ABSTRACT

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STRAIN EXPERIENCED IN PRISON AND ITS IMPACT ON PERCEPTION OF THE PRISON ENVIRONMENT AND THE RATE OF RECIDIVISM

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Agnew's General Strain Theory (GST) is unique in that it emphasizes individual relationships and focuses on negative relationship at the individual level. It claims that if people are not treated the way they want to be treated, then that will generate negative emotions, which would in turn lead to crime. Originally designed to explain adolescent delinquency and adolescent drug use, majority of empirical work testing GST has been done on juvenile populations. Using a sample of incarcerated adult males, this study examines the relationship between strain experienced while incarcerated and the inmates' perception of the prison environment, as well as its impact on recidivism. The present study uses secondary data from the "Experimental Study of the Maryland Correctional Boot Camp for Adults." OLS indicates that there is a weak relationship between strain and perception of the prison environment; while a logistic regression reveals no relationship between strain and recidivism.

STRAIN EXPERIENCED IN PRISON AND ITS IMPACT ON PERCEPTION OF
THE PRISON ENVIRONMENT AND THE RATE OF RECIDIVISM

By

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Chapter 1: Introduction

In the mid 1970s strain theory came under heavy attack and traditional strain theories fell out of favor due to the lack of empirical support. Since then, strain has been reformulated into a theory of broader scope (Paternoster and Mazerolle, 1994). With the publication of a new strain theory in 1992, Robert Agnew was able to peak the interest of those in the field. With the introduction of Agnew's General Strain Theory (GST), came a revitalized interest in strain theories. He based his work on previous strain theories developed by Merton (1938), Cohen (1955), Cloward and Ohlin (1960), as well as stress research in psychology and sociology (Thoits, 1995). Agnew (1992) believed that strain theory had a central role to play in the explanation of crime/ delinquency, and with that, he presented the outline for a general strain theory of crime and delinquency.

General strain theory is unique in that it emphasizes individual relationships and focuses on negative relationships at the individual level. Written at the social-psychological level, the focus is on the individual and his or her immediate social environment. Described as being the most original and complete of the strain theories, and having a solid conceptual basis (Froggio, 2007), this new version of strain theory has tried to "overcome the inconsistencies that have plagued traditional strain theories, while remaining true to the underlying argument that strain lies at the root of delinquent/criminal behavior" (Broidy 2001:9). Primarily concerned with types of strain rather than sources of strain (Agnew 1992), GST postulates that strains and stressors increase the possibility of negative emotions such as anger and frustration, which in turn

forces pressure for curative action. Crime is one possible response to these emotions (Agnew 2001).

GST builds on previous strain theory in a number of ways and points to new categories of strain. The theory suggests that strain arises from *the actual or anticipated failure to achieve positively valued goals- goal blockage,* not simply the goal of wealth attainment which is postulated in earlier strain theories (Merton, 1938) but also the failure to achieve justice. Strain could also occur due to *the actual or anticipated presentation of negative stimuli*, such as physical assault or verbal insult. And finally, Agnew asserts that strain could be caused by *the actual or anticipated removal of positively valued stimuli*, such as the death of a close friend or the loss of a romantic partner are examples of this a category of strain. (Agnew 1992; 2001)

While GST has undoubtedly added greatly to our understanding of crime and delinquency, there still appears to be a gap in the literature. The theory was originally designed to explain adolescent delinquency and adolescent drug use. Therefore, most of the empirical work testing GST has focused on juveniles (Agnew and White, 1992; Paternoster and Mazerolle, 1994; Hoffman and Miller, 1998; Mazerolle, 1998; Hoffman and Cerbone, 1999; Piquero and Sealock, 2000; Aseltine, Gore and Gordon, 2000; Agnew, 2002; Hay, 2003; Thaxton and Agnew, 2004; Piquero and Sealock, 2004; Spano, Rivera and Bolland, 2006; Preston, 2006; Hay and Evans, 2006; Froggio and Agnew, 2007 and Neff and Waite, 2007). Other scholars have focused their empirical work on GST around young adult populations[1] (Broidy, 2001; Eitle, 2002; Eitle and Turner, 2003;

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[1] Defined by Susan Jakielek and Brett Brown in "The Transition to Adulthood: Characteristics of young adults 18-24 in America," as being between the ages of 18-24, The Annie E. Casey Foundation, Population Reference Bureau, and Child Trends, May 2005

Mazerolle, Piquero and Capowich, 2003; Sharp, Brewster and Love, 2005 and Johnson and Kercher, 2007). Surprisingly however, very little empirical research in criminology has examined GST using adult populations (Jang and Johnson, 2003; Langton and Piquero, 2007; and Slocum, Simpson and Smith, 2005) and none thus far has looked at an incarcerated adult population.

This gap in the literature opens the potential for questions to be asked as to whether GST is supported in research that uses other samples, especially those drawn from groups that are involved in more serious, chronic crimes (Meldrum and Hay, 2006); could GST be relevant to an adult incarcerated population? With this in mind, one could assume that prison provides a captive audience for testing general strain theory.

With the lack of diversity in sampling populations in empirical assessments of GST; this study has a unique opportunity to test GST on a population that has not been commonly studied - adult incarcerated males. While Agnew's (1992) guidelines for testing the theory focused on adolescent populations, he qualified this by pointing to the fact that at the time most of the available data sets capable of testing GST involved surveys of adolescents. Certainly research in the field and data collection has come a far way and gone beyond the adolescent population. However, it is still noticeably obvious how few studies on GST have been done with adult populations and even fewer with incarcerated adult populations. This gap now allows for the possibility of a whole new era of research on GST with regard to prison populations.

This study not only has the unique opportunity to test GST using a sample of incarcerated adult males; but it will also extend the use of the theory. The study will

examine perception of the prison environment; a phenomenon that is not normally explained using GST. Could it be that inmates who experience more strain in prison have a more negative perception of the prison environment and hence possibly not benefitting from the programs provided by the correctional system? Or can we assume that strain experienced in prison has absolutely no impact on perception of the prison environment.

Finally, the study will serve as a partial test of GST, looking at the impact of strain experienced in prison on the rate of recidivism. Meldrum and Hay (2006) suggest that, "in a time where the recurring theme is that "nothing works," concern over the psychological well-being of inmates has taken a back seat to policies based on models of incapacitation and risk management profiling." Despite this approach, we continue to see many individuals commit subsequent crimes following their term of incarceration. One potential explanation for this "revolving door" may be the prison environment itself. In short, it is reasonable to consider that the experience of being incarcerated presents inmates with conditions that foster certain types of strain that contribute to, rather than deter, future criminal behavior (Meldrum and Hay, 2006).

With the growth in the prison population in the United States, the criminal justice system and scholars face the predicament of not only how to control this population but also how to serve it in a manner that can ensure that the same people who are currently incarcerated will not return to prison shortly after release. The study will be an opportunity to merge theory with corrections, looking at a problem while incarcerated and not simply before or after incarceration; surely having some policy implications whatever the direction of the relationship.

The Present Study

A brief review of the literature reveals that no one has yet determined the usefulness of GST for explaining the criminal behavior for incarcerated adult males. There is little evidence to date to suggest that empirical research has used GST in exploring the relationship between strain experienced in prison and its impact on perception of the prison environment and recidivism. This study attempts to establish two things. First, the study is an extension of GST, looking at the impact of strain experienced in prison on inmate's perception of the prison environment. Second, as is evidenced with the lack of diversity among study populations to test GST, this study has a unique opportunity to partially test GST to see if it operates as Agnew suggested among a group of incarcerated adult males. The study tries to establish if there is a relationship between strain experienced in prison and recidivism. It makes use of data from the first truly experimental study (McKenzie, Mitchell, Bierie, Brakle, O'Neill, Franke, & Mitchell, 2004) completed in the context of a correctional boot camp for adult males and examines strains from two of the three types of strain discussed by Agnew (1992) *the removal of positively valued stimuli* and *the presentation of negative stimuli,* looking more specifically at the impact of *criminal victimization* while incarcerated.

Chapter 2 is divided into three sections. The first section is a brief overview of GST. Being the focus of this study, the section will discuss GST's unique characteristics. The second section will focus on the prison environment in an effort to shed some light on life inside prison and will help us to determine to what extent this is a strain-induced environment. The argument being postulated is that the prison environment is a strained one which can affect the incarcerated male inmates' perception of the prison environment

as well as recidivism rates. The third section investigates how GST has been studied in the past, paying particular attention to the study samples utilized. It summarizes empirical studies relevant for establishing the basis for this thesis.

Chapter 3 defines the methodological approaches employed in this study. The thesis is a quantitative study and uses a multivariate regression analysis approach. Perception of the prison environment and recidivism will act as the dependent variables and self-reported measures of strain experienced in prison are used as the independent variables. Chapter 4 reveals the results of the study and analysis of the data. Finally, in Chapter 5, I summarize the results, draw conclusions and discuss the limitations of the study.

Chapter 2: Review of the Relevant Literature

The literature review focuses on three general areas. The review starts off with a conceptual framework which gives an overview of general strain theory, looking at the types of strain discussed by Agnew (1992) and the types of strain most likely to lead to crime. The review then focuses on defining the prison environment and life in prison, looking at what makes this environment a unique, yet appropriate environment for testing GST. This chapter will end with a review that examines the scholarly work on general strain theory, paying special attention to the populations that have been studied over the last couple decades.

Conceptual Framework

Classic strain theories (Merton, 1938; Cohen, 1955; Cloward & Ohlin, 1960) of the first half of the twentieth century argued that delinquency resulted from the blockage of goal-seeking behavior and with the failure to achieve valued goals individuals became frustrated and turned to delinquency as a result (Agnew, 1985). Not supported in empirical studies, interest in the theories declined. In response to criticisms of the theories, Agnew (1985) attempted to revise strain theory, proposing another major source of frustration and delinquency, the *blockage of pain-avoidance behavior*. The idea was that adolescents were forced to stay in certain environments (family and school) and if these environments were aversive or painful, there was very little adolescents could do to escape legally. This he argued would lead to frustration and illegal escape attempts or anger-based delinquency. This hypothesis was tested using a national sample of

adolescent boys. Using path analysis to test the model, controlling for social control and subcultural-deviance[2], he found that location in aversive school and family environments had a direct effect on delinquency and an indirect effect through anger. He also found that adolescents who were located in an aversive environment from which they could not escape were more likely to be delinquent. With traditional strain theories receiving very weak support, Agnew argued that this data suggested a new direction for the development of strain theory. However, due to the lack of empirical evidence and the inability to explain facts of crime, classic strain theory fell out of favor in 1970s and 1980s.

In 1992, Agnew proposed a general theory of crime that he believed could explain all types of crime among all groups of people- General Strain Theory (GST). He believed that this new strain theory of crime would be capable of "overcoming the criticisms of previous strain theories" (Agnew, 1992: 47). GST's basic assumption was that strain and stressors increased the likelihood of negative emotions like anger and frustration, creating pressure for corrective action, with crime being one possible response (Agnew 1992). The theory specifies the relationship between strain and delinquency, pointing to the fact that strain is likely to have a cumulative effect on delinquency after a certain threshold level is reached. GST describes those factors affecting the choice of delinquent versus nondelinquent adaptations and it provides a more comprehensive account of the cognitive, behavioral, and emotional adaptations to strain. GST helps us to understand why many strained individuals do not turn to delinquency. It is argued that some adolescents commit to legitimate means to achieve

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[2] This is because part of the direct effect of aversion on delinquency may be due to the fact that aversion causes or is correlated with low social control and deviant belief.

their goals, while others chose not to. And last but not least GST points to several sources of strain, in particular focusing on three categories of strain (Agnew 1992).

Types of Strain

Agnew's (1992) GST significantly broadens the concept of strain beyond that produced by the discrepancy between aspirations and expectations, to encompass several sources of stress or strain. Agnew believed that crime and delinquency were an adaptation to stress, whatever the source of that stress (Akers, 2000). With that in mind he identifies three major types of deviance-producing strain: the failure to achieve positively valued goals, the removal of positively valued stimuli, and the presentation of negative (noxious) stimuli.

Failure to Achieve Positively Valued Goals

Failure to achieve positively valued goals includes three subtypes. First is the traditional concept of strain as the disjunction between aspirations and expectations, which encompasses most of the strain theories in criminology. Agnew expanded this not only to include ideal or future goals, but more current goals. This version of strain theory, continued to argue that strain stems from the inability to achieve certain ideal goals emphasized by the (sub) cultural system. The second subtype was the disjunction between expectation and actual achievement, which leads to anger, resentment and rage in attempt to reduce the gap between expectations and actual achievement. The third subtype, results from a disjunction between what one defines as a fair and just outcome and the actual outcome. This subtype assumes that individual goals focus on the achievement of specific outcomes which are compared to the outcomes of specific others. If outcomes are viewed as equal to one another, then the situation as defined as fair and

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just. However, if the outcomes are viewed as not being equal, then the outcomes are viewed as being unjust (Agnew 1992: 51-56).

Removal of Positively Valued Stimuli

The second type of strain refers primarily to the individual's experiences with stressful life events (Akers, 2000). According to Agnew (1992) this may be caused by the actual or anticipated removal of positively valued stimuli from the individual. This could include the loss of something or someone that is valued, for instance, the loss of a boyfriend/girlfriend, the loss of friends due to relocation, or the anticipated or actual loss of employment. This may lead to delinquency as the individual "…tries to prevent the loss of the positively valued stimuli, retrieve the lost stimuli or obtain substitute stimuli, seek revenge against those responsible for the loss, or manage the negative affect caused by the loss by taking illicit drugs" (Agnew 1992: 57-58).

Presentation of Negative Stimuli

The third type of strain assumes that the individual comes in contact with and is unable to escape legally from noxious stimuli (Agnew 1992). It is a set of stressful life events that involve the individual's confrontation with negative actions by others (Akers 2000). For an adolescent, noxious stimuli may include exposure to sexual or physical child abuse, victimization by others or other adverse experiences. It is believed that noxious stimuli may lead to delinquency as a result of the individual (1) attempting to escape from or avoid the negative stimuli, (2) trying to terminate or alleviate the negative stimuli: (3) seeking revenge against the source of the negative stimuli or related target; and (4) attempting to manage the negative affect by taking illicit drugs (Agnew 1992: 58-59).

According to Agnew (1992), although these three types of strain are theoretically distinct from one another, they may sometimes overlap with each other when trying to understand causes of crime and delinquency. It is believed that the three types of strain should have a cumulative effect on delinquency. Strain increases the chance that individuals will experience negative emotions, with anger being especially important for GST. These negative emotions create pressure for corrective action, and delinquency is one possible response. Delinquency may be a method for alleviating strain, that is, for achieving positively valued stimuli, for protecting or retrieving positive stimuli, or for terminating or escaping from negative stimuli. Delinquency may occur as adolescents try to manage their negative affect through illicit drug use (Agnew & White 1992).

Link between Strain and Delinquency

Agnew (1992) argued that the three types of strain discussed above increase the likelihood that individuals will experience one or more of a range of negative emotions, including, disappointment, depression, fear, and anger. Anger however, was thought to be the most critical emotional reaction for the purposes of the GST which Agnew believed results when individuals blame their misfortunes on others. Anger is described as the main emotion because it increases the individual's level of felt injury, creates a need for retaliation/ revenge, boosts the individual towards action, and lowers the inhibitions because the individual believes that others will feel their aggression is warranted. Experiencing negative emotions leads people to attempt to resolve the issues causing these emotions and, delinquency is viewed as one possible response. Agnew believed that delinquency may be one way to ease strain, in order to achieve positively valued goals, retrieve positive stimuli or for escaping from negative stimuli. In other words

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experiencing strain may create a "predisposition for delinquency or function as a situational event that instigates a particular delinquent act" (pp.60). Agnew believed that strain had a cumulative effect on delinquency after a certain threshold level has been reached (pp. 74).

Dimensions of Strain

A key issue in strain research is how we effectively determine the impact of a strained situation. Agnew (1992: 64) explains that the stress and equity literature suggests that adverse events are more influential to the extent that they are (1) greater in magnitude or size, (2) recent, (3) of long duration, and (4) clustered in time.

The *magnitude* of an event is suggested to have different meaning depending on the type of strain being examined. When we are considering the presentation of noxious stimuli as the type of strain to be examined, magnitude refers to the amount of pain or discomfort inflicted. There is however a different meaning of magnitude when we are referring to goal blockage. In such situations, magnitude refers to the size of the gap between one's goals and reality. And finally, with respect to loss of positive stimuli, magnitude refers to the amount that was lost.

