. 1997; Windle 1992).

The choices that individuals have available to them are constrained by several factors. If the initial goals and values of a person are high and they have few alternative goals to fall back on, then the person may be more prone to committing delinquent acts. Also, individuals may have coping resources available, such as a mild temperament, self-esteem, and creativity, which will make them less likely to participate in delinquent or criminal acts. Social supports also play a large role in determining whether an individual will commit delinquent acts. Those with greater conventional social supports will be less likely to participate in delinquency. Also, those individuals with a greater level of social control and those who lack the means to commit crime may be less inclined to be delinquent. Piquero and Sealock (2004:127) found that "under conditions of high social support, for example, a given amount of strain may not lead to crime, whereas under conditions of low social support, the same amount of strain may promote crime." The larger social environment will also have an effect on the individual's choice to participate in crime. Society influences individuals' behaviors by indicating the importance that should be placed on certain goals and the determination of what is adverse and what is not. Also, society deems which adverse situations the individual can cognitively

minimize and what other ways of coping are available to the individual. All of these factors can determine whether strain will result in delinquent or nondelinquent coping strategies (Agnew 1992).

Along with these constraints on coping, individual dispositions toward delinquency also control the strategies that are chosen by the individual. Temperamental variables, such as anger, and the past reinforcement of delinquent behavior can have an effect on participation in delinquency. Agnew asserted that individuals become angry when they blame their negative circumstances and relationships on others. Anger was found to incite a person to action, lower inhibitions, and create a desire for revenge (Agnew 1992). Anger and frustration may also enable the individual to justify crime (Agnew 1995). Agnew (1992) especially stressed that individuals who are subject to repetitive strain may be more likely to commit crime or delinquent acts. This is due to the fact that other coping strategies for strain are taxed, the threshold for negative relations is pushed to the limit, the individual may become hostile and aggressive, and the individual at any time may be high in negative arousal. Another key factor in this theory is the individual's association with delinquent peers. These factors will help determine the impact that strain will have on individuals and the likelihood that they will turn to crime to address their strain (Agnew 1992).

Another factor that may determine how an adolescent responds to strain is the social support group, or lack thereof, available to them. Using a sample of elementary school children, Sandler (1980) reported that social support emanating from older siblings, and the presence of two parents in the household moderated the effects of stressful life events on aggression and inhibition. Research done by Resnick et al. (1997)

found similar results. The likelihood of engaging in risky behaviors such as violence, drug use, and sexual activity is reduced when youth perceive themselves to be connected to school acquaintances, peers, family, and adults in their lives. In the case of underage alcohol consumption and cigarette smoking, parental support discouraged adolescents from engaging in this behavior, but peer support increased the likelihood that adolescents would drink alcohol and smoke (Willis, Mariani, and Filer 1996). Baron (2004) also found that deviant attitudes and deviant peers are related to delinquency and drug use. Agnew and White (1992) have argued that the social support network may encourage delinquency when an adolescent is part of a delinquent network of peers, whereas Cullen and Wright (1997) say that supportive networks will insulate individuals from the influence of delinquent values even if the person is part of a delinquent peer group. There are three types of responses to strain that will be focused on in this study: (1) non-delinquent responses; (2) delinquent and criminal responses; and most important to this study (3) substance use. Researchers have focused upon both non-delinquent and delinquent responses to strain, including substance use, which is the focus of this study.

Non-delinquent Responses to Strain

Crime is not the only way that people will respond to strain. Agnew (1992) says that delinquency is only one possible response to strain. There are also several nondelinquent responses that could possibly result. "Individuals may cognitively reinterpret objective strains in ways that minimize their impact, they may engage in legal behaviors that minimize or eliminate strain, or they may manage the negative affect caused by strain in legal ways – such as exercise or meditation" (Agnew and White 1992:477). There are three different types of coping strategies put forth by the General

Strain Theory that enable the individual to deal with the strain in their life through legitimate means. Cognitive, behavioral, and emotional coping strategies can be used to lessen the amount of strain in an individual's life (Agnew 1992).

Cognitive coping strategies enable the individual to rationalize the stressors in a different way. This can take three different forms. This first is to minimize the importance of the strain causing event or circumstance, which may lead to the individual placing less importance on a particular goal in order to escape the strain that they feel for not reaching that goal. The second form involves the individual maximizing the positive while minimizing the negative outcomes of an event. This is an attempt to ignore the fact that there has been a negative event. The third way of cognitively coping with strain is utilized when one accepts responsibility for negative outcomes. This coping strategy is grounded heavily in equity theory, in that those who are victims of inequality may come to accept their limited outcomes as fair (Agnew 1992).

The individual, to lessen the amount of strain that negative relations might cause, may also use behavioral coping strategies. These behaviors can counter the different types of strain that have been previously mentioned. Individuals may actively seek out positive stimuli or try to escape negative stimuli. In addition, individuals may actively seek out revenge in a nondelinquent manner (Agnew 1992). The third type of coping strategy is emotional coping. This differs from the two previous strategies because the individual is focusing on removing the negative feelings rather than trying to alter the event itself.

Delinquent and Criminal Responses to Strain

According to Agnew (1992), strain is most likely to lead to delinquent behaviors when (1) the constraints to nondelinquent coping are high and the constraints to delinquent coping are low and (2) the adolescent has a disposition for delinquent coping. There are also a wide variety of possible variables that could influence the constraints to coping and the disposition to delinquency. Agnew (1992) mentions the following possible variables: temperament, problem-solving skills, self-efficacy, self-esteem, level of conventional social support, attributions regarding the cause of strain, level of social control, and association with delinquent peers. Crime or delinquency can minimize the "psychic toll of strain" because it allows, or enables, people to avoid or escape the experienced strain, compensate for that strain, and/or satisfy a desire for revenge or retaliation (Brezina 2000:12).

Similarly, as Brezina (1996) points out, certain individual-level characteristics may facilitate or enhance the coping efficacy of delinquent behavior. Other theories point to very similar findings. Adolescents possessing weak bonds to conventional institutions (Hirschi 1969), those having associations with delinquent peers (Akers 1985), or those oriented toward short-term consequences, may have less to lose by engaging in delinquent adaptations. "Among such adolescents, delinquent behavior would be less likely to incur the threat of further disappointment, negative reinforcement, or perceived loss - consequences that may otherwise counteract some of the benefits provided by delinquent coping strategies. Thus, a number of factors may ultimately condition the coping effectiveness of delinquency" (Brezina 1996:45).

The pressure or incentive to engage in criminal activity is influenced by the appeal and availability of criminal and noncriminal coping strategies. The type of strain experienced by these adolescents may also influence the appeal and availability of criminal and noncriminal coping strategies. ”Certain types of strain (child abuse, violent victimization) may be associated with exposure to others who present beliefs favorable to crime or who model/reinforce crime. Further, certain types (homelessness) may be associated with exposure to others who present beliefs that favor criminal coping in response to that type of strain and/or model criminal coping to that type of strain” (Baron 2004:461).

Substance Use as a Specific Delinquent/Criminal Response to Strain

Agnew (1992) also suggests that strain creates pressure or an incentive to use drugs as a coping strategy. For certain populations, especially youth, the opportunities for conventional problem solving can be more limited, leaving crime and particularly drug use as a way to address strain (Agnew 1992; Brezina 2000; Baron 2004). Drug use might soothe any psychological stress associated with the negative emotions of the strain, and any aggression resulting from drug use could allow them to relieve certain types of strain, or to even gain a sense of revenge against the ones that caused them the strain (Baron 2004).

Brezina (1996:41) says that "certain illegal behaviors may allow adolescents to manage feelings of disappointment, depression, or despair (e.g., illicit drug use) or to avoid the aversive environments that generate these emotions (e.g., running away from home). In short, adolescents have a tendency to respond to strain with delinquency

because delinquency may provide them with a means to avoid or alleviate strain directly, or to avoid or alleviate the negative emotional consequences generated by strain."

Agnew and White (1992:477) say that "delinquency may occur as adolescents try to manage their negative affect through illicit drug use. GST, then, has the potential to explain a broad range of delinquency, including theft, aggression, and drug use." However, empirical evidence addressing the relationship between strain and substance use is mixed. The majority of the evidence suggests that a variety of negative events and conditions are related to delinquency and drug use (Hoffman and Miller 1998), and that this relationship persists when traditional measures of parental controls are held constant (Agnew 1985; Agnew and White 1992; Paternoster and Mazerolle 1994). In contrast, Aseltine, Gore and Gordon (2000:258) say that "the degree which strain is related to deviant behavior is conditioned by the adolescent's personal and social resources." Similarly, Mazerolle et al. (2000:96) found that drug use among adolescents was related to experiencing less strain, primarily saying that "adolescents with high exposure to strain were less likely to use drugs than adolescents with less exposure to strain."

The present study looks to use GST to explain delinquency, and specifically substance use, by adolescents. Substance use will be examined separately from delinquency because although it can be a method to alleviate strain or seek revenge, it is used primarily to manage the negative affect caused by strain. Data conducted by White et al. (1987) also show that the determinants of drug use may also be somewhat different from those of delinquency. This discrepancy in studies will be examined in more detail in this study.

Present Study

Using the previous research as a guide, this thesis will present a number of variables that may produce strain among the twelfth graders represented in this study and examine whether or not they could possibly lead to substance use. As with most applications of the General Strain Theory, an objective approach will be used in this study. Respondents were asked to answer questions that have closed-end responses which serve as indicators and/or sources of strain. As was noted by Agnew (1985) in his revised theory, there are many variables that can be considered to cause strain and their consequences in the form of different types of delinquency.

Several variables will be examined for their effect on substance use. These independent variables, which serve as indicators of strain, include perceived average grade reported by the adolescent, the adolescent's feelings about his or her life satisfaction, whether or not the adolescent enjoys school, and how the adolescent feels about his or her school ability. Control variables will also be used in this study. Black, female, and parent's presence in the household will be presented as demographic control variables. Religious service attendance will serve as a social control variable, and peer substance use will serve as a social learning theory variable.

Hypotheses

Hypothesis 1: Perceived success in school, measured by perceived average grades, will be negatively related to substance use.

Hypothesis 1a: Perceived success in school, measured by perceived average grades, will be negatively related to cigarette use.

Hypothesis 1b: Perceived success in school, measured by perceived average grades, will be negatively related to alcohol use.

Hypothesis 1c: Perceived success in school, measured by perceived average grades, will be negatively related to marijuana use.

Ellickson et al. (2004:983) discovered that "adolescents who earned grades of C or worse had up to twice the risk of initiating marijuana use over those who earned good grades." Strain will result from either the feeling of frustration due to their perceived images of making worse grades than their peers, or from feeling that they have underachieved or failed by not obtaining the grades they originally wanted. If the adolescent is experiencing this strain, they should be more likely to use certain substances. However, if they feel that they are performing well in school, they will not experience this specific strain, and therefore will not turn to substance use.

Hypothesis 2: Greater life satisfaction, as perceived by the adolescent respondent, will be negatively related to substance use.

Hypothesis 2a: Greater life satisfaction, as perceived by the adolescent respondent, will be negatively related to cigarette use.

Hypothesis 2b: Greater life satisfaction, as perceived by the adolescent respondent, will be negatively related to alcohol use.

Hypothesis 2c: Greater life satisfaction, as perceived by the adolescent respondent, will be negatively related to marijuana use.

Adolescents will typically look to avoid negative stimuli, thus if the relationship with their peers or parents or even the way they feel about themselves is noxious in any way, this will produce stress and possibly lead to substance use to ease this strain (Agnew

1992). However, those adolescents that perceive themselves as having decent relationships with people close to them and have a good feeling about themselves, should have just the opposite effect; no strain should be present, and therefore, substance use among these adolescents should be minimal.

Hypothesis 3: Greater enjoyment of school by the adolescent will be negatively related to substance use.

Hypothesis 3a: Greater enjoyment of school by the adolescent will be negatively related to cigarette use.

Hypothesis 3b: Greater enjoyment of school by the adolescent will be negatively related to alcohol use.

Hypothesis 3c: Greater enjoyment of school by the adolescent will be negatively related to marijuana use.

Going to school is a traditional part of every adolescent's life. If they are presented with a certain negative stimuli during the process of going to school, it will result in a greater strain on that adolescent. This will lead them to try to find a way to avoid this strain, which could possibly lead them to substance use. However, if they enjoy going to school, they will be less likely to use these substances and will experience less strain in their lives.

Hypothesis 4: Perceived overall self-ability in school will be negatively related to substance use.

Hypothesis 4a: Perceived overall self-ability in school will be negatively related to cigarette use.

Hypothesis 4b: Perceived overall self-ability in school will be negatively related to alcohol use.

Hypothesis 4c: Perceived overall self-ability in school will be negatively related to marijuana use.

The failure to achieve a positive self-image of school ability compared to others across the nation could result in a heightened sense of stress in adolescents that feel this way. Achieving success in school is a large part of traditional values that are taught to adolescents from the time they begin their academic careers, and the thought that they may not perform up to the specified or expected level could lead them to substance use. Likewise, if they feel they are performing well in school as compared to others, they should be less likely to use these same substances.

CHAPTER THREE: METHODS AND DATA

Data: Monitoring the Future 2003

General Information

Monitoring the Future (MTF) is an ongoing survey that is conducted on a yearly basis. It is a study designed to measure the behaviors, attitudes, and values of American secondary school students, college students, and young adults. A total of some 50,000 eighth, tenth, and twelfth grade students are asked to participate in the survey each year. In addition, follow-up questionnaires are sent out to a sample of various graduating classes for a number of years to monitor responses into their twenties. The research was conducted by Lloyd D. Johnston, Jerald G. Bachman, Patrick M. O'Malley, and John E. Schulenburg of the University of Michigan Institute for Social Research. The project was funded by the United States Department of Health and Human Services, as well as the National Institute on Drug Abuse. The reason this data set is being chosen over any other is that (1) it focuses on the age group that is of concern in the present study; (2) it measures substance use more precisely then most national data on substance use; and (3) it includes variables necessary to test GST.

Sampling Procedure

The data are collected during the spring of each year. Each year's data collection takes place in approximately 420 public and private high schools and middle schools selected to provide an accurate representative cross section of students throughout the

coterminous United States at each grade level. A multi-stage random sampling procedure is used for securing the nationwide sample of students each year at each grade level. Stage One: The selection of particular geographic areas. Stage Two: The selection (with probability proportionate to size) of one or more schools in each area. Stage Three: The selection of classes within each school. Within each school, up to 350 students may be included. In schools with fewer students, the usual procedure is to include all of them in the data collection. In larger schools, a subset of students is selected either by randomly sampling entire classrooms or by some other random method that is judged to be unbiased. Sampling weights are used when the data are analyzed to correct for unequal probabilities of selection that occurred at any stage of sampling.

The 2003 data set will be used in this study, which is the most recent edition of the Monitoring the Future Survey (MTF). Based on the previous literature and research using General Strain Theory, this paper will examine only the twelfth graders who participated in this study. There are a total of 15,200 twelfth grade respondents. As noted earlier, previous research by Blumstein et al. (1986) and Farrington (1986) found that delinquent behavior occurs more frequently and actually escalates during the early adolescent years, peaks around the age of seventeen, and then is followed by a period of decline. This finding would suggest that the twelfth graders represent the highest level of substance use among secondary school students sampled by MTF.

Dependent Variables

This study will focus on three main dependent variables: (1) cigarette use; (2) alcohol use; and (3) marijuana use; all during the last thirty days. Other variables, such as the thirty-day prevalence of use among LSD, heroin, and crack/cocaine, were

examined. These variables were not chosen for this study because of the extremely small percentages (less than 1%) of students using these substances.