Recency is also seen as a crucial aspect in determining the impact of a strained situation that an individual might experience. It is the idea that better conceptual clarity is obtained from the recent past. This idea of recency is closely related to the issue of causal ordering[3] and the use of an appropriate time lag, and Agnew (1992) suggests that researchers should consider the effect of recency when trying to establish a relationship between a strained situation and crime and delinquency. Avison and Turner (1988) in

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[3] The basic idea is that the cause must precede the effect.

their research argued that recent events are indeed more consequential than older events. That is, events older than three months have little effect on outcome measures. However, Avison and Turner's data focused on stress and depression, and may not be generalizable to the strain-delinquency relationship (Agnew, 1992: 65).

Duration, another key issue, refers to the length of time an individual experiences a strained situation. Agnew (1992) drawing on the equity and stress literature postulated that events of extended duration (chronic stressors) will have a more severe impact on a variety of negative psychological outcomes. Interestingly however, was the argument that isolated negative events may be unimportant in determining criminal behavior, but rather what was a determining factor were chronic stressors that would eventually lead to negative outcomes.

Clustering is another dimension of strain has been discussed in the stress literature. Data from the stress literature suggested that events that are closely clustered in time have a greater effect on negative outcomes (Thoits, 1983). Agnew (1992) supported this claim and argued that strained events clustered in time will have a greater effect on criminal behavior than stressful events that are more evenly dispersed.

Coping Mechanisms

A major argument for strain is that only some strained individuals turn to delinquency. Agnew (1992) argued that the effect of strain on an individual is determined to some extent by the coping mechanisms available to that individual, indicating that, not all coping mechanisms are equally available to everyone. Individuals have constraints that limit their ability to access nondelinquent and delinquent mechanisms. Constraints may be internal, such as goals and values, or external such as social support systems.

Agnew (1992) believes that the major adaptations to strain include cognitive, emotional and behavioral coping strategies. Cognitive coping strategies are based on individuals cognitively reinterpreting objective stressors in ways that minimize their subjective adversity. Cognitive coping strategies have three general strategies: ignoring or minimizing the importance of adversity; maximizing positive outcomes or minimizing negative outcomes; and accepting responsibility for harsh conditions. Emotional coping strategies involve individuals directly acting in response to the negative emotions that have resulted from their adversity, such as using drugs as a stimulant and depressant and physical exercise in an effort to reduce or alleviate negative emotions rather than cognitively reinterpreting the situation. The third type of coping mechanism is a behavioral coping strategy, further broken down into two major types of behavioral coping: those that try to find a way to minimize or eliminate the source of strain which could include both conventional or delinquent behaviors; and those that seek to satisfy the need for revenge, which may also assume conventional or delinquent behaviors.

Types of Strain most likely to Lead to Crime

Agnew (2001) argues that researchers have little guidance in selecting the types of strain most likely to lead to crime and makes a suggestion when it comes to selecting among the hundreds of types of strain. He believes, strains that are most likely to lead to crime when they (1) are seen as unjust, (2) are viewed as high in magnitude, (3) are associated with low social control, and (4) create some pressure or incentive to engage in criminal coping. Considering these four characteristics Agnew (2001) suggested a list of strains that will be highly associated with crime. These include: the inability to achieve core goals, which are in turn easily achieved through crime, but are not the product of

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conventional socialization; child neglect and abuse; negative secondary school experiences; work in secondary labor market; homelessness, especially youth homelessness; criminal victimization; abusive peer relations; prejudice and discrimination; parental rejection; and poor erratic parenting. Agnew went further to suggest how one can test the above arguments, by either: examining the effect of selected types of strains on crime or, by looking at the cumulative measures of strain on crime. Both of which will be employed in the current study.

In summary, GST has not only expanded traditional strain theory but has also added new types of strain to the explanation of crime. General strain theory more precisely specifies the relationship between strain and delinquency, explaining that strain is most likely to have a cumulative effect on delinquency after a certain threshold level has been reached. Agnew takes the theory a step further by pointing out the key dimensions of strain that should be considered when testing GST empirically. The theory also provides a more comprehensive account of coping mechanisms that are utilized when people find themselves in strain inducing situations. This helps us to understand more clearly why some individuals do not turn to crime. This can be considered a major contribution of the theory. General strain theory also helps us to understand those factors which will determine whether individuals engage in delinquent versus nondelinquent adaptations to strain.

Prison Environment

Describing the prison environment is important as justification for the current study. The focus will be on earlier researchers whose work fit more appropriately with the argument being proposed here.

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Research on the prison environment started in the early 1930s, with the work of Hans Reimer who voluntarily served three months in prison as a participant-observer in an effort to examine the prison environment. Since then a number of studies have been conducted trying to understand the prison environment. These studies include: Clemmer's (1940) *The Prison Community;* Sykes' (1958) *Society of Captives;* Cloward and Cressey's (1958) *Theoretical Studies in the Social Organization of the Prison;* an edited volume by Cressy's (1961) *The Prison: Studies in Institutional Organization and Change;* and Goffman's (1961) *Total Institutions.* While these works focused mainly on maximum security prisons for men they are still very important in our understanding of the prison environments today.

The prison environment is argued to have two social realities that coexist (Schmalleger, 2004). The first is an official structure of procedures and rules implemented by the wider society and enforced by prison staff. The second is a more informal but more powerful inmate world. In 1940, Clemmer's treatise, *The Prison Community* opened our eyes to the possibilities of such realities. Clemmer argued that the prison was a world in and of itself, and prisoners developed ways in which to modify their behavior in order to fit and adapt. The prisonization models put forward by Clemmer argued that convict's values, attitudes, roles and even language were learned. There was an attempt in his work to understand the impact that personal and environmental characteristics of incarcerated populations had on inmate misconduct and recidivism. Following on his previous discussions, a decade later, Clemmer (1950) argued that the socialization process that inmates experienced inside prisons may in fact teach them more elaborate methods of law breaking, making the argument for a possible

connection between prisonization and parole violation and recidivism, suggesting that imprisonment might be a source of criminality.

In the sociology of prisons there was an ongoing debate about the importation and deprivation models. The importation model argued that prisoner subcultures and adaptations were primarily influenced by what the prisoner brought into the institution. By contrast, the deprivation model argued the development of inmates' subcultures and adaptation to prison was out of a response to what Sykes (1958) called *pains of imprisonment*- those things the inmates were deprived of while incarcerated. The general consensus on the debate was that both influenced prisoner adaptation.

Relating more closely to the argument of this thesis is the work of Gresham M. Sykes. In his 1958 book *The Society of Captives*, Sykes presented the idea of "pains of imprisonment," which can be paralleled to Agnew's (1992) discussion of the "removal of positively valued stimuli." While this study was conducted decades ago one could easily imagine such pains or strains existing in our prisons today. *Deprivations of liberty*, the first described by Sykes is certainly the most obvious in a prison environment, the prisoners must live in a world considerably smaller than the one they came from and within this environment their movements are further constrained. *Deprivation of goods and services* can be a real strain on prison inmates. While there is certainly difficulty to compare the standard of living in the free world with that of the prison environment and while some might argue that some are better off inside than out, we cannot ignore that this can potentially be a strain- inducing stimuli. Within the prison walls one loses the freedom to get what they want, when they want it and how they want it. *Deprivation of heterosexual relationships* was also recognized by Sykes as a pain of imprisonment.

Another pain included the *deprivation of autonomy*. Within the prison environment the inmate is subjected to a substantial body of rules and regulations which are intended to control his behavior in minute details. The inmate's self-determination is persistently withheld, such as hours of eating and sleeping, hours of outdoor time, time spent on a phone conversation and even the language used in letters are largely determined by the prison staff.

Finally, Sykes (1958) discusses the *deprivation of security*, where individuals are compelled to live in a situation with other men who in some cases have a long history of violence and aggressive behavior. This he believed could be anxiety-producing for any inmate, even the hardened recidivist. Not only is there anxiety due to the aggression and exploitation, but also such behavior constantly forces the inmate to question whether or not he is competent enough to cope with the situation on his own or in terms of his own inner resources. Sykes also believed that many of the psychological effects of modern prison were even more brutal than the physical cruelties of the past. The trauma of being designated one of the very worst human beings in the world leaves prisoners with lifelong scars. It also inspires solidarity among prisoners and fierce resistance to authorities as strategies for rejecting those who have rejected them. He argued that the stronger the bonds among prisoners, the more difficult it was for prison guards to run the prisons without finding ways of "accommodating" the prisoners.

A few years later, Sykes and Messinger (as cited in Cloward and Cressy, 1960) examined the system of social relationships as found in American prisons. They believed that despite the diversity of prison populations, there was one strikingly pervasive value system that embodied the inmate social system, which included five codes. The first

stressed that inmates should never interfere with the interest of another inmate, or in more layman terms *"never rat on a con."* The second stressed that inmates should play it cool and never lose their heads. The third warned never to exploit inmates, don't steal and don't break your word. The fourth stressed that inmates should never whine and the fifth, that inmates should never trust the guards and staff. In other words *"don't be a sucker."* If codes were violated, this could produce sanctions ranging from ostracism and avoidance to physical violence and homicide. Such maxims and attempts to adhere to them could certainly cause tension, anxiety, fear and even anger among members of a prison environment; emotions which Agnew (1992) defined as negative affective states.

The prison environment is a continually dynamic interaction of prisoners, prison staff, and the physical and social context within which the prisoners are placed. In 1999, Bottoms investigated the issue of *Interpersonal Violence and Social Order in Prisons*. He examined violence that took place in the everyday framework of the prison's social order, looking at prisoners assaulting prisoners and prisoners assaulting staff members. In order to situate his work he points out that "prisons are special places, with a special kind of social organization in at least six senses" (pp.207). Interestingly, Bottoms adapts ideas from earlier works to define his six descriptors of the prison environment. Like Goffman (1961), Bottoms believed that prisons are indeed total institutions. Secondly, he argued that unlike some total institutions, prisons are punitive establishments. Third, Bottoms proposed that within prisons there is a special internal organization of both space and time, having routine activities taking place in scheduled places and at scheduled times. This led to his fourth point that the structured repetition of daily routines is central to the prison's nature as an institution, having a more obvious daily routine than other social

institutions. But he is careful to bring in human agency, pointing to the fact that while this routine exists people are not automatons and therefore at times routines will be disliked and rebelled against by those who are subjected to them. Fifth, there is a complex issue of staff-prisoner relationships.

Adapting the ideas of Sykes (1958), Bottoms (1999) believed that being in constant interaction with others in a confined space, for an extended period of time, will eventually lead to the prison becoming a caste-like social system, with two main sets of players: the captives and the captors. This creates some level of difficulty for prison staff who are given the responsibility of making certain that the business of the prison day follows a smooth and orderly progression, and that the daily routines are adhered to. Finally, the author makes the obvious observation, which is often overlooked by many, that prisons by their nature are restricted geographical locales. Prison walls he argued do not simply surround those people who are there at a given moment, but rather the wall contains a whole history. These descriptors encompass in some sense Agnew's three types of strains.

The works discussed above are particularly relevant to a discussion of Agnew's GST among a sample of incarcerated adult males. The prison environment and the process involved in the creation of a prison subculture (prisonization) can be a source of strain for many. The prison environments as described in earlier works clearly overlap with the concepts of GST. The work presented by Sykes (1958) fits nicely into Agnew's discussion of the removal of positively valued stimuli. The work of Sykes and Messinger (1960) corresponds with Agnew's discussion of presentation of negative stimuli. And the

work of Bottoms (1999) parallels with Agnew's presentation of negative stimuli as well as removal of positively valued stimuli.

Empirical Framework

Having discussed the major premise of GST and looked at the prison environment and the possible link with GST, this section of the literature review will focus particularly on the populations used to test GST to date. The section will attempt to reinforce the argument proposed earlier, that too few studies on GST thus far have examined adult incarcerated populations, opening up the possibility of a host of questions as to whether or not GST is supported in other populations. The argument for this study is that GST has not been adequately tested in adult populations and even less so in incarcerated adult populations. This study will have an opportunity to add to the literature on GST in a meaningful way, testing GST in an adult incarcerated male population.

GST tested among adolescent populations

GST's original purpose was to explain adolescent deviant behavior and drug use and as such much of the literature on GST has focused on this population. Strain theories suggest that delinquency is an adaptive, problem- solving behavior, carried out in response to problems involving frustrating and undesirable social environments (Brezina, 1996). Agnew's revitalized version of strain theory, argues that delinquent behavior helps adolescents to cope with the socioemotional problems caused by negative social relations (Brezina, 1996). Much of the literature on GST has attempted to establish this relationship within the adolescent population, with earlier studies focusing mainly on the relationship between various forms of strain and delinquent outcomes (Agnew & White,

1992; Paternoster & Mazerolle, 1994; Brezina, 1996; Aseltine, Gore & Gordon, 20000; Agnew et. al., 2002; Baron, 2004; Hoffman & Ireland, 2004).

Since its inception in 1992, Agnew's GST has garnered much support from research conducted to test the hypothesis that strain is related to involvement in delinquency. In the initial test of GST conducted by Agnew and White (1992), there was strong support for the hypothesis. Agnew and White (1992) used a sample of 1, 380 New Jersey adolescents to test Agnew's (1992) GST of crime and delinquency. The data analysis was based on the wave 1 and wave 2 data of the Rutgers Health and Human Development Project (HHDP), a longitudinal study focusing on alcohol and drug use. The study attempted to make two predictions: that strain variables would have a positive effect on delinquency and drug use and; the effect of strain on delinquency/ drug use would be conditioned by delinquent friends and self-efficacy. Described as the "most definitive test to date," (Paternoster, 1994) the study provided solid support for the general strain theory of delinquency. The analysis revealed that strain measures of the type described in GST had a relatively substantial effect on delinquency and a moderate effect on drug use (Agnew and White, 1992). The study found that the effect of the strain variables was comparable to that of social control variables. Agnew and White (1992) also explored the interaction with delinquent friends and self-efficacy and found that the interaction with delinquent friends was particularly important, pointing to the fact that adolescents with delinquent friends were much more likely to react to strain by engaging in delinquent acts and drug use.

Two years later, Paternoster and Mazerolle (1994) presented a replication and extension of GST. They also focused on an adolescent population ranging from 11- 17

years, taken from the National Youth Survey (NYS), a longitudinal study of the

correlates of delinquency and drug use. In their attempt to conduct a more comprehensive

test of GST, the authors examined: 1) the relationship between general strain, social

control/differential association variables, and measures of prior and subsequent

involvement in a wide range of delinquent acts; 2) whether or not strain had a more

obvious effect if it was experienced over a long period of time (duration) and a less

pronounced effect when respondents were able to cope with strain by reducing its

importance; 3) the possibility that various obstacles to delinquent and nondelinquent

responses might interact with experiences of strain and; 4) a preliminary causal model

linking general strain with social control, associations with delinquent peers, and

delinquent behavior. Using data collected from the first and second wave of the NYS, the

cross- sectional analysis from the final sample of 1, 525 adolescents provided partial

support for GST. The research found that negative relationships with adults, feelings of

dissatisfaction with friends and school life, and the experience of stressful events were

positively related to delinquency. This was consistent with findings from Agnew and

White (1992). Defined as exposure to negative stimuli, the data also suggested that living

in an unpleasant neighborhood was positively related to delinquency, an indication to the

authors that general strain was significantly related to delinquency. Paternoster and

Mazerolle (1994) however, found no evidence that the effect of strain was increased

when it was experienced for a longer duration or decreased when adolescents defined the

dimensions of their life in which they experienced strain as inconsequential. There was

also no support that obstructions to delinquent or nondelinquent strategies interacted with

strain.[4] Finally, the study found some support that general strain lead to delinquent

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[4] Consistent with Agnew & White (1992), feelings of general strain were positively related to subsequent

involvement by weakening the conventional social bond and strengthening the unconventional bond (with delinquent peers).