Cigarette Use. This variable examines how frequently the respondent has smoked a cigarette(s) in the last thirty days. Although cigarette use could also be considered as being a measure of delinquency, in the present study it will be treated as a way to relieve strains that may arise in an adolescent's life. Cigarette smoking is a commonly reported way of relieving strain, but is also very dangerous and can lead to a number of health problems. This variable was collapsed into a dichotomous variable with zero occasions represented as a "no", coded as a zero; and one or more represented as a "yes", and coded as a one.

Alcohol Use. This variable examines how many occasions in the last thirty days the respondent has had an alcoholic beverage to drink. Consumption of this beverage means more than a few sips. It includes beer, wine, wine coolers, and liquor. This variable was collapsed into a dichotomous variable with zero occasions represented as a "no", coded as a zero; and one or more occurrences represented as a "yes", and coded as a one.

Marijuana Use. This variable examines how many occasions in the last thirty days the respondent has smoked marijuana. This variable was collapsed into a dichotomous variable with zero occasions represented as a "no", coded as a zero; and one or more occurrences represented as a "yes", and coded as a one.

Independent Variables

Independent variables are included to specifically test the General Strain Theory in relation to substance use. They are: (1) perceived average grade; (2) life satisfaction; (3) enjoyment of school; and (4) self school ability.

Perceived Average Grade. Ellickson et al. (2004:983), revealed that "adolescents who tended to earn grades of C or worse had up to twice the risk of initiating marijuana use over those who earned good grades." Cohen's theory of strain focuses primarily on school based achievement status. The institution of the school embodies middle class values for honesty, courtesy, personality, responsibility, and so forth. It is within this milieu that competition takes place for status, approval, or respect. Strain for Cohen is therefore not structural, but interpersonal, located at the level of group interaction. "Group interaction is a sort of catalyst which releases potentialities not otherwise visible" (Cohen 1955:136). Losers in competition for status experience strong feelings of frustration or deprivation. Most people who experience these feelings will just accept their position, but others will turn to crime to try to relieve these feelings. Agnew (1992) also notes that strain is increased when the actual achievements of an individual are less than that which the individual had expected.

Perceived average grade was recoded for data set purposes as: D (69 and below) is coded as a one; C- (70 to 72), C (73 to 76), and C+ (77 to 79) are coded as a two; B- (80 to 82), B (83 to 86), and B+ (87 to 89) are coded as a three; A- (90 to 92) and A (93 to 100) are coded as a four.

Life Satisfaction. One's satisfaction with life and relationships are very important to the way that stressors occur or are perceived after they happen. The ways in which they get along with their peers, the type of relationship they have with their parents, the way they feel about themselves, and how satisfied they are with their life as a whole are the variables in this data set that have been identified as important to creating this satisfaction variable. Adolescents will typically look to avoid negative stimuli, thus if the

relationship with their peers or parents or even the way they feel about themselves is noxious in any way, this will produce stress and possibly lead to substance use to ease this strain (Agnew 1992). Agnew (1992) even suggests that some examples of negative stress an adolescent might face include adverse relations with parents, teachers, and peers.

This variable was created using a combination of four separate variables. The first variable used in this combination poses the question how satisfied the adolescent is with their peers and other people they spend time with. The second variable asks the adolescent how satisfied they are with the way they get along with their parents. Third, the adolescent reported how satisfied they were with themselves. Lastly, the adolescent responded how satisfied they are with their life as a whole. The answer choices for these variables include: dissatisfied, which could possibly range from an answer of one to an answer of three, were recorded as a one; neutral, which was recorded as a two; and satisfied, which could possibly range from an answer of five to seven, were recorded as a three.

Enjoyment of School. School encompasses a large portion of an adolescent's life. Going to school from the time they are around the age of six and continuing until around the age of eighteen this can be a very influential yet possibly detrimental experience for some adolescents. It is the possible *non-enjoyment* of their school environment that could persuade the adolescent to turn to substance use. According to Agnew's (1992) GST, the presentation of negative stimuli may encourage the adolescent to find some way to avoid the noxious stimuli, not enjoying their school experience. Thaxton and Agnew (2004:764) also pointed out that "it is unpleasant to regularly interact with people you

dislike." If this is the case, these adolescents who do not enjoy going to school should be more likely to use substance use as a way to avoid any non-enjoyment they feel when they are forced into this situation. On the other hand, it should stand true that for those adolescents who enjoy school, the likelihood that they will participate in substance use should decrease significantly.

This variable examines the respondent's answer to the question of how often they enjoyed being in school over the past year. The answer choices for this variable include: never, seldom, sometime, often, and always. These answers were recoded as follows: never and seldom are combined and coded as one; sometimes is coded as a two; and often and always are combined and coded as three.

Self School Ability. How an adolescent views themselves is very important to their overall psyche and the types of activities in which they are likely to participate. From the moment they first begin their educational experience, they are told just how important it is to do well and to achieve success within this realm of their lives. The possible problem that arises from this expectation, according to Agnew (1992), is that a failure to achieve these positively valued stimuli could have a tremendous effect on that adolescent's life. If the adolescent feels he or she has achieved this to a relatively significant point, it should follow that they would be less likely to participate in substance use. However, if they feel that they do not meet or could not possibly ever achieve this standard, they may look to substance use as a way to comfort themselves and try to feel like they actually are not the failure that they may feel they are.

The inclusion of this variable in this study examines the respondent's answer to the question of how they rated themselves on school ability as compared to others

throughout the country. The answer choices for this variable include: far below average, below average, slightly below average, average, slightly above average, above average, and far above average. These answers were coded for purposes of this study in the following manner: far below average, below average, and slightly below average are combined and represented as a code of one; average is coded as a two; and slightly above average, above average, and far above average are combined and represented as a code of three.

Control Variables

In the process of testing the hypotheses presented in this study, several variables will be controlled, including demographic variables and other variables related to other theories, specifically social control and social learning theories. As suggested by Agnew (1992:479), "a proper test of GST requires measures of social control and differential association as well as strain." While the dependent variables represent the strain level of this analysis, the following variables represent the social control as well as social learning theories that have been incorporated into this study. The demographic variables that will be examined in this study consist of White or Caucasian, female, and parent's present in the same household as the adolescent.

Black and Female. Rodhama et al. (2005:63) looked at gender and ethnic differences in drinking, smoking, and drug taking among adolescents in England. In her study she found that "more males than females reported smoking and drug taking. More females reported smoking, but males were more likely to be heavy smokers. Black males were more likely than White males to have used cannabis, opiates and other drugs." Agnew (1999) actually suggests that deviance among African Americans can be explained by

GST due to the fact that this specific group of individuals have a well-developed racial consciousness, based on the history of slavery and racial discrimination and prejudice.

Agnew and Brezina (1997) also examine gender differences in the strain/delinquency relationship, focusing on interpersonal strain. They find interpersonal strain to be correlated with both male and female delinquency, but they find this correlation to be stronger among males than among females. Broidy and Agnew (1997:295) also found that "females appear more likely to experience network strains, gender-based discrimination, excessive demands from others, and low prestige in their work and family roles. Males appear more likely to experience financial strain, interpersonal conflicts with peers, and most types of criminal victimization."

Black in this data set is only coded as either White or Caucasian, which is represented as a zero, and Black or African American, which is represented as a one. The female variable coded as male (1) or female (2).

Parent's Present in the Household. Hoffman (2002:314) in his study of community in the context of family structure found that "adolescents who reside in single-parent or stepparent families are at heightened risk of drug use irrespective of community context. Moreover, adolescents who reside in single father families are at risk of both higher levels of drug use and increasing use over time." Agnew's (1992) research in the stress literature led him to the discovery that the removal of positive stimuli can also cause strain. The presence of a single father or mother alone could lead to strain in that there would seemingly be a lack in supervision and also a feeling of abandonment, especially in times where the adolescent could use someone to talk to about serious issues such as substance use.

The inclusion of this variable in this study examines whether or not the respondent has both parents present in the household they currently reside in. This variable was recoded based on if the respondent marked a response to having a mother and father present in their household, which was originally a combination of two separate questions, as referenced in Appendix B. If the question was left unmarked, it was coded as a zero; if the respondent marked the question, it was coded as a one.