Brezina's (1996) study also lends support to the GST hypothesis. The purpose of this study was to determine whether delinquency represented an adaptive and effective problem-solving response to aversive environments, exploring the way/s delinquency may enable adolescents to cope with strain. Brezina (1996) hypothesized that: (1) strain generates negative affect, including feelings of anger, resentment, fear, and despair and; (2) delinquent behaviors reduce the effects of strain on negative affect. To test these hypotheses a cross sectional and longitudinal analysis (employing ordinary least squares regression) was conducted using data from the second and third wave of the Youth in Transition (YIT) survey. This data was based on a nationally representative sample of 1, 886 male public high school students from wave two and 1, 799 from wave three that was collected one year later. The results of the study were consistent with the GST hypothesis. The researcher found that strain led to a range of negative affective states, including feelings of anger, resentment, anxiety, and depression. The results also suggested that delinquency represented a partially successful adaptation to strain. Compared to their nondelinquent counterparts, adolescents who responded to strain with delinquency seem to experience fewer of the negative emotional consequences of strain. The study also revealed that delinquent behavior did seem to have a relationship to a modest relief from strain's effect on anger, resentment, anxiety, and depression. The argument put forward then, was that delinquent behavior allowed adolescents to escape

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delinquency regardless of the level of delinquent peers, delinquent dispositions, moral beliefs, self-efficacy, and conventional social support.

or avoid strain, offset the adverse effects of strain, and/or satisfy desires for retaliation and revenge.

Similar results were obtained by Hoffman and Miller (1998). In an effort not to make the same mistakes as previous studies that had used two-wave panel designs[5], the authors extended their analysis by estimating a latent variable structural equation model that examined the effects of strain on conventional attachment and delinquency over a 3-year period. They also attempted to assess Agnew's hypothesis of delinquency as a coping strategy for strain experienced in society, by stratifying the models by self-efficacy, self-esteem, and peer delinquency. Similar to the studies presented above, their sample consisted of adolescents 11-17, with a mean age of 13.9. The data utilized in this study was taken from 3 years of the Family Health Study (FHS), a longitudinal study designed generally to evaluate how parental psychopathology affected adolescent development and behavior. Making use of an analytic approach that corrects for several of the drawbacks found in previous studies on GST, this study tested four hypotheses drawn from general strain theory, finding support only for the first hypothesis that *greater strain will lead to an increase in delinquent behavior, even after controlling for its effects on conventional attachments*. Hoffman and Miller (1998) found that, "even after accounting for several complex associations among strain, conventional attachments, and delinquent behavior, at least one measure of strain- negative life events- exerts a significant impact by increasing delinquent behavior" (1998: 106). The results however fail to support three of Agnew's coping strategies hypotheses.

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[5] Methods that failed to consider measurement errors and autocorrelated errors (Hoffman and Miller, 1998)

Studies of GST among adolescent populations followed for a decade after, trying to figure out how general GST really was (Piquero & Sealock, 2000; De Coster & Kort-Domains, 2006), attempting to establish if there was in fact a gender difference in GST (Piquero & Sealock, 2004), looking at delinquent adaptations to strain (Mazerolle, Burton, Cullen, Evans & Payne, 2000; Baron, 2004) and still some continue to examine the central hypothesis of GST (Aseltine, Gore & Gordon, 2000).

In an attempt to investigate the generality of GST, Piquero and Sealock (2000) investigated the operation of GST in an offending population. Their major concern was whether GST operated as predicted with a group of delinquent or criminal offenders. Can GST characterize criminal behavior in an offending population? This paper also presented the first empirical analysis regarding the role of coping strategies and resources in conditioning the effect of negative affect on delinquency in an offending population. To conduct this study, researchers used youths ranging from 13 to 18 years with a mean age of 15.8, who entered the juvenile justice system in a Mid-Atlantic state between 1992 and 1994, for a variety of offenses. Data was obtained from interviews conducted by research staff and the analysis consisted of cross-sectional ordinary least squares regressions that estimated the effect of GST- related variables on interpersonal aggression and property offending. Like previous studies they too found supporting results for GST. Overall, there was "promising support for the hypothesized influence of specific forms of negative affect, namely anger, in predicting interpersonal aggression but not for property offending" (Piquero & Seaclock, 2000: 471). However, depression, which was the other measure of negative effect, failed to bring to bear a significant additive effect on either interpersonal or property offending. The interaction effect of each of the five coping

skills- cognitive, emotional, social, physical and spiritual, which were obtained from the Coping Resources Inventory- and each of the two negative affect scales, did not support GST. There was support howevere in two instances where emotional and spiritual coping skills inhibited the effect of depression on property offending. Analysis also showed that the additive effect of strain remained significant even with controls for negative affect, the five coping skills, and several interactions.

Six years later, similar to Piquero and Sealock (2000), De Coster and Kort-Butler (2006) also investigated the generality of GST. Their study attempted to assess how assumptions of determinacy and indeterminacy applied to GST. The proposal that strain theory posits a strong tendency for the domains in which stresses occur to match those in which delinquency takes place- which is considered a source of determinacy by the authors- was tested using cross-sectional data from 388 sixth, seventh and eighth graders at a southeastern middle school. Estimating the substantive and measurement models simultaneously using the maximum likelihood procedures the results revealed support for their argument. The authors set out to test nine hypotheses related to what they called soft-determinacy, which fell under three broad areas. First they proposed three hypotheses which reflected ideas that stresses in one domain (area of life) will influence delinquency in a variety of domains. This was described as a stress-spillover hypothesis, meaning stress in one domain begets stress in secondary domains. Based on their arguments, this then meant that stress in these secondary domains would eventually result in delinquency within these domains. This argument carved a path for the second set of hypotheses, which reflected the idea that the effect of stress in one domain on delinquency in a secondary domain should be mediated largely by the stress within that

secondary domain. The third set of propositions was that aggression displacement and triggered aggression displacement may also lead to indeterminacy in the relationships between stresses and delinquency. Taking note of the psychology literature on aggression, the authors posited that anger should mediate the effects of stress in one domain on delinquency in other domains because individuals who are barred from aggressing against the perceived source of their major stress may take out their aggression on targets in other domains. The findings provided general support for the arguments presented. Specifically it was established that there is a tendency toward indeterminacy, or domain crossover effects, in models that did not control for spillover and/ or aggression displacement and triggered aggression displacement. What also became evident was that stress exerted its strongest effect on delinquency in the same domains as the stresses. However, in support of their general arguments of aggression displacement and triggered aggression displacement, the data suggested that some domain crossover effects in the soft-determinacy models were reduced to nonsignificance when the mediating effects of anger were considered.

Work on GST continued to utilize adolescent populations, and like many researchers before them, Mazerolle, Burton, Cullen, Evans and Payne (2000) continued this trend, using a sample of high school-aged youth, in an effort to examine a number of different delinquent adaptations to strain. Responses from 263 valid questionnaires-which represented 94 percent of 10th and 12th grade high school students in a large metropolitan area- were analyzed using a series of ordinary least squares regressions in order to predict the impact of strain and anger on violence, drug use and school related deviance. Their analysis focused directly on the relationship between exposure to strain,

anger, and delinquent behavior. The authors suggested that they extend the existing

literature on GST in three ways. First, they used data which was collected in the1990s,

thus examining information that was more closely related to the current experiences of

adolescents. Second, the study included anger as a measure, which at that time was

relatively underexplored in previous tests of GST. And finally, the study assessed the

ability of measures derived from GST to predict different types of delinquency, such as

drug use, violence, and school-related deviance. Their basic argument was that GST will

predict involvement in various types of delinquent acts. The results provided mixed

support for GST. The examination of whether exposure to strain was related to

delinquency directly or operating through anger revealed that both anger and strain were

independently related to violence. Subsequent analysis however revealed a contradictory

finding to GST. Anger in fact, did not act as a mediating influence linking strain with

violence; rather what became evident was that anger operated through strain in effecting

violence. The results attempting to predict drug use and school-related violence were

practically identical. Exposure to strain and anger were not related to these outcomes.

Interestingly however, when additional variables were added to the model strain was

related to drug use and school-related deviance but in an opposite direction. This led the

researchers to examine conditioning relationships which revealed results consistent to

predictions derived from GST, that exposure to strain was especially criminogenic when

it occurred with weak social bonds and high levels of exposure to deviant affiliations.

Aseltine, Gore and Gordon (2000), in their empirical study on GST, examined the

central hypothesis of GST using data from a three-wave panel study of high school

youths in the Boston metropolitan area. They attempted to test GST by tracing the

linkages among measures of stressful life events, strained social relationships, anger and anxiety, and deviant behavior. While one might argue that the sources of deviance examined in this study are not unique to GST and are in fact consistent with competing theories such as Hirschi's (1969) control theory, the authors are quick to remind us that Agnew (1995) presented an extensive discussion of the overlap between control, differential association, and general strain theory and points out that the fundamental differences between these theories lies in the mechanisms through which these variables are tied to deviant behavior (p. 262). To examine the four hypotheses and investigate the linkages among the measures of stressful life events, strained social relationships, anger and anxiety, and adolescent delinquency and drug use over the three study waves, the authors estimated covariance structure models using LISREL VIII (Joreskog and Sorbom 1993, as cited in Aseltine et. al. 2000: 262). The findings from the analysis provided only limited support for GST. Analysis revealed that strain in the form of negative life events and conflict with family members was indeed significantly and positively related to adolescent deviance. Also evident was an indirect effect which showed that strain was related to delinquency through anger and anxiety, confirming the role of anger in mediating the impact of negative events and troubled social relationships on some form of adolescent misconduct. However, none of the measures of strain or anger were significantly related to marijuana use, which led the authors to conclude that possibly GST may not be generalized to nonviolent forms of deviance. Laying claim as being the most comprehensive test of GST to date- based on the examination of the four principal hypotheses proposed and the fact that it was the first study in which anger and anxiety were included as mediators in a covariance structure model or the strain-deviance

association using three waves of panel data- the authors concluded that in spite of the limited support for GST observed in their analysis, they were confident that the analysis held promise as a means of furthering our understanding of the etiology of deviance.

Baron (2004) also attempted to explore delinquent adaptations to strain. This study however deviated from the clichéd sample of adolescent high school youth used to examine strain theory, by cutting across the age barrier by selecting participants that were aged 24 and under. Baron (2004) also extended GST by investigating a never before studied population of homeless street youth that Agnew specifically identified as experiencing intense strain. Recognizing the heterogeneity of the street population, the author identified four hundred respondents based on four sampling criteria. Selected participants had to be aged 24 and under; had left or finished high school; had been currently unemployed and; had spent time without a fixed address or living in a shelter in the previous 12 months (pp.465). The study examined how different forms of strain- emotional abuse, physical abuse, sexual abuse, homelessness, violent victimization, robbery victimization, property victimization, relative deprivation, monetary dissatisfaction and unemployment- lead to crime and drug use. Three hypotheses were proposed. The researchers expected that the various types of strain would be positively related to anger; the various types of strain as well as anger would be positively related to crime and; deviant peers, deviant attitudes and external attributes would be positively related to crime, and self-esteem and self- efficacy would be negatively related. More simply put, the author explored how strain was conditioned by deviant peers, deviant attitudes, external attributions, self-esteem and self-efficacy, by investigating the individual effects of various types of strain on the criminal behavior of homeless street

youth. The results of the analysis found that all ten types of strain examined could lead to criminal behavior either as main effects or when interacting with conditioning variables. However, while a number of strains were related to anger, others were not. Anger tended to be related to strains associated with measures of child abuse, violent victimization on the street and subjective interpretations of financial situations. Interestingly, anger was less likely to be associated with objective measures of poverty and the loss of property. The author suggested that this might have been due to the fact that objective measures of poverty were not successful in capturing the sense of injustice required to generate anger, and also it appeared that street youth interpret physical and mental harm as more unjust and less deserved than other types of harm (pp. 473). Consistent with the argument in GST however, anger was a strong predictor of the total crime measure as well as submeasures of property crime, violent crime and drug use. And also, consistent with expectations (Agnew, 1985) and other works, anger did not appear to mediate all of the effects of the various types of strain. The analysis also revealed that deviant attitudes and deviant peers were in fact related to crime and drug use. However, contrary to predictions, those with high self-esteem had higher rates of crime. Gender was also a significant predictor of crime. However, the role of conditioning variables was somewhat uneven. Certain interactions- emotional abuse/self-esteem, sexual abuse/deviant attitudes, and relative deprivation/deviant peers- were predictive of a range of crimes. Overall, the study revealed that six of the ten types of strain had significant relationships with anger. It was further concluded that consistent with the argument in GST, anger was a strong predictor of the total crime measure as well as sub measures of property crime, violent crime and drug use. Baron (2004) gives credence to his study, stating that "this [study] is

more supportive than past research using crime specific items that tends to find that the effect of temperamental anger is limited to violent offenses (Aseltine et. al., 2000; Capowich et. al., 2001; Mazerolle and Piquero, 1997; 1998; Mazerolle et. al., 2003)" (p. 473).

GST tested among young adult populations

At the beginning of the 21st century researchers started to break out of the mould of studying GST with the overused population of adolescents and attempted to test the theory using older populations. The next set of empirical research to be discussed will look at a test of GST among young adult populations.

Broidy (2001) ushered in this new population in her test of GST. Using cross-sectional data collected from 896 college students at a Northwestern University, this research provided a more comprehensive test of GST which included measures of both anger and other expressions of negative affect, as well as a measure of legitimate coping (p.9). It served as a unique test, focusing on the relationship among strain, negative emotions, legitimate coping, and criminal/ deviant behavior. Three hypotheses were examined. Hypothesis 1- *each of the three types of strain are associated with anger and other negative emotions*- had mixed results. The effects of strain on negative emotions (other than anger) appeared to be constrained to the positive effect of stress (presentation of negative stimuli or removal of positive stimuli) on negative emotions. Also the measures of strain reflecting blocked goals and unfair outcomes were not significantly associated with the negative emotions measure. However, all three measures of strain-blocked goals, unfair outcomes, and stressful life events- were significantly related to strain-induced anger, but not all in the expected direction. What this meant was that,

although a relationship existed between strain and negative emotions, the exact nature of the relationship depended on the nature of the strain and the type of emotional response considered. Another interesting finding was the influence of sex in the models. No sex differences existed when anger was examined, but there was a significant positive correlation between sex and other negative emotions. This suggested that, controlling for strain, strain-induced anger was equally likely among males and females, but other negative emotional responses to strain were more likely among females. Results for hypothesis 2- *anger and other negative emotional responses to strain are associated with the use of legitimate coping strategies-* showed a significant, positive relationship between strain-induced negative emotions and legitimate coping. However, contrary to the hypothesis, the relationship between strain-induced anger and legitimate coping was insignificant. Results for hypothesis 3- *controlling for the use of legitimate coping, strain-induced anger will increase the likelihood of illegitimate outcomes; whereas other negative emotional responses will not-* supported the GST contention that strain-induced anger increases the likelihood of illegitimate outcomes, irrespective of legitimate coping. However, inconsistent with expectations was a significant negative relationship between other negative emotions and illegitimate coping. Overall, Broidy's (2001) analysis offered some support for GST, suggesting that strain, negative emotions, and legitimate coping are all related, although not always in the expected direction. The analysis also indicated that the theory does not adequately account for the complexity of the strain/crime relationship (pp.29).

That same year Capowich, Mazerolle and Piquero (2001) attempted to expand on GST in two ways. Their analysis examined situational anger- a concept which to date had

not been examined in relation to GST- and the role of social support networks as a conditioning influence on the effects of strain and anger on intentions to commit three types of criminal behavior (p.445). To conduct their analysis they used a sample of college students, considered to be very similar to the undergraduate population's demographics. While the researchers recognized that a sample of college students were not representative of the larger population, because they were thought to have relatively lower levels of stress and strain compared to other segments of society, and they enjoyed relatively higher levels of support, they found some strengths to justify the use of such a population. The researchers used stepwise approach to examine the mediating effects of GST- related variables, estimating four models that increasingly added parameters to be estimated in the prediction of intentions to engage in assault/ fighting, theft and, DUI. Not only did they use a stepwise approach, but the researchers also employed a method that was previously used in other studies of GST (Hoffman & Miller, 1998; Mazerolle & Piquero, 1997, as cited in Capowich et. al., 2001 pp.455), stratifying the sample at the 50th percentile of their score on the global social support variable, estimating the effects of the count measure of strain, negative emotions, and situational anger on intentions to fight, shoplift, and DUI. The results provided mixed support for GST. The results confirmed the link between negative emotions and crime, but the precise nature of the relationship was dependent on the outcome variable measured. The analysis further suggested that situational anger was a significant predictor only for fighting, but not for shoplifting or DUI. As was found in other studies, anger was predicted to be an important variable for GST, but it appeared as though its effects were limited to certain situations or specific offenses, while general negative emotions were related to other offenses. In

general the measures of negative emotions had greater and more consistent positive effects on criminal adaptations. However, while the relationship between anger and crime was confirmed, their hypothesis on the role of interpersonal networks as a conditioning factor was not confirmed. What that meant, was that the strength on one's immediate social network of interactions did not influence intentions to commit any of the three crimes examined.