Religious Service Attendance. Previous research (Adlaf and Smart 1985; Amey et al. 1996; Hadaway, Elifson, and Peterson 1984) found consistent negative relations with alcohol and other substance use in relationship to the frequency with which an adolescent attends religious services. Wills, Yaeger, and Sandy (2003:29) also reported that "when adolescents perceive religion as important in their lives, it may lower their rates of cigarette smoking, heavy drinking and marijuana use." The presence of a social bond in this situation supports social control theory.

This variable looks at the frequency with which the respondent attends some form of religious service. The answer choices for this variable include: never, rarely, one to two times a month, and about once a week or more. These variables were coded, in the order listed, from one to four.

Social control theory is represented in this study with the variable religious service attendance. Among social bond theorists in criminology, those who postulate the primary importance of religion usually emphasize elements of the social bond such as commitment, belief, or religion as a composite or fifth element of the social bond. Regarding religion, the slight majority of research is in agreement that religion is a moderate insulator from delinquency and crime (Burkett and White 1974; Albrecht et al.

1977; Tittle and Welch 1983; Baier and Wright 2001; Johnson et al. 2001). The purpose of this variable within this study is to see if religion will have the same effect on adolescents and their likelihood to abuse certain substances.

Peer Substance Use

Peer socialization and the need to feel popular within a group of people is usually a very important component of any adolescent's life. "Yet, adolescents who are popular, and hence well socialized into their peer groups, also appear vulnerable to being socialized into the increasing levels of delinquent and drug-using behavior that become normative in peer groups during this period" (Allen et al. 2005:747). Allen et al. (2005:748) also suggest that "as peer groups evolve from childhood to adolescence, they are likely to become an increasingly powerful socializing influence." These two statements should suggest that not only will adolescent's who have peers that use certain substances be more likely to also participate in these activities, but also that the pressure to participate will only increase as the adolescent ages and forms stronger bonds with that set or new sets of peers.

This variable was created using a combination of three separate variables. The first variable identifies how many of the respondent's peers smoke cigarettes. The second identifies how many of the respondent's peers drink alcohol. The final variable identifies how many of the respondent's peers smoke marijuana. The answers choices for these variables include: none, a few, some, most, and all. The answers to these three separate variables were combined and represented as one variable in the following manner: if any of the three questions answered resulted in the one or two range, represented as none or a few, it was coded as a one; if any of the three questions

answered resulted in a three, represented as some, it was coded as a two; if any of the three questions answered resulted in the four or five range, represented as most or all, it was coded as a three.

Social learning theory is represented in this study with the variable that examines the respondent's peer substance use. Social learning most frequently takes place through the process of modeling, a concept that was first presented by Bandura (1977). Basic principles of this theory state that people can learn by observing the behaviors of others; this learning can occur without a change in behavior; and the person doing the modeling must have capable cognitive abilities in order to understand the behavior being presented. In this study, the various peers are intended as the people from which the adolescent would be observing and learning. The variable represents the number of peers the respondent reported as using cigarettes, alcohol, or marijuana. The hypothesis behind this variable is that the higher the number of peers the respondent reports using these substances, the more likely the adolescent would be to use these substances also. However, the reverse could also be said to be true in that the lower the number of peers who use these substances, the less likely the adolescent will be to also use those substances. The purpose of this variable is to examine this relationship and the possible implications that the results could possibly offer.

Analytical Procedure

The data set was obtained from the University of Michigan's website and were downloaded using the SPSS format. They were originally split into separate forms and separate data sets. The original information was compiled into one complete data set for the twelfth grade classification that includes all variables that will be needed to conduct

this study. Using the SPSS program, these variables will be examined on the basis of their frequencies, meaning that only variables with enough variability and cases were considered, to determine how significant they are to this study and to show the number and frequency each case occurs. The descriptive statistics for each of these variables is provided in Table 1.

Table 1. Variable Means and Standard Deviations, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Variables	Mean	SD	Minimum	Maximum	N
Dependent Variables					
Cigarette Use	1.26	0.437	1	2	13608
Alcohol Use	1.48	0.500	1	2	14335
Marijuana Use	1.21	0.407	1	2	15484
Independent Variables					
Perceived Average Grade	3.16	0.730	1	4	14240
Life Satisfaction	2.68	0.963	1	3	12201
Enjoyment of School	2.16	0.787	1	3	7201
Self School Ability	2.63	0.509	1	3	13418
Control Variables					
Black	0.16	0.368	0	1	11212
Female	1.53	0.499	1	2	14259
Parent's Present in the Household	0.80	0.438	0	1	14527
Religious Service Attendance	2.65	1.104	1	4	11371
Peer Substance Use	2.44	0.637	1	3	8982

Binary logistic regression is a statistical procedure that it used to determine factors that affect the presence or absence of a characteristic when the dependent variable is dichotomous. In the case of the present study, the dependent variables have been reduced to a yes or no answer only, therefore presenting the need to perform binary logistic regression as the main statistical analysis procedure.

CHAPTER FOUR: RESULTS

This Chapter examines the effects of independent variables on each of the three dependent (substance use) variables examined in this study. Cigarette use is presented first, followed by alcohol and marijuana use.

Cigarette Use

Table 2 presents the results of binary logistic regression examining the effect of the independent and control variables cigarette use. I discuss each of these independent variables separately.

Independent Variables

Perceived Average Grade

Perceived average grade was hypothesized to reduce the likelihood of cigarette use. The results show that the effect is negative and significant. The B statistic resulted in a value of -0.487 with a standard error of 0.071. This statistic was shown to be significant at the $p < .05$ level. Hence, it can be interpreted that the lower the adolescent perceives their grades to be, the more likely they will be to smoke cigarettes. This finding supports Hypothesis 1a.

Life Satisfaction

Life satisfaction was hypothesized to be negatively related to cigarette use. That is, the higher the level of life satisfaction, the lower the level of cigarette use. However, the data reveal that this variable had no effect on adolescents smoking cigarettes. The B

Table 2. Binary Logistic Regression of Cigarette Use on Selected Independent Variables, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Variables	Cigarette Use	
	B (Standard Error)	Exp(B)
Independent Variables		
Perceived Average Grade	-0.487*	0.614
	(0.071)	
Life Satisfaction	-0.072	0.930
	(0.080)	
Enjoyment of School	-0.239*	0.787
	(0.057)	
Self School Ability	-0.139	0.870
	(0.094)	
Control Variables		
Black	-1.705*	0.182
	(0.183)	
Female	0.219*	1.245
	(0.087)	
Parent's Present in the Household	-0.329*	0.720
	(0.110)	
Religious Service Attendance	-0.112*	0.894
	(0.041)	
Peer Substance Use	1.177*	3.244
	(0.082)	
Constant	-0.888	0.412
	(0.414)	
Pseudo R^2	0.162	
Model X^2	575.110*	

* $p < .05$

statistic resulted in a value of -0.072 with a standard error of 0.080. This statistic was shown not to be significant at any level. Hypothesis 2a is not supported.

Enjoyment of School

Enjoyment of school was hypothesized to be negatively related to cigarette use. The more a respondent enjoyed school, the less likely he or she would use smoke cigarettes. The data show that the effect is negative and significant. The B statistic resulted in a value of -0.239 with a standard error of 0.057. This statistic was shown to be significant at the $p < .05$ level. Thus, this finding supports Hypothesis 3a.

Self School Ability

It was hypothesized that the greater the adolescent perceives their overall self-ability in school, the less likely they are to smoke cigarettes. In this case, the data reveal that this variable produced no effect on adolescents smoking cigarettes. The B statistic resulted in a value of -0.139 with a standard error of 0.094. This statistic was shown not to be significant at any level. Hypothesis 4a is not supported.

Control Variables

The control category consists of the following variables: Black, female, parent's present in the household, religious service attendance, and peer substance use. Although these variables were not theoretically hypothesized by General Strain Theory, they were of interest in this study based on previous empirical research. The results of the tests run with the control variables are generally consistent with previous expectations.

The effect of Black on smoking cigarettes is negative and significant. Given this result, it can be interpreted that, controlling for other relevant variables, White or Caucasian adolescents are more likely to smoke cigarettes. Female was shown to be positive and significant, meaning that female, rather than male, adolescents are more likely to smoke cigarettes. The parent's present in the household variable was shown to have a negative effect on cigarette smoking, while also being significant. Adolescents with both parents in the household are less likely to smoke cigarettes than are adolescents in one-parent (or less) families. Religious service attendance included as a variable reflecting social control theory was shown to be negative and significant. This means that the less an adolescent attends religious services the more likely he or she will be to smoke cigarettes. Peer substance use, a social learning theory derived variable, produced

a positive and significant relationship, which means that the more peers the adolescent has that smoke cigarettes, the more likely the adolescent will be to display the same behavior. This variable was also shown to be the strongest predictor of cigarette use among adolescents.

Alcohol Use

Table 3 presents the results of binary logistic regression procedures examining the effect of the independent and control variables on alcohol use.

Independent Variables

Perceived Average Grade

Perceived average grade was hypothesized to be negatively related to alcohol use. The data reveal that the effect is negative and significant. The B statistic resulted in a value of -0.144 with a standard error of 0.061. This statistic was shown to be significant at the $p < .05$ level. Therefore, it can be interpreted that the lower the adolescent perceives their grades to be, the more likely they will be to drink alcohol. This finding supports Hypothesis 1b.

Life Satisfaction

Life satisfaction was hypothesized to be negatively related to alcohol use. However, the data show that this variable produced no effect on adolescents drinking alcohol. The B statistic resulted in a value of -0.036 with a standard error of 0.073. Therefore, Hypothesis 2b is not supported.

Enjoyment of School

Enjoyment of school was hypothesized to be negatively related to alcohol use. The data reveal that the effect is negative and significant, meaning that the less an

Table 3. Binary Logistic Regression of Alcohol Use on Selected Independent Variables, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Variables	Alcohol Use	
	B (Standard Error)	Exp(B)
Independent Variables		
Perceived Average Grade	-0.144*	0.866
	(0.061)	
Life Satisfaction	-0.036	0.964
	(0.073)	
Enjoyment of School	-0.183*	0.833
	(0.047)	
Self School Ability	-0.111	0.895
	(0.083)	
Control Variables		
Black	-0.913*	0.401
	(0.114)	
Female	-0.194*	0.823
	(0.073)	
Parent's Present in the Household	-0.067	0.935
	(0.094)	
Religious Service Attendance	-0.130*	0.879
	(0.034)	
Peer Substance Use	1.246*	3.478
	(0.063)	
Constant	-1.015*	0.363
	(0.349)	
Pseudo R^2	0.169	
Model X^2	709.456*	

* $p < .05$

adolescent enjoys school, the more likely they will be to drink alcohol. The B statistic resulted in a value of -0.183 with a standard error of 0.047. Hypothesis 3b is supported.

Self School Ability

It was hypothesized that the greater the adolescent perceives their overall self-ability in school the less likely he or she is to use alcohol. However, it was shown that this variable had no effect on adolescents drinking alcohol. The B statistic resulted in a value of -0.111 with a standard error of 0.083. Therefore, Hypothesis 4b is not supported.

Control Variables

The results of the tests run with the control variables are generally consistent with previous expectations. Black as a demographic control variable in this study produced a negative and significant relationship to alcohol use among adolescents, meaning Whites or Caucasians are more likely to drink alcohol. Female is negatively and significantly related to alcohol use, meaning that males are more likely to drink alcohol than females. Parent's present in the household had no effect on adolescents drinking alcohol. Religious service attendance produced a negative and significant relationship, meaning that the less an adolescent attends religious service the more likely they will be to drink alcohol. Lastly, peer substance use resulted in a positive and significant relationship, which means that the more peers the adolescent has that drink alcohol, the more likely the adolescent will be to display the same behavior. This variable was also shown to be the strongest predictor of alcohol use among adolescents.

Marijuana Use

Table 4 presents the results of binary logistic regression procedures examining the input of the independent and control variables and their subsequent effect on marijuana use.

Independent Variables

Perceived Average Grade

Perceived average grade was hypothesized to be negatively related to marijuana use. The data show that the effect is negative and significant. The B statistic resulted in a value of -0.398 with a standard error of 0.072. This statistic was shown to be significant at the $p < .05$ level. Therefore, it can be interpreted that the lower the

Table 4. Binary Logistic Regression of Marijuana Use on Selected Independent Variables, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Variables	Marijuana Use	
	B (Standard Error)	Exp(B)
Independent Variables		
Perceived Average Grade	-0.398*	0.672
	(0.072)	
Life Satisfaction	0.009	1.009
	(0.088)	
Enjoyment of School	-0.262*	0.770
	(0.057)	
Self School Ability	0.165	1.180
	(0.099)	
Control Variables		
Black	-0.122	0.885
	(0.140)	
Female	-0.090	0.914
	(0.090)	
Parent's Present in the Household	-0.335*	0.715
	(0.109)	
Religious Service Attendance	-0.279*	0.756
	(0.043)	
Peer Substance Use	1.556*	4.741
	(0.097)	
Constant	-2.981*	0.051
	(0.459)	
Pseudo R^2	0.137	
Model X^2	568.593*	

* $p < .05$

adolescent perceives their grades to be, the more likely they will be to smoke marijuana. Hypothesis 1c is supported.

Life Satisfaction

Life satisfaction was hypothesized to be negatively related to marijuana use. The results show that this variable had no effect on adolescents smoking marijuana. The B statistic resulted in a value of 0.009 with a standard error of 0.088. Therefore, Hypothesis 2c is not supported.

Enjoyment of School

Enjoyment of school was hypothesized to be negatively related to marijuana use. The data reveal that the effect is negative and significant. The B statistic resulted in a value of -0.262 with a standard error of 0.057. This statistic was shown to be significant at the $p < .05$ level. Hence, it can be interpreted that the less the adolescent enjoys school, the more likely they will be to smoke marijuana. Hypothesis 3c is supported.

Self School Ability

It was hypothesized that the greater the adolescent perceives their overall self-ability in school to be, the less likely he or she is to use marijuana. However, the data resulted in no effect on adolescents smoking marijuana. The B statistic resulted in a value of 0.165 with a standard error of 0.099. Hypothesis 4c is not supported.

Control Variables

Neither Black nor female as control variables had any effect when related to marijuana use among adolescents. Parent's present in the household as a demographic variable resulted in a negative and significant relationship, meaning that having both parents present in the household significantly reduces the likelihood of smoking marijuana. Religious service attendance produced a negative and significant relationship, meaning that the less an adolescent attends religious service the more likely they will be to smoke marijuana. Peer substance resulted in a positive and significant relationship; the more peers the adolescent has that smoke marijuana, the more likely the adolescent will be to smoke marijuana him or herself. This variable was also shown to be the strongest predictor of marijuana use among adolescents.

CHAPTER 5: DISCUSSION, CONCLUSIONS, AND IMPLICATIONS

Discussion

By examining three principal hypotheses, and their sub-hypotheses, this study presented a test of General Strain Theory in relation to substance use among adolescents. In contrast to some perspectives that see delinquency as a disordered and essentially irrational form of behavior (Raine 1993), strain theories tend to view delinquency as a form of rational, problem-solving behavior (Brezina 1996). General Strain Theory, in particular, suggests that delinquency may enable adolescents to cope with the socioemotional problems generated by negative social relations (Agnew 1992). The purpose of this study was to attempt to empirically examine the General Strain Theory as proposed by Agnew. Monitoring the Future, which includes a national sample of high school seniors with questions regarding a variety of substance use behavior, was used to examine if General Strain factors would explain substance use by adolescents. Overall, this test of the General Strain Theory is not very encouraging. The independent variables used to represent this theory in the current study were not particularly strong predictors of substance use among adolescents. According to the results of this study, the adolescents surveyed are not likely to turn to substance use when faced with the possible problems or strains, as measured by the independent variables. The peer substance use variable, which represented social learning theory, and the religious service attendance variable, which represented social control theory, were much better predictors of substance use in

adolescents. The demographic variables used in this study also resulted as better predictors of substance use among the adolescents tested. This seems to suggest that these variables and others measuring characteristics similar to social control and social learning variables would be the best way to conduct future studies on adolescent substance use. Thus, this analysis has failed to confirm the role of General Strain factors in the substance use among adolescents.