Eitle and Turner (2003) focused their study on young adult male crime. Using a stratified random sample of young adults between the age of 18-22, the authors tried to assess the relationship between stress exposure, race and young adult male crime. This current study extended earlier research in three ways. First, the authors examined the role that race and ethnicity played in understanding the stress-crime relationship. Second, they applied the principles of GST to an underexamined group of crime prone individuals (i.e. young adults). Third, the stress-crime association was assessed with a substantially more comprehensive set of measures of stressors than prior evaluations (pp.243). This helped in the differentiation between major sources of stress and their predictive usefulness for criminal activity. Interviews were conducted among 956 randomly selected males. A total of 898 completed all the questions measuring the variables of interest. Logistic regression was used to estimate the effects of stress and other important variables on crime, bearing in mind that because their measure of crime was largely retrospective, there was a possibility that criminal behavior may well have been a cause as well as a consequence of stress. The most significant result yielded in this research was that racial differences in criminal involvement was largely a factor of exposure differences, with blacks typically exposed to considerably more stressful events throughout their lifetime

more so than members of other ethnic/racial groups. However, the results also showed that race did not condition the relationship between stress and crime. The results of the study also provided some contribution in relation to the effects of stress exposure on criminal propensity. Similar to prior studies, it was found that recent life events were important predictors of criminal involvement. The study however did not find support for Agnew's argument that coping mechanism moderated the stress-crime relationship. While there were mixed results, overall, the general findings of this study supported a strain-based explanation of crime.

College populations have become a typical source for gathering data to test various hypotheses. Mazerolle, Piquero and Capowich (2003) used a random sample of undergraduate students who were registered for classes at a large university located in the western United States. A total of 338 valid questionnaires were used in an effort to examine the link between strain, situational and dispositional anger, and crime. Two separate analyses were used to study the role of anger in GST. A stepwise approach was used to examine whether anger mediated the effects of strain on crimes as proposed by GST; and whether such mediating relationships vary as a function of whether measures of trait or situational anger are used. In the final stage of this analysis the authors assessed whether such relationships hold after controlling for a range of alternative risk factors for crime and deviance. Structural equation modeling was also used to explore a more complex relationship between different types of anger, strain and deviant outcomes. The authors proposed that anger, especially situational anger, should function as a mediating influence linking exposure to strain with criminal outcomes. They further hypothesized that relationships between strain and deviance should diminish or vanish after anger is

introduced into the models. It was also proposed that relationships between strain, anger, and deviant outcomes were expected to remain even after controlling for alternative criminogenic influences. And finally, they hypothesized that, when comparing the effects of trait anger and situational anger, situational anger would more adequately mediate the relationships between strain and deviant outcomes (pp.141). Acknowledging that anger represents a core aspect of GST, the authors were dedicated to examining whether different conclusions were reached when measures of trait anger and situational anger were used in regression models. More specifically, they were motivated to explore whether persons with angry temperaments were more likely to experience strain, or were more likely to experience situational anger, and also whether trait anger was predictive of behavioral intentions to deviate independent of the effects of situational anger. The analysis from the logistic regression revealed significant results showing that measures of strain and situational anger were related to intentions to shoplift net of controls. However, dispositional anger did not achieve significance. While the results showed that trait anger and situational anger appeared to operate similarly, the effects of trait anger was somewhat weaker and mediating influences could not be observed. The main findings from the structural equation model were that trait anger increased some forms of strain. It also revealed that trait anger and strain were in fact related to situational anger, and that both forms of anger and strain remained important influences predicting behavioral intentions to assault net of controls. The results emphasized that measures of anger represents a critically important issue for empirical research of GST. Overall, the analysis in this study revealed the significance of situational anger as a critical influence in predicting various forms of deviant behavior.

GST tested among adult populations

Over the past two decades, adult populations have been used only in a few studies to test GST (Jang & Johnson, 2003; Slocum, Simpson & Smith, 2005). In 2003 Jang and Johnson utilized data from the National Survey of Black Americans to test their four hypotheses that derived from GST, about the relationship among strain, negative emotions, and deviant coping. This multistage probability sample of 2, 107 respondents is considered a nationally representative survey of adult African Americans and was compiled in 1980. The authors hypothesized that: strain had a positive effect on negative emotions, which in turn had positive effect on deviance; negative emotions had positive effects on deviance with the same-directed effects being larger than their opposite-directed counterparts; self-esteem, self-efficacy, and religiosity weaken or buffer the positive effects of strain on negative emotions and those of negative emotions on deviance; and, among African Americans strain has larger positive effects on outer- than inner- directed emotions, and thus overall negative emotions in reaction to strain have larger positive effects on outer- than inner-directed deviance (pp.87). An interesting deviation of this study is the fact that the authors used data from a nationally representative sample of African American adults, unlike previous studies that focused mainly on white adolescent or college-student samples, which were often nonprobability samples. Ordinary least squares regression was used to test the relationships proposed. The results generally supported their hypotheses. What they found, consistent with Agnew (1992), was that those who experienced negative emotions towards others were likely to engage in other-directed coping behavior like aggression, however, those who experienced negative emotion first hand were more likely to engage in self-directed

coping behavior like drug use. Interestingly enough they also argue based on their findings that negative emotions other than anger should not be neglected in future tests of GST. The authors also found support for religiosity, arguing that individuals who were religiously committed were less likely to engage in deviant coping in relation to personal problems. However, when conditioned on the effects of strain the result did not yield any significant findings for religiosity. What they found was that while religiosity directly affected an individual's emotional reaction to strain, it did not protect the individual from strain weakening its impact on emotional reactions. However, religiosity it would appear significantly improves, though does not eliminate, the deviance-generating effects of negative emotions in reaction to strain. Finally, the study found limited support for self-esteem and self-efficacy as conditioning factors. The results generally supported their hypotheses and the study supports Agnew's decision to include key intervening variables of negative emotions between strain and deviance as a coping mechanism.

Slocum, Simpson and Smith (2005) conducted their analysis based on 36 month retrospective data collected from an adult female incarcerated population. The mean age of approximately 35, and an overwhelming majority of the sample was African American (91 percent). The study investigated the relationship between intra-individual changes in strain and changes in offending and drug use. The authors also explored how different dimensions of strain could contribute to the understanding of offending. Based on GST and stress literature the authors hypothesized the strain would have a positive significant and contemporaneous effect on crime and substance use, controlling for possible mediating factors, like social embeddedness and drug use. They also proposed that contemporaneous findings will hold when controlling for causal ordering by using lagged

measure of strain. The basic argument behind this hypothesis was that if strain is in fact a

cause of problem behavior, it must temporally precede the behavior. This was a test of

temporal priority. It was also suggested that a model that accounted for all four

dimensions of strain as discussed by Agnew (1992) should be able to explain more

variation in offending than any one, two or three of these dimensions (pp.1078). In order

to analyze their data the authors used hierarchical linear modeling (HLM), appropriate for

the 36 months of retrospective data collected from each respondent. Accounting for the

nested nature of the data, HLM allows for the estimation of with-in person variations in

offending over time, while controlling for individual differences in the propensity to

offend (pp.1086). The analysis revealed that individuals are indeed more likely to engage

in crime and use drugs during the months they experience higher levels of composite

strain. The results however, interestingly indicated that different types of strains lead to

different illicit behavior. The results also showed that- despite Agnew's (2001) assertion

that violent victimization should be one of the types of strain most likely to lead to

offending- while victimization was related to violent offending, it was not related to drug

use or nonviolent crimes. The authors also examined the possibility that drug use may

serve as an intervening variable or a cause of strain by including drug use as an

independent variable in the model predicting violent and nonviolent crime. The results

revealed that drug use had little or no association with violence, but did have a large

significant and positive relationship with nonviolent crime. The hypothesis relating to the

dimensions of strain, that each dimension independently contributed to explanation of

offending was supported only for nonviolent crime. What was revealed was that only two

of the four dimensions of strain- duration and clustering- consistently exerted an

independent effect on offending. Duration independently contributed to the explanation of variance for all outcomes because it had the least overlaps (degree of collinearity) with the other dimensions of strain. Clustering followed duration as the variable least correlated with the other dimensions of strain and this dimension also improved the prediction of offending for all outcomes. Overall, the findings revealed that changes in strain are related to changes in violence, drug use, and property crime, even after controlling for other variables. This study suggested that offenders resorted to different methods of illegitimate coping based on the characteristics of the strain they experienced. The authors also established that the strain-crime relationship holds when the correct casual order is specified and taking the dimensions of strain into account is an important step in understanding the strain-crime relationship.

Summary of Review of Relevant Literature

Much of the literature on GST has focused on adolescent populations, quite possibly because GST's original purpose was to explain adolescent deviant behavior and drug use, and also because a number of the datasets that were available at the time were primarily based on adolescent populations. The earlier studies conducted with adolescent populations focused mainly on the relationship between various forms of strain and delinquent outcomes. Many of the studies attempted to test the hypothesis that strain was related to involvement in delinquency. Adolescent populations were also used to test the generality of GST, looking at various adolescent populations, not simply high school children but now investigating offending populations and street populations.

Breaking away from using adolescents as a target population, a number of researchers in the 21st century conducted research on GST using young adult populations,

typically college students. Certainly this would strengthen the argument for the generality of GST. With this new wave of studies utilizing a new population- while nearly not as many as the studies done with adolescent populations- the researchers provided a more comprehensive test of GST, looking at measures of anger (an original idea of GST) as well as other expressions of negative affect. The researchers who ushered in this new research population also attempted to expand GST in various ways including, examining situational anger, a concept which to date had not been studied, and looking at the role of social support networks as a conditioning influence.

Adult populations have been used even less to test the main hypothesis of GST over the years. Finding less than a handful of such studies showed the obvious lack of research utilizing this population to test GST. With new populations come more creative ideas and new findings. Others even challenged further the status quo utilizing an adult female population, a group that is vastly under studied.

However, with the obvious lack of diversity of study populations in the test GST as is evidenced by the works discussed above, this opens up the opportunity for other researchers to expand GST to new study populations. With no study thus far showing evidence of the test of GST among adult incarcerated males, this study now has the opportunity to add to the GST literature in a significant way, further exploring the generality of GST to other populations.

Table 2.1: Summary Table of Empirical Literature

Study	Population	Measures	Mediator	Findings
Agnew, R., & White, H.R. (1992)	Adolescents (12, 15, 18 years old)	**Strain Measures**: Negative Life Events; Life Hassles; Negative Relations with Adults; Parental fighting; Neighborhood problems; Unpopular with Opposite Sex; Occupational Strain; and Clothing Strain **Social Control Measures**: Parental attachment; Parental permissiveness; School Attachment; Time Spent on Homework; Peer Attachment; Grades; Educational Goals **Differential Association Measure**: Friend's Delinquency		Support
Aseltine R., Gore S., & Gordon J. (2000)	Adolescents (9th, 10th, and 11th Graders)	**Strain Measures**: Life Stresses; Family Conflict; and Peer Conflict **Conditioning Measures**: Mastery; Family Attachments; Exposure to Delinquent Peers	Anger; Anxiety	Limited Support
Baron, S. (2004)	Mixed (12-24 years old)	**Strain Measures**: Monetary Dissatisfaction; Relative Deprivation; Unemployment; Homelessness; Violent Victimization; Property Victimization; Emotional Abuse; Sexual Abuse; Physical Abuse; **Conditioning Measures**: Deviant peers; Deviant Attitudes; Self-efficacy; Self-esteem; External Attribution	Anger	Support

Broidy, L. M. (2001)	Young adults (College Students)	**Strain Measures Categories**: Failure to Achieve Positively Valued Goals; Loss of Positively Valued Goals; legitimate Coping Strategies; Illegitimate/Deviant Outcomes	Anger; Other Negative Emotions	Some Support
Brezina, T. (1996)	Adolescents (High School Students)	**Strain Measures:** Parental Punitiveness; Mean Teacher; and Dissatisfaction with School	Negative Affect: anger; resentment; anxiety; depression	Support
Capowich, G., Mazerolle, P. & Piquero, A. (2001)	Young adults (College Students)	**Strain Measure**: Composite Measure of Strain **Other IVs**: Social Support; Overall Perception of Social Support; Immediate Social Support	Anger	Some Support
DeCoster, S., & Kort-Butler, L (2006)	Adolescents (6th, 7th, and 8th Graders)	**Strain Variables:** Family Stress; Peer Stress; and School Stress	Negative Emotions; Anger	Support
Eitle, D., & Turner, R.J. (2003)	Young adults (18-22 years old)	**Strain Measures:** Recent Life Events; Chronic Stressors; and Lifetime major Events **Conditioning Measures**: Social Support; Self-esteem; Mastery **Social Control and Differential Association Measures**: Parental Attachment; Moral Beliefs; Adolescent Deviance; Peer Criminality; Demographic Variables; Crime		Some Support
Hoffman, J.P., & Miller, A.S. (1998)	Adolescents (11-17 year olds)	**Strain Measures**: Negative Life Events **Social Control Measures**: Family Attachment; School Attachment; and Grades **Stratification Measures**: Self-esteem; Self-efficacy; Delinquent Peers		Some Support

Jang, S.L., & Johnson, B.R. (2003)	Adults (Adult African American)	**Strain Measures**: Personal Problems **Conditioning Measures**: Self-esteem; Self-efficacy; and Religiosity	Negative Emotions: Inner-directed Emotions; and Outer Directed Emotions	Support
Mazerolle, P, Piquero, A.R., & Capowich, G.E. (2003)	Young adults (College Students)	**Strain Measure**s: Composite of Negative Life Events; and Inequitable Experiences at School	Situational Anger; and Trait Anger	Some Support
Mazerolle, P., Burton, V., Cullen, F., Evans, T., & Payne, G. (2000)	Adolescents (10th and 12th Graders)	**Strain Measures**: Removal of Positive Stimuli; and Presentation of Noxious Stimuli **Social Bond Measures**: Attachment; Commitment; and Belief **Differential Association Measures**: Deviant Affiliations	Anger	Some Support
Paternoster, R., & Mazerolle, P. (1994)	Adolescents (11- 17 years old)	**Strain Measures**: Neighborhood Problems; Negative Life Events; Negative Relations with Adults; School/Peer Hassles; and Traditional Strain **Social Control Measures**: Moral Belief; Delinquent Peers; Delinquent Disposition; Grades; and Family Attachment		Some Support
Piquero, N.L., & Sealock, M.D. (2000)	Adolescents (13-18 years old)	**Strain Measures**: Additive Strain Measure **Intervening Measures**: Peer Delinquency; Family Communication; and Coping Skills	Negative Affect	Some Support
Slocum, L., Simpson, S.S., & Smith, D.A. (2005)	Adults (18-55 years old)	**Strain Measures**: Neighborhood Strain; Stressful Life Experiences; Violent Victimization; Composite Strain; Lagged Strain; Duration; Clustering; and Accumulation		Support

Hypotheses

In testing general strain theory I look at three hypotheses that assess the proposed relationships among strain experienced in prison, perception of the prison environment, and recidivism.

Hypothesis 1: Strain experienced in prison will have a significant negative effect on inmates' perception of the prison environment.

> *Hypothesis 1A: As criminal victimization increases the inmates' perception of the prison environment will decrease.*
>
> *Hypothesis 1B: As removal of positive stimuli increase the inmates' perception of prison environment will decrease.*
>
> *Hypothesis 1C: As cumulative strain increases the inmates' perception of the prison environment will decrease*

Hypothesis 2: Strain experienced in prison will have a significant positive effect on recidivism. As strain experienced in prison increases, probability of recidivism at the 12 month follow-up period will also increase.

Hypothesis 3: If the argument of recency is correct, it should follow that strain experienced in prison will have a greater significant and positive effect on recidivism during the follow-up period of 6 months, more so than at the 12 month follow-up period.