Limitations

Agnew's (1992) General Strain Theory is much broader than the classic strain theories. This is because it recognizes that there are several sources of strain beyond the failure to achieve positively valued monetary or status goals, and that there are a wide range of adaptations to these types of strains, including cognitive, behavioral, and emotional adaptation strategies. General Strain Theory also attempts to more fully describe factors that influence the individual's choice of either criminal or non-criminal adaptations. However, this may also be General Strain Theory's greatest weakness. Jensen (1995:152) states, "If strain can be defined in so many different ways, then strain theory is virtually unfalsifiable. There is always a new measure that might salvage the theory." The need to definitively represent General Strain Theory and variables that are concrete, not considering a possible wide range of variables, has been an ongoing process since General Strain Theory was first theorized. This must be taken into consideration in any further studies, as any possible variables could be under tremendous scrutiny given this opinion.

The Monitoring the Future data set gives an adequate time survey of the adolescent years, consisting of eighth and tenth graders, normally adolescents between

the ages of about thirteen and fifteen. The twelfth grade data included adolescents that are between seventeen and eighteen years of age. Future research could attempt to portray the possible ways in which these variables affect these adolescents in the earlier years of their lives, as well as possibly throughout their college years, and even possibly into adulthood.

A second component of this study that could be improved in future research has to do with the way the independent variables that were chosen and the way they were reported. There is a need to find better variables that would qualify as a self variable. The enjoyment of school variable did an excellent job of providing significance in this study, but the information concerned with the adolescent's feelings about themselves and how that would relate to substance use is definitely lacking. There could also be a more thorough data set formulated that would include such variables as family or possibly a job/career component that would add another dimension to this present study.

Third, the variable parent's present in the household is vague in the way the question is worded. Therefore, the answers to this question do not show a definitive conclusion to the initial question posed to the adolescents. Parent's present in the household is reported as either a father or mother being present or not in the same household as the adolescent respondent. Parent's present in the household does not take into account the fact that if both parents are present, it does not necessarily mean that household is completely functional in nature. Along those lines, parent's present in the household also does not take into account what kind of relationship exists with the adolescent. The father or mother that is present could be biological, but there is also a

good chance that the father or mother could also either be a stepparent or even an adopted parent or parents.

Despite the limitations of this study, the analyses of this study can be seen as another step in the attempt to assess a relatively neglected assumption of strain theory. Substance use among adolescents continues to be an issue that deserves examination as to the possible factors that cause this behavior. Moreover, the results of these analyses have interesting implications in areas regarding substance use policy. If substance use is not related to these General Strain factors, as is presented in this study, other factors of substance use should be examined to see if they in some way contribute to adolescents' use of certain substances. Of particular importance, as is also referenced in this study, are social learning as well as social control variables.

Implications

Previous studies on the subject have pointed to a need to examine substance use using the General Strain Theory, and it was the main goal of this study to accomplish that task. The data provide little if any support for the General Strain Theory as far as adolescent substance use is concerned. However, this was by no means a fully comprehensive study in the area of substance use among adolescents and the possible GST variables that could influence this behavior among this specific demographic. Additional studies and theorizing on this subject should look to collect a common set of strain measures that are deemed important among a general sample of adolescents and for a set scale of substance use. I feel that this study accomplished the latter of these two objectives, but the first was relatively sparse using the current data set; not all the same

adolescents answered the same questions about what could possibly lead them to use certain substances.

General Strain Theory also in this instance was shown to be a worse predictor of substance use among adolescents than were social control and social learning variables measured. While this is not particularly encouraging for the present study, it could have a tremendous effect on future studies that should follow this one. These subsequent theories, along with the differential association theory, should be looked at further in the ways in which they could possibly be related to one another. As Agnew (1992) points out, strain may lead to low social control and association with delinquent peers. He further states that low social control and association with delinquent peers may lead to strain. The variables that were measured may have a combination affect on delinquency, however the present study was more concerned and focused on providing an explanation from a General Strain Theory point of view. For this to be successfully accomplished in future research, strain variables need to be free from the possibility of also being somehow linked to other theories in order to conclusively provide rendering to General Strain Theory and how it explains substance use among adolescents.

These arguments also present some very important implications on future policies that may be invoked using this study. In specific relation to the variables that were shown to be significant to GST, there is a need for the adolescent to understand just how important it is that they not only enjoy their time in school, but to also realize that it is equally important that they perceive themselves to achieve certain things, such as good grades, in this stage of life. Given the opportunity to succeed in school, they may realize that they have a bright future ahead of them and will not want to use certain substances if

the consequences are greater than the act itself. Second, exposure to certain individuals will obviously lead to certain strains and possibly unwanted behaviors. While it is not possible for a person to avoid every individual that causes them strain, it can be possible to avoid the one's that cause the most. This thought also closely relates to the social control as well as social learning variables. Adolescents need to realize what individuals and situations in their lives are going to cause them the most strain, or influence certain decisions and/or behaviors, and be able to avoid those things when possible. Third, there is a need to prove to these adolescents that there is more than one way to cope with certain strains that may occur in their lives. Namely, using certain substances to cope with or get away from whatever problems they may be facing is not the wise choice to make. Other possible solutions, such as after school programs that reinforce positive values and even having a home environment in which an adolescent feels comfortable enough to share feelings with their parents without damaging repercussions are just two obvious examples that could be proposed.

This article is an extension of previous works, and mainly Agnew's (1992) work with General Strain Theory. Although the original intentions of this study were not fully accomplished to a level that would prove GST to be the end-all of theories concerning adolescent substance use, it did point out other variables (namely perceived average grade and enjoyment of school) that could be use in future studies of this issue. This incorporation of variables is an essential part of any study conducted after this point, and there is a need to find a concrete answer to the problem posited in the present study. Substance use among adolescents is an ongoing problem, not only in our society, but also in many all around the world. Therefore, my hope is that this study would be only the

beginning of research on the subject and that one day GST can invariably predict what factors will determine adolescent substance use so that it can regress or even be stopped all together.

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APPENDIX A

Definition and Documentation of Concepts

- Anomie – as referenced by Durkheim; describes a condition of deregulation within a society. Defined anomie as a condition under which social norms are confused, unclear, or simply not present. Argued that these conditions subsequently lead to deviant behavior. (Pages 1 and 5)
- Noxious stimuli – negative relationships with others, failure to achieve a desired goal, loss of a valued relationship, and many other situations that may provide a feeling of negativity in an individual's life. (Page 1)
- Negative affective states – anger and related emotions. (Page 1)
- Positive relationships – relationships that individuals find pleasurable or at least acceptable. (Page 4).
- Social processes – create the environment necessary for the evolution of structural strain. (Page 5)
- Personal experiences – cause individual strain. (Page 5).
- Structural strain – or inadequate regulation at the societal level makes it difficult for individuals to regulate their needs, needs that are defined by society itself. (Page 5)

- Individual strain – refers to the frictions and pains experienced by individuals as they look for ways to meet their needs, as defined by their personal expectations, which have now become poorly defined because of the anomic conditions of the social structure. (Page 5)
- Anomie – as referenced by Merton; the form that societal incoherence takes when there is significant detachment between valued cultural ends and legitimate societal means to those ends. (Pages 5 and 6)
- Cultural goals – culture's definitions of what constitutes success in life. (Page 6)
- Institutionalized means – culture's norms defining the appropriate ways to achieve those cultural goals. (Page 6)
- Conformity – Mode I of Merton's Five Modes of Adaptation; individual accepts the cultural goals and uses the legitimate means for attempting to realize them. (Page 6)
- Innovation – Mode II of Merton's Five Modes of Adaptation; an acceptance of cultural goals, but means are unavailable and/or rejected, with the result that new means are "invented" to realize success goals. (Page 6)
- Ritualism – Mode III of Merton's Five Modes of Adaptation; a situation where individuals lose sight of, or are ignorant of, are fearful of, or reject cultural success goals, but where legitimate means are accepted and become objects of slavish conformity. (Page 6)
- Retreatism – Mode IV of Merton's Five Modes of Adaptation; involves rejecting both means and ends with the result that individual apathetically exists within the social system. (Pages 6 and 7)

- Rebellion – Mode V of Merton's Five Modes of Adaptation; a distinct form of resentment because it involves the rejection of means and ends as well as efforts to substitute new means and ends. (Page 7)

APPENDIX B

Methodological Presentation of Variables Used in Present Study

Cigarette Use

Original Question: How frequently have you smoked cigarettes during the past 30 days?