Chapter 3: Methodology

This section outlines the methodology and procedures for this study. The purpose of this study is to examine whether strain experienced in prison will have an impact on: perception of the prison environment measured in terms of the inmates' experience in the environment, participation and evaluation of programs offered in the facility, coping and adaptation to the environment and adequate preparation for exit of the facility; and recidivism after release from prison measured in terms of new arrest.

A test of the latter will prove somewhat challenging given how much can happen outside the prison once they have exited. Based on the literature discussed above, the central hypothesis of GST has been studied using both cross-sectional as well as longitudinal data. However, one has to pay special attention to the time lag between time of experienced strain and outcome variables being examined. The stress literature, clearly argues that recent events are more consequential than older events (Avison and Turner, 1988), arguing for an appropriate time lag of three month or less when testing the impact of stress on outcome variables. Adhering to Agnew's (1992) caution to pay special attention to the issue of recency[6] the study utilizes Time 2- exit survey and different follow-up periods for recidivism in an attempt to minimize the time lag between release and recidivism.

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[6] Agnew (1992) suggested that the use of an appropriate time lag is of utmost importance and researchers should consider the effect of recency when trying to establish a relationship between strained situation and crime and delinquency.

Data Overview

      This paper utilizes secondary data to examine the relationships mentioned above. The data for this study come from the inmates who were originally sent by the court to the boot camp program for a 'six-and out' term between 2001 and 2003. Through the randomization process (via a random number generator), 111 were assigned to Toulson Correctional Boot Camp and 123 were assigned to the comparison facility to serve their six month sentence.[7] A total of 210 inmates completed the Time 2 survey, including those who were dropped but still interviewed (CBC-n=100; MTC-n=110)[8]. Of that total, four were removed due to missing data[9], reducing the final sample size to 206 adult incarcerated male inmates.[10]

      The data was originally collected in a Time 1 and Time 2 self-report survey administered to participants during the course of study in the "Experimental Study of the Maryland Boot Camp for Adults.[11]" The data comes from the first truly experimental study completed in the context of a Correctional Boot Camp for adults. The participants were adult males who were randomly assigned to serve their six-month sentence at either (1) the Metropolitan Transition Center (a traditional prison which served as the control group) or (2) the Toulson Correctional Boot Camp

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[7] According to Mackenzie et. al (2004), the groups are not equal in size but the difference is no greater than expected from chance alone.

[8] It is important to note that after randomization, six inmates were wrongly placed into the prison. However, these numbers are calculated considering the six wrongly assigned offenders as having been in the boot camp the entire study, therefore maintaining the two groups as randomized.

[9] Missing data also included a few item nonresonses. This accounted for less than 5% of the responses. Simple mean imputation was utilized in these cases

[10] Two cases were excluded because there was missing information on recidivism. An additional two were excluded because of missing information on variables necessary for the analysis.

[11] This study is a is a randomized control trial comparing 228 inmates randomly assigned to serve their six-month sentence at either (1) the Toulson Correctional Boot Camp or (2) the Metropolitan Transition Center (a traditional prison which served as the control group). At both facilities, inmates had access to education and treatment.

(CBC), which served as the treatment group. In order to be selected as a participant for the program, inmates had to be considered suitable for the boot camp program and agree to develop a mutual agreement program (MAP) contract making them eligible for early release. An individual's offense and criminal history score determined whether he was eligible for the boot camp program as a Part 1A offender. 'Part 1A' inmates meant that they were to serve six months at the camp and would then be released on parole. Specifically, inmates could not have been convicted of a violent offense currently or in the past if they were to qualify for the MAP program. These inmates were housed in a separate facility designated for incoming inmates at TBC. They were kept separated from the program inmates and were not involved with the boot camp atmosphere in any meaningful way (i.e., they were not required to say "sir" or act in a manner required of program inmates). The researchers arrived at the boot camp the week before each new platoon was scheduled to begin the program. Upon arrival, they were given a list of the inmates scheduled to begin the program. Through the use of a random numbers generator, the researchers determined whether inmates were selected for the boot camp or MTC. The random assignment decisions were final. Neither the research team nor any correctional employee could change the decision once made.

Description of the Study Sample

Among the total sample used in this study, the overwhelming majority were African American (84%). The sample ranged from 17- 35 years old, with a mean age of approximately 23 years. A majority of the offenders were between the ages of 20 to 25 years old (68%), with 21% older than 25 years of age. Of the 206 respondents

approximately 36% completed high school or earned their GED and more than half (62%) of the total sample, approximately 128 respondents were originally from Baltimore City. On average the respondents had approximately 2 prior convictions.

Independent Variables

The independent variables of interest are self-reported measures of strain. However, because the data was not originally collected to test strain and the lack of variables that appropriately represent all three types of strain discussed by Agnew (1992), the study will measure strain as the: a) presentation of negative stimuli, and b) removal of positively valued stimuli. The independent variables are created with the aid of factor analysis. Scales are created as measures of strain by summing Likert-type responses from naturally clustered items that appeared in the original survey. The scale items are presented in Appendix A. Presentation of negative or noxious stimuli is measured in terms of *criminal victimization*.

Criminal victimization is considered one of the most severe types of strain, with research suggesting that such victimization is strongly related to criminal offending (Agnew, 2001; Eitle and Turner, 2002; Baron, 2004). Research also suggests that even the anticipation of being criminally victimized may increase crime (Agnew, 2002; Eitle and Turner, 2002). Such abuse is typically high in magnitude and seen as unjust, reducing concern with internal and external sanctions because victims often feel justification in committing their crime because of their personal experience (Agnew, 2001).

Criminal victimization is measured using a 6 item scale (alpha= .69), which is an aggregate of Likert-type items (1= never; 4= repeatedly). The items measured: if

inmate was physically assaulted in any way; if anyone had threatened to hurt the inmate; if anyone had called the inmate names or said mean things to the inmate; and if inmate was treated with disrespect. The items also measured if anyone had made sexual comments to the inmate that brought about feelings of discomfort and, if anyone had stolen money or property that belonged to the inmate.

Removal of Positive Stimuli is measured using an aggregated 6 item Likert-type scale (1= never; 4 = repeatedly), with an alpha of .67. The items measured problems inmates often faced while incarcerated. The items included: missing family and friends; missing personal possessions; missing certain activities (e.g. going to the movies, hanging out); missing freedom; lack of privacy and; experiencing boredom (inability to engage in activities which were enjoyed prior to incarceration)

Cumulative Strain Scale is created by combining the above two types of strains across individuals.

Control Variables

The models will include five control variables in the analysis. The control variables selected are factors that could be related to both the independent variables as well as the dependent variables. Including these in our model allows us to rule out alternate explanations for our results. The current study will control for age. The empirical literature suggests an association between age and many types of delinquent behavior (Gottfredson & Hirschi, 1983). *Age* represents the age of the respondent and is a continuous variable. Prior convictions is also being used as a control variable. *Conv* is a discrete variable representing the number of prior convictions from CJIS. It is believed that our past actions are the best predictor of our future actions. Studies

have shown that individuals with prior criminal offenses have a higher probability of recidivating (Belkin, Blumstein, & Glass, 1972; Blumstein & Graddy, 1981; and Corapcioglu & Erdogan, 2003).

TBC is also included as a control variable in the models. TBC is a dichotomous variable coded as 1 if the respondent was randomly assigned to Boot Camp and 0 if the inmate was assigned to the traditional prison. Research examining boot camps have been mixed, from showing no significant differences in recidivism when those released from boot camps have been compared to those released from traditional facilities (MacKenzie, 1997, as cited in MacKenzie, Wilson, Armstrong, and Gover, 2001), to showing marginally higher recidivism rates for those who served time in traditional facilities over those who served time in boot camps (MacKenzie, Berie, & Mitchell, 2007). It is argued that the characteristics of the environment is what matters and facilities perceived as having a more positive environment will be more apt to have an impact on social attitudes, and, in past research these attitudes have been found to be associated with recidivism (MacKenzie et. al. 2001). Based on the original work (Mackenzie et. al., 2004) from which the current study uses data, the boot camp inmates perceived significantly more safety, more staff control and held more favorable impressions of the staff than those from the traditional prison.

GED represents educational level at time of arrest. It is a discrete variable and will also be included in the models as a control variable. While there is not much research on educational level at intake and its impact on recidivism, research has shown that inmates who advance their education while incarcerated tend to do better

upon release and are less likely to recidivate than those who have not advanced their education (Stevens, & ward, 1997). *Bcity* is also included as a control variable. It is a binary variable representing whether or not the inmate lived in Baltimore City, coded as 1 for presence of the condition. Race was also considered for inclusion as a control variable in the models but was not possible because there was not enough variability among the races (AA= 84%).

Dependent Variables

The effect of strain was considered for three different outcome variables: Perception of the prison environment, recidivism at 6 months, and recidivism at 12 months.

Perception of Prison Environment Scale (alpha= .87) is a continuous variable. It is measured using a 7 item scale related to the inmates' experiences in the facility. The scale is created by summing Likert- type responses (5= Strongly Agree; 1= Strongly Disagree) that were selected from the original Exit Survey (Time 2) used for the Maryland Boot Camp Study. The items that comprise the scale focus on the inmates' perception of their experience with relation to programs being offered, coping and adaptation to the environment and adequate preparation for exit of the facility. See Appendix B for items included in this scale. The scale ranges from a low score of 7 which represents a low perception of a prison environment to a high score of 35 which represents a more favorable perception of the prison environment. A mean of 24.17 represents a fairly high perception of the prison environment among the inmates.

Recid12 and recid6 are both binary variables, for the *rearrest for a new crime*

for follow-up periods of 12 months and 6 months respectively. Recidivism is

restricted to new crime events, referring to substantive criminal behavior rather than

technical parole violations. Although data was obtained on technical parole violations

occurring, they were rarely associated with any sanction other than a hearing in which

the subject was continued on parole. The recidivism data were downloaded in

November 2005, from two official data sources. The first was the Criminal Justice

Information System (CJIS) and the second was the Parole and Probation data base

(OBSIS II). The two data bases were cross referenced in order to identify any arrests

which were listed on one, but not the other[12].

In the original study, recidivism was calculated at six different follow-up

periods (see table 3.1 below) beginning at a 6 month follow-up period. In an effort to

test hypothesis two and three and to reduce measurement error, this study utilizes

different time lags (*recid12, recid6*) between strain experienced in prison and

recidivism. The reason behind the use of two recidivism periods is due to the recency

argument discussed earlier. The ideal time lag as is discussed in the stress literature is

a period of three months, however this was not possible with the current data[13].

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[12] Bierie, David (2007) *Cost Matters: Application and advancement of economic methods to inform policy choice in criminology,* PhD Dissertation (UMD)

[13] The original study followed all participants for 12 months, but due to the low numbers that recidivated at three months the cut off started at a 6 month follow-up period (McKenzie et.al. 2004).

Table 3.1

Descriptive Statistics for Recidivism Data

Variable	Observations	Number Recidivated	Percentage Recidivated	Skewness	Kurtosis
Recid 6	206	58	28%	.979	-1.053
Recid 9	206	69	33	.705	-1.518
Recid 12	206	103	50	.000	-2.020
Recid 18	206	121	58	-.358	-1.891
Recid 24	206	126	61	-.462	-1.805
Recid 36	206	132	64	-.591	-1.667

In the first 180 days (*recid6*) of being free, 58 of the 206 inmates were rearrested, which represents only 28% of the study sample. In the first 360 days (*recid12*) of being free 103 of the 206 inmates were rearrested, which represents 50 % of the study sample. To test for normality, the skewness and kurtosis of the variables were calculated. According to George and Mallery (2005), a skewness or kurtosis value between +/- 1 is considered excellent for most psychometric variables. However, a value of +/- 2 is also acceptable in many cases. This indicates that the selected dependent variables are suitable for conducting the analyses.

Analytic Technique

Creation of Scales

Similar to Agnew (1985), two additive scales were created to measure the level of strain experienced by inmates in the prison environment: *Criminal Victimization Scale*, which represents the presentation of negative and noxious stimuli and; *Removal of Positive Stimuli Scale*. The primary dependent variable is also an

additive scale which is being used to measure the inmates' *perception of the prison environment*.

Independent Variables

In the original survey, a section existed (8 items) which measured the criminal victimization of the inmate since admittance into the facility. The original survey also had a distinctive section (9 items) which measured the problems inmates often face while incarcerated. Both these sections were adopted for use in this study to measure *Criminal Victimization* and *Removal of Positive Stimuli* respectively. Factor/ Principle Component Analysis was conducted to assist with the creation of the scales. Communalities were assumed to be one and principle components were used as the extraction method. For both strain scales one factor was forced, due to the fact that items of similar content from the original survey were already clustered together. Therefore, confirmatory, rather than exploratory factor analysis was conducted in order to examine if the items loaded on one factor as is expected due to the similarity in the content of the items. Factor loadings of absolute value of .50 or less were suppressed, reducing both *Criminal Victimization* and *Removal of Positive Stimuli* to 6-item scales. An item with factor loading above .5 was also removed from the *Removal of Positive Stimuli Scale* because substantively it did not fit well with the other items needed to measure the factor (see Appendix D for factor loadings).

Dependent Variable Scale

Perception of the prison environment- These items, similarly to the independent variables were also clustered together in the original survey (16 items) measuring inmates experience in the facility. This scale is also created using Factor/

Principle Component Analysis, in an effort to determine the underlying variables with the goal of reducing the scale to a single factor. Communalities are assumed to be one and principle components are used as the extraction method. The items for this scale were also forced onto one factor. Similar to the independent variables, the items in the original survey were already clustered together to examine one phenomenon. Again, confirmatory, rather than exploratory factor analysis was conducted in order to examine if the items loaded on one factor as is expected due to the similarity in the content of the items. This technique yielded seven items with positive factor loadings over .50. These items were selected to create the scale labeled *Perception of Prison Environment Scale (PriPercep)*. This factor explained 36 % of the variance (see Appendix E for factor loadings).

Reliability Check

Reliability analysis is of utmost importance when variables created by summated scales are used in a model. This helps to examine if the scale is testing what it proposes to test. Cronbach alpha is probably the most popular form of reliability assessment for multiple-item scales. This is done to check if the scale consistently reflects the construct it is measuring (Field, 2005). This simply means all things being equal do the scales yield the same results if taken at different times by the same individual. Cronbach alpha was computed for the dependent variable *Perception of the Prison Environment Scale (.87)*, as well as the independent variables *Criminal Victimization (.69)* and *Removal of Positive Stimuli (.67)* (see appendix F). The scales for the analysis appear to be fairly reliable.

Correlation of Variables

A correlation matrix was done to check the linear relationship between the variables that will be used in the analysis. The table indicates that a few of the observed relationships appear to be very strong. The strongest correlations are evident for the cumulative strain variables and the two strain variables, criminal victimization (.663) and removal of positive stimuli (.822). This is expected seeing that the cumulative strain variable was a composite of the two strain variables across individuals. This will not affect the analyses because separate models are being run which will not include the individual strains variables along with the cumulative strain variables at any one time. The other strong correlation is between recidivism at a 6 month follow-up period and recidivism at a 12 month follow-up period, indicating a significant correlation of .626 between the two variables. This will not affect our analysis because the recidivism variables are dependent variables and will be analyzed in separate sets of models. The other significant relationships that were evident from the correlation matrix were all below 0.40, which would indicate that the data analysis should not suffer from issue related to multicollinearity (see table 3.2 below).

Table 3.2: Correlation of Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Perception of Prison Environment	1										
(2) Recidivism @ 12 mths	.024	1									
(3) Recidivism @ 6 mths	.058	.626 (*)	1								
(4) Criminal Victimization	-.192 (*)	-.095	-.052	1							
(5) Removal of Positive Stimuli	-.098	-.107	-.051	.119	1						
(6) Cumulative Strain	-.184 (*)	-.134	-.068	.663 (*)	.822 (*)	1					
(7) TBC	.351 (*)	-.126	-.072	.109	-.079	.003	1				
(8) Age	-.099	-.108 (*)	-.173 (**)	.086	.066	.099	-.052	1			
(9) Prior Conviction	.051	.261 (*)	.251 (*)	.077	.041	.075	.002	.136	1		
(10) Education	-.170 (**)	-.099	.017	.215 (*)	-.001	.123	.024	.295 (*)	-.020	1	
(11) Lives in Baltimore city	.129	.200 (*)	.222 (*)	-.179 (**)	-.008	-.108	-.026	-.033	.231 (*)	-.243 (*)	1

* Significant p< .01
** Significant p< .05

Data Analysis Techniques

Hypothesis 1: Strain experienced in prison will have a significant negative effect on inmates' perception of the prison environment. As strain increases, inmates' perception of the prison environment will decrease

      Hypothesis 1A: As criminal victimization increases the inmates' perception of the prison environment will decrease.