Table 5. Original Coding and Recoded Values for Cigarette Use, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
NONE (1)	10102	66.50%	NO (0)	10102	66.50%
<1/DAY (2)	1261	8.30%	YES (1)	3506	23.10%
1-2 (3)	983	6.50%			
3-7 (4)	705	4.60%			
8-12 (5)	366	2.40%			
13-17 (6)	111	0.70%			
18-22 (7)	80	0.50%			
23-27 (8)	14	0.10%			
28-32 (9)	4	0.00%			
33-37 (10)	3	0.00%			
38+ (11)	44	0.30%			
TOTAL	13673	90.00%		13608	89.50%
MISSING	1527	10.00%		1592	10.50%
TOTAL	15200	100.00%		15200	100.00%

Alcohol Use

Original Question: On how many occasions (if any) have you had alcoholic beverages to drink – more than just a few sips – during the last 30 days?

Table 6. Original Coding and Recoded Values for Alcohol Use, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
0 OCCAS (1)	7429	48.90%	NO (0)	7429	48.90%
1-2X (2)	2991	19.70%	YES (1)	6906	45.40%
3-5X (3)	1771	11.70%			
6-9X (4)	1053	6.90%			
10-19X (5)	651	4.30%			
20-39X (6)	196	1.30%			
40+ OCCAS (7)	244	1.60%			
TOTAL	14335	94.30%		14335	94.30%
MISSING	865	5.70%		865	5.70%
TOTAL	15200	100.00%		15200	100.00%

Marijuana Use

Original Question: On how many occasions (if any) have you have you used marijuana during the last 30 days?

Table 7. Original Coding and Recoded Values for Marijuana Use, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
O OCCAS (1)	11520	75.80%	NO (0)	11520	75.80%
1-2X (2)	1012	6.70%	YES (1)	3064	20.20%
3-5X (3)	452	3.00%			
6-9X (4)	348	2.30%			
10-19X (5)	392	2.60%			
20-39X (6)	318	2.10%			
40+ OCCAS (7)	542	3.60%			
TOTAL	14584	95.90%		14584	95.90%
MISSING	616	4.10%		616	4.10%
TOTAL	15200	100.00%		15200	100.00%

Perceived Average Grade

Original Question: Which of the following best describes your average grade so far in high school?

Table 8. Original Coding and Recoded Values for Perceived Average Grade, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
D (1)	158	1.00%	D (1)	158	1.00%
C- (2)	367	2.40%	C-, C, C+ (2)	2379	15.70%
C (3)	756	5.00%	B-, B, B+ (3)	6770	44.50%
C+ (4)	1256	8.30%	A-, A (4)	4933	32.50%
B- (5)	1760	11.60%			
B (6)	2481	16.30%			
B+ (7)	2529	16.60%			
A- (8)	2492	16.40%			
A (9)	2441	16.10%			
TOTAL	14240	93.70%		14240	93.70%
MISSING	960	6.30%		960	6.30%
TOTAL	15200	100.00%		15200	100.00%

Life Satisfaction

Original Questions: (1) How satisfied are you with…F: Your friends and other people you spend time with? (2) How satisfied are you with…G: The way you get along with your parents? (3) How much do you agree or disagree with each of the following statements? J: On the whole, I'm satisfied with myself… (4) How satisfied are you with your life as a whole these days?

Table 9. Original Coding and Recoded Values for Life Satisfaction, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
FRIENDS			DISSATISFIED (1)	1281	8.40%
DISSATISFIED (1)	140	0.90%	NEUTRAL (2)	1345	8.80%
NEUTRAL (2)	248	1.60%	SATISFIED (3)	9575	63.00%
SATISFIED	2148	14.10%			
PARENTS					
DISSATISFIED (1)	381	2.50%			
NEUTRAL (2)	381	2.50%			
SATISFIED (3)	1777	11.70%			
YOURSELF					
DISSATISFIED (1)	1337	8.80%			
NEUTRAL (2)	1911	12.60%			
SATISFIED (3)	3720	24.50%			
LIFE AS A WHOLE					
DISSATISFIED (1)	1895	12.50%			
NEUTRAL (2)	1575	10.40%			
SATISFIED (3)	8647	56.90%			
			TOTAL	12201	80.30%
			MISSING	2999	19.70%
			TOTAL	15200	100.00%

Enjoyment of School

Original Question: How much do you agree or disagree with each statement below? I: Going to school has been an enjoyable experience for me.

Table 10. Original Coding and Recoded Values for Enjoyment of School, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
NEVER (1)	600	3.90%	NEVER, SELDOM (1)	1738	11.40%
SELDOM (2)	1138	7.50%	SOMETIME (2)	2552	16.80%
SOMETIME (3)	2552	16.80%	OFTEN, ALWAYS (3)	2911	19.20%
OFTEN (4)	1985	13.10%			
ALWAYS (5)	926	6.10%			
TOTAL	7201	47.40%		7201	47.40%
MISSING	7999	52.60%		7999	52.60%
TOTAL	15200	100.00%		15200	100.00%

Self School Ability

Original Question: Compared with others your age throughout the country, how do you rate yourself on school ability?

Table 11. Original Coding and Recoded Values for Self School Ability, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
FAR BLOW (1)	165	1.10%	BELOW AV (1)	165	1.10%
BELOW AV (2)	239	1.60%	AVERAGE (2)	4699	30.90%
SL BELOW (3)	609	4.00%	ABOVE AV (3)	8554	56.30%
AVERAGE (4)	4699	30.90%			
SL ABOVE (5)	3471	22.80%			
ABOVE AV (6)	4078	26.80%			
FAR ABOV (7)	1005	6.60%			
TOTAL	14266	93.90%		13418	
MISSING	934	6.10%		1782	
TOTAL	15200	100.00%		15200	100.00%

Black

Original Question: How do you describe yourself? (Responses other than "Black or African American" and "White or Caucasian" are recoded to missing data in this data set.)

Table 12. Original Coding and Recoded Values for Black, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
WHITE (0)	9403	61.90%	WHITE (0)	9403	61.90%
BLACK (1)	1809	11.90%	BLACK (1)	1809	11.90%
TOTAL	11212	73.80%		11212	73.80%
MISSING	3988	26.20%		3988	26.20%
TOTAL	15200	100.00%		15200	100.00%

Female

Original Question: What is your sex?

Table 13. Original Coding and Recoded Values for Female, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
MALE (1)	6753	44.40%	MALE (1)	6753	44.40%
FEMALE (2)	7506	49.40%	FEMALE (2)	7506	49.40%
TOTAL	14259	93.80%		14259	93.80%
MISSING	941	6.20%		941	6.20%
TOTAL	15200	100.00%		15200	100.00%

Parent's Present in the Household

Original Questions: (1) Which of the following people live in the same household with you? (Mark all that apply.) B. Father. (2) Which of the following people live in the same household with you? (Mark all that apply.) C. Mother.

Table 14. Original Coding and Recoded Values for Parent's Present in the Household, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
FATHER			NOT PRESENT (0)	2911	19.20%
NT MARKED (0)	3752	24.70%	PRESENT (1)	11616	73.40%
MARKED (1)	10775	70.90%			
MOTHER					
NT MARKED (0)	1490	9.80%			
MARKED (1)	13037	85.80%			
			TOTAL	14527	95.60%
			MISSING	673	4.40%
			TOTAL	15200	100.00%

Religious Service Attendance

Original Question: How often do you attend religious services?