      Hypothesis 1B: As removal of positive stimuli increases the inmates' perception of prison environment will decrease

      Hypothesis 1C: As cumulative strain increases the inmates' perception of the prison environment will decrease

      Hypothesis 1 addresses the dependent variable *perception of prison environment* which is defined by a scale and therefore is a continuous variable. A distribution of the items is examined and the graph indicates a fairly normal distribution (see appendix C), with a skewness of -.626. Therefore, Ordinary Least Square (OLS) Regression Analysis will be conducted to examine whether strain experienced in prison has an impact on the *perception of the prison environment*. The independent variables that will be used for this analysis include: *Criminal Victimization, Removal of Positive Stimuli* and *Cumulative Strain.* The analysis will also include the five control variables mentioned earlier: *age, tbc* (if assigned to boot camp), *conv* (number of prior convictions), *GED* (education level when incarcerated), and *bcity* (if resided in Baltimore City prior to incarceration). Distributions of the independent variables indicate fairly normal distribution for all but one. *Criminal Victimization* variable appears to be slightly skewed (see appendix C), with a

skewness of 1.402 and a kurtosis of 2.635[14]. However, OLS is very robust in dealing with skewed variables, so this should not be a major problem for the analysis.

For this hypothesis a series of equations will be modeled, resulting in four models.

Model I examines the relationship between the two strain variables (*CrimVic, RemPStim)* and perception of the prison environment.

$$\Pr iPercep = \beta_0 + \beta_1 CrimVic + \beta_2 \operatorname{Re} mPStim$$

Model II examines the same relationship as above but will control for *age, tbc, GED, conv, sentence, and bcity*

$$\Pr iPercep = \beta_0 + \beta_1 CrimVic + \beta_2 \operatorname{Re} mPStim + \beta_3 Age + ...\beta_k controls$$

Model III examines the relationship between the cumulative strain variable *(CumStrain)* and perception of the prison environment

$$\Pr iPercep = \beta_0 + \beta_1 CumStrain$$

Model IV examines the relationship between the cumulative strain variable (*CumStrain)* along with the controls on perception of the prison environment.

$$\Pr iPercep = \beta_0 + \beta_1 CumStrain + \beta_2 Age + ...\beta_k controls$$

The hypothesized relationships between the strain variables and the dependent variables are shown in the table 3.3 below

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[14] Transforming the scale to Z-score in an attempt to correct the skewness did not reveal a more acceptable result for either the skewness or the kurtosis, therefore the scale will be used in its original form.

Table 3.3

Hypothesized effect of strain on perception of the prison environment

Variable	Observations	Min	Max	Mean	(SD)	Hypothesized direction
CrimVic	206	6	21	8.66	**(2.78)**	**-**
RemPStim	206	6	24	18.59	**(3.65)**	**-**
CumStrain	206	12	43	27.25	**(4.85)**	**-**

Hypothesis 2: Strain experienced in prison will have a significant positive effect on recidivism. As strain experienced in prison increases, recidivism will also increase.

Hypothesis 2 will test the basic assumptions of GST. It is argued that as strain experienced in prison increases, recidivism should also increase. This investigation will be conducted using recidivism follow-up period of 12 month (*recid12*) as the dependent variable.

Hypothesis 3: If the argument of recency is correct, it should follow that strain experienced in prison will have a greater significant and positive effect on recidivism during the follow-up period of 6 months, more so than at the 12 month follow-up period.

Hypotheses 3 will test the assumptions of the recency argument. This examination of the recency hypothesis will be conducted using recidivism follow-up period of 6 months (*recid6*) as the dependent variable. If recency is important we should see a greater significant and positive effect occurring at the six month follow-up period, more so than at the 12 month follow-up period.

The data did not allow for the analysis to test recidivism periods prior to 6 months because too few inmates recidivated. Based on the argument of recency in

both the stress literature and those put forward by Agnew (1992) it is assumed that strain will have a greater positive and significant relationship with recidivism during a 6 month follow-up period, more so than at 12 month follow-up period.

Both hypotheses 2 and 3 speak of the possible relationship between strain experienced in prison and recidivism. Recidivism (*recid6 and recid12*) is a binary dependent variable coded one for presence of the condition. Having a binary dependent variable comes with inherent problems and so for this analysis due to inherent problems of heteroscedasticity a logistic regression analysis will be the most suitable technique for predicting the outcome. The logistic regression will be conducted using five models (for each recidivism variable- *recid12, recid6*) to determine which strain variable is associated with recidivism.

The analysis to determine the impact of strain on recidivism will also control for perception of the prison environment, due to the fact that there was evidence of a relationship between strain and perception of the prison environment.

Model I examines the relationship between the two strain variables (*CrimVic, RemPStim*) and each recidivism variable individually.

$$\log it(recid12) = \beta_0 + \beta_1 CrimVic + \beta_2 \operatorname{Re} mPStim$$

$$\log it(recid6) = \beta_0 + \beta_1 CrimVic + \beta_2 \operatorname{Re} mPStim$$

Model II examines the relationship between the cumulative strain variable (removing the individual strain variables) and each recidivism variable individually.

$$\log it(recid12) = \beta_0 + \beta_1 CumStrain$$

$$\log it(recid6) = \beta_0 + \beta_1 CumStrain$$

Model III examines the relationship between perception of the prison environment

(removing the cumulative strain variable) and each recidivism variable individually.

$$logit(recid6) = \beta_0 + \beta_1 \Pr iPercep$$

$$logit(recid12) = \beta_0 + \beta_1 \Pr iPercep$$

Model IV examines the relationship between the two strain variables along with all

controls, which also includes the perception of the prison environment variable.

$$logit(recid6) = \beta_0 + \beta_1 CrimVic + \beta_2 \operatorname{Re} mPStim + \beta_3 \Pr iPercep + \beta_4 Age + ...\beta_k controls$$

$$logit(recid12) = \beta_0 + \beta_1 CrimVic + \beta_2 \operatorname{Re} mPStim + \beta_3 \Pr iPercep + \beta_4 Age + ...\beta_k controls$$

Model V examines the relationship between the cumulative strain variable along with

the controls, which also includes the perception of the prison environment variable on

recidivism at 6 and 12 months respectively.

$$logit(recid6) = \beta_0 + \beta_1 CumStrain + \beta_2 \Pr iPercep + \beta_3 Age + ...\beta_k controls$$

$$logit(recid12) = \beta_0 + \beta_1 CumStrain + \beta_2 \Pr iPercep + \beta_3 Age + ...\beta_k controls$$

The hypothesized relationships for the strain variables are shown in the table 3.4

below

Table 3.4

Hypothesized effect of strain on recidivism

Variable	Observations	Min	Max	Mean	(SD)	Hypothesized direction
CrimVic	206	6	21	8.66	(2.78)	+
RemPStim	206	6	24	18.59	(3.65)	+
CumStrain	206	12	43	27.25	(4.85)	+

Summary of Methodology

This chapter describes the proposed methods utilized to collect and analyze data on the impact that strain experienced in prison has on the inmates' perception of the prison environment. Ordinary Least Squares regression is used in four models to assess this relationship. The chapter also describes the approach that is being utilized to investigate the impact that strain experienced in prison has on recidivism. Due to the fact that the recidivism variables are dichotomous, Logistic Regression analysis is used in five models to assess this relationship. Secondary data is used for this study. Scales are constructed as measures for the independent variables and the primary dependent variable. The scales are created using confirmatory factor analysis. Cronbach alpha is used to test the reliability of the scales, which appear to be fairly reliable.

Chapter 4: Results

Hypothesis 1

Strain experienced in prison will have a significant negative effect on inmates'

perception of the prison environment.

To test the effect that strain experienced in prison has on the inmates'

perception of the prison environment, a regression analysis was conducted. In model

I, perception of the prison environment was first regressed on the two measures of

strain: *Criminal Victimization*, and *Removal of Positive Stimuli*. The analysis revealed

a negative and significant effect of criminal victimization (β = -.451; p= .009) on

perception of the prison environment, but did not show a similar result for the second

independent variable, the removal of positive stimuli. While the direction was as

hypothesized the analysis did not yield a significant result. However, only four

percent of the variance was explained for hypothesis one.

In model II, the regression analysis included the two strain variables along

with the five control variables. In this model, approximately 20 percent of the

variance was explained. The effect of criminal victimization remained virtually

unchanged, having a slightly stronger *p* value and a slight increase in the coefficient

(β = -.476; p= .004). Therefore, in both models the analysis revealed a negative and

significant relationship between criminal victimization and inmates' perception of the

prison environment. However, similar to the results in model I, the second strain

variable-*removal of positive stimuli*, did not show significance. While the

hypothesized direction was supported in both model I and II (β = -.143; β= -.085), the analysis did not show that this had a significant effect on the inmates' perception of the prison environment (see table 4.1 below). The results of the analyses for model I and II lend some support for the first hypothesis, indicating that as criminal victimization increase, inmates' perception of the prison environment decreases.

Model II also uncovered a positive and significant relationship for facility the inmates was placed, suggesting that inmates in the boot camp had a more positive perception of their prison environment (β = 5.065; p= .000).

Model III and IV incorporated the cumulative strain[15] variable in the models. For model III when perception of prison environment was regressed on cumulative strain, the results reveal a negative and significant relationship (β = -1.259; p= .008). This indicated that overall strain had some impact on the inmates' perception of the prison environment. However, again the variable only explains 3 percent of the variance.

Model IV tested the effect of cumulative strain on the inmates' perception of the prison environment, also including the five control variables in the model. This regression analysis also showed weak support for hypothesis 1. The analysis revealed as in model III a significant negative relationship (β = -1.103; p= .014) between cumulative strain and inmates' perception of the prison environment. As cumulative strain increased the inmates' perception of the prison environment decreased. This analysis explained 19 percent of the variance. The facility the inmate was assigned also remained a positive and significant relationship.

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[15] Scale was standardized

Table 4.1

Regression analysis of the impact of strain experienced in prison on perception of the prison environment

Perception of the prison environment	MODEL I (N= 206)			MODEL II (N= 206)			MODEL III (N= 206)			MODEL IV (N= 206)		
	β	SE	p	B	SE	p	β	SE	P	β	SE	p
Criminal Victimization Scale	-.451*	.170	.009	-.476*	.164	.004	---------	---------	---------	---------	---------	---------
Removal of Positive Stimuli Scale	-.143	.129	.272	-.085	.120	.479	---------	---------	---------	---------	---------	---------
Cumulative Strain	----------	----------	----------	----------	----------	----------	-1.259*	.470	.008	-1.103*	.443	.014
TBC	----------	----------	----------	5.065*	.876	.000	---------	---------	---------	4.846*	.873	.000
Age	----------	----------	----------	-.057	.116	.626	---------	---------	---------	-.054	.117	.657
Prior Conviction	----------	----------	----------	.224	.267	.404	---------	---------	---------	.189	.268	.483
Education	----------	----------	----------	-.740	.460	.109	---------	---------	---------	-.865	.457	.060
Lives in Baltimore city	----------	----------	----------	.879	.956	.359	---------	---------	---------	1.083	.955	.258
	$R^2 = .043$			$R^2 = .205$			$R^2 = .034$			$R^2 = .192$		

* Significant p< .01
** Significant p< .05

Hypothesis 2 and 3

This set of analyses tries to establish a relationship between strain experienced in prison and the effect on recidivism. This is certainly a more difficult assumption to test with all that can occur once the inmate has exited the facility to return to their own personal environment. With this in mind the study will test hypothesis 2 and 3 by looking at two recidivism follow-up periods (*recid 12, recid 6*).

Having now a dependent variable that is dichotomous this study employed logistic regression analysis to test both hypotheses 2 and hypothesis 3. Similar to the previous hypothesis, multiple models are being analyzed for each of the two outcome variables. The analysis first looks at the two strain variables regressed on each of the two outcome variables (*recid6, recid12*). Following that, there will be an examination of whether perception of the prison environment has any impact on recidivism. This is being included in the analysis because of the effect strain had on the perception of the prison environment. In the third model, cumulative strain is regressed on the recidivism variables individually. Model IV then includes that two strain variables along with the perception of prison environment variable and all controls; while model V includes perception of prison environment variable and the cumulative strain variable along with the controls. A correlation matrix helped in the selection of variables for the models.

Hypothesis 2

Strain experienced in prison will have a significant positive effect on recidivism (recid12). As strain experienced in prison increases, recidivism will also increase.

For this hypothesis to be supported one would expect to see a positive and significant relationship for the two strain variables as well as the cumulative strain variable when regressed along the outcome variable of interest, recidivism at follow-up period of 12 months. This would indicate that as strain experienced in prison increases, recidivism would also increase.

Hypothesis 2 was not supported in this analysis. The data analysis did not reveal a significant and positive relationship between the two types of strain experienced in prison with recidivism at 12 months. The two measures of strain experienced while incarcerated do not help to explain recidivism at follow-up period of 12 months (see table 4.3 below). Model I, while not revealing significance shows an interesting finding indicating that the relationship between strain and recidivism would be opposite to what was hypothesized, indicating negative relationships between the two strain variables and the recidivism at 12 months. This is suggesting that as strain experienced in prison increase, recidivism at 12 months would decrease.

Model II as well as Model III shows no relationship between perception of the prison environment and cumulative strain on recidivism at 12 months. In both Models the variance explained was virtually zero, indicating that cumulative strain as well as perception of prison environment has no conceivable relationship to recidivism at 12 months.

Model IV and V also show a similar result. The strain variables continue to show negative relationships with recidivism at 12 months, but do not reveal significance. The variance explained in both models which included the control variables increased to approximately 16 % indicating that the control variables are playing a much larger role in determining recidivism at 12 months. In fact, three control variables, facility assigned (β= -.685), age of the respondent (β=-.133), and prior convictions (β=.396) show significant relationships. The analysis suggests that those assigned to the boot camps are less likely to recidivate. Also as respondents aged they were less likely to recidivate; but it supports previous research that those with prior convictions are more likely to recidivate.

Table 4.2: *Logistic Regression Analysis of Impact of Strain Experienced in Prison on Recidivism at 12 Months*

	MODEL I (N= 206)			MODEL II (N= 206)			MODEL III (N= 206)			MODEL IV (N= 206)			MODEL V (N= 206)		
Recidivism @ 12 months	B	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Criminal Victimization Scale	-.068	(.052)	.940	---------	---------	---------	---------	---------	---------	-.029	(.025)	1.005	---------	---------	---------
Removal of Positive Stimuli Scale	-.054	(.039)	.947	---------	---------	---------	---------	---------	---------	-.070	(.063)	.971	---------	---------	---------
Perception of the Prison Environment	---------	---------	---------	.007	(.020)	1.007	---------	---------	---------	.005	(.044)	.932	.004	(.025)	1.004
Cumulative Strain	---------	---------	---------	---------	---------	---------	-.276	(.145)	.759	---------	---------	---------	-.274	(.164)	.761
TBC	---------	---------	---------	---------	---------	---------	---------	---------	---------	**-.685****	(.342)	.504	-.653	(.336)	.520
Age	---------	---------	---------	---------	---------	---------	---------	---------	---------	**-.133***	(.045)	.875	-.132	(.045)	.876
Prior Conviction	---------	---------	---------	---------	---------	---------	---------	---------	---------	**.396***	(.170)	1.486	.394	(.108)	1.483
Education	---------	---------	---------	---------	---------	---------	---------	---------	---------	.035	(.164)	1.036	.046	(.163)	1.047
Lives in Baltimore city	---------	---------	---------	---------	---------	---------	---------	---------	---------	.552	(.334)	1.736	.535	(.332)	1.708
	$R^2 = .018$			$R^2 = .001$			$R^2 = .018$			$R^2 = .166$			$R^2 = .165$		

* Significant $p < .01$
** Significant $p < .05$

Hypothesis 3

If the argument of recency is correct, it should follow that strain experienced in prison will have a greater significant and positive effect on recidivism during the follow-up period of 6 months, more so than at the 12 month follow-up period.

For the hypothesis to be supported one would expect to see a stronger positive and significant relationship for the two strain variables as well as the cumulative strain variable when regressed along the outcome variable of interest (*recid6*). This would also serve to support the recency argument, therefore indicating that as strain experienced in prison increases, there would be a greater positive and significant relationship on recidivism at the 6 months follow-up period.

Table 4.5 below shows that the data analysis conducted did not support the hypothesis. The analysis did not reveal a significant positive relationship, indicating that the two measures of strain (Model I) experienced as well as cumulative strain (Model III) do not help to explain recidivism at a 6 month follow-up period. Also noticeable, is the fact that similar to the results in hypothesis 2, the relationships although not significant show a negative relationship. Also of interest is that the magnitudes appear to be weaker for recidivism at 6 months more so than recidivism at 12 months, which goes against the recency argument.

Model II, which regressed the two strain variables on recidivism at 6 months, and included perception of the prison environment also revealed no significant or positive relationships. Perception of the prison environment showed an opposite relationship (+) compared to the two strain variables (-). This would suggest if it were significant, that as perception of the prison environment increased, recidivism at this

follow-up period would also increase; while as strain experienced in prison increased, recidivism at the 6 month-follow-up period would decrease. Models III which only included the cumulative strain variable, also confirmed the previous results. There is no apparent relationship between strain experienced in prison and recidivism at 6 months.

Model IV and Model V remain consistent, showing no evidence of a significant relationship with recidivism at 6 months. The variance explained increases from virtually zero in Models I- Model III to approximately 16% for both Models IV and V, suggesting that other variables, more so than the main independent strain variables have a greater impact on recidivism at 6 months. Although the control variables are not the focus of this study the consistency in which significance appears throughout begs for mention in this chapter. In general, the relationship between the control variables is as expected. For instance, as age increases it is less likely for crime to occur and therefore as age increase recidivism is expected to decrease. Also, as is expected, number of prior conviction consistently had a positive and significant relationship throughout the analyses. This indicate that the higher the number of prior conviction the more likely it is for individuals to recidivate. Interestingly enough, education as well as living in Baltimore city are significant only at the 6 month recidivism period and not at 12 months, indicating that as education increased recidivism would decrease; while individuals who lived in Baltimore city were more likely to recidivate earlier than later.

Table 4.3: *Logistic Regression Analysis of Impact of Strain Experienced in Prison on Recidivism at 6 Months*

	MODEL I (N= 206)			MODEL II (N= 206)			MODEL III (N= 206)			MODEL IV (N= 206)			MODEL V (N= 206)		
Recidivism @ 6 months	B	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR	β	SE	OR
Criminal Victimization Scale	-.039	(.059)	.962	-.033	(.060)	.968	---------	---------	---------	.019	(.071)	.981	---------	---------	---------
Removal of Positive Stimuli Scale	-.027	(.042)	.973	-.026	(.042)	.975	---------	---------	---------	.032	(.048)	.969	---------	---------	---------
Perception of the Prison Environment	---------	---------	---------	.016	(.024)	1.016	---------	---------	---------	.024	(.029)	1.024	.023	(.028)	1.023
Cumulative Strain	---------	---------	---------	---------	---------	---------	-.032	(.032)	.969	---------	---------	---------	-.134	(.180)	.875
TBC	---------	---------	---------	---------	---------	---------	---------	---------	---------	-.605	(.385)	.546	-.592	(.374)	.553
Age	---------	---------	---------	---------	---------	---------	---------	---------	---------	**-.205***	(.063)	.815	**-.205***	(.063)	.815
Prior Conviction	---------	---------	---------	---------	---------	---------	---------	---------	---------	**.391***	(.113)	1.478	**.391***	(.113)	1.478
Education	---------	---------	---------	---------	---------	---------	---------	---------	---------	**.405****	(.189)	1.500	**.408****	(.188)	1.504
Lives in Baltimore city	---------	---------	---------	---------	---------	---------	---------	---------	---------	**1.004****	(.404)	2.728	**.998****	(.402)	2.712
	$R^2 = .005$			$R^2 = .007$			$R^2 = .005$			$R^2 = .165$			$R^2 = .165$		

* Significant $p < .01$
** Significant $p < .05$

Chapter 5: Discussion and Conclusion

One purpose of this study was to extend the use of GST to examine a phenomenon that is not typically explained using GST. The study employs GST in an attempt to understand the relationship between strain experienced in prison and the inmate's perception of the prison environment. It is clear from the review of literature, that none of the past empirical tests have used GST to explain inmates' perception of the prison environment. The overall results showed weak support for the proposed hypothesis- *as strain experienced in prison increases, inmates' perception of the prison environment will decrease*. The results indicate that criminal victimization as well as overall strain does have a negative and significant effect on inmates' perception of the prison environment. However, the removal of positively valued stimuli, does not seem to have an effect on inmates' perception of the prison environment.

While the original purpose of GST was to test the strain- crime hypothesis, this empirical finding encourages further probing into how GST can be used. It suggests that it is possible to use GST in understanding other issues of the criminal justice system. This finding opens up the possibility of questions being asked regarding the inmates' experience while incarcerated and possible implications for successful prison program implementations.

The current study was also used as a test of the basic assumption of general strain theory (*hypothesis 2*). The prediction that as strain experienced in prison

increases, recidivism (crime/ delinquent behavior) would also increase was not supported in the data analysis.

Based on the work in the stress literature strain experienced in the more recent past was more closely associated to problem behavior, than strain experienced in the more distant past. This was the prediction of the third hypothesis, which is an attempt to test the assumptions of the recency argument. The results of the study however, did not lend support to the hypothesized relationships that were proposed.

One has to be careful however when interpreting the findings. The stress literature points out an appropriate time lag of three months or less when trying to establish relationship between stress or strain and problem behavior. This study was however not able to include an outcome variable with a time lag of three months or lower due to low sample size below a six month follow-up period. The earliest time lag of a six month period, according to the stress literature would be too long a time to establish a valid relationship between the strain experienced and the problem behavior.

Recidivism was relatively low (*28%*) at the six month follow-up time period. This could have affected the statistical power[16]. It is possible that we are not seeing an effect of strain on the six month follow-up period due to the fact that the number of inmates who recidivated are so low at that time period. Overall, the relationship between strain experienced in prison and recidivism is a difficult one to establish.

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[16] According to Warner 2008, obtaining statistical power can also be affected by the sample size, a statistical artifact. As *n* increases, if other factors remain constant, then it follows that the statistical power will also increase.

Paying special attention to time lag between strained experience and the recidivism is of utmost importance.

Limitations of Current Study

Although the results of the analysis were not as hypothesized, one should not be discouraged by the findings. A number of limitations experienced in this study could have led to the weak and insignificant findings that resulted from the data analysis. Below are some of the limitations experienced.

Like many other tests of GST, the data that are being used were not collected for the purpose of testing GST. As a consequence some of the key strain measures are missing. Specifically, the data lacked items that would be appropriate for measuring the classic strain measure of goal blockage or failure to achieve positively valued goals. It also did not contain appropriate measures for coping mechanisms or negative affect; and did not allow for a wide range of problem behaviors to be examined. The data also did not allow for a comprehensive test of the other dimensions of strain discussed by Agnew (2001). Certainly, this can be of some concern to the study; however, being a partial test of GST, this should not be considered a fatal flaw because many of the studies conducted on GST to date have not been able to test all types of strain defined by Agnew.

Perhaps the most serious limitation of the study is the inability to reduce the time lag to appropriately test the third hypothesis. It is crucial to determine that the recidivism is actually a factor of the strain experienced in prison and not due to other factors experienced upon release from the facility. The shortest time period of 6 months being used in the study could still be considered too long between release and

the criminal behavior. Given how much can happen outside the prison this is a serious limitation which has to be considered. Quite possibly the effect of strain will be felt much sooner having gone through their experience in prison and for some, being isolated from their normal world and feeling a sense of failure. We could assume that reverting to crime in some cases is what they are familiar with and will use as a possible coping mechanism, therefore it is imperative that a shorter time period be used to test the true effect of strain experienced in prison on recidivism. This leads to another limitation of the study- depending on official data for the outcome variable.

Another limitation that could explain the null findings is the population of interest. Although explained earlier as a unique population, an adult incarcerated male sample might not have been the most appropriate sample for conducting a research investigating the strain-crime hypothesis. It could be assumed that being older, more established individuals, with prior involvement in the criminal justice system, respondents would have been subject to the prison environment prior to this analysis and therefore not be strained at the level that the study assumes. A more carefully selected population- *possibly first time offenders*- quite possibly would have revealed different results in the analysis. Also, the prison environment in and of itself assumes some level of strain, as is suggested by the works and Sykes and other earlier writers, which could be assumed is expected by those who happen to experience the system first hand, further raising questions of the suitability of using a prison population in an effort to test the strain-crime hypothesis.

The study relies on official data, which in and of itself has problems and can therefore also be considered a limitation. The use of official data presents a threat to

the accuracy of the present study, especially using recidivism as an outcome variable. Quite possibly individuals are involved in criminal activity but are simply not getting caught, and therefore not reported in official data. Data has shown that people self-report more criminal activity than they actually get caught for. This will have an impact on the dependability of the results presented in this study. This will also have an impact on the possibility of being able to test the hypothesis at an appropriate time lag.

There are other limitations that raise caution when interpreting the findings. Survey data often times has measurement errors because of false reporting. Respondents may either embellish or exclude information. Although a valid concern, the incidence of false reporting is difficult to identify.

Scales creation will always pose some problems, with possible measurement errors due to inappropriate item selection. Both the independent variables as well as one dependent variable are measured using scales. One major problem with aggregate scale is that "garbage in, garbage out." If the wrong items are selected then one will have inherent problems right throughout. It is very important that the distribution of responses is properly examined, because the scale items can have problems of outliers or uncooperative respondents who do not complete all items. If that is the case then the aggregated scale would not be a true reflection of the variable you are trying to create. To help alleviate this problem factor analyses as well as reliability tests were conducted, to check the validity and reliability of the scales.

The overall sample is limited in size as well as gender. This will affect the generalizability of the findings. The data included only adult males because of the small

number of eligible adult females available. With the exclusion of females it is impossible to extend the findings to female incarcerated adult populations. Future research should focus on this highly neglected study population of adult incarcerated females. The size of the population studied also affects the generalizability of the study. The small sample size made it impossible to detect any differences between races. Although not an independent variable this is a key variable that is normally investigated in criminological studies and certainly information regarding race would serve to enhance rather than impede the current findings. Overall, a small all male sample will affect the ability of the study to make claims outside of the adult male inmate population that was studied.

Recommendations for Future Research

Based on the results achieved and the limitations listed above, one should be more encouraged to explore even further the possibilities of the impact of strain experienced in prison. GST was used in the current study to explore an issue –inmates' perception of the prison environment- that is not normally studied using GST. The use of GST to study inmates' perception of the prison environment should be seen as strictly exploratory which certainly demands further investigation. The low R-squared (.043) in model 1 which included only the two strain variables, clearly indicates that there are other factors that influence inmates' perception of the prison environment. With this in mind, one should see this as an opportunity to explore the issue further including a wider range of sources of strain experienced in prison.

Inmates' perception of the prison environment can also act as an intervening variable that affects other activities or programs in prison. With a weak, but significant

finding of strain experienced in prison impacting perception of the prison environment, research can go further to explore the impact of strain experienced in prison on the success of program implementations, using inmates' perception of the environment as an intervening variable. Is it possible to use this as an indicator of how successful programs will be?

The introduction of strain in an incarcerated population lends itself to a host of possibilities and research questions which could be explored in future research. Including a full range of strains experienced in prison, which remains unexplored will allow researchers to explore various outcome variables while incarcerated and upon release, including recidivism. This could be expanded to look at levels of strain experienced in different categories of penal facilities, and how this affects delinquent behavior and recidivism, based on facility assigned.

While the analysis did not reveal significant results with regard to strain and recidivism, this should not discourage further research. Paying special attention to the limitations mentioned, future research could reveal different results. One should consider the use of different analytical techniques to measure this relationship. Time to failure models could have been a better analytic technique to study recidivism more so than the logistic regression methodology utilized for this study.

Future research has to be done to correct some of the limitations mentioned earlier. Future research should expand the ideas of the current study using a larger more appropriate and representative sample as well as an appropriate time lag to test the impact that strain experienced while incarcerated has on recidivism.

APPENDIX A: SCALE ITEMS FOR INDEPENDENT VARIABLES[17]

Criminal Victimization Scale (CrimVic)

This scale consists of six items.

Since your admission to this facility, has anyone done any of the following things to you? Please indicate how often this has happened to you by circling: Never (N), 1-2 Times (O), Several Times (S), or Repeatedly (R).

Since your admission to this facility, has anyone…	Never	1-2 Times	Several	Repeatedly
1. physically assaulted you in any way (e.g., hit, kicked, punched)	N	O	S	R
2. threatened to hurt you	N	O	S	R
3. called you names or said mean things to you	N	O	S	R
4. made sexual comments to you that made you feel uncomfortable	N	O	S	R
5. stolen any money or property that belonged to you	N	O	S	R
6. treated you with disrespect	N	O	S	R

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[17] Items taken from Mackenzie et. al. Self- Report Exit Survey used for Maryland Boot Camp Study

Removal of Positive Stimuli Scale (RemPStim)

This scale consists of 6 Items.

Listed below are some problems inmates often face in prison. Please indicate how hard each of the following has been for you since your admission to the facility by circling: Not hard at All (N), A little Hard (L), Somewhat Hard (S), or Very Hard (V)

1. Missing family or friends ....**N**   **L**   **S**   **V**
2. Missing certain activities (e.g., going to the movies, hanging out)........**N**   **L**   **S**   **V**
3. Missing personal possessions..**N**   **L**   **S**   **V**
4. Boredom ....**N**   **L**   **S**   **V**
5. Lack of privacy...**N**   **L**   **S**   **V**
6. Missing freedom...**N**   **L**   **S**   **V**

N- not hard   L- little hard   S- somewhat hard   V- very hard

APPENDIX B: ITEMS FOR DEPENDENT VARIABLE[18]

Perception of Prison Environment Scale (PriPercep)

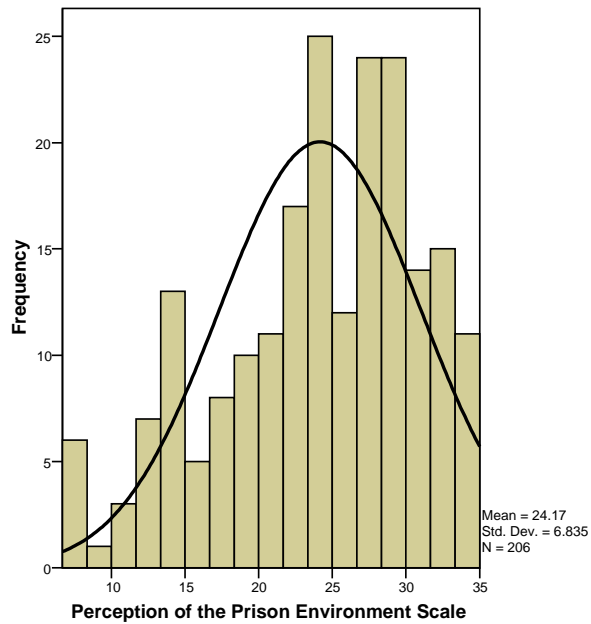This scale has 7 items.