Table 15. Original Coding and Recoded Values for Religious Service Attendance, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
NEVER (1)	1924	12.70%	NEVER (1)	1924	12.70%
RARELY (2)	3848	25.30%	RARELY (2)	3848	25.30%
1-2X/MO (3)	1895	12.50%	1-2X/MO (3)	1895	12.50%
1/WK OR+ (4)	3704	24.40%	1/WK OR+ (4)	3704	24.40%
TOTAL	11371	74.80%	TOTAL	11371	74.80%
MISSING	3829	25.20%	MISSING	3829	25.20%
TOTAL	15200	100.00%	TOTAL	15200	100.00%

Peer Substance Use

Original Questions: (1) How many of your friends would you estimate smoke cigarettes? (2) How many of your friends would you estimate drink alcoholic beverages (liquor, beer, or wine)? (3) How many of your friends would you estimate smoke marijuana?

Table 16. Original Coding and Recoded Values for Peer Substance Use, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Original Coding	N	Percent	Recoded	N	Percent
FRD CIG			NONE, A FEW (1)	716	4.70%
NONE, A FEW (1)	1554	10.20%	SOME (2)	3583	23.60%
SOME (2)	5793	38.10%	MOST, ALL (3)	4683	30.80%
MOST, ALL (3)	1623	10.70%			
FRD MAR					
NONE, A FEW (1)	1851	12.20%			
SOME (2)	5209	34.30%			
MOST, ALL (3)	1894	12.50%			
FRD ALC					
NONE, A FEW (1)	651	4.30%			
SOME (2)	2201	14.50%			
MOST, ALL (3)	3883	25.50%			
			TOTAL	8982	59.10%
			MISSING	6218	40.90%
			TOTAL	15200	100.00%

APPENDIX C

Bivariate Correlations

Cigarette Use

Table 17. Bivariate Correlations of Cigarette Use on Selected Independent Variables, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Variables	1	2	3	4	5	6	7	8	9	10
1. Cigarette Use										
Pearson Correlation	1	-0.172*	-0.039*	-0.131*	-0.088*	-0.177*	-0.030*	-0.008	-0.167*	0.285*
2. Perceived Average Grade										
Pearson Correlation	-0.172*	1	0.091*	0.165*	0.451*	-0.145*	0.145*	0.082*	0.150*	-0.070*
3. Life Satisfaction										
Pearson Correlation	-0.039*	0.091*	1	0.196*	0.074*	0.004	0.012	0.022*	0.088*	0.006
4. Enjoyment of School										
Pearson Correlation	-0.131	0.165*	0.196*	1	0.126*	0.068*	0.075*	0.007	0.131*	-0.055*
5. Self School Ability										
Pearson Correlation	-0.088*	0.451*	0.074*	0.126*	1	-0.105*	-0.019*	0.067*	0.099*	0.014
6. Black										
Pearson Correlation	-0.177*	-0.145*	0.004	0.068*	-0.105*	1	0.063*	-0.268*	0.122*	-0.175*
7. Female										
Pearson Correlation	-0.030*	0.145*	0.012	0.075*	-0.019*	0.063*	1	-0.034*	0.080*	-0.040*
8. Parent's Present in the Household										
Pearson Correlation	-0.008	0.082*	0.022*	0.007	0.067*	-0.268*	-0.034*	1	0.065*	0.006
9. Religious Service Attendance										
Pearson Correlation	-0.167*	0.150*	0.088*	0.131*	0.099*	0.122*	0.080*	0.065*	1	-0.153
10. Peer Substance Use										
Pearson Correlation	0.285*	-0.070*	0.006	-0.055*	0.014	-0.175*	-0.040*	0.006	-0.153*	1
N	13608	12970	10793	5871	12221	10211	12963	13221	10365	7711

* Correlation is significant at the 0.05 level (2-tailed)

Alcohol Use

Table 18. Bivariate Correlations of Alcohol Use on Selected Independent Variables, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Variables	1	2	3	4	5	6	7	8	9	10
1. Alcohol Use										
Pearson Correlation	1	-0.098*	-0.019*	-0.116*	-0.033*	-0.186*	-0.071*	0.019*	-0.155*	0.385*
2. Perceived Average Grade										
Pearson Correlation	-0.098*	1	0.091*	0.165*	0.451*	-0.145*	0.145*	0.082*	0.150*	-0.070*
3. Life Satisfaction										
Pearson Correlation	-0.019*	0.091*	1	0.196*	0.074*	0.004	0.012	0.022*	0.088*	0.006
4. Enjoyment of School										
Pearson Correlation	-0.116*	0.165*	0.196*	1	0.126*	0.068*	0.075*	0.007	0.131*	-0.055*
5. Self School Ability										
Pearson Correlation	-0.033*	0.451*	0.074*	0.126*	1	-0.105*	-0.019*	0.067*	0.099*	0.014
6. Black										
Pearson Correlation	-0.186*	-0.145*	0.004	0.068*	-0.105*	1	0.063*	-0.268*	0.122*	-0.175*
7. Female										
Pearson Correlation	-0.071*	0.145*	0.012	0.075*	-0.019*	0.063*	1	-0.034*	0.080*	-0.040*
8. Parent's Present in the Household										
Pearson Correlation	0.019*	0.082*	0.022*	0.007	0.067*	-0.268*	-0.034	1	0.065*	0.006
9. Religious Service Attendance										
Pearson Correlation	-0.155*	0.150*	0.088*	0.131*	0.099*	0.122*	0.080*	0.065*	1	-0.153*
10. Peer Substance Use										
Pearson Correlation	0.385*	-0.070*	0.006	-0.055*	0.014	-0.175*	-0.040*	0.006	-0.153*	1
N	14335	13667	11642	6873	12905	10797	13677	13931	10913	8636

* Correlation is significant at the 0.05 level (2-tailed)

Marijuana Use

Table 19. Bivariate Correlations of Marijuana Use on Selected Independent Variables, National Sample of Twelfth Grade Adolescents, 2003, N = 15,200.

Variables	1	2	3	4	5	6	7	8	9	10
1. Marijuana Use										
Pearson Correlation	1	-0.156*	-0.048*	-0.127*	-0.051*	-0.063*	-0.085*	-0.032*	-0.188*	-0.048*
2. Perceived Average Grade										
Pearson Correlation	-0.156*	1	0.091*	0.165*	0.451*	-0.145*	0.145*	0.082*	0.150*	-0.070
3. Life Satisfaction										
Pearson Correlation	-0.048*	0.091*	1	0.196*	0.074*	0.004	0.012	0.022*	0.088*	0.006
4. Enjoyment of School										
Pearson Correlation	-0.127*	0.165*	0.196*	1	0.126*	0.068*	0.075*	0.007	0.131*	-0.055*
5. Self School Ability										
Pearson Correlation	-0.051*	0.451*	0.074*	0.126*	1	-0.105*	-0.019*	0.067*	0.099*	0.014
6. Black										
Pearson Correlation	-0.063*	-0.145*	0.004	0.068*	-0.105*	1	0.063*	-0.268*	0.122*	-0.175*
7. Female										
Pearson Correlation	-0.085*	0.145*	0.012	0.075*	-0.019*	0.063*	1	-0.034*	0.080*	-0.040*
8. Parent's Present in the Household										
Pearson Correlation	-0.032*	0.082*	0.022*	0.007	0.067*	-0.268*	-0.034*	1	0.065*	0.006
9. Religious Service Attendance										
Pearson Correlation	-0.188*	0.150*	0.088*	0.131*	0.099*	0.122*	0.080*	0.065*	1	-0.153*
10. Peer Substance Use										
Pearson Correlation	0.291*	-0.70*	0.006	-0.055*	0.014	-0.175*	-0.040*	0.006	-0.153*	1
N	14584	13935	11852	6956	13164	10981	13944	14214	11127	8788

* Correlation is significant at the 0.05 level (2-tailed)