EXPERIENCES IN THIS FACILITY

We would like to know what you think about the conditions of your institution and your experience while in this facility. For the following set of questions, please indicate how you think or feel by circling Strongly Agree (SA), Agree Somewhat (A), Neither Agree nor Disagree (N), Disagree Somewhat (D), or Strongly Disagree (SD)

1. My experience in this facility has been good for me……………………**SA   A   N   D SD**
2. I have changed for the better since coming here .... **SA   A   N   D SD**
3. My experiences here will help me get a job when I get out .... **SA   A   N   D SD**
4. The things I do here help keep me focused on my goals for the future.. **SA   A   N   D SD**
5. I learned a lot from the academic classes that I attended .... **SA   A   N   D SD**
6. The programs that I participated in helped me change for the better ... **SA   A   N   D SD**
7. The staff in this facility helped me change for the better .... **SA   A   N   D SD**
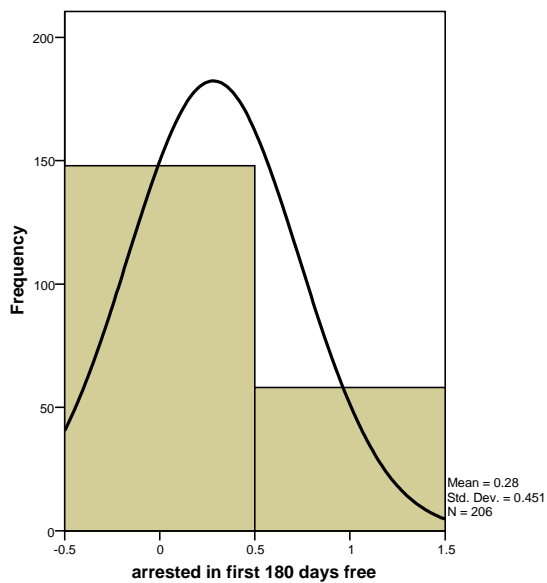
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[18] Items taken from Mackenzie et. al. Self- Report Exit Survey used for Maryland Boot Camp Study

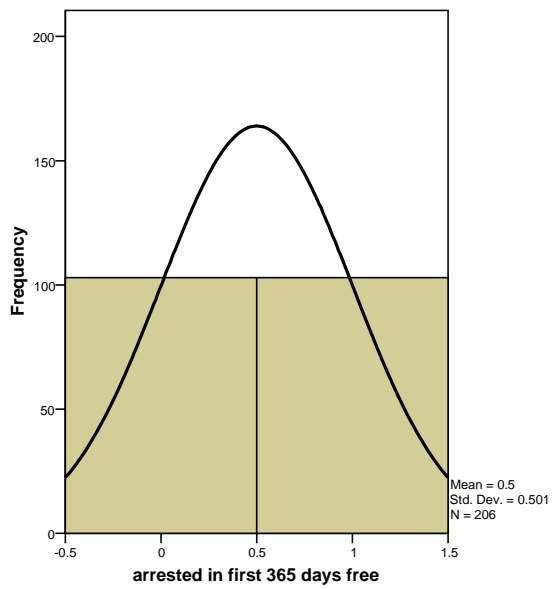# APPENDIX C: DISTRIBUTION OF DEPENDENT VARIABLES

Graph 1: Distribution of Perception of the Prison Environment Scale

Mean = 24.17
Std. Dev. = 6.835
N = 206

Graph 2: Distribution of Recidivism at 6 months

Mean = 0.28
Std. Dev. = 0.451
N = 206

Graph 4: Distribution of Recidivism at 12 months

Mean = 0.5
Std. Dev. = 0.501
N = 206

Frequency

arrested in first 365 days free

DISTRIBUTION OF INDEPENDENT VARIABLES

Graph 5: Distribution of Criminal Victimization Scale

Mean = 8.66
Std. Dev. = 2.78
N = 206

Frequency

Criminal Victimization Scale
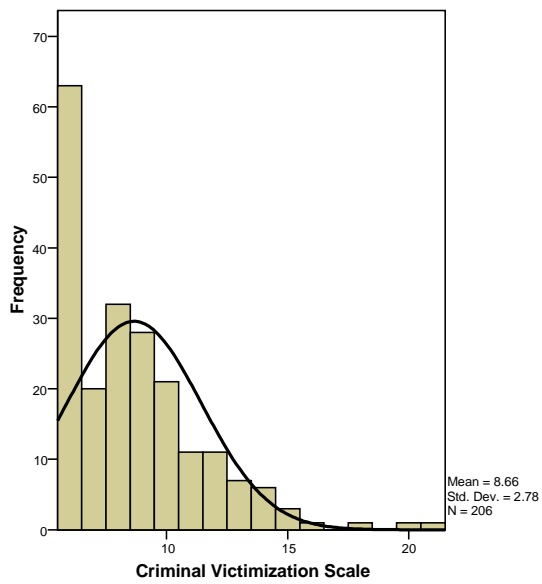
Graph 6: Distribution of Removal of Positive Stimuli Scale

Mean = 18.59
Std. Dev. = 3.654
N = 206
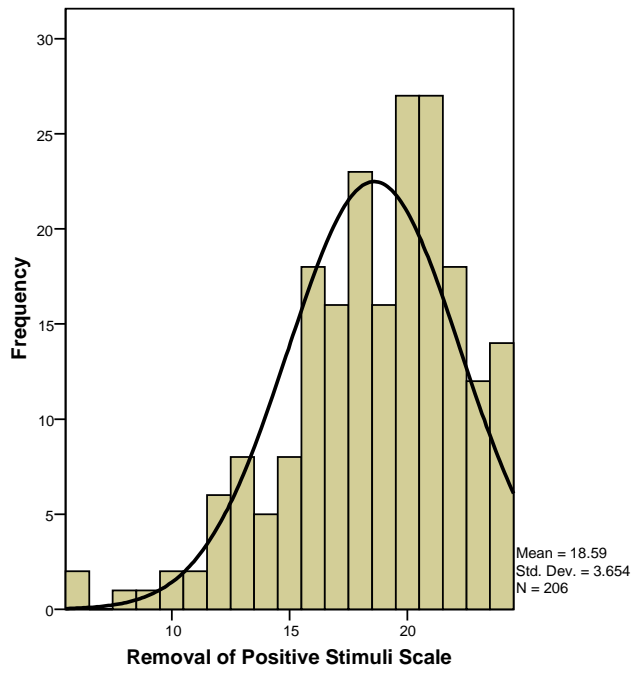
Graph 7: Distribution of Cumulative Strain Scale (Standardized)

Mean = 2.3861121E-15
Std. Dev. = 1.00000
N = 206
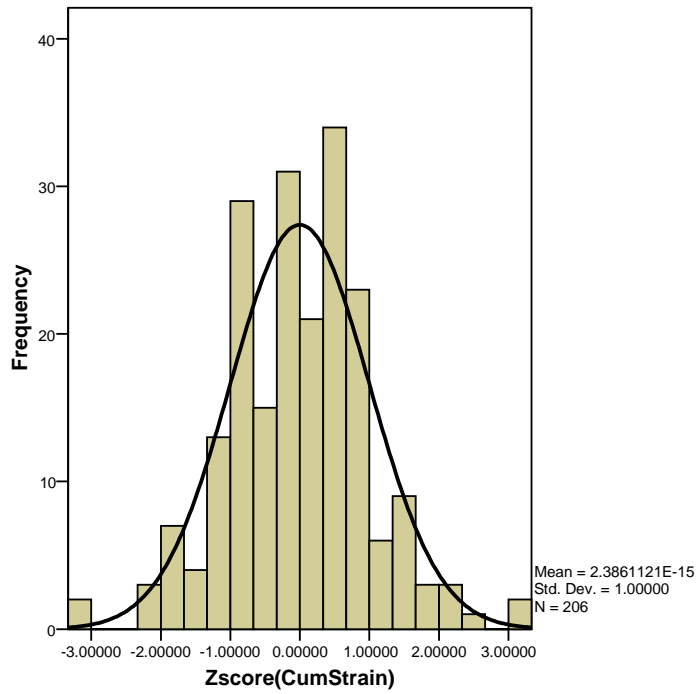
APPENDIX D- Confirmatory Factor Analysis/ Principle Component Analysis for Independent Variables

Criminal Victimization[19]

Factor Analysis done on items which measured criminal victimization while incarcerated.

| Items	Communality Extraction	Component Matrix
Since your admission to the facility has anyone:		
Used any sort of weapon on you	.029	.169
Physically assaulted you in anyway	.308	**.555**
Threatened to hurt you	.498	**.706**
Called you names or said mean things to you	.452	**.672**
Forced you or tried to force you to have any sexual contact against your will	.196	.443
Made sexual comments to you that made you feel uncomfortable	.271	**.520**
Stolen any money or property that belonged to you	.318	**.564**
Treated you with disrespect	.495	**.703**

Scree Plot

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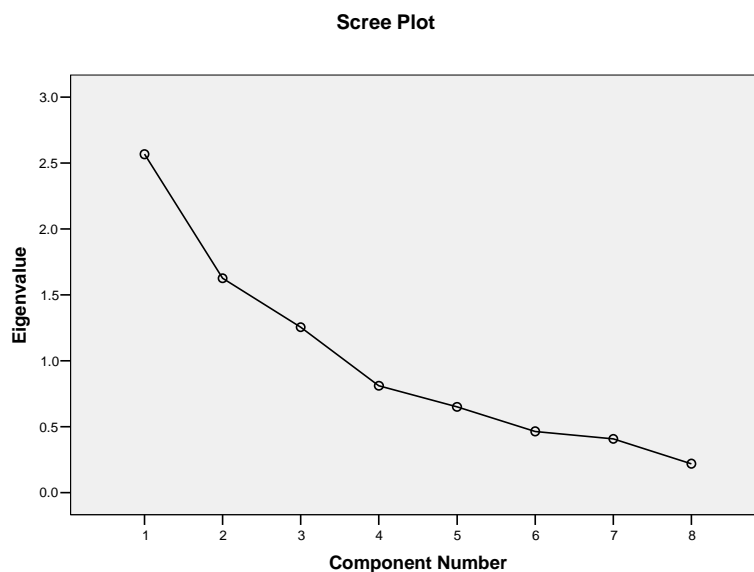
[19] The original survey used 8 items to measure this phenomenon

Removal of Positively Valued Stimuli[20]

Factor Analysis done on items which measured removal of positively valued stimuli.

Items	Communality Extraction	Component Matrix
Missing family and friends	.296	**.544**
Missing certain activities (eg. Going to movies, hanging out)	.338	.285
Conflict with inmates	.081	.415
Regrets about the past	.172	**.561**
Missing personal possessions	.315	**.561**
Boredom	.262	**.512**
Lack of privacy	.525	**.725**
Loud environment	.424	**.651[21]**
Missing freedom	.423	**.651**

Scree Plot

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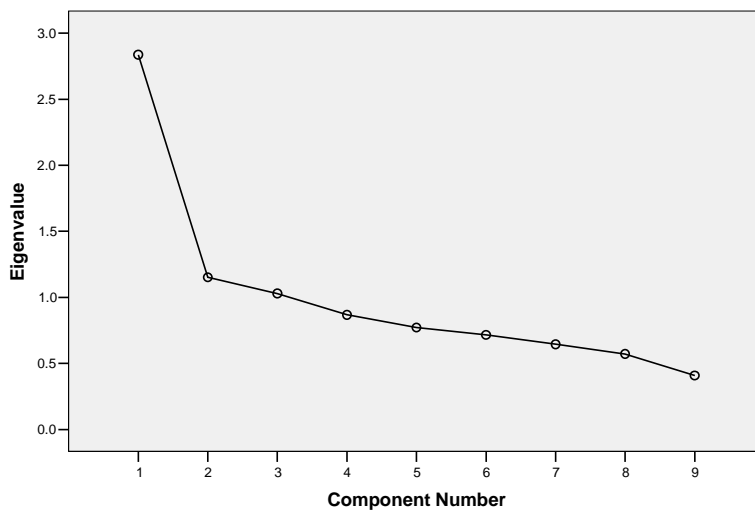
[20] The original survey used 9 items to measure this phenomenon
[21] Although above .50, this item was not used in the scale creation because substantively it did not fit well with the factor being defined. The item would have better suited a factor measuring presentation of negative/ noxious stimuli, a factor that was not included in the analysis due to lack of suitable items in the survey to measure said factor

APPENDIX E- Confirmatory Factor Analysis/ Principle Component Analysis for Dependent Variable
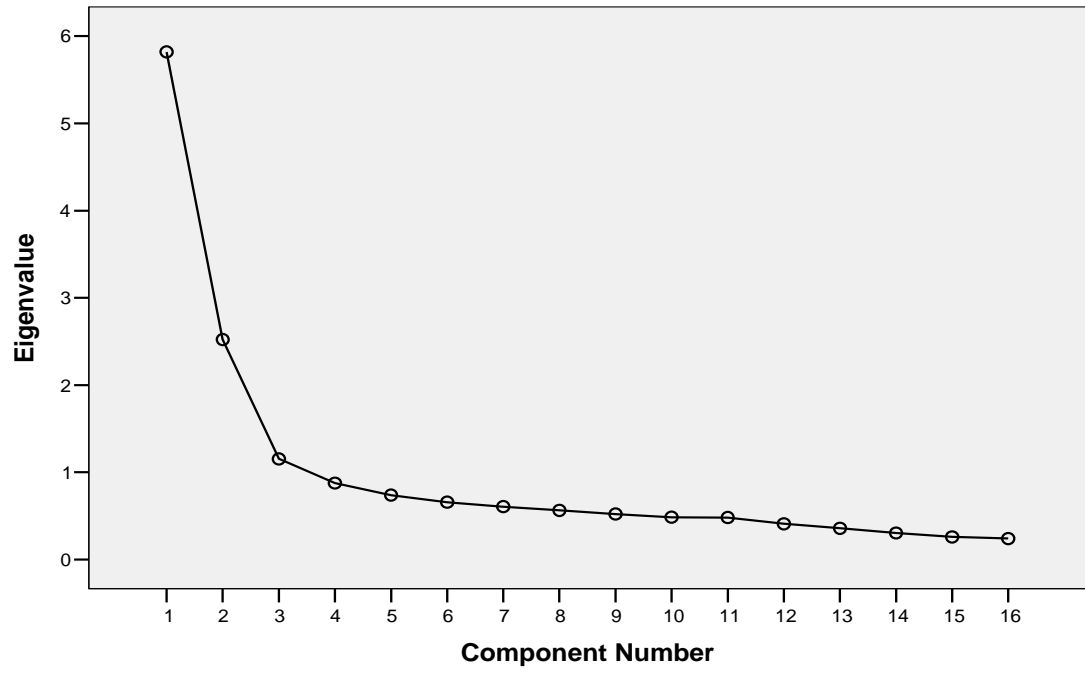
Perception of Prison Environment[22]

Factor Analysis done on items which measured inmates experience in the facility.

Items	Communality Extraction	Component Matrix
My experience in this facility has been good for me	.566	**.753**
The substance abuse treatment services helped me	.182	.427
I have changed for the better since coming here	.284	**.533**
My experience here will help keep me focused on my goals for the future	.525	**.725**
The things I do here help keep me focused on my goals for the future	.409	**.639**
I learned a lot from the academic classes that I attended	.410	**.640**
The programs that I participated in helped me change for the better	.485	**.697**
The staff in this facility helped me change for the better	.459	**.677**
I worried about my safety in this facility	.143	-.378
Drugs are easy to get in this facility	.427	-.653
Guards ignore conflicts among inmates	.244	-.494
Many accidents happen here	.276	-.525
Weapons are easy to get in this facility	448	-.669
Nothing happens if you break a rule in this facility	.050	-.224
Inmates fight with other inmates here	.359	-.599
I wish I had been in the other facility	.552	-.743

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[22] The original survey used 16 items to measure this phenomenon

Scree Plot

APPENDIX F: Reliability Test of Created Scales

Perception of Prison Environment Scale

Cronbach Alpha for 7 item scale = .866

Cronbach alpha if item deleted from perception of prison scale

Items	Cronbach Alpha if item deleted
My experience in this facility has been good for me	.851
I have changed for the better since coming here	.857
My experience here will help keep me focused on my goals for the future	.832
The things I do here help keep me focused on my goals for the future	.850
I learned a lot from the academic classes that I attended	.849
The programs that I participated in helped me change for the better	.837
The staff in this facility helped me change for the better	.856

Criminal Victimization Scale

Cronbach alpha for 6 item scale = .688

Cronbach alpha if item deleted from criminal victimization scale

Items	Cronbach Alpha if item deleted
Physically assaulted you in anyway	.673
Threatened to hurt you	.620
Called you names or said mean things to you	.592
Made sexual comments to you that made you feel uncomfortable	.705
Stolen any money or property that belonged to you	.662
Treated you with disrespect	.576

Removal of Positive Stimuli Scale

Cronbach Alpha for 6 item scale = .672

Cronbach alpha if item deleted from removal of positive stimuli scale

Items	Cronbach Alpha if item deleted
Missing family and friends	.646
Regrets about the past	.634
Missing personal possessions	.639
Boredom	.659
Lack of privacy	.584
Missing freedom	.621

